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Gender Differences in Erotic Plasticity: The Female Sex Drive as Socially Flexible and Responsive

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Responding to controversies about the balance between nature and culture in determining human sexuality, the author proposes that the female sex drive is more malleable than the male in response to sociocultural and situational factors. A large assortment of evidence supports 3 predictions based on the hypothesis of female erotic plasticity: (a) Individual women will exhibit more variation across time than men in sexual behavior, (b) female sexuality will exhibit larger effects than male in response to most specific sociocultural variables, and (c) sexual attitude–behavior consistency will be lower for women than men. Several possible explanations for female erotic plasticity are reviewed, including adaptation to superior male political and physical power, the centrality of female change (from no to yes) as a prerequisite for intercourse, and the idea that women have a milder sex drive than men.

Sex and mating seem to be accomplished in a fairly straightforward, predictable, even routine manner in many species of animals. Human sexuality, in contrast, has long been recognized as a rich, confusing tangle, in which biological drives, sociocultural meanings, formative individual experiences, and additional unknown factors play powerful roles. Among the most basic unresolved questions about human sexuality is that of the relative contributions of nature and culture: Does sexual response depend primarily on sociocultural factors such as meanings, context, relationship status, communication, norms, and rules—or is it mainly determined by hormones, genes, and other biological processes? Even in recent decades, theories about human sexual desire have differed radically in their relative emphasis on nature and culture. To be sure, hardly any theorist goes to the extreme of insisting that either nature or culture is totally responsible for determining the human sex drive, but the compromise formulations differ widely in their relative emphasis.

The two most influential theories about sexuality have been the social constructionist and the essentialist (DeLamater & Hyde, 1998). Social constructionist theories have regarded human sexual desire as shaped extensively by culture and socialization, often mediated by language as an ordering principle that is shared in common with other people. These theorists emphasize cross-cultural variation to argue for the cultural relativity of sexual desire (see, e.g., Staples, 1973). Who does what to whom sexually is regarded as a product of cultural rules and individual, linguistically mediated decisions rather than as a biological imperative. Social constructionist theories have also been invoked by feminists to depict human sexual desire as shaped by patriarchal society as part of its efforts to exploit and subjugate women (see, e.g., Kitzinger, 1987). Although social constructionists do not deny that there may be certain biological foundations to sexuality, they emphasize culture and social influence as the decisive factors in explaining human sexuality.

Essentialist theories, in contrast, propose that there are true and definite forms of sexuality that remain constant, even though situational factors may occasionally interfere with or shape their expression. As DeLamater and Hyde (1998) emphasized, evolutionary and sociobiological analyses of sexuality fall in this category, for they explain sexuality in terms of innate motivational patterns that have evolved to suit the reproductive contingencies of males and females so as to maximize the passing on of each person's genes (see, e.g., Buss & Schmitt, 1993). Some of these theories treat culture as a system adapted to accommodate the innate biological patterns (see, e.g., Symons, 1995). In any case, biology, not culture, is featured as the main source of causal explanations.

The present article offers yet another conceptualization of the relative contributions of nature and culture to human sexual desire. The point of departure is that there is no single correct answer that holds true for all human beings. Instead, I suggest that female sexuality, as compared with male, is more subject to the influence of cultural, social factors. Although male sexuality must frequently make concessions to opportunity and other external constraints, male desire is depicted here as relatively constant and unchanging, which suggests a powerful role for relatively rigid, innate determinants. Female sexuality, in contrast, is depicted as fairly malleable and mutable: It is responsive to culture, learning, and social circumstances. The plasticity of the female sex drive offers greater capacity to adapt to changing external circumstances as well as an opportunity for culture to exert a controlling influence. From the global perspective of the broader society, if controlling people's behavior is the goal, women's sexual patterns are more easily changed than men's.

Definitions

I use the term *gender* to refer to maleness and femaleness, whether biological or social, in order to reserve the term *sex* for

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activities leading to orgasm or genital arousal. The term *erotic plasticity* is used to refer to the degree to which a person's sex drive can be shaped and altered by cultural and social factors, from formal socialization to situational pressures. Thus, high erotic plasticity entails being subject to situational, social, or cultural influence regarding what types of partners and what types of sexual activities one would desire and enjoy. Desiring to perform the same act with a new partner does not necessarily constitute plasticity, for it is quite possible to have a stable, consistent desire to perform certain acts with many different partners.

The "sex drive" is a hypothetical construct, and research studies actually measure attitudes, behavior, and desire. The term *attitude* is used here to refer to general opinions and abstract rules that encompass broad categories and multiple situations. *Desire* refers to situation-specific feelings of sexual arousal and wanting to engage in particular acts with particular partners. *Behavior* refers to what the person actually does, such as physically engaging in particular sex acts. Desire may contradict attitudes, such as when a person feels an urge to have sex with a partner who is regarded as off-limits. Behavior can contradict either desire or attitude, such as when a person refrains from much-wanted sex or has intercourse with a forbidden partner.

Theory: Differential Plasticity

The central idea of this article is that the female sex drive is more malleable than the male, indicating higher average erotic plasticity. More precisely, female sexual responses and sexual behaviors are shaped by cultural, social, and situational factors to a greater extent than male. Plasticity could be manifested through changes in what is desired (e.g., type of partner, type of activity), in degree of desire (e.g., preferred frequency of sex, degree of variety), or in expression of desire (e.g., patterns of activity). Changes in attitudes may contribute to these behavioral changes.

Because debates about female sexuality are often perturbed by bitter conflicts based on implicit value judgments, it is important to address the value question explicitly. Frankly, I see almost no reason to think that it is better or worse to have high erotic plasticity, and so the present hypothesis does not entail that one gender is better (or better off) than the other in this regard. The difference may be important for predicting a variety of behavior patterns, attitudes, misunderstandings, and conflicts, but there is no inherent moral or practical superiority on either side.

There are two small exceptions to the value-free tone of my hypothesis. That is, two small value judgments could be made, and they point in opposite directions. The first is that it is generally better to be flexible because one can adapt more readily to changing circumstances. The capacity to change is inherently adaptive, and being adaptive is good. In this respect, women may be better off than men if the present hypothesis is correct because their sexuality can adjust more easily and readily. Thus, if changes in social circumstances place equal demands for adjustment on males and females, the females will be more successful than the males at making these adjustments, or they will be able to achieve that success with less difficulty.

The other exception is that higher erotic plasticity may render a person more vulnerable to external influences, with the resulting possibility that one could end up being influenced to do things that are not in one's best long-term interests. In simple terms, it may be easier to talk a woman into doing something sexual that she does not really want to do or something that is not good for her, as compared with talking a man into doing something that is comparably contrary to his wishes and needs. The present hypothesis has to do with receptivity to influence, and being receptive to influence can under some circumstances take on a negative tone (e.g., gullibility).

Neither of these value-linked effects is likely to be widespread or powerful. Hence, erotic plasticity should not be invoked to argue for the superiority of either gender.

Empirical Predictions

The hypothesis of differential erotic plasticity permits empirical predictions. A first, basic prediction is that intraindividual variation (i.e., within-person variance) in sexual behavior will be greater among women than men. If women are malleable in response to situational and social factors, then as a woman moves from one situation to another, her sexual desires and behaviors may be subject to change. The lesser (hypothesized) flexibility of men would mean that male sexual patterns will remain more stable and constant across time and across different situations. (Lack of opportunity may be an exception: A man's sexual behavior may depend on whether he can find a willing partner.) Physical changes, such as ill health or major hormonal changes, might well have a strong effect. But as regards changing social situations and different life circumstances, the average man's desires should remain more stable and constant than the average woman's.

This theory does not extend to making predictions about interindividual variations, because these could well depend on innately or genetically prepared patterns. The men in a given culture may collectively have more variations in their individual sexual appetites than do the women without violating the hypothesis of female plasticity. A familiar example of gender differences in interindividual variance in genetically influenced traits is found in research on mental retardation and intelligence: The two genders have nearly identical mean IQ scores, but the males have higher variance, therefore being proportionally overrepresented at both extremes (Jensen, 1998; Lehrke, 1997; J. A. F. Roberts, 1945). Such patterns are plausible with sexuality, too, and I am not making predictions about interindividual variance (although evidence about paraphilias are considered briefly among the possible limitations and counterexamples). The present hypothesis concerns only intraindividual variance: Once a man's sexual tastes emerge, they are less susceptible to change or adaptation than a woman's.

A second prediction is that specific sociocultural factors will have a greater impact on women's sexuality than on men's. To put this prediction in more precise, statistical terms, the sociocultural variables will have bigger effect sizes in predicting responses of women than of men. Thus, women will vary more than men from one culture to another and from one historical period to another. Socializing institutions, such as schools and churches, should produce bigger changes in women than in men with regard to sexual behavior.

A final prediction is that attitude–behavior consistency (with regard to sex) will be lower among women than men. If female sexual response is malleable by situational and social factors, then a woman's behavior cannot be easily predicted by her attitudes (especially general, abstract attitudes). In simple terms, her sexual

responses depend more on external context than on internal factors, relative to those of males, and so her attitudes are less likely to determine her behavior. She may, for example, hold an attitude in favor of using condoms or against anal intercourse, but situational factors may intrude to cause her to act contrary to those attitudes under some circumstances (and even to desire such attitude-contrary acts). This prediction is methodologically a useful complement to the first one because it avoids the confound that data on women are somehow simply more conclusive or reliable than data on men. The erotic plasticity hypothesis predicts that cultural and social factors will show higher correlations with sexual responses of women than men—whereas attitude–behavior correlations will be lower for women than for men.

Reasons for Plasticity

Why should women have more erotic plasticity than men? I have three different hypotheses, each of which could offer some potential insight into the gender difference in erotic plasticity.

The first is based on the difference in power. On average, men are physically stronger and more aggressive than women, and they also tend to hold greater sociopolitical and economic power. If two partners' sexual wishes were to differ, the man would have several advantages over the woman for getting his way. Greater flexibility on the part of women would be one adaptive response to the standard problem of bonding with someone who would be able to impose his desires by means of physical coercion or social power, should that ever become necessary (as he saw it). Biologists and evolutionary psychologists believe that the relative superiority of male physical power is strongly linked to male reproductive patterns and goals (such as male competition under circumstances of extreme polygyny; Gould & Gould, 1997; Ridley, 1993), and feminists emphasize that male political power shapes the sexual interactions between the sexes and results in the cultural suppression of female sexuality. The present suggestion could be seen as another such process, in which women became socially malleable as an adaptation to male power.

The second is that flexibility may be an inherent requirement of the female role in sex. The simplest version of this would emphasize that most societies (including other species similar to humans) limit sexual activity by having the female refuse sexual offers and advances from most males. Of course, if females refused all male advances, the species would fail to reproduce. Women are negative toward most potential sex partners (i.e., most men) but occasionally switch to positive. A negative response is the woman's default option, as it were. In practice, this entails that sex generally commences when the woman switches her initially negative stance to a positive one. That is, when a couple begins having sex, it is mainly because the woman has changed her decision: The woman initially rejects the man's advances but later changes her vote from no to yes. The centrality of this change (from no to yes) in female sexuality requires each woman to have a certain degree of flexibility, and the broader patterns of erotic plasticity would follow from this foundation. Change requires changeability and hence begets further change.

The third possible explanation is based on differential drive strength. This would invoke the politically unpopular but theoretically plausible view that women have a weaker sex drive than men. A relatively weak motivation is presumably easier to redirect, channel, or transform than a powerful one. Women could thus more easily be persuaded to accept substitutes or alternate forms of satisfaction, as compared with men, if women's overall sexual desires are milder.

Proximal Sources of Plasticity

These root causes may be translated into the actual degree of behavioral plasticity of living individuals either through innate, genetic patterns or by social learning processes and personal experiences (even conscious adaptations). The nature of the mediating, proximal causes is not easily resolved, but a few speculative suggestions may be offered. How, then, is erotic plasticity actually instilled?

The possibility that it is biologically based must be considered. Many sexuality-based traits are supposedly genetically prepared by the X chromosome, of which women have two and men only one. Having two different sets of relevant genes could allow for greater flexibility than having only one. Specifically, the two X chromosomes could carry different prescriptions for behavior, and hence it would be up to the environment to determine which one would prevail. Males, in contrast, would receive a single and unambiguous genetic program, leaving less opportunity for the environmental influence.

Hormone levels provide another plausible basis for differential plasticity. Research has generally found that testosterone is the single hormone that has the greatest effects on sexual behavior in both males and females. Because males have substantially more testosterone than females, male behavior may be more subject to its causal influence than female behavior. (On the other hand, female receptors may be more sensitive to testosterone than are those of males, which could offset the difference in quantity of the hormone.)

In another relevant line of argument, T. Roberts and Pennebaker (1995; also Pennebaker & Roberts, 1992) have concluded that men are generally better than women at perceiving and detecting their inner bodily states. They noted that in socially impoverished environments such as laboratories and hospitals, males consistently outperform females at estimating their own bodily reactions such as blood pressure, heartbeat, stomach contractions, respiratory resistance, finger temperature, and blood glucose levels. This gender difference disappears when measures are taken in naturalistic and meaning-rich settings, in which multiple cues about sources of feelings are available. Roberts and Pennebaker proposed that men judge their emotional and arousal responses based on direct detection of physiological cues, whereas women rely more on social and situational cues to know how they respond. If this is true generally for all emotions, it would presumably be even stronger for sexual responses, because the signs of arousal are much more salient and unambiguous in the male than in the female. This argument could also explain why testosterone and other inner, biochemical realities have stronger effects on male than female sexuality: If men are more attuned to their inner bodily states, then their level of testosterone would exert a stronger effect on their behavior.

Yet another possibility is that males have evolved to be more strongly driven by natural and genetic factors. Some authors have speculated that there may be a higher rate of mutations among males than females. One such speculation is that the Y chromo-

some (unique to males) might be a popular target of mutations. Nature may have targeted males and the Y chromosome for trying out new mutations because the greater reproductive variance among males would give more opportunity for natural selection to operate (discussed by Kacelnik, 1999). The difference in reproductive variance is well established. In human beings, for example, most females produce at least one child, and hardly any woman has more than 10 babies. In contrast, many men have zero offspring, and others exceed 10 by substantial amounts (Gould & Gould, 1997; Ridley, 1993). Thus, men exceed women at both extremes of reproductive outcomes (i.e., more at zero and more over 10). These differences help determine how long natural selection takes to sort out whether a particular mutation increases or decreases reproductive success. The relatively small variation in female reproductive outcomes entails that many generations would be required for a given mutant to prove itself better or worse than the original. In contrast, a mutation in males might yield bigger effects within fewer generations: An adaptive mutation might help a male produce dozens of offspring, and a maladaptive one would quickly be eliminated from the gene pool. Because males thus make more efficient vehicles with which to select and evolve, therefore, male sexual behavior may have gradually become more encumbered with such biological influences.

Evolutionary arguments often invoke differential reproductive goals for men and women (see, e.g., Buss & Schmidt, 1993; Gould & Gould, 1997; Ridley, 1993). Because women cannot have as many offspring as men, they are presumably more selective about sex partners. Although one could argue a priori that the greater selectivity could lead to lower plasticity (because the woman can ill afford to compromise or take chances), one might also suggest that selectivity mandates a complex, careful decision process that attends to subtle cues and contextual factors and that this very complexity provides the basis for greater plasticity.

