

GENETIC ARGUMENTS

The controversy over homosexuality frequently comes down to a debate over whether "homosexuals were born that way" or "homosexuality is a life-style choice." In most cases the correct answer is "Neither of the above." Contrary to publicity in the media, the case for the "gay gene" has not been made. The articles cited as proving that homosexuality is genetically determined, don't actually make that claim, but suggest that it may possibly that sexual orientation is influenced by inherited characteristics (such as temperament). Those who believe that homosexuality is a developmental disorder which is preventable and treatable do not deny that inherited temperamental characteristics can play a part, as they can in other psychological conditions.

The evidence in the much publicized articles used to promote the "gay gene" myth is scientifically weak to say the least, could equally well demonstrate an environmental influence. In several cases the findings have not been replicated by other researchers. In additions, for a very small number of few individuals the motivation for engaging in same-sex activity may be an attitude of rebellion against societal norms. There is, however, substantial evidence that early childhood experiences set up a series of events which result in same-sex attraction or activity. The child faced with a series of negative experiences makes decisions to defend himself, but these can not be considered as a mature, free will decision to choose to be homosexual and, in most cases, these childhood decisions cannot be seen as real choices. The adolescent or adult homosexually attracted person can however make a decision to seek help, provided he knows that such help is available.

When homosexuals say they have always felt "different," they may be right. If as a little boy you didn't feel your father's love and acceptance, if your mother didn't encourage your masculine identification, if you weren't accepted by other little boys, you probably felt you were different and it hurt. It isn't just that homosexuals have to want to change. They have to face all the childhood pain. Many have been sexually abused, become sexually addicted, addicted to drugs and alcohol, or have other psychological problems linked to their childhood experiences. Psychological healing takes time. For many homosexuals, it is easier to say, "I was born this way."

There is, however, another reason why homosexual activists are pushing unproved theories for a genetic cause for homosexuality: they have research which shows that people who believe that homosexuality has a genetic cause are more likely to support homosexual rights.

The following material includes excerpts from the articles used to support the claim for biological cause of homosexuality and articles pointing out the flaws in these studies. None of the articles actually claim that homosexuality is genetically determined, let alone prove it. Since many people have been influenced by news report falsely interpreting the "gay gene" studies, it is necessary to firmly refute the "gay gene" myth, while at the same time offering homosexual persons hope.

Part 1 presents twin studies; Part 2 deals with articles suggesting a biological cause for homosexuality; Part 3 presents critiques of the theories.

PART 1 TWINS STUDIES

One of the ways used to study what is genetically determined and what is influenced by environment is to study identical twins adopted by different families in infancy. A major study of identical twins separated at birth found six pairs of twins in which one was homosexual.

TWINS RAISED APART

If homosexuality is "genetically determined," then 100% of identical twins would have the same sexual orientation. In a study of twins separated at birth, 6