The biological and evolutionary arguments suggest searching for erotic plasticity in other species, which is beyond the expertise of the author and the scope of this review. Still, an important recent study by Kendrick, Hinton, Atkins, Haupt, and Skinner (1998) is relevant. In an experimental design, newborn sheep and goats were exchanged, so that the sheep were raised by goats and vice versa. After they reached adulthood, they were reunited with their biological species, and their mating preferences were observed. Consistent with the hypothesis of female erotic plasticity, the adult females were willing to mate with either species. The males, in contrast, preferred only their adoptive species and refused to mate with their biological conspecifics, even after living exclusively with their own kind for 3 years. These results suggest that male sexual inclinations are based on a process of sexual imprinting that occurs early in life and then remains inflexible, whereas female sexual inclinations can continue to change in adulthood.

The hypothesis that male sexuality is subject to an early imprinting process that is irreversible (as opposed to reversible influences on female sexuality) suggests that both genetic preparation and early experiences are relevant. It qualifies the broad hypothesis about greater female plasticity: Perhaps there is a stage early in life during which male sexuality is highly receptive to social, environmental influences. After this imprinting, however, male sexuality remains relatively rigid and inflexible, whereas female sexuality retains plasticity throughout adolescence and adulthood.

This dovetails well with a recent theory of sexual orientation put forward by Bem (1996, 1998). Bem rejected direct genetic influences on sexual orientation but suggested that genes may affect temperament, which may in turn lead a young person to prefer either males or females as friends and playmates. Later, the less familiar gender creates arousal and thereby becomes the focus of sexual attraction. Bem (1996, 1998) has specifically suggested that his theory predicts that female sexual orientation will be more fluid and changeable than male, because little girls are more likely than little boys to have opposite-sex friends and playmates. Because "women actually grow up in a phenomenologically less gender-polarized culture than do men" (Bem, 1998, p. 398), men tend to be polarized into finding only males or only females sexually appealing, whereas women's greater familiarity with both genders enables them to be attracted to either or both. One can extend Bem's argument to propose that this greater bisexual orientation of women will provide the foundation for other forms of plasticity and change. This extension is similar to the argument I made regarding change and the female sexual script, except that the cause of plasticity depends entirely on social factors and early experiences, and any contribution by genetic factors is indirect.

Other, more purely cultural arguments could be proposed to account for differential plasticity. These would suggest that culture teaches men to obey their biological promptings but teaches women to ignore theirs and obey social prescriptions instead. These arguments seem relatively implausible in light of evidence that, throughout history, the prevailing stereotypes have regarded women as closer to nature than men and that in fact when society does try to change women's behavior it usually does so by telling women what is allegedly in their biological nature, as opposed to teaching them to ignore their biological factuality (see, e.g., Margolis, 1984). Still, it is conceivable that new, more plausible versions of these explanations may be forthcoming.

Causal Processes

Last, it is helpful to consider the possible causal processes, even though these extend the theoretical argument beyond what can be tested against the currently available research literature. If the balance of natural versus cultural determinants of sexuality differs by gender, then the causal processes that direct sexual behavior are also likely to differ.

Natural processes are typically mediated by biochemical processes. Hormones such as testosterone are likely to exert strong and direct effects. Despite the fact that the exact processes leading from genes to behavior are not fully understood (although this field is one in which substantial advances are anticipated in the next decade), one assumes that biochemical factors play a crucial role in mediating such processes.

In contrast, cultural processes are mediated by meanings, which is to say informational, symbolic concepts that can be expressed in language and communicated between group members. Norms, attitudes, rules, expectations, and relationship concepts provide contexts from which specific sexual acts and decisions can draw meaning. Behavior depends on these meanings.

The hypothesized gender difference thus predicts that male sexuality will be shaped more than female sexuality by biochemical factors, including genetics and hormones. In contrast, female sexuality will be more meaning-driven than male sexuality, so that

context and interpretation shape women's sexual decision-making (and other sexual responses) more than men's.

Hypothesis Formation: The Sexual Revolution

The present investigation was initially stimulated by a conclusion drawn by Ehrenreich, Hess, and Jacobs (1986) in their history of the sexual revolution in the United States, namely, that that revolution was mainly a change in women not men. Men's sexual desires and attitudes were pretty much the same after the sexual revolution as before it, although men had more opportunities for finding satisfaction afterward. It was women who changed fundamentally. Indeed, according to Rubin (1990), women changed several times, at first embracing a promiscuous enjoyment of casual sex like men, then shifting toward a more limited permissiveness that accepted sex in affectionate relationships but did not eagerly seek out sex with strangers (see also Robinson, Ziss, Ganza, Katz, & Robinson, 1991).

The conclusion that the sexual revolution was primarily a change in female sexual attitudes and behaviors, rather than male, was made by other researchers beyond Ehrenreich et al. (1986). Arafat and Yorburg (1973) and Birenbaum (1970) had already made similar observations. Empirical studies, particularly those that surveyed the same type of sample (e.g., the same college campus) at repeated intervals, consistently found that women's attitudes and behaviors changed more than men's during the 1960s and early 1970s (Bauman & Wilson; 1974; Croake & James, 1973; DeLamater & MacCorquodale, 1979; Schmidt & Sigusch, 1972; Sherwin & Corbett, 1985; Staples, 1973), continuing even into the 1980s (Robinson et al., 1991). Well-constructed national surveys corroborated these conclusions by comparing older people, who had come of age before the sexual revolution, with younger people, whose sexual prime had occurred after the revolution, and these too found bigger differences in women than men (Laumann, Gagnon, Michael, & Michaels, 1994; Wilson, 1975).

As one good example, Laumann et al. (1994) provided data on the proportion of respondents who had had five or more sex partners by the age of 30 (an age when most people have married and ceased accumulating new sex partners). For the oldest cohort, who came of age prior to the sexual revolution, 38% of men had had five or more sex partners by age 30, whereas for the younger cohort, the proportion increased slightly, to 49%. For women, the corresponding numbers are 2.6% and 22.4%. The sexual revolution thus increased men's likelihood of having many partners by 11 percentage points, or by about a fourth, whereas it multiplied women's likelihood by a factor of more than eight and by 20 points. Put another way, the sexual revolution produced a modest increase in the number of men having five or more sex partners, reflecting perhaps nothing more than increased opportunity, but it radically transformed many women's lives and created a large category of multipartnered women that had been almost nonexistent prior to that revolution (Laumann et al., 1994).

The implication that women were changed more than men by the sexual revolution suggested the broader possibility that female sexuality is more historically malleable than male. The present investigation was spurred by this hypothesis. Given the difficulty of drawing firm conclusions about psychological principles from single historical events, especially highly complex ones influenced by multiple factors, I found it necessary to look elsewhere for evidence.

Evidence of Female Plasticity

The method of reviewing the literature was as follows. I began with the most recently available volume of the *Journal of Sex Research* (1996 at the time) and worked backward to the first volume, reading all abstracts and all relevant articles. By covering the major journal in its entirety, I hoped to minimize the dangers of selective review and confirmation bias. The *Archives of Sexual Behavior* then received a similar treatment by a research assistant. These articles offered a useful starting point, and their reference lists were used to find further sources in other publications. The National Health and Social Life Survey (NHSLS; Laumann et al., 1994) was carefully scrutinized, inasmuch as it offers the most comprehensive and scientifically valid survey data (and indeed it is covered in a separate section). Additional sources were suggested by colleagues and by helpful reviewers of a previous draft, and more recently published work was added during revisions.

Data on sexuality are often less than perfect, partly because of the ethical and practical difficulties of studying sex. A summarizing discussion of limitations in the data and general critique is provided after the evidence itself is presented. Alternative explanations are discussed at that point, but two of them deserve to be acknowledged at the outset.

First, it is conceivable that there are more efforts to control female than male sexuality. This is not actually an alternative explanation in the usual sense, because it is fully compatible with the view of greater female plasticity. If female sexual behavior can be regulated more effectively than male sexuality, then it would make sense for society to focus its efforts on controlling females. Still, it is plausible that some findings regarding greater variation or causal impact among females could reflect variation in sociocultural controls rather than differential plasticity. The so-called double standard may be one example, if indeed it means that society permits or has permitted men to do things forbidden to women.

Second, the findings regarding the power of specific sociocultural variables to change sexual behavior have to contend with different baselines in some cases. For example, if education increases the proportion of men who engage in some sexual practice from 70% to 80% while increasing the corresponding proportion of women from 30% to 80%, some readers might refuse to regard this as evidence of greater impact on women: It might be that the effect of education on men was limited by a ceiling effect.

Intraindividual Variability

The first major prediction is concerned with intraindividual variability. If erotic plasticity is greater among females, then women should show more variation across their individual sexual histories than men. The focus is on whether particular persons exhibit changes in their sexuality across time.

One gender difference in intraindividual variability was noted by Kinsey, Pomeroy, Martin, and Gebhard (1953). Although their sampling has been criticized as not up to the best modern standards, that criticism is irrelevant to this finding, and their data on individual sexual histories are among the most detailed ever col-

lected. They found that some women, but hardly any men, showed patterns of substantial swings in degree of sexual activity. A woman might go through a phase of having a great deal of sex, then have no sexual activity of any sort for months, and then enter into another phase of having a great deal of sex. If a male were to experience a romantic break-up or a physical separation from his sex partner, he would tend to keep his orgasm rate constant by resorting to masturbation or other activities, but women did not necessarily do this. "Discontinuities in total outlet are practically unknown in the histories of males," unlike females (Kinsey et al., 1953, pp. 681–682). These discontinuities are thus an important confirmation of the hypothesis of female erotic plasticity.

Intraindividual change was the focus of an investigation by Adams and Turner (1985), who compared the reports of current sexual activity among an elderly sample (age 60–85) with the same people's retrospective reports of what they did in young adulthood (age 20–30). Adams and Turner pointed out that most studies of the effects of aging on sexuality simply emphasize reductions in drive and energy and hence decreased sexual activity, and so they looked especially for any signs of increasing activity. Only a small minority of their sample showed increases on any of the measures, but this minority was predominantly female. Thus, one pattern of intraindividual change over several decades (increasing sexual activity) was found mainly among females, and this pattern is of particular interest because it is not confounded by loss of vigor or declining health, which would make evidence of reduced sexual activity less relevant to the present theory.

Some of Adams and Turner's (1985) most interesting data concern masturbation. They found that in comparisons of young adulthood with old age, women showed remarkable, significant increases in masturbation (10% to 26%), whereas men showed a nonsignificant decrease over the same age span (32% to 26%). Adams and Turner noted that their sample overrepresented married women, so the change does not simply reflect a shift into masturbation as the women lost their partners. Even more important, Adams and Turner reported that the old men who masturbated were typically continuing a pattern of masturbation that was present in young adulthood, whereas the women who masturbated in their 20s had typically discontinued that activity late in life. (Also, given the increase in overall numbers, the strong majority of the women who masturbated in old age had not done so in their 20s.) The authors concluded that the masturbation data showed that "women displayed more plasticity in behavior than men" (p. 134).

Undoubtedly, some degree of flexibility would be useful in adapting to marriage because the requirement of coordinating one's sexual activities with a particular partner over a long period of time presumably requires some compromises unless the couple is perfectly matched and their desires wax and wane in complete synchrony, which seems unlikely. Data on sexual changes in the adaptation to long-term marriages were provided by Ard (1977), who, in a 20-year follow-up of a longitudinal study, asked the individuals who had remained married for over two decades how much they had changed from their early ideas, habits, and expectations regarding sex. Wives were somewhat more likely than husbands (13% to 9%) to claim that they had changed "a great deal," although this difference fell short of significance. Because some people might inflate their self-reported change in order to look good, Ard also asked people how much their partners had changed along the same lines, and these partner reports confirmed—significantly, this time—that the women had changed more than the men: 12% of the husbands, but only 6% of the wives, reported that their spouse had changed a great deal.

The greater change by women than men in adapting to marriage is especially remarkable given some other features of Ard's (1977) data. When asked about their current frequency of sexual activity and their current preferences for frequency of sexual activity, the wives' answers indicated that their marital practices corresponded almost precisely to the amount of sex they wanted, whereas the men reported a significant gap between what they wanted and what they were able to have. Thus, men were not getting what they wanted on this important measure, whereas women were—yet still the evidence showed that women had adapted more than men. Possibly, women succeeded better than the men at adjusting their expectations into line with what they were getting, which could be another manifestation of plasticity and would presumably be a very beneficial adaptation.

Marriage is certainly not the only type of relationship that can produce change in sexual attitudes. Harrison, Bennett, Globetti, and Alsikafi (1974) found that women changed their sexual standards toward being more permissive as they accumulated dating experience. Men did not seem to change as a function of dating experience. One might have predicted that the necessity of compromise would produce change in attitudes in both genders, but Harrison et al. found change only in the females. Reiss (1967) likewise found that women increased their sexual permissiveness after having steady dates or love relationships, whereas the effects of such experiences on men were small and nonlinear. Reiss reported that 87% of the females, as opposed to 58% of the males, had come to accept sexual behavior that initially made them feel guilty. Of these, far more more females than males cited the relationship with the opposite-sex partner as the key factor in bringing about this change. Thus, again, the data suggest greater sexual adaptation in relationship contexts by women.

In the 1960s and 1970s, consensual extramarital sex increased, and researchers were able to examine how people adapted to this unusual behavior (often called swinging). J. R. Smith and Smith (1970) studied this phenomenon and concluded that "women are better able to make the necessary adjustments to sexual freedom after the initial phases of involvement than are men" (p. 136). They noted that this greater adaptability of women was especially remarkable in light of the fact that it had generally been the men who initiated the involvement in swinging. Although Smith and Smith failed to provide quantitative evidence to back their claim of the superior adaptation of women, their observation is noteworthy because it confirms one of the presumptive advantages of plasticity, namely, greater capacity to adapt to new circumstances.

Some of the best and most useful data on intraindividual variability concern sexual orientation and same-sex activity. Operationally, this can be studied by investigating whether homosexual individuals have had heterosexual experience, which would suggest a higher degree of plasticity in their sexual orientation. Beginning with Kinsey's research (Kinsey, Pomeroy, & Martin, 1948; Kinsey et al., 1953), many studies have found that lesbians are more likely to have had heterosexual intercourse than gay males. This effect is especially remarkable given the greater promiscuity of males, although it might have something to do with the greater sexual initiative exhibited by males (which would mean

that heterosexuals would likely approach lesbians more than gay males). Savin-Williams (1990) found that four fifths of gay women, but only about half (54%) the gay men, had had heterosexual intercourse. In a quite different sample consisting of gay youth in New York City, Rosario et al. (1996) found nearly identical numbers: 80% of the lesbians had had sex with men, but only 56% of the gay men had had intercourse with women. Bell and Weinberg (1978) found that lesbians exceeded gay men in all categories of heterosexual experience, including coitus, oral sex, interpersonal masturbation, sex dreams, and marriage. In Whisman's (1996) sample, 82% of the lesbians, but only 64% of the gay males, had ever had sex with a member of the opposite gender. Whisman also asked whether the respondent had had a meaningful heterosexual relationship, and again, the rate of affirmative responses was significantly higher among lesbians (72%) than gay men (45%).

The high rates of heterosexual experience among gay females were confirmed by McCauley and Ehrhardt (1980), who found that over half their sample of lesbians had had sex with men. Kitzinger and Wilkinson (1995) described a sample of women who had become lesbian after a period of adult heterosexuality, often including marriage. Rust (1992) described a sample of lesbian women, 43% of whom had had heterosexual relationships after they had identified as lesbians, even many years after adopting the lesbian identity. Bart (1993) also found a small sample of lesbians who entered into relationships with men, a pattern that led Bart to attribute high plasticity to female sexuality. In a survey of female college dormitory residents, Goode and Haber (1977) found that all but one of the women who had had female sex partners had also had male ones (and that one listed having sex with a man as something she wanted to try). Schäfer (1976) reported that lesbians in Germany were more likely than gay males to have heterosexual experience.

Similar findings were reported by the NHSLS (Laumann et al., 1994, pp. 310–313). Multiple tallies over different time spans (e.g., last year, last 5 years, since age 18) repeatedly showed that women were more likely to have both male and female partners, at least if one adjusts for the higher base rate of male homosexuality. Thus, among people who had any same-gender partners in the past 5 years, half the men, but two thirds of the women, also had sex with opposite-gender partners. "The women are more likely than the men to have had sex with both men and women than only same-gender partners" (p. 311). Likewise, the ratio of bisexual self-identification to exclusively homosexual identification was higher for women (.56) than for men (.40; p. 311). Similar ratios (.50 and .32, respectively) were found by Whisman (1996, p. 134), and in particular, she found the highest ratio (of 2.00, indicating a majority of bisexuals) among lesbians who indicated that their sexual orientation was a result of personal choice. This last finding is especially relevant to the plasticity hypothesis because it explicitly links self-perceived erotic plasticity to intraindividual variability.

Another way of expressing this finding is that bisexuality requires greater plasticity than homosexuality. Studies of the gay and bisexual community show a different balance between bisexuality and homosexuality depending on gender: Of the people who take part in same-gender sex, more women than men identify themselves as bisexual. In fact, the relatively large bisexual community is regarded by the exclusively lesbian contingent as a threat, and the gay–bi conflict is thus greater among women than men (see, e.g., Rust, 1993). Many lesbians view bisexual women as being in transition and as denying their true sexuality, and they regard them with distrust (Clausen, 1990; Rust, 1993).

Female plasticity is particularly apparent in the findings that some women who enjoy sex with men start having sex with women also and that they do so even after their sexual patterns and habits are well established. Dixon (1984) reported on a sample of married, heterosexual women who had never felt any attraction to women prior to the age of 30 but who, at a mean age of 37, had begun having sex with women as well as men. This occurred in the context of swinging (i.e., consensual extramarital sex) and was often encouraged by the husbands. It does not appear to be late conversion upon awakening of latent lesbianism because the women continued to enjoy having sex with men.

Men do not appear to exhibit that form of plasticity. Several studies of swinging and group sex found that women, but not men, commenced same-sex intercourse under those circumstances. In a study of mainly unmarried people who took part in group sex, O'Neill and O'Neill (1970) found that over half (60%) of the women, but only 12% of the men, engaged in homosexual activity. A much larger investigation by Bartell (1970) of a predominantly married sample involved in swinging yielded parallel findings. Looking at a great many episodes in which two married couples would exchange partners for sex, Bartell found that the wives would have oral intercourse with each other about 75% of the time, whereas the husbands had oral intercourse with each other less than 1% of the time.

Fang (1976) concluded that among swingers, same-gender sexual activity "is rare for males yet is common for females" (p. 223). She noted that many women swingers begin having sex with other women "in order to please their husbands or to be sociable" (p. 223) but then come to enjoy it.

One additional place to test the hypothesis of intraindividual variability is erotic activity in places where heterosexuality is impossible, such as prison. This test may however be strongly biased against the female plasticity hypothesis, if women have less sexual desire than men or if they are simply more willing than men to forgo sex altogether for a period of time, as the Kinsey et al. findings suggested. Despite this possible bias, the evidence is largely supportive. Gagnon and Simon (1968) examined homosexual activity in prisons and concluded that half the women in prison, but less than half the men (estimates range from 30% to 45%), engaged in homosexual physical acts, most of which were consensual. When one considers that (a) base rates of homosexuality are higher among men than women, (b) men force other men more than women force other women (Propper, 1981; Scacco, 1975), and (c) women can live without any sexual contact more easily than men, these results point toward a substantially greater willingness among women than men to indulge in same-sex activity during prison.

One should recognize that data on sexual activity in prison are subject to question on grounds of self-report biases, lying, skepticism about research, environmental and organizational-culture differences between male and female prisons, and possibly other problems. A solution to some of these methodological problems is to ask prison inmates to estimate the degree of homosexuality among other inmates. With this method, people do not have to report on their own activity but merely give their estimates of what

others are doing. Ward and Kassebaum (1965) used this method in both male and female prisons. Their data suggested that far more female than male inmates engage in homosexual activity. Collapsing the multiple-choice format to look at how many respondents thought that over half of the inmates at their prison engaged in such activities, Ward and Kassebaum found that a great many female respondents (51%) but relatively few male ones (21%) offered such a high estimate of the prevalence of prison homosexuality. Consistent with the plasticity interpretation, the researchers also found that the vast majority of inmates and staff thought that homosexuality in prison was merely a temporary adaptation to prison life and would not be continued outside of prison. (In fact, Giallombardo, 1966, concluded that most female inmates maintained a strong distinction between true lesbians who would prefer women outside of prison and were therefore regarded as sick and women who merely turned temporarily gay while in prison.) Ward and Kassebaum also found converging evidence by examining the prison records of inmates, in which mention of homosexual activity was more frequent for female than male inmates.

Sociocultural Factors

The second major prediction derived from the female plasticity hypothesis is that sociocultural factors will have a greater impact on female than on male sexuality. As already noted, the impetus for this investigation was the contention that the sexual revolution had a larger effect on women than men and that this was part of a broader pattern in which historical changes altered female sexuality more than male. The present section examines evidence as to whether socializing influences, cultural institutions, ideology, and other causes produce larger effects on females. It must be acknowledged that although the plasticity hypothesis predicts greater causal effects by these factors, the majority of available findings are only correlational. These can falsify the causal hypothesis but cannot prove it.

Culture and acculturation. If women are more socioculturally malleable, they ought to vary more than men from one culture to another. A variety of evidence supports this view, although considerably more work in this area is desirable. As one example, Christensen and Carpenter (1962) compared rates of premarital sex across three Western cultures and found much greater variation in the females than in the males.

An unusually broad investigation was conducted by Barry and Schlegel (1984), who used the compiled ethnographic data on 186 cultures to compare sexual behavior patterns in adolescence. On all measures of sexual behavior, they found greater cross-cultural variation among females than males, leading them to conclude that "variations among the societies in sexual customs are apparently greater for girls than for boys" (p. 325).

The greater impact of culture on females than males was demonstrated in a different way by Ford and Norris (1993). These researchers studied a sample of Hispanic immigrants to the United States and included a (nonsexual) measure of acculturation that revealed how much the immigrant had adopted American culture. The acculturation measure correlated significantly (and positively) with several sexual practices for women but not men, including genital intercourse in the past year, anal sex, and use of condoms. The acculturation measure also correlated significantly with engaging in oral sex and having had sex with a non-Hispanic partner for both men and women, but the correlations were stronger for women: .51 versus .26 for oral sex and .64 versus .55 for non-Hispanic partners. These data suggest that when a woman moves from one country to a different one that has different sexual attitudes, her behavior is likely to change—especially to the extent that she adopts the values and outlook of the new culture. In contrast, men tend to remain the same when they change countries, regardless of the degree to which they adopt the values and outlook of the new culture.

Education. The effects of education on age of first intercourse were studied by Wilson (1975), using a national sample in a 1970 survey. On this survey, higher levels of education were associated with delays in starting sexual behavior, and these delays appear to have affected women more than men. The proportions of men who were virgins on their 21st birthday varied only slightly from the least educated (19%) to the most educated (25%), but for women, the difference between the least educated (18%) and most educated (43%) was substantial.[1]

On that same survey, an intriguing item asked people whether they believed that there was a substantial difference between what most people did sexually and what they wanted to do. Responses to this may reflect personal experience, observations about others, and projection of own feelings onto others (e.g., see Finger, 1975, on projection of sexual material). Once again, women varied more than men as a function of education. In fact, men's agreement with this item was the same from the most educated (69%) to the least (69%), whereas the highly educated women agreed less (51%) than the least educated women (65%). Thus, the perception of a gap between desire and reality in sex depended significantly on a woman's level of education, but the man's level of education was irrelevant. Highly educated women were also twice as likely as uneducated women to hold liberal, permissive attitudes toward sex, whereas the corresponding difference for men was much smaller.

Education is not of course aimed mainly at altering sexual attitudes, so the effects of educational level should be considered by-products. It is useful to consider separately the question of sex education. This was done by Weis, Rabinowitz, and Ruckstuhl (1992). They sampled three college courses on human sexuality and obtained measures of sexual attitudes and behavior both before and after the classes. Perhaps surprisingly, they did not find that the courses produced any significant changes in behavior, and many attitudes (e.g., on abortion) likewise remained impervious to the course. However, they did find some changes in attitudes, generally toward greater sexual permissiveness—but only among females. These changes were found regardless of whether the initial baseline (precourse) attitudes showed greater permissiveness among males (e.g., on oral sex) or females (e.g., on homo-

[1] In Wilson's (1975) data, education had a negative effect on sexual activity, whereas most later findings show a positive effect, and so this seems to be a contradiction. Wilson's sample included substantial proportions of people who came of age before the sexual revolution, which may help explain the difference. Prior to the sexual revolution, college was associated with delayed mating and marriage. It may however still be true that intelligent, college-bound individuals begin sex later than others but do in the long run become more liberal and experienced sexually.

sexuality). Males did not change, but females did, and the differences are not attributable to baseline differences.

Religion. Church attendance and religious belief seem to have a stronger (negative) effect on female than male sexuality. Reiss (1967) found notably bigger differences in sexual permissiveness for females than males as a function of frequency of church attendance. This result holds up independent of the higher base rate of church attendance by women.

The stronger link between religion and female sexuality (than male) was confirmed by Adams and Turner (1985). Among elderly women, they found that church attendance strongly predicted not masturbating (19% vs. 83% for nonattenders), whereas no significant effect was found among men. Harrison et al. (1974) found that religious participation significantly predicted the permissiveness and sexual standards of rural females but not males. They also found that females who had more experience with steady dating were more permissive, whereas dating experience was irrelevant to males' permissiveness.

Among students at a small religious college, Earle and Perricone (1986) found that religion correlated negatively with sexually permissive attitudes for both men and women, but socioeconomic status correlated with those attitudes for women only. Moreover, when they compared freshmen's versus seniors' attitudes, they found that "the attitudes of women seem to change more during college years than those of the male peers" (p. 308).

Murphy (1992) found that female Catholic clergy were more successful at fulfilling their vows of celibacy than were male Catholic clergy. This held up across a variety of measures (ever had sex, how many partners, how often) and appeared to be broadly true. Thus, female sexuality is better able than male sexuality to conform to highly nonpermissive standards in a religious context, which again suggests greater plasticity.

Peers and parents. The peer group is not as formal an institution as the school or church, but it too has effects in socializing sexual behavior. Effects of peer group attitudes and behavior on loss of virginity were studied by Sack, Keller, and Hinkle (1984). The behavior of the peer group affected both genders: Whether the respondents' friends were having sex correlated with whether the respondents themselves were having sex for both males (r = .47) and females (r = .49). The peer group's approval was more strongly linked to the sexual behavior of females than males, however. When asked how their friends would feel about them having sex, females' responses significantly predicted whether they had had sex (r = .53), but the effect for males was not significant (r = .26). The authors also reported direct effects that were corrected for effects of other variables. The direct effect of the peer group's approval for males was negligible, .00, but it remained significant for females, .25. It is also worth noting that the proportions of virgins versus people who had sex were nearly identical in the two genders, so the results of this study cannot be ascribed to any restriction of range or floor/ceiling effects. (There is however the possibility that choice of peers was a result, rather than a cause, of sexual intentions and practices. On the other hand, Billy and Udry, 1985, found such selection effects to be bigger among males, which would bias the results against the plasticity hypothesis.)

Similar results were obtained by Mirande (1968), who found a significant link between peer group approval and sexual activity for females but not for males. Of women who had had sexual experience, 62% associated with reference groups who approved of premarital intercourse, whereas only 17% of the sexually inexperienced women associated with such groups; for men, the corresponding figures were 100% and 64%. Group encouragement made a big difference, too. Over half (55%) the women with coital experience had peer groups who encouraged sexual activity, whereas almost none (3%) of the virgin women associated with such groups. For men, the effect approached significance but was still smaller (88% to 50%). The correlation between having friends with sexual experience and having sexual experience oneself was significant for females but not for males. Thus, Mirande's data suggest that the approval, encouragement, expectations, and behaviors of friends had a bigger influence on women than on men, although again self-selection of friends may contribute to these findings.

Further evidence was provided by Billy and Udry (1985). They were alert to the methodological problem that females might be more likely to associate with similar others than males, which would create an illusion of peer influence, but they were able to rule out this confound by demonstrating that there was no gender difference in sexual homogeneity of friendships. By collecting data from the same sample on two occasions separated by 2 years, they were able to ascertain whether friendship patterns at Time 1 predicted changes in sexual status, which makes causal inferences more plausible than purely cross-sectional data permit. These effects were consistently stronger for White females than for males. Specifically, a White female virgin at Time 1 who had a nonvirgin best female friend was six times more likely to lose her virginity by Time 2 than a White female virgin with a virgin best friend. If the data are restricted to stable friendship pairs (i.e., people who cited the same person as best friend on both occasions), the relationship was even stronger. Males showed no such effect.

Parents can also be considered agents of socialization, and they are relatively immune to the self-selection bias problem insofar as children cannot choose their parents. On the other hand, it does not seem safe to assume that they socialize boys and girls the same (see, e.g., Libby & Nass, 1971). Still, one literature review suggested that the weight of evidence indicates that the parental and family environment has a stronger effect on daughters than on sons (B. C. Miller & Moore, 1990). Longitudinal research found that living with a single parent increased the likelihood of early loss of virginity for girls but not boys (Newcomer & Udry, 1987). (Parental divorce during the study was associated with increased sexual activity by both sons and daughters.) A broader study of multiple family (especially maternal) influences repeatedly found that daughters' sexual attitudes and sexual behaviors were more closely related than sons to most social variables, including parents' age, parents' age at their wedding, parental divorce, mother's premarital pregnancy, and mother's attitudes about sex (Thornton & Camburn, 1987). (Specifically, daughters' permissive sexuality was increased by having older parents, earlier parental marriage, parental divorce, mother's premarital pregnancy, and mothers with permissive attitudes.)

A study of sex education by Lewis (1973) counted the number of topics that children learned about from their parents as an index of parental information transmission. This index correlated significantly with likelihood of having intercourse and with number of sex partners for young women (such that more parental education

predicted less sex and less promiscuity), but the correlations were not significant for young men. Lewis also found that marital conflict in the parental home had a stronger effect on the daughter's sexual development (leading to more sexual experience and more promiscuity) than on the son's, although both effects were weak.

Both parental and peer influences were studied by Reiss (1967). He found that female permissiveness was more influenced than male permissiveness by a broad spectrum of social forces. Both peer and parental standards had a stronger correlation with the permissiveness of females.

Genetic versus environmental factors. A different way of looking at sociocultural effects is to consider the opposite, namely genetic prediction. Research on behavior genetics has occasionally examined sexual factors by looking at correlations between twins. By comparing monozygotic and dizygotic twins, the degree of genetic contribution can be estimated, and the remainder of the variance can be tentatively chalked up to erotic plasticity. This technique was employed by Dunne et al. (1997) with a large sample of Australian twins in the effort to predict age at first intercourse. Among the people born after the sexual revolution (i.e., those under age 40), the authors concluded that the genetic contribution accounted for 72% of the variance for males but only 40% of the variance for females. This discrepancy suggests that male sexuality is more determined by genetic factors, which in turn implies a greater role for sociocultural factors for females.[2]

The behavior genetics approach has also been applied to homosexuality, and indeed, the question of whether sexual orientation is a matter of nature or nurture (i.e., socially influenced choice or genetically/biologically ingrained pattern) remains the focus of considerable political, social, intellectual, and emotional controversy. Some studies do suggest a greater effect of genetic factors on men. Using a twin registry, Bailey and Martin (1993; see Bem, 1996) found that heritability of sexual orientation was significant for men but not for women. Hu et al. (1995) likewise found a significant linkage between chromosome and homosexuality patterns for men but not women. On the other hand, Hershberger (1997) found effects for both genders, and the female effects were stronger. A pair of studies using the less optimal method of starting with self-defined gay people (which may conceal gender differences if women are slower to make a firm, definite self-identification as gay) and examining siblings found stronger effects among the men, but the differences were slight (Bailey & Pillard, 1991; Bailey, Pillard, Neale, & Agyei, 1993). Genetic explanations were also favored by Bailey and Zucker (1995) in their review of findings that sought to predict adult sexual orientation from cross-sex behavior during childhood. They concluded from retrospective studies that effects are strong for both genders but significantly stronger for males than females. Prospective studies have thus far found strong, significant predictions only for males.

A recent review by Bailey and Pillard (1995) is one of the few to sort the evidence by gender. They concluded that the evidence for genetic contribution to homosexuality was far stronger for males than for females. To be sure, this difference in strength of evidence does not necessarily mean the true effect size is larger for males because there have been more male-only studies and larger samples. Bailey and Pillard said that some experts have begun to conclude "that female sexual orientation is less heritable than male sexual orientation" (p. 136), but they themselves regard that conclusion as premature and prefer to wait for further confirming evidence. If further work continues to have greater success establishing genetic contributions to male than female homosexuality, that will strengthen the view that female sexual orientation is more socioculturally malleable.

Personal choice. Another way to approach the question of plasticity is to examine whether people perceive their sexuality as a matter of choice and something that is at least partly under their control, as opposed to regarding it as something inborn and unchangeable. In an important sense, this approach takes the question of essentialism versus social constructionism in sexuality (see DeLamater & Hyde, 1998) and asks individuals which view seems to fit their sense of their own sexuality. Do they feel they can socially construct their sexuality, or does it seem to be an innate part of their essence?

Several studies have explicitly examined whether people perceive their sexual orientation to be a matter of choice. Whisman (1996) interviewed self-identified homosexuals and found that a higher percentage of lesbians (31%) than gay men (18%) described their sexual orientation as having been a matter of conscious, deliberate choice. Using a more nuanced measure, Rosenbluth (1997) found that over half a sample of lesbians perceived their homosexuality to be the result of a conscious, deliberate choice. Savin-Williams (1990) found that lesbians felt they had more control than gay men over their sexual orientation. In addition, lesbians were more likely to think that they could renounce their gay orientation and less likely to regard their sexual orientation as beyond their personal control. Thus, subjective perceptions of one's own homosexuality suggest that erotic plasticity is higher in females.

These data dovetail well with the trend in the genetics research. Although in neither case is the mass of evidence fully rigorous and overwhelmingly solid, the currently available data offer the best guess that male homosexuality is more strongly linked to innate or genetic determinants whereas female homosexuality remains more subject to personal choice and social influence.

Political ideology. Consistent with the view that lesbianism can reflect personal choice and social construction, there are reports that some females became gay for political reasons associated with the women's movement. Blumstein and Schwartz (1977) reported that some women became lesbians under the influence of political ideology that defined heterosexuality as a form of sleeping with the enemy whereas lesbianism was the only politically correct form of sexuality. They noted in their conclusions that such changes raise theoretical questions about the plasticity of sexual desire, and thus they anticipated the present argument to some degree. Kitzinger (1987) summarized the radical feminist view that "patriarchy (not capitalism or sex roles or socialization or individ-

[2] The older sample, which came of age prior to the sexual revolution, showed quite different patterns, and indeed, the genetic contribution for males over age 41 was 0%, which was lower than that for females (32%). A likely guess at explanation would be that age of first intercourse prior to the sexual revolution was a matter of highly restricted opportunity for males, and Dunne et al. (1997) make the same point. Hence, these findings are not relevant to the plasticity hypothesis, but I acknowledge that this finding contradicts the general pattern.

ual sexist men) is the root of all forms of oppression [and] that all men benefit from and maintain it and are, therefore, [women's] political enemies" (p. 64). In consequence, the politically optimal choice of women should be to reject heterosexuality. Kitzinger quoted a woman who asserted "I take the label 'lesbian' as part of the strategy of the feminist struggle" (p. 113). Johnston's (1973) formulation was blunter: "Feminists who still sleep with the man are delivering their most vital energies to the oppressor" (p. 167).

Similar reports of politically motivated lesbianism are found in other sources. Pearlman (1987), for example, in discussing the rise of political lesbianism in the 1970s, wrote, "Many of the new, previously heterosexual, radical lesbians had based their choice as much on politics as on sexual interest in other women" (p. 318). Rosenbluth (1997) found that 12% of a sample of lesbians (and a similar proportion of heterosexual women) cited political reasons as the basis for their sexual orientation and relationship style choice. Charbonneau and Lander (1991) found that a third of their sample of women who converted to lesbianism during midlife cited reading feminist texts as a reason, and they spoke of the feminist path to homosexuality in which lesbianism was an outgrowth of the commitment to feminism. In that sample, moreover, some women described the change as one of self-discovery, whereas others regarded it as an active choice, and the latter found the adjustment more difficult (not surprisingly). Whisman (1996) likewise found that women, but not men, cited political reasons as a reason for choosing homosexuality. Echols' (1984) history of feminist sexual politics recorded the lesbian separatists' phase of "establishing lesbianism as a true measure of one's commitment to feminism" (p. 56), and other leading feminists denounced heterosexuality as a choice that was in fact coerced by the patriarchal political system.

Although further evidence would be desirable, the finding that some women have seemingly exchanged male for female sex partners under the influence of political ideology constitutes compelling evidence for erotic plasticity. No such claims have been made regarding men, and it does seem intuitively doubtful that political writings and speeches would persuade some men to give up women and heterosexuality and begin having intercourse with other men instead. If some women have indeed made such a switch under similar influences, that would confirm the greater sociopolitical plasticity of the female sex drive.

The reports of women with a history of exclusively heterosexual desires changing to have homosexual relations because of political reasons resemble a finding that was presented as evidence of intraindividual variability: When married couples start congregating for mate swapping, after a while the women begin having sex with other women, often under the encouragement of the men, who like to watch this (Dixon, 1984). The reverse pattern is almost unheard of (i.e., heterosexual men taking up homosexual acts in group settings, especially if the ostensible purpose is to entertain their wives). Such adaptations in women provide a salient and vivid illustration of erotic plasticity.

There is not much evidence on gender differences in degree of political influence on other aspects of sexuality beyond sexual orientation. DeLamater and MacCorquodale (1979) reported that general political stance, measured either in terms of self-reported liberal versus conservative classification or in terms of reported political participation, predicted sexual permissiveness more strongly for females than males (p. 127). This again suggests greater political influence on female than male sexuality, but more evidence is desirable.

Education and Religion in the NHSLS

The other sections of this article present evidence from many different investigations, but this section considers only one, although it is a very large and thorough one. The best data available on modern American sexual practices are provided in the NHSLS (Laumann et al., 1994; Michael, Gagnon, Laumann, & Kolata, 1994). These data represent a carefully, properly constructed national sample, with lengthy individual interviews plus written questionnaires, which had unusual success at securing high response rates and thus avoiding the volunteer bias that seriously compromises the value of many sex surveys (e.g., see Morokoff, 1986; Wiederman, 1993). The NHSLS therefore deserves special attention.

Although the NHSLS researchers did not have any apparent interest in the question of differential plasticity (and did not even bring up the issue), the extensive tables reported in the fuller version of their work (Laumann et al., 1994) permit comparison of males and females in terms of sociocultural predictors. They present extensive data on the effects (correlates) of two main sociocultural institutions, namely, school and church. More precisely, they break their data on many sexual practices and attitudes down by educational levels and by religious affiliation. These data enable one to compare whether males or females show greater variation in response to these two institutional forces. If female plasticity is greater, the variation across categories should be greater among females than males. Because the effects are typically linear, the present coverage can be simplified by considering merely the uppermost and lowermost categories (exceptions are noted below). For education, these are the people with the least education (less than high school) versus those with the most (graduate or advanced degrees). For religion, the extreme cases were what the researchers called Type II Protestants, representing conservative, evangelical, fundamentalist Christian denominations, and at the opposite, the people listing "none" as their religion. The latter were typically more active in whatever sexual category was being considered.

The information presented here is based on Laumann et al.'s (1994) tables, not (in most cases) their statistical analyses, and so it is not possible to report statistical significance. One can however meta-analyze the directions of effects, and I report such a summary analysis at the end of this section.

It was necessary to make a priori decisions about what dependent variables to consider. The main sexual practices that any researcher would presumably expect to include are oral sex (performing and receiving), anal sex, masturbation, homosexual activity, and contraceptive use. (Vaginal intercourse is too standard to be useful; that is, nearly all heterosexual adults who have sex have vaginal intercourse.) Additionally, I report evidence about sexual satisfaction, frequency of sex, sexual dysfunction, duration of sex, and fertility; these are more peripheral, and some researchers might prefer not to include them. I present these to avoid charges of selective reporting and to permit readers who judge centrality differently to draw their own conclusions.

Oral sex. Beginning with the main sexual practices, it is clear that the differences associated with education and religion are

consistently greater for women than men. On the item of whether the person had ever performed oral sex on a partner, having a high level of education raised men's affirmative answers from 59% to 80.5% (roughly a one-third increase), whereas women's increased from 41% to 79% (nearly double; note, though, that there could be a ceiling effect, given the similarity among highly educated men and women). On the complementary question about whether the person had ever received oral sex, the most and least educated men differed by less (81% and 61%) than the most and least educated women (82% and 50%). Thus, on both giving and receiving oral sex, education level predicted bigger differences in women's sexual behavior.

With religion, the differences between the most liberal and most conservative categories were again larger for females. The differences on performing[3] and receiving oral sex, respectively, were 12 and 13 percentage points for men, whereas for women, they were 22 and 19 points. The effects of religion are thus opposite to education, and indeed, religiosity appeared to make women more different from men even as education made them more similar.

Anal sex. Anal sex provides a useful counterpoint because the base rates on the NHSLS were quite low, in contrast to oral sex, which had high base rates, and so the findings are less vulnerable to explanations based on ceiling effects. The difference between high school dropouts and people with master's degrees (or more) was only 8 percentage points for males but 16 points for females. Moreover, the proportional change makes the difference even more dramatic: Education produced only about a one-third increase in males' likelihood of engaging in anal sex (from 21% to 29%), whereas it more than doubled the women's likelihood (from 13% to 29%). Similar patterns were found for religion: Women showed much greater variation than men, and the difference between categories represented more than doubling women's likelihood (from 17% to 36%, or 19 points), whereas men increased by only about half (from 21% to 34%, or 13 points). The difference is even more dramatic if one looks only at incidence of anal sex within the past year, which is probably a more accurate measure and more closely linked to current religiosity: The most and least religious men scarcely differed (7% vs. 9%), whereas the most (6%) and least (17%) religious women showed very different incidence rates of anal intercourse.

Masturbation. With masturbation, comparisons are difficult because the base rates differed substantially among males versus females and because the activity is arguably different in the different genders. There seemed to be no clear gender difference in the correlations between level of education and frequency of masturbation. Success at masturbation (measured by likelihood of reporting that one always or usually has an orgasm during masturbation) did vary more as a function of both education and religion in women than men, consistent with the hypothesis of erotic plasticity. The education effect was not large, however. To be conservative, I count the masturbation data as inconclusive.

Sexual variety. Next consider sexual interest and arousal in response to novel, assorted sexual practices. The NHSLS researchers offered a list of sexual practices and asked people to indicate how many appealed to them. The least educated men expressed interest in 2.3 practices (out of 15), whereas the most educated men expressed interest in only 2.6, so the difference was negligible. For women, however, the difference was from 1.3 to 2.1 out of 14. (The item about active anal sex was deleted for women.) Results for religion were not reported in their work, presumably because differences were generally not significant. It is also possible to compare responses item by item, but these simply confirm the pattern reflected in the summary means: Level of education predicted bigger differences in the breadth of women's sexual interests than men's.

Homosexual activity. Education and religion were also linked to same-gender activity. Several items were used. Three asked whether the person had ever had any same-sex partners in the past year, in the past 5 years, or since age 18. These did not show linear effects of education, nor was there any consistency as to whether men or women differed more across categories, so they do not furnish useful information relevant to the plasticity hypothesis (Laumann et al., 1994, p. 302).

Clearer results were obtained by asking whether the individual self-identified as gay or bisexual. College education doubled men's likelihood of becoming gay, whereas for women, the likelihood increased by a factor of nine. Likewise, a composite of items asking for same-gender desire, attraction, or appeal found that with increasing education, the likelihood of men's positive answers increased by about half (5.8% to 9.4%), whereas for women, the increase was nearly quadruple (3.3% to 12.8%). In determining same-gender sexual interest and activity, the authors themselves articulated the differential effect of education by saying that "education . . . does seem to stand out for women in a way that it does not for men" (Laumann et al., 1994, p. 309) and that the increase in same-gender sexuality as a function of education was "more pronounced and more monotonic for women" than men (p. 309).

For religion, too, the predictive effects on gay/bisexual identification and on the composite interest were larger for women than for men. Women's gay/bisexual identification differed by a factor of 15 (from .3 to 4.6) in comparing conservative Protestants to people with no religion, whereas men's identification differed by a factor of only nine (from .7 to 6.2; note, though, that given the higher base rate, the men increased by an extra percentage point). On the composite item, women increased from 5.5 to 15.8, whereas men increased from 5.6 to 12.9.

Contraception. The last of the major sexual practices I consider is contraceptive use. Contraception in marriage is too complex and multidetermined an issue to use for present purposes, insofar as people may or may not be having sex in order to have children. Contraception in extramarital or extradyadic activity is far more straightforward, however, because it is reasonable to assume that if one is married or partnered, one does not want to create a pregnancy with someone else. For this item, the researchers restricted their data to people who were having extradyadic sexual partners, which meant that many categories had too few data points to be reported. Still, there were sufficient data to permit comparisons based on education (Laumann et al., 1994, p. 451). The category of people who reported always using contraception with the secondary partner showed a significant rise among

[3] On this item, the most and least religious men did not have the largest differences, contrary to the general pattern. Catholic males engaged in slightly more cunnilingus than the atheists and agnostics. If one looks at variance across all categories, however, it remains true that women differed more than men.

women as a function of increasing education, from 55% to 79%. For men, ironically, the same two educational categories showed a small trend in the opposite direction, dropping from 65% to 54%, suggesting that the more educated men were actually more careless about contraception.[4] In any case, the correlation with education was greater for women than men.

Other dependent variables. As noted above, it is also possible to consider some less central aspects of sex. On reporting that one was extremely satisfied with one's partnered sex (in a physical sense), the difference between the least and most educated women was greater than the corresponding difference for men, although the difference was not large and the progress across educational categories was not linear, so this result may not be conclusive. The difference between conservative Protestants and nonreligious people was also larger for women than men on this item.

Frequency of partnered sex is of potential interest, but Laumann et al. (1994, p. 90) reported that neither religion nor education had any relation to frequency of partnered sex. The differences between the most and least educated in the number of people reporting highly frequent sex were greater for women than for men, consistent with the hypothesis, but given the lack of significance overall, this finding probably should not be accorded much weight. The authors noted that there was a slight tendency for men with no religious affiliation to be more likely to report highly frequent sex than the conservative Protestants, whereas there was no difference among women in these categories, so this effect would be in the direction contrary to the plasticity hypothesis. Oddly, though, the other religious categories showed greater variation among women than men, so this item departed from the typical pattern in which conservative Protestants and people with no religion constituted the extremes. The variance across the four religion categories was greater for women than men, consistent with the hypothesis of female erotic plasticity. Probably, these numbers just reflect nonsignificant, random variations, and so they too should be discounted.

In terms of duration of most recent sexual event, there was a suggestive trend. Education produced a greater variation in the percentage of women than men saying that their most recent sexual encounter lasted under fifteen minutes.[5]

A subsequent work with the same data set examined influences on sexual dysfunction (Laumann, Paik, & Rosen, 1999). It found that more education was associated with less sexual dysfunction for women, whereas there was no significant effect for men. Thus, again, sociocultural variables were linked to bigger differences in females than males.

Last, one may consider fertility, which may or may not be relevant insofar as one considers sex to be aimed at reproduction. Educational level predicted a bigger difference in women's reproductive patterns than those of men, measured in terms of number of children. Religion did too. Unlike other variables, fertility showed directionally similar effects of religion and education: Highly educated women and highly religious women had fewer children than other women.

Summary. On the main aspects of sex covered in the NHSLS, it was possible to construct 8 comparisons as a function of education. One (masturbation) was inconclusive, and the other 7 showed greater effects of education on women than men. There were 5 comparisons as a function of religion, and all 5 showed bigger effects on women than men. Combining these thus yielded 12 comparisons showing greater sociocultural effect sizes on women and none showing greater effects on men. This may be considered a statistically significant pattern, insofar as meta-analytic combination yields a very small likelihood ($p < .001$) of such a result occurring by chance (Darlington, 1975).

Among the less central practices, results were somewhat more mixed. Still, even among these, the preponderance of comparisons showed greater effects of education and religion on women than on men.

Thus, the findings from the best database available clearly and consistently fit the hypothesis of female erotic plasticity. The two major cultural factors studied in that investigation, namely, education and religion, were associated with bigger changes in women's than men's sexual behavior. This was true regardless of whether base rates were high (as in oral sex) or low (as in anal sex or same-gender activity). It was also true regardless of whether the effect of the institution was generally to constrain sexual activity (as with religion) or to promote liberal attitudes and broad interests (as, apparently, with education). Ceiling effects and baseline differences could contribute to some findings, but other findings are immune to these problems, and they all point to the same conclusion of greater female plasticity.

Attitude–Behavior Consistency

The third prediction derived from the plasticity hypothesis is that women will show lower attitude–behavior consistency with regard to sex. If women's behavior is more malleable by situational forces than men's, then women will be more likely than men to do things contrary to their general attitudes.

With regard to sex, the discrepancy between women's attitudes and behavior has been noted by several authors. Commenting on their study of Black high school girls, Roebuck and McGee (1977) said that "of interest are incongruities in expressed attitudes and behavior" (p. 104). Social class correlated with sexual attitudes, for example, but not with behavior. Antonovsky, Shoham, Kavenocki, Modan, and Lancet (1978) devoted special study to the inconsistency between attitudes and behavior in their study of Israeli adolescent girls, in which they found that a third of the nonvirgins endorsed as important the value of a female remaining a virgin until she married. These researchers found that such apparent self-disapproval was partly maintained by making external attri-

[4] There was also a category of more highly educated men whose rate of contraceptive use in secondary relationships was about the same as the low-education category. The data for women did not include this category because too few women with that level of education reported secondary sexual relationships. If one uses this category for the men, then there is no change as a function of educational level, confirming the conclusion of greater change among women.

[5] There was also a category of people making the doubtful claim that their most recent sex act had lasted more than an hour; the effects of education were not linear, reflecting perhaps some mixture of altered time perceptions and boastfulness. If one ignores these problems and simply compares the most and least educated categories, the difference for males (16.7 vs. 19.9) is slightly larger than for females (13.3 vs. 14.2), which is contrary to the female plasticity hypothesis. I acknowledge it for the sake of completeness, but the discrepancy of two percentage points seems too small to be meaningful.

butions for their past sexual experiences—yet the girls continued to engage in sex even when they disapproved of their doing so. In considering the gap between attitudes and behavior, Antonovsky et al. pointed out that "overt behavior is much more influenced by situational factors than are attitudes" (p. 270), which confirms the present rationale for using attitude–behavior inconsistency to test the erotic plasticity hypothesis.

The attitude–behavior gap was noted by Croake and James (1973). Their research involved multiple surveys of college students of both genders. Comparing their findings regarding sexual attitudes with concurrent findings from other work on coital experience, they noted "a much higher percentage [of women] experiencing sexual intercourse than those in the same age group who approve of such behavior" (p. 96) as evidence of inconsistency among females.

A similar conclusion was found in a cross-cultural investigation by Christensen and Carpenter (1962). They computed an approval–experience ratio that permitted them to investigate participation in premarital sex even when it went against one's own values. In all three cultures they studied, these ratios were lower for women than men, and in their sample of Americans in the sexually conservative Utah region, the women's ratio was only .33, indicating that two thirds of the women who engaged in premarital sex had done so against their personal values. (The men in that sample had a ratio of .59.) Because base rates of participation in premarital sex differed substantially by gender, these authors did find that numerically more men than women acted against their values. Still, the ratio seems the more meaningful and relevant indicator because it is not confounded by base rate, and it suggests that premarital sex involves a higher rate of attitude violation for women than men.

Because the base rates of adultery are quite low and attitudes of both genders are fairly negative, it is difficult to get good data on attitude–behavior consistency in that sphere. One creative solution, developed by Hansen (1987), involved looking at dating couples' involvement in any extraneous erotic activity, such as kissing or petting. Sure enough, Hansen found that majorities of both men and women in his sample had experienced extradyadic contacts (by self or partner). Despite the high frequency, tolerance was low, and both men and women expressed some degree of opposition to such activity. For present purposes, however, the crucial comparisons involved whether the attitudes (and other predictor variables) correlated with having engaged in extradyadic activity.

The most directly relevant variable was extradyadic permissiveness, that is, the attitude toward such activity. The correlation between tolerating such activity and having participated in it was stronger for men (r = .48) than for women (r = .31). Other variables, including religiosity, sexual attitudes in general, and identification with gender roles, also showed stronger correlations for men than women. Combining the effects of all these attitudinal predictor variables enabled Hansen (1987) to account for a third (33%) of the variance in whether men had strayed, but the same predictors accounted for only a ninth (11.4%) of the variance in women's behavior.

Another area in which attitude–behavior consistency can be examined is use of condoms. Herold and Mewhinney (1993) conducted a survey of people in a singles bar. The authors remarked on the "obvious discrepancy between the reported favorable attitudes toward condoms and the finding that most respondents did not consistently use condoms during their last experience with casual sex" (p. 42). The inconsistency was apparently greater among women: Women reported a higher intention than men to use condoms, as well as reporting greater fear of sexually transmitted diseases, but actual condom use was the same for both genders. Because people use condoms less than they say they should, the behaviors of the women were more inconsistent with their attitudes than were the men's behaviors. Moreover, the temptation factor should have produced the opposite effect: Condoms are generally regarded as detracting more from male than female pleasure, and so males should be more willing to betray their pro-condom attitudes.

The singles bar sample studied by Herold and Mewhinney (1993) also showed inconsistency between women's attitudes and behaviors regarding casual sex itself, which was defined as having erotic contact beyond hugging and kissing with someone the respondent had just met that same day. Only 28% of the women said they anticipated sometimes having sex with someone they had just met, but the majority (59%) had done it. The high rate of having had sex with a new acquaintance was especially remarkable in view of the findings that the women reported high rates of guilt over such activities (72%) and low rates (2%) of saying they consistently enjoyed them. The authors pointed out that this inconsistency was peculiar to women, although they had not predicted it and had no explanation: "The apparent contradiction between the negative attitudes expressed by many of the women regarding casual sex and the fact that most of them had engaged in casual sex provides more questions than answers" (p. 41).

Below, I consider the possibility that one reason for female erotic plasticity is that women's role requires them to participate in sex even when they do not particularly wish to do so. Having sex without desire is one form of inconsistency (although it may involve specific desires rather than general attitudes that are inconsistent with behavior). Beck, Bozman, and Qualtrough (1991) surveyed people as to whether they had participated in sex without desiring it. Although a majority of both genders reported having done this, the proportion was higher for women (82%) than for men (60%), and the authors noted further that nearly all (97%) of the women past the age of 25 reported having engaged in sex when they lacked desire for it. High rates of unwanted sex also emerged from a study of people in committed relationships: During a 2-week period, 50% of the women, but only 26% of the men, engaged in unwanted sexual activity at least once (O'Sullivan & Allgeier, 1998).

Homosexuality provides another sphere in which attitude–behavior consistency can be studied. Laumann et al. (1994) approached this question by calculating the overlap between three categories of same-gender sexuality, namely, desire, behavior, and identity. Desire consisted of a positive response to questions about sexual attraction to a same-gender person and about finding the idea of same-gender sex appealing. Behavior consisted of having had sex (past age 18) with someone of one's own gender. Identity referred to self-identification as gay or bisexual. Attitude–behavior inconsistency is perhaps best shown by people who fail to implement their desire in any way: "Desire with no corresponding adult behavior or identity . . . [characterized] 59 percent of the women and 44 percent of the men" (p. 298). Maximal consistency, in contrast, would be exhibited by people who registered positive

on all three indicators. Consistency was greater among men (24% of those who scored positive on any same-gender item) than women (15%).

The purest attitude measure regarding homosexuality in the NHSLS was whether the person rated same-gender sex as appealing. This item did not depend on actual experiences of desire or behavior but was a simple rating of attitude in the abstract. This item also has the advantage that men and women had approximately equal rates of positive responses to it. Hence the attitude–behavior consistency question can be formulated by examining whether these attitudinal responses correlated with current behavior. Laumann et al. (1994, p. 159) found that less than half the women who liked the idea of same-gender sex had actually had sex with another woman in the past year. In contrast, nearly 85% of the men who found same-gender sex appealing had had sex with a man in the past year. Although it is possible that gender differences in opportunity and initiative contributed to this difference, it is clear that attitude–behavior consistency was substantially lower among females.

Attitude–behavior discrepancies regarding homosexuality were also documented by Bell and Weinberg (1978). They found that gaps between homosexual feelings (or desires) and homosexual behavior was much larger for the lesbians (22 percentage points) than for gay males (3 percentage points). Moreover, lesbians were more likely than males to have tried to relinquish their homosexuality and "go straight"—which is ironic because lesbians expressed fewer regrets about their homosexuality and were less likely to wish for a "magic pill" that would instantly transform them into heterosexuals. Golden (1987) too was struck by inconsistencies between women's thoughts and feelings regarding sexual orientation. Her sample exhibited remarkable incongruences, including women who identified as lesbians (often for political reasons) but whose sexual behavior had been exclusively heterosexual, as well as the reverse pattern of women who identified themselves as heterosexuals but had only had sex with women. Consistent with the present hypothesis that females have higher erotic plasticity, Golden contended that gay men would have fewer such inconsistencies, would be less likely than the lesbians to regard their homosexuality as elective, and would in general be less likely to exhibit the "fluid and dynamic as opposed to fixed and invariant" (p. 19) patterns of sexual behavior that she characterized women as having.

To get evidence converging with the homosexuality findings, one can consider research findings on sexual masochism. Males are somewhat more likely than females to engage in this form of sexual activity (see Baumeister, 1989), and indeed, some researchers have focused on male masochism simply out of convenience: It is easier to get a sample of participants who have engaged in this activity if one uses males rather than females (see, e.g., Moser & Levitt, 1987; Scott, 1983; Spengler, 1977). Studies that have compared the two generally find more male masochists than female ones (Moser & Levitt, 1987), although the differences are not large.

Yet data on fantasy and desire do not fit the usual pattern of males showing more. If anything, women have more fantasies and desires for submission. This was confirmed in a recent review by Leitenberg and Henning (1995), although their analytic approach combined being forced into sexual activities with being tied up, humiliated, made into a sex slave, and other hallmarks of masochism (cf. Baumeister, 1989). Still, across many studies and different kinds of measures, women are more likely than men to have submissive and masochistic fantasies. Thus, the masochism data resemble the homosexuality data: Women are more likely than men to report having such desires and interests, but they are less likely than men to report taking part in such activities. Hence, for women, there is a larger gap between attitude (or desire) and behavior.

The masochism data are especially useful because they rule out one further alternative explanation that could apply to the homosexuality data. I have said that men mainly show discrepancies between desire and behavior because of lack of opportunity: Many men want to engage in sex but cannot find a willing female partner. The generally more conservative and selective attitude of women toward sex entails that women are less likely than men to comply with requests for sex (Clark & Hatfield, 1989). The difficulty of finding a female sex partner could conceivably help explain why women are less successful than men in enacting their same-sex desires. In masochism, however, it is usually opposite-sex partners who are sought, and so women would be seeking men to dominate them. Women ought therefore to enjoy an advantage over men when both are trying to act out their submissive fantasies, and so this alternative explanation would predict that women would have higher attitude–behavior consistency in this sphere. Instead, women again show more inconsistency, which fits the broad pattern I have hypothesized, namely that women's attitudes and behaviors are less consistent than men's when it comes to sex.

Assessing the Evidence and Possible Problems

Contrary Evidence

A few studies have yielded findings that seem to contradict the general pattern of lower attitude–behavior consistency among women than among men. In a survey of students at a small, private, southern, church-related university, Earle and Perricone (1986) found that women's attitudes toward premarital sex more strongly predicted whether they had had premarital sex than did men's attitudes. One possible explanation is that the lower prediction rates for males reflected lack of opportunity: Many men may have wanted sex but been unable to find a willing partner, particularly at a religious institution. The finding that women's attitudes toward sex were far more conservative than the men's attitudes supports this view, and so the finding may not be a meaningful exception to the female plasticity pattern.

McCabe (1987) surveyed an Australian sample of people involved in serious relationships as to whether they were having sex and whether they were pleased with having (or not having) it. She found "a greater congruence between desire and experience for women than for men" (p. 31). This discrepancy was mainly due to the imbalance in the category of people who were not having sex but wished they were having it. This category of "reluctant virgins" was almost entirely male. Again, this seems to reflect a lack of opportunity for males to act on their wishes.

DeLamater and MacCorquodale (1979) found higher correlations for women than men between personal sexual ideology (i.e., attitudes of approving particular activities) and recent sexual activity within a relationship. This too could reflect lack of opportunity for males. The nature of the measures seems especially

conducive to such consistency, insofar as the measures assessed sexuality within a relationship and approval of such activity. The bulk of the evidence for inconsistency did not refer to relationship contexts (and much of it was even explicitly outside of relationships).

A different sort of contrary evidence was found in the NHSLS. Laumann et al. (1994) reported that urban (instead of rural) residence was more strongly correlated with male than with female homosexuality, and this runs contrary to the general pattern of greater sociocultural influences on females. To some extent, this finding could be explained on the basis of homosexuality inclined men moving to big cities in order to find others, but Laumann et al. found that some difference remained even if they considered only whether the person was born in an urban versus rural environment. Thus, growing up in a big city apparently had a bigger chance of influencing men to become gay than women.

The urban–rural difference was not predicted by Laumann et al. (1994), nor did they have any clear idea of what it meant or why it occurred. Considering the large number of analyses they conducted and the preponderance of evidence for greater influence on females, this finding might conceivably be a statistical fluke. Then again, it seems necessary to consider the possibility that it reflects a genuine difference and hence a legitimate contradiction to the broad pattern of greater plasticity among females. Crucially, however, it refers to childhood experiences: Where the person grows up affects the male more than the female. Cities undoubtedly offer a substantially higher likelihood of encountering gay people, as compared with rural life, and if males are subject to sexual imprinting early in life, the childhood environment could have a stronger effect on the male.

One reviewer of a previous draft of this article proposed that men have higher erotic plasticity based on two facts: First, men are more willing to have sex with many different partners (see, e.g., Buss & Schmitt, 1993; Clark & Hatfield, 1989), and second, women have a longer decision process about whether to have sex with a particular man. The greater willingness of men to have sex with different partners is probably not a result of idiosyncratic personal choice or flexible change, however; more likely, it reflects a fairly stable aspect of male sexual desire (see, e.g., Buss & Schmitt, 1993; Ridley, 1993). L. C. Miller and Fishkin (1997) asked a sample of college students how many lifetime sexual partners they would like to have, and the mean male response was over five dozen (as compared with 2.7 for women), which suggests that interest in multiple partners is a stable aspect of sexuality for many men.

As for the decision process, it seems likely that a longer, more complex process is more flexible and more subject to situational and social factors, rather than less. It is well established that quick, automatic responses tend to be simple and efficient but inflexible, whereas controlled, deliberate processes tend to be slow, complex, and highly flexible (see, e.g., Bargh, 1982, 1994, 1997). The longer decision process should therefore be construed as supporting the hypothesis that female erotic plasticity is higher than male.

What About Paraphilias?

One important and potentially contrary pattern is found in gender differences in paraphilias (also known as sexual variations or perversions). Nearly all sources report that males engage in these more than females, although there are some ambiguities in the evidence (e.g., certain patterns such as exhibitionism and bestiality may be more tolerated among females and hence not regarded as paraphilias; see Amsterdam Sex Museum, 1999). If males engage in more varied sexual practices, does this constitute a form of sexual plasticity in which males surpass females?

As already noted, my predictions regarding variance are limited to intraindividual variance. Interindividual variance can well have a strong genetic basis. It is possible that the greater variation in male sexual tastes reflects genetic or biological variation rather than sociocultural plasticity.

Then again, some paraphilias seem incontrovertibly learned. Latex, for example, has not existed on the planet long enough to influence evolutionary processes and genetic markers, and so a latex fetish seems most plausibly interpreted as something learned rather than innate (although it is difficult to rule out the possibility that this fetish is a byproduct of some other genetic, innate tendency; moreover, latex fetishes may be popular with both genders). If males are more likely than females to adopt such paraphilias, then certain social and situational variables apparently have stronger effects on males than females.

Research has not yet provided a clear understanding of the causes of paraphilias. For present purposes, it is merely necessary to suggest some plausible way that males could show greater and more varied paraphilias without contradicting this article's main hypothesis about female plasticity. The most plausible suggestion, in my view, is that males actually do have a brief period of plasticity during childhood, after which the sexual patterns are reasonably rigid. Such a difference in childhood would not run against the substantial body of evidence reviewed in this article, which has depicted female sexuality as more socioculturally malleable during adulthood.

The experimental evidence on sexual imprinting in sheep and goats (Kendrick et al., 1998) is consistent with the view that males are sexually malleable during childhood and inflexible during adulthood. Early imprinting effects were strong and irreversible for males but weak and reversible for females, indicating that female sexuality remained subject to environmental influence during adulthood to a much greater degree than male sexuality, even though males were more strongly affected by the childhood learning environment. The environmental influence during childhood was unmistakable because male sheep who had been raised by goats would not mate with their own species but only with their adoptive species.

Current evidence is consistent with such a characterization of human sexuality, too. Recent Kinsey Institute work (Reinisch, 1990) reported that paraphilias are now believed to originate in childhood (see also Money, 1990). Moreover, they appear to be quite difficult to change during adulthood. Professional therapeutic treatment relies heavily on hormone treatments or castration, both of which are strong biological interventions and therefore suggest that purely meaning-based interventions are not effective—a conclusion that would be very consistent with the belief that male sexuality is relatively unresponsive to social and cultural influences during adulthood.

Sexual imprinting on male children might well also be used to explain the homosexuality patterns that were presented earlier. The view that homosexuality is purely innate and genetic suffers from the implausibility that natural selection would produce genes for a

pattern of behavior that precludes reproduction. As noted in the previous section, however, some data suggest that childhood experiences have a stronger effect on males than females in dictating whether one becomes a homosexual (Laumann et al., 1994), and these fit a sexual imprinting explanation. Converging evidence was provided by Bailey and Zucker (1995), who reviewed studies that sought to predict adult homosexuality from cross-sex behavior during childhood. They noted that the effects were larger and stronger for males than for females. Although there may well be genetic factors responsible for both the childhood behavior and the adult sexual orientation (cf. Bem, 1998), as well as possible methodological factors to consider, these findings are consistent with the view that male adult sexuality is more firmly and irrevocably shaped during childhood than female sexuality.

The greater power of childhood imprinting on males is also suggested by recent findings on sexual dysfunction. Using the NHSLS data set, Laumann, Paik, and Rosen (1999) found that childhood sexual experience (i.e., being touched sexually before puberty) was much more likely to lead to adult sexual dysfunctions in males than females and that it also predicted more different types of dysfunction. Women are not immune to effects of trauma, and indeed, adult victimization such as rape has strongly adverse effects on women's sexuality, but the childhood experiences have a greater effect on men.

These findings raise the possibility that there is a brief developmental window of opportunity during which the male sex drive is malleable. A sexual imprinting stage may be biologically mandated for males, during which environmental (and thus sociocultural) influences can exert a strong effect. The hypothesis of greater female plasticity thus may have to recognize childhood experiences as an exception. Still, from adolescence onward, it appears to be the females who are more flexible.

Selective Control and the Double Standard

Although the preceding sections have offered ample evidence consistent with the hypothesis of greater female erotic plasticity, it is necessary to consider one major alternative explanation: male control over female sexuality as reflected in the double standard. The essence of this view is that cultural and social factors selectively target their efforts to control sexuality at women. That is, culture permits male sexual desire and activity to follow their own course, whereas it tries to control and stifle women's sexuality, and that is why many of the present effects were found. In this view, culture is essentially patriarchal, which is to say that it seeks to control and exploit women for the benefit of men. It therefore selectively tries to control women, not because women are easier to control, but because women have less power and because the male-dominated culture seeks to shape female sexuality so women can best serve men's wishes.

As already noted, the argument about superior male power can be advanced as either an explanation for plasticity or an alternative explanation for the findings. The former is covered in the next section, along with other possible explanations for plasticity. The issue here is whether it is possible to explain all the findings as a direct result of patriarchal exploitation of women and its various consequences (including emancipation through education and the sexual revolution)—and hence to reject the hypothesis of greater erotic plasticity among females.

Some findings might be explained on the basis of direct patriarchal control, but others do not fit well. The fact that women report more choice than men regarding sexual orientation (Savin-Williams, 1990; Whisman, 1996; see also Rosenbluth, 1997, on voluntary heterosexuality) runs directly counter to the view that men have all the choices and women are imprisoned by rigid social factors. Likewise, the evidence about women who in midlife start having sex with other women while still enjoying sex with men suggests plasticity rather than coercion (Dixon, 1984). If the behavior genetic data continue to indicate greater genetic influence on male than female sexuality, they too will be a powerful argument that the female sex drive is indeed more socioculturally malleable.

The patriarchal oppression theory particularly invokes the so-called double standard, under which certain acts are more permissible for men than for women. This view has difficulty explaining many of the modern findings, however, because the double standard has been difficult to document in modern research and many researchers have concluded that it has disappeared or is disappearing, especially among women (DeLamater & MacCorquodale, 1979; Sprecher, 1989; Sprecher & Hatfield, 1996; cf. Robinson et al., 1991). If American college students do not endorse a double standard, then the many findings based on them cannot easily be explained by reference to that standard. A double standard might help explain some of the older data, but even such arguments are questionable: For example, T. Smith (1994) reports that national (Roper) polls found only a small minority endorsing a double standard in 1959 (8%) and even 1937 (7%). In any case, the double standard cannot account for a large part of the evidence covered here, even if it may have influenced an occasional finding.

The greater consensual lesbianism in prison (as compared with consensual homosexuality among imprisoned males) would be interpreted by the selective control explanation as a sign that prison frees women from the compulsive heterosexuality enforced by society. This alternative explanation thus rests on the doubtful assumption that women are more free in prison than out of it. It also suggests that when a woman reverts to heterosexuality after prison, she is simply coming back under the control of patriarchy. These views stretch the bounds of plausibility. Most situational analyses would conclude that people are less free in prison than out of it—especially with regard to sexual choices.

As already reported, female sexual behavior varies far more than male as a function of education. The selective control hypothesis holds that women are no different than men but have been sexually stifled by patriarchal society and so education creates only the illusion of change insofar as it frees women from their exploited status, enabling them to become like men. Sure enough, in many cases education produces a convergence between men and women, so that highly educated women resemble men. In some cases, though, the effect is not in this direction, and women become unlike men when highly educated. Wilson (1975) found that agreement with the view that sexual desires and sexual realities diverge was similar between educated men, uneducated men, and uneducated women, whereas educated women held a quite different view. Weis et al. (1992) found that sex education produced bigger increases in tolerant, permissive attitudes in females than males, regardless of which gender started off more tolerant—thus, in some cases, females were initially more tolerant and became even more so after education. The NHSLS found that across increasing

levels of education, women varied from less to substantially more interested than men in homosexual experiences (Laumann et al., 1994) and that education also made women more different than men in contraceptive use.

Religion was also shown to have greater effects on female than male sexuality. Someone might argue that religion is a tool of male oppression (which entails suppressing female sexuality) whereas education liberates women and allows them to discover and pursue their own desires. This explanation has difficulty explaining the powerful historical facts that Christianity has long appealed to women more than to men, both during its rise to power in the Roman empire (see Stark, 1996) and during the transition into the modern era (Cott, 1977), and that even today female church attendance and membership rates are higher than male. The selective control explanation seemingly must propose that women wanted to be exploited and sexually stifled by Christian doctrines (and still do), a stance that seems sufficiently questionable as to call for strong supporting evidence before it can be accepted.

Moreover, if religion is a tool of patriarchy that shapes women to serve men, then the highly religious should show the greatest convergence between the genders in practices that serve men, such as fellatio. The evidence indicates the opposite, however: The fellatio gap between men and women is greatest among the most religious people (Laumann et al., 1994). Religious women are least likely to serve their husbands in this and similar ways and fall most short of their husbands' preferences.

Similar findings emerge from studies of the influence of peer groups. Evidence indicates that female sexuality is more influenced than male sexuality by the peer group (Billy & Udry, 1985; Mirande, 1968; Sack et al., 1984). If socializing influences reflect the patriarchal male culture, it is necessary to assume that female peer groups are instruments of patriarchy, at least sometimes, and this too seems dubious.

Most societies encourage heterosexuality for the sake of reproduction, and certainly the Judeo-Christian tradition is strongly opposed to homosexuality in both genders. These Christian-influenced societies have apparently been more successful at stifling female than male homosexuality, insofar as there are more gay males than females (Laumann et al., 1994), and this greater success comes despite generally greater condemnation of male homosexuality (see, e.g., Herek, 1988). Moreover, among homosexuals, more females than males engage in heterosexual activity, as already reported. Women thus appear more socially flexible than males on both scores.

To conclude: Evidence clearly supports the historical reality that males have generally enjoyed superior sociopolitical power. It also seems plausible, although the evidence is weaker, that males have used this power to constrain female sexuality. To incorporate this insight into the analysis of erotic plasticity, it seems far more plausible to suggest that female plasticity is a result of or response to superior male power than to suggest that male power directly caused all the behavioral and attitudinal effects reviewed here without any need to invoke differential plasticity. In other words, male political power and the double standard may offer an explanation for erotic plasticity, but they are not fully viable as an alternative explanation.

Other Alternative Explanations

The extent and variety of evidence make alternative explanations rather difficult to propose for the entire body of evidence, although specific findings can be subject to such explanations. The large mass of evidence that sociocultural factors predict women's behavior more strongly than men's might be questioned by suggesting that data for women are more reliable than for men, possibly because women furnish more accurate self-reports or are subject to fewer sources of error variance than men. Such an explanation however would also propose that attitude–behavior consistency ought to be higher among women than men, whereas in fact it was lower.

With self-report data, one often worries about the possibility of experimenter bias and demand characteristics, especially if the researcher is not blind to condition. With regard to erotic plasticity, however, the possibility of researcher bias can be almost entirely ruled out, because none of the researchers appears to have been actively looking for greater malleability among females. Most researchers covered in this review paid no attention at all to the gender difference in effect sizes. The suggestion that dozens of different researchers systematically biased their data to provide confirmation of a hypothesis that they did not even acknowledge seems implausible.

A final alternative explanation would be that the effects reviewed here merely show changes in overt behavior rather than inner, psychological changes in women. This view suggests that erotic plasticity may be greater for females than males but that the difference is chiefly in terms of behavioral choices rather than inner states. Against this view, it is easy to cite evidence that women's sexual attitudes change substantially and significantly as a function of education, peer influence, and other factors. Whether specific feelings of sexual desire change, however, is far more difficult to assess. The NHSLS found that education had a bigger effect on women's rating of the appeal of various sexual practices, including homosexual activity and various heterosexual activities (Laumann et al., 1994), but it is not entirely clear whether those findings should be considered as manifestations of specific desires or general attitudes.

The measurement of sexual desire (e.g., situation-specific sexual arousal) is undoubtedly more difficult than the measurement of behavior or attitudes, and so it has received less study. One recent investigation by Regan and Berscheid (1995) handled the problem by surveying people about their beliefs about the causes of sexual desire, which is at least a valuable first step. Consistent with the plasticity hypothesis, both men and women agreed in perceiving men's sexual desires (far more than women's) as arising from intraindividual forces, which would therefore be relatively independent of the situation and presumably consistent across broadly similar circumstances (assuming the men were healthy). Both genders also agreed in characterizing female sexual desire (as compared with male) as far more dependent on person by situation interaction effects, and these would certainly be much more variable than the intraindividual causes. This study thus provides preliminary evidence that desire conforms to the same patterns of male consistency and female malleability, but much further work is needed. Given the present state of evidence, the gender difference in erotic plasticity is far better supported with respect to attitudes and behavior than desire itself.

General Critique of Evidence

In general, data on sexual behavior fall short of the highest standards of methodological rigor. It is often impossible to conduct laboratory experiments to test causal hypotheses about sexual activity. Most findings are therefore correlational. Surveys and interviews rely on self-report data, and with sexuality, there are multiple factors that can distort such data, including social desirability biases, wishful thinking, memory biases, and self-deception. In general, however, these sources of bias do not provide clear alternative explanations for findings of greater malleability of female sexual behavior than male.

Direction of causality. Several limitations are relevant and pervasive. Most of the findings regarding the sociocultural factors are correlational, partly because both ethical and pragmatic difficulties preclude full experimental study of sexual behavior. Alternative explanations could therefore be raised. For example, instead of concluding that educational and religious institutions have stronger effects on female than on male sexual behavior, perhaps women's sexual inclinations dictate (more than men's) how much education they pursue and how religious they become. Although such explanations do not seem highly plausible a priori (e.g., why would engaging in anal sex increase a person's likelihood of earning a master's degree?), they cannot be ruled out with available data. One study that attempted to disentangle these competing causal pathways concluded that adolescent sexuality and religiosity are marked by reciprocal causal influences: Religious adolescents are less likely to have sex, and adolescents who do have sex tend to become less religious (Thornton & Camburn, 1989). Why sexually permissive women would seek and achieve higher levels of education is however a mystery, and it seems more plausible to propose that education affects sexuality.

On some variables, reverse causal explanations are fairly plausible. The correlations of sexual behavior with peer attitudes and behavior, for example, could well reflect a tendency for a person to self-select similar peers instead of simple direct influence of peers on the person's sexual behavior. Some studies have been alert to this methodological problem and have had some success ruling it out, however. Billy and Udry (1985) found no difference in peer group homogeneity between males and females nor any tendency (in either gender) to deselect friends based on discrepant sexual status. As for acquiring new friends based on similarity in sexual status, males were more selective in this regard, which would operate against the pattern of higher self–peer correlations among females. Thus, the greater predictive impact of peers on females than on males cannot be dismissed as an artifact of peer selection patterns. The convergence between peer influence and family influence is also reassuring on this score because children cannot select their families.

One may also consider the possibility that third variables account for some of the correlations. For example, the link between education and permissive sexuality could conceivably derive from parental openness to new ideas, insofar as parental openness encourages both pursuit of advanced degrees and of sexual adventure. Still, this analysis does not truly constitute an alternative explanation because, to account for the greater link between education and sex among women than men, one would have to postulate that parental openness has a stronger effect on daughters than sons—which again would indicate greater female plasticity.

The causal question is most relevant to sociocultural factors (i.e., the second prediction). The evidence about intraindividual variability is far less compromised by that issue. Likewise, the evidence about attitude–behavior consistency is not greatly diminished by the limitations of correlational data. Thus, there is a substantial amount of evidence that is not affected by issues of causal direction.

Baseline differences and ceiling effects. With some findings, baseline rates are substantially higher among males than among females, which raises the possibility that ceiling effects concealed male plasticity. This possibility seems contradicted by many findings in which greater female plasticity was found despite low base rates overall (e.g., anal sex) and by findings in women that ended up above the putative male ceiling (e.g., contraception during infidelity, desire for same-gender sex). In such cases, clearly, the effects cannot be attributed to a ceiling effect for males.

Given that males tend to be more sexually permissive than females overall, it is not surprising that many variables that increase sexual behavior encounter the baseline problem. It is therefore instructive to examine factors that restrict or decrease sexual behavior because, with these, it is the males who have more room to change. If the evidence for plasticity consisted of artifactual findings based on ceiling effects and baseline differences, then one would expect sex-restricting causes to have stronger effects on males than on females. Repeatedly, however, the opposite has been found to be correct. I summarize some of that evidence here.

The most salient sociocultural factor that causes restriction in sexual behavior is religion, insofar as religious people tended to report lower levels of most sexual activities than nonreligious people. If men start off more sexually permissive than women, then they ought to have more room to be affected by religion, and so religiosity should produce bigger changes among men than women. The opposite has been consistently found, which supports the hypothesis of female erotic plasticity and contradicts the artifact explanation.

A determined advocate of the ceiling artifact might dismiss the findings about religion by suggesting that religion mainly tries to control female behavior and is relatively indifferent to male sexual behavior. This view is implausible on several counts. As Tannahill (1980) pointed out in her history of sex, early Christianity was more hostile and restrictive toward sex than any of its contemporary religions, and its restrictiveness applied to both genders. The basic Christian view was that "physical pleasure of all kinds is sinful" (DeLamater, 1981, p. 264). This doctrine appears to have had strong appeal to women, and in fact, the early rise in Christian church membership involved a more rapid expansion of female than male members (Stark, 1996). Celibacy was in fact sought and cultivated as a lifestyle by many early Christian women (McNamara, 1985). It seems most plausible that Christianity sought to control sexuality of both males and females but succeeded better with females—which again would point toward greater plasticity among females. This conclusion is also well supported by the evidence about religious celibacy: When identical standards of sexual purity are held up to both men and women, the women are far more successful at meeting them (Murphy, 1992; see also Sipe, 1995).

Another important point is that the baseline and ceiling arguments apply mainly to the evidence about specific sociocultural variables. They do not seem relevant to the intraindividual vari-

ance or attitude—behavior consistency evidence. Thus, even if the baseline problem were serious, it would only undermine one of the three predictions of the plasticity hypothesis.

Thus, baseline differences and ceiling effect problems are relevant to only a small part of the evidence for plasticity. In all fairness, it is quite possible that some individual findings of greater variation among women do indicate a ceiling effect for males. It does not seem plausible that such artifacts constitute a substantial amount of the evidence for plasticity, given that some findings directly contradict this explanation and others are immune to it.

Strengths of evidence. Several strong features of the literature reviewed here are encouraging with respect to the validity of the conclusions. First, a wide range of methods and populations has been used. Consistency of evidence across multiple methods can help substantially in overcoming concerns about methodological weaknesses because a bias or artifact in one method would likely be absent from some others, so if conclusions are similar, confidence in them increases. It is unlikely that multiple methods and approaches would all share the same biases or artifacts.

Second, the consistency of findings is itself persuasive. Across three major predictions and a wide assortment of methods, the evidence pointed consistently to greater erotic plasticity in the female than in the male. The main exception (which was also consistent) is that male sexual behavior is often constrained by lack of opportunity, and so many men would like to have more sex (or more partners or different varieties of sex) than they are able to have. Apart from opportunity constraints, however, female sexuality shows greater responsiveness and flexibility than male sexuality.

A last encouraging feature is that the evidence for female plasticity remains robust and is perhaps even strongest in the methodologically most rigorous work. If the pattern of female plasticity were an artifact of sloppy methods, then its evidence should diminish in proportion to the rigor of the methods, but the opposite has been found. Thus, in the NHSLS (which used some of the most rigorous, thorough, and careful methods), a substantial number of pointed comparisons repeatedly confirmed greater plasticity in females than in males.

Differential critique. To criticize the evidence for the three predictions separately: The evidence about intraindividual variability (the first prediction) is sufficiently strong, diverse, and consistent to be satisfactory for now, although further evidence would be desirable, particularly in regard to issues such as change in prison environments and the like. Second, the evidence for greater responsiveness to sociocultural factors is fairly extensive and convincing, although it would be desirable to have more direct studies of cross-cultural variation and more longitudinal designs or other methods that can overcome the ambiguity about direction of causation. The evidence regarding attitude–behavior consistency is encouraging as far as it goes, but there are many gaps in the range of possible evidence, and conceivably major exceptions or even a large contrary pattern could yet be found. The attitude–behavior prediction is therefore the most weakly supported of the three, although even on that prediction, the evidence is generally supportive. Still, the attitude–behavior prediction is the least central of the three, insofar as many factors other than basic erotic plasticity could affect such data, and so the relative weakness of the literature on that question is least worrisome with respect to the present theory.

Assessment of Possible Explanations

Three possible explanations for the gender difference in erotic plasticity are now considered. Although these explanations can be considered as competing, they are not mutually exclusive, and it is possible from an a priori standpoint that more than one could be correct.

Male Strength and Power

The first explanation is that men are generally stronger and more physically aggressive than women, as well as generally holding superior political, social, and economic power, and so women have to accommodate themselves to men. In this view, men can coerce women to do what they want, and so as men pursue their sexual desires, women must go along with what men want to some extent. Even if the man rarely or never uses his physical or political advantage to get his way, the fact that he could do so remains implicit and could affect relationships.

It is common knowledge that men are physically stronger than women on average and that men have generally had superior political and economic power. Men also exceed women in aggressiveness (Eagly, 1987; National Research Council, 1993). In romantic and sexual relationships, men do sometimes inflict harm on women in connection with various disputes, and in some cases men use physical force to obtain sex from their romantic partners (Laumann et al., 1994). Men's superior socioeconomic power also seems to give them some leverage toward eliciting sex from their wives and partners (Blumstein & Schwartz, 1983).

Thus, gender differences in physical strength and political power have been long-standing and have had some effect on sexual relations. Whether these differences could be responsible for the gender difference in sexual plasticity is far more difficult to say. There are at least two ways that this could be true. In one, evolution may have made female sexuality more plastic (socially malleable) because of millennia of having to adapt to stronger, politically dominant males. In the other, women continue to be conscious of the greater power held by males and hence learn to be more malleable and flexible as a result.

One relevant aspect of this explanation that is different than the other two is that it is not confined to sexuality. If men's greater physical strength causes women to be more malleable and flexible as a submissive adaptation, this should presumably be true across multiple spheres. Women should therefore show greater flexibility and malleability on multiple measures apart from the sexual sphere. In other words, sociocultural factors should have stronger effects on women than men, intraindividual variability across time should be greater in women, and attitude–behavior consistency should be generally lower. The question of whether women are more malleable than men as a general principle across the majority of spheres of behavior is far beyond the scope of this article. Note, however, that experts on gender differences have not thus far recorded any widespread pattern of greater malleability in females, which casts doubt on this as an explanation. Although both gender differences and attitude–behavior consistency have been studied extensively, I have been unable to find any evidence of a general pattern of lesser attitude–behavior consistency among women, even after contacting authoritative experts in the field (A. H. Eagly, personal communication, 1998; R. E. Petty, personal com-

munication, 1998). There is some evidence that women are more easily persuaded than men under a variety of conditions, although numerous exceptions and boundary conditions exist (see, e.g., Eagly, 1987; Petty & Wegener, 1998). Meanwhile, recent work has found that females show more genetic and less sociocultural influence on aggression than males (Eley, Lichtenstein, & Stevenson, 1999; see also Christiansen, 1977), which likewise depicts the difference in erotic plasticity as specific rather than part of a general pattern. If future research continues to suggest that women are not more socioculturally malleable than men across the board, then the explanations based on differential strength and power will be less plausible than the following two.

Change and the Female Sexual Script

A second possibility is that change is an inherent part of the female role in sex, and so women are required to have some degree of flexibility in their patterns of erotic response. In this view, the standard script for sex between first-time human partners depends vitally on the woman changing her mind. In nearly all known societies (and in many other primate species as well), females constitute the restraining force on sex. That is, they refuse many offers or chances for sexual activity. When sex happens, it is because the woman has changed her vote from no to yes. This crucial change might be the basis for greater erotic plasticity in women, because it instills a capacity for change at the center of the female sex drive.

There is evidence that the decisive determinant of whether a couple has sex involves the women changing her position from no to yes. It is well documented that in heterosexual attraction, the man is typically ready for sex long before the woman (Buss & Schmitt, 1993). Men are more willing than women to have sex with someone they have just met (see, e.g., Herold & Mewhinney, 1993; see also Oliver & Hyde, 1993). The precise prediction that women will change more than men toward a more sexually permissive attitude as a function of increasing duration of dating was confirmed by Harrison et al. (1974).

Also relevant is the fact that men fall in love faster than women and hence are likely to feel loving affection and the accompanying sexual desire at an earlier point in the relationship (Baumeister, Wotman, & Stillwell, 1993; Hill, Rubin, & Peplau, 1976; Huston, Surra, Fitzgerald, & Cate, 1981; Kanin, Davidson, & Scheck, 1970). Studies of adult virginity have found that many more men than women report that they have remained virgins because their romantic partner refuses sex (McCabe, 1987; Sprecher & Regan, 1996). Even apart from virginity, far more men than women cite a partner's unwillingness as a major reason that they are not having sex (Mercer & Kohn, 1979). Both genders agree that men want and expect sex earlier in a relationship than women (Cohen & Shotland, 1996).

Direct evidence about refusing sex was provided by Clark and Hatfield (1989). In one condition of their study, participants were approached by an opposite-sex research confederate who invited the participant to have sex that same evening. All the women in both studies refused this invitation, whereas most of the men accepted (see also Jesser, 1978). By the same token, Mercer and Kohn (1979) found that both male and female participants rated all different strategies of avoiding sex as more typical of women than of men, whereas all the strategies for initiating and obtaining sex were rated as more typical of men than women. Clearly, these participants associated seeking sex with maleness and refusing sex with femaleness. If that is correct, then sex would depend on the woman changing from refusal to acceptance.

Further evidence about the female script and the transition from no to yes comes from research on erotica and pornography. Cowan and Dunn (1994) exposed both male and female participants to pornographic films that were classified into nine different story themes, and participants were asked to rate their arousal levels. One of these themes, labeled "submission" by the researchers, involved a woman who was initially reluctant to have sex but changed her mind during the scene and became an active, willing participant in sexual activity. Women rated this theme by far the most sexually arousing of the nine (see also Fisher & Byrne, 1978). These studies thus suggest that the woman's transition from no to yes, as an idea, increases sexual excitement.

A review of the literature on sexual fantasies found that fantasies of being overpowered and forced to have sex were far more common among women than men (Leitenberg & Henning, 1995). In some studies (e.g., Pelletier & Herold, 1988), over half the female sample reported fantasies of being overpowered, and other research found a third of women endorsing such specific fantasies as being a slave who must obey a man's every wish (Arndt, Foehl, & Good, 1985). When women are given lists of sexual fantasies to choose among, that of being forced sexually is sometimes the first or second most frequently chosen one (Hariton & Singer, 1974; Knafo & Jaffe, 1984). In a study of the content of fantasies people have during intercourse with a partner, Sue (1979) found that women were significantly more likely than men to fantasize about being overpowered and forced to have sex. Leitenberg and Henning cautioned further, as other researchers have, that such fantasies do not reflect any genuine desire to be raped, and indeed, the fantasies often involve the man overcoming the woman's token resistance so as to bring about mutual pleasure and satisfaction. Thus, these fantasies likewise suggest that a particular sexual charge is associated with the woman's changing from no to yes, under strong male influence.

In sum, the transition from no to yes appears to characterize the female role in sex. It also appears to be marked by a special emotional charge and high sexual excitement. It is therefore conceivable that this transition, requiring as it does a diametrical reversal in women's attitude toward having sex with a particular man, may have some role in the broader phenomenon of erotic plasticity.

A variation on this explanation is based on the observation that there is a chronic pattern of mismatch between when a woman wants sex and when she has it, so she has to be flexible enough to participate positively and competently in sex when she does not particularly want it. This view is well expressed in Wallen's (1995) point that it is essential to distinguish between receptivity (willingness) versus desire when talking about female sexuality, a distinction that is far less important with male sexuality and hence with traditional male-centered theories of sex in general. To explain when and whether a female has sex, according to Wallen, it is more useful to understand receptivity than actual, proactive desire.

Evidence for this theory is based on temporal patterns in sex. Palmer, Udry, and Morris (1982) found that intercourse patterns for couples had clear daily and weekly patterns but not monthly

patterns. That is, couples tend to have sex at a particular time of day (usually in the evening) and on some weekdays more than others (Sundays especially). Other research on female sexual desire suggests however that monthly variations are significant and important (Stanislaw & Rice, 1988). In other words, women feel most sexually desirous at a particular point in the menstrual cycle, usually one associated with ovulation (Stanislaw & Rice, 1988; also Luschen & Pierce, 1972; see Wallen, 1995).

Putting these findings together indicates that women's sexual behavior does not correlate most strongly with their desires. The monthly rhythm of rising and falling sexual desire does not predict their likelihood of intercourse. The implication is that women in general are flexible enough to have sex when they do not most want it. This flexibility points to the importance of receptivity rather than desire and could also provide a basis for a more general pattern of erotic plasticity.

Do Women Have a Milder Sex Drive?

The third explanation is that women have a milder, weaker sex drive than men and that this difference allows the female sex drive to be more easily molded. It is common knowledge that in taming animals, which is to say bringing their behavior under meaningful rules determined by somebody else, that the weaker their urges are, the easier they are to tame. If women's desire for sex were less powerful, less relentless, and less urgent than men's, then as a result, their sex drive could well be more malleable.

Although a full review is beyond the scope of this article, that evidence does suggest that women have a milder sex drive. Women report spontaneous sexual desire less often than men and think about sex less often than men (Beck, Bozman, & Qualtrough, 1991; Eysenck, 1971; Knoth, Boyd, & Singer, 1988; Laumann et al., 1994). They have fewer sexual fantasies involving fewer partners and less variety of activity (Ellis & Symons, 1990; Leitenberg & Henning, 1995). Women report less enjoyment of erotica and pornography (see, e.g., Reed & Reed, 1972; Schmidt & Sigusch, 1970; Sigusch, Schmidt, Reinfeld, & Wiedemann-Sutor, 1970). They desire less frequent sex and fewer sexual practices than men (Ard, 1977; Bergström-Walan & Nielsen, 1990; Julien, Bouchard, Gagnon, & Pomerleau, 1992; Laumann et al., 1994). Women initiate sex less often and refuse it more often (Byers & Heinlein, 1989; Clark & Hatfield, 1989; LaPlante, McCormick, & Brannigan, 1980; O'Sullivan & Byers, 1992). Women desire fewer partners than men (Buss & Schmitt, 1993; Miller & Fishkin, 1997) and seek out fewer extramarital partners (Cotton, 1975; Lawson, 1988; Spanier & Margolis, 1983; Thompson, 1983). Women and girls masturbate less often than men and boys (Arafat & Cotton, 1974; Asayama, 1975; Laumann et al., 1994; Oliver & Hyde, 1993; Sigusch & Schmidt, 1973). Women rate their sexual urges as less strong than men rate men's (Mercer & Kohn, 1979). Women are more likely to cite lack of interest and enjoyment as a reason for not having sex (Leigh, 1989).

Can the relative mildness of female sexual desire explain plasticity? Once again, it is far easier to establish that something is correct than to establish its link to erotic plasticity. On an a priori basis, it would seem easier to transform a desire for A into a desire for B if the desire for A is not as strong. Still, direct evidence of the link is lacking. The most relevant research agenda would be to examine possible links between strength of sex drive and plasticity within gender. For example, in an all-male sample, would the men with weaker sex drives be more affected by education, religion, or situational influences than men with strong sex drives? This question remains for future research.

General Discussion

The central question addressed in this article has been whether the female sex drive is more plastic and malleable than that of the male, in response to social, cultural, and situational causes. The evidence reviewed here supports the three basic predictions derived from that hypothesis. First, intraindividual variation (personal change) is higher among females than among males. The average woman is more likely to change her sexual patterns over the course of adult life than the average man is, in such areas as discontinuity in total orgasmic outlet, adaptation within marriage, adoption of new activities over the adult years, and changes in sexual preference. Second, sociocultural factors such as education, religion, political ideology, acculturation, and peer influence generally have stronger effects on female sexuality than on male. Third, females exhibit less consistency between sexual attitudes and behavior on a variety of measures, including attitudes about virginity, approval of extramarital or extradyadic sexual activity, intended condom usage, having sex despite not wanting it, and interest in or desire for same-gender sex. The low attitude–behavior consistency among women presumably occurs because sex depends on many specific contexts, circumstances, and other meanings, and so the broad attitudes are poor predictors.

Two main exceptions have been found. The first is relatively trivial: Men sometimes exhibit low attitude–behavior consistency because of lack of opportunity. Many men are unable to find a willing partner, and so they cannot act consistently with their preferences.

The second exception, however, suggests a theoretically important qualification to the female plasticity view. Evidence about sexual dysfunction, paraphilias, cross-gender behavior, and locale of upbringing suggests that childhood experiences have stronger and more lasting effects on male than female sexuality. In adolescence and adulthood, erotic plasticity is higher among females, but male sexuality may undergo a childhood phase (akin to imprinting in animals) during which social and environmental influences can have a major influence. Ironically, the relative inflexibility of adult male sexuality may entail that these childhood influences have strong and durable effects. In contrast, the plasticity of adult female sexuality may permit the effects of childhood experiences to be overridden. With regard to sexual abuse and dysfunction, such plasticity would constitute an important adaptive benefit of female plasticity.

The general conclusion from the adolescent and adult evidence is that the balance between nature and culture is different for the two genders, at least in terms of their sexuality. Men's sexuality revolves around physical factors, in which nature is predominant and the social and cultural dimension is secondary. For women, social and cultural factors play a much greater role, and the role of physical processes and biological nature is relatively smaller. These findings reverse one cultural stereotype, which is that civilization is male whereas women are closer to nature. In sexuality, at least, women are the creatures of meaning (which invokes the

sociocultural contexts), whereas men are the creatures of nature. (Of course, these differences are relative, not absolute.)

The large preponderance of supporting evidence thus supports the firm conclusion that the female sex drive is in fact more malleable than that of the male. It must be acknowledged that essentially none of the studies reviewed was intended to provide a direct test of the hypothesis of female plasticity, and so some prospective tests may be warranted. Still, the fact that researchers were not specifically looking to establish differential plasticity lends further confidence to the conclusion because it rules out any concern that their results are due to experimenter bias, demand characteristics, or selective testing of the hypothesis. To put it simply, researchers have repeatedly confirmed that women's sex drives are more malleable even though they did not intend to show this and, indeed, generally failed to suspect that this feature of their data may have fit a more general pattern.

It would however be useful for further research to search for boundary conditions, counterexamples, and mediating or moderating factors regarding differential plasticity. Any exceptions to the general pattern of erotic plasticity would add valuable insight into gender differences in sexuality. Attitude–behavior inconsistency is the least thoroughly supported of the three major predictions, and so this may be an area for further work that might either provide useful confirmation of the broad plasticity hypothesis or, indeed, reveal exceptions and boundary conditions that would be theoretically enlightening.

Three possible explanations for gender differences in erotic plasticity have been suggested: differences in power and strength, the requirement of change as part of the female sexual script, and a relative mildness in female sexual desire. On the basis of currently available evidence, I conclude that each of these three possible explanations has a valid basis, but at present, there is little conclusive evidence to suggest which of them is actually linked to erotic plasticity.

Proximal causes also remain to be explicated. These may include direct genetic influence, such as the notion that having two X chromosomes gives women alternative blueprints for sexual responses, whereas males have only the one. Sexual imprinting may be more influential and irreversible with males than females, so that women continue to have sexually formative experiences throughout life whereas men have them only at one early point. Hormones may affect men more than women, either because men have more of the most influential hormone (testosterone) or because men are more directly attuned to their inner states without any mediation through social cues and information (T. Roberts & Pennebaker, 1995).

Another intriguing possibility is suggested by Bem's (1996, 1998) theory proposing that sexual orientation is shaped by childhood social patterns, such that the less familiar gender becomes the more arousing and sexually appealing one (i.e., exotic becomes erotic). Bem's theory could be reconciled with several of the explanations I have suggested. The notion that females have more mixed-gender social groups in childhood than males do leads, in Bem's analysis, to suggesting that female sexual arousal would distinguish less between males and females than would male sexual arousal. This plasticity of sexual orientation could contribute to more general patterns of plasticity (i.e., change begets change), as with the second explanation I proposed. Alternatively, one could use Bem's line of reasoning to suggest that, because both genders are familiar to females, neither is exotic, and hence neither is likely to become erotic—and this could contribute to my third explanation, namely, the weaker female sex drive.

In terms of the daily lives and actual experiences of individual men and women, the difference in plasticity may be felt in terms of the relative importance of physical factors versus social meanings. The importance of social, situational, and cultural influences on women suggests that sex depends very prominently on the meanings and interpretations that a given sex act may have. The relative inflexibility of males with regard to sociocultural factors suggests that meanings matter less than simpler, physical aspects of sex.

The current status of knowledge may therefore be described as follows. The female sex drive is more plastic and malleable than that of the male; several well-founded explanations for this differential plasticity can be articulated, but there is no adequate basis at present for preferring any of these explanations over the others. It is also possible that all three explanations are correct and that the difference in plasticity is multidetermined.

Implications

If women are indeed more responsive to sociocultural changes, then forecasting the future shape of sexuality will be less reliable when it comes to women than men. Had someone at the close of the 19th century sought to predict what would happen in the 20th century, he or she might have been fairly accurate at predicting men (because they have not changed much), but predicting the fluctuations and vicissitudes of female sexuality would have been considerably more difficult. It is, in other words, far more difficult to predict what women will want and expect sexually a century hence than it is to predict men's wants and expectations.

From the point of view of society, the gender difference in erotic plasticity suggests that it will be more productive and effective to try to control female than male sexuality. It is possible that a society's survival would be jeopardized by historical events that might require more reproduction (e.g., due to war or famine) or less (e.g., overpopulation) or that the desirability of promiscuity would increase (e.g., if the sex ratio departs far from equality) or decrease (e.g., if AIDS or another venereal disease raises health risks). A society that needs a change in sexual behavior in order to survive or flourish would do better to target its messages and other pressures at women rather than men because of the greater difficulty in changing the sexual desires and habits of of men.

From the point of view of the individuals, women will be better able than men to adapt to new social conditions and demands. If social conditions do change in a meaningful fashion, resulting in a need for serious changes in sexual attitudes and behavior, women are likely to make the adjustment better. True, one might argue on the basis of the relative mildness of the female sex drive that sex matters less to women than men and so women might be more willing to accept different circumstances and contingencies. However, even if changes in active desires and behaviors are needed, women should make these more easily. This may be particularly important if the pace of social change continues to accelerate, as is generally assumed to be the trend in modernity. In sex, at least, women should be able to keep up with changing times better than men.

Some misunderstandings and potential conflicts between the genders could be affected by the difference in plasticity. Modern norms of egalitarianism and equitable relationships suggest that people should compromise and seek joint, mutually satisfying decisions, but the calculation of compromise is rendered more difficult by differential plasticity. In simple terms, sexual compromise will be easier for women than men. I cited several findings indicating that women find their sexual relationships more satisfying than men, which could reflect the women's greater plasticity. For example, in response to Ard's (1977) survey, women indicated that their actual frequency of intercourse was nearly identical to their desired frequency, whereas for the men a substantial gap existed. One interpretation of this finding is that women have greater power and can dictate the sexual terms of the relationship. Another, however, is that women are better able to adjust their preferences and expectations to what is actually available to them, and so a compromise gradually ceases to seem like a compromise.

Conflict and misunderstanding can exist between members of the same gender, too, and again differential plasticity could play a role. Homosexual communities, for example, are in a sense oppressed minority groups and ones from which members may be tempted to defect. If people leave such communities and join the heterosexual mainstream, the survival of the communities could be jeopardized. Given the data reviewed here, such defections are likely to be a bigger problem and threat for female than male homosexual groups. Sure enough, lesbian communities have ongoing and sometimes bitter struggles over defectors to heterosexuality, which may be less of a problem for gay male groups (see Clausen, 1990; Rust, 1993).

There are clear and important implications for clinical practice. The greater plasticity of female sexuality suggests that sex therapists should be more effective at treating women than men. In particular, cognitive–behavioral treatments and other social interventions should be much more effective with female than male clients. The relative inflexibility of males suggests that sexual problems may require more physiologically and biochemically oriented interventions. Some recent evidence fits this view, although further research is needed. Laumann et al. (1999) found that male sexual dysfunction was more linked to physical factors such as poor overall health than was female sexual dysfunction. Meanwhile, female dysfunction was more strongly linked than male to sociocultural factors such as education and change in socioeconomic status (loss of income). The link to broadly meaningful context was also evident in the fact that female sexual dysfunction correlated more strongly than male dysfunction with broad measures of happiness and quality of life. The main exception to these patterns was that childhood sexual experiences predicted male sexual dysfunction more strongly than they did female dysfunction, which fits the hypothesis that sexual imprinting produces relatively strong and irreversible effects on males but not on females.

Sexual self-knowledge, meanwhile, should be far easier for males than females to achieve. The male's understanding of his own sex drive is essentially a matter of gathering information about a stable, fixed entity. In contrast, the female's self-exploration is to some extent pursuing a moving, shape-changing target. The evidence for sociocultural influence and intraindividual change could itself persuade some women that they require a long period of inner exploration, experimentation, and soul-searching in order to ascertain what they truly desire in sex, whereas men would have difficulty appreciating how so much introspective exertion could be required for the sake of understanding one's own sexuality. The sexual consciousness-raising of the women's movement during and after the sexual revolution, which never evoked much of an echo among males, could reflect the greater difficulty of understanding female sexuality due to its greater plasticity. Consistent with this view, some recent findings suggest that women are less certain than men of what they want in sex and how to get it (Vanwesenbeeck, Bekker, & van Lenning, 1998).

Sexual decision-making is also likely to be a far more complex and subtle matter for women than for men. If women's sexual desires and actions are strongly influenced by sociocultural factors, then the social context and situation would potentially be able to alter the desirability of performing a particular sex act with a particular partner. For men, in contrast, performing a particular sex act with a particular person may be a straightforward decision depending on salient, unchanging cues, whereas for women, the answers might fluctuate as a function of a host of intangible social and contextual factors.

Last, the ongoing debate as to the degree of influence by nature or culture could well end up being somewhat artificially prolonged by the gender difference in plasticity. Feminist analysis has favored the social construction of sexuality, whereas the subsequent rise of evolutionary theories has been dominated by male theorists. If women are indeed more socioculturally malleable than men, then the social constructionist theories would resonate intuitively with women more than men, whereas the reverse would hold for biological and evolutionary theories.

Concluding Remarks

Human progress is generally regarded as a matter of either reforming society so as to improve its capacity to guide people toward more fulfilling lives or, at least, allowing people freedom to make their own conscious choices and pursue their individual goals. Moreover, it seems highly likely that sex, love, and mating will continue to play a central part in human happiness and fulfillment. The question of how much human sexuality can be transformed based either on utopian social arrangements or individual choice is therefore one that has more than abstract theoretical implications. If the sex drive is socioculturally malleable, then there exist many possible directions in which to pursue social progress and individual fulfillment. In contrast, if the sex drive is fixed and static, then society must ultimately accommodate and confront those patterns, and individual choice will be a matter of pursuing those innate, inflexible desires.

The gender difference in erotic plasticity suggests that women present a better prospect for achieving cultural progress than men, at least with regard to sexuality. To be sure, the differences are relative rather than absolute, but, on both individual and collective measures, there was consistent evidence that women's sexuality can adapt and change more effectively than men's. To the extent that the road to utopia runs through the bedroom, social engineers may find that male inflexibility presents the greater problem whereas female plasticity represents the more promising opportunity.

Meanwhile, the sexual responses of individuals are likely to continue to take shape in different ways, particularly with respect

to the relative importance of physical versus sociocultural dimensions. The relatively low plasticity of the male sex drive suggests that biochemical factors such as hormones, age, general health, and genetic predispositions may often be the driving forces, and men's sexual wishes may be relatively indifferent to the social context. For women, in contrast, sex is driven by sociocultural factors, interpretations, context, expectations, and the like. The question of "What does it mean?"—in other words, what does a particular sex act signify and communicate—is centrally important to the female sexual experience, before, during, and after. For men, in contrast, the different possible meanings matter less, and sex might often be a perfectly fine experience even if it hardly means anything at all. These differences could make mutual intuitive understanding between men and women elusive.

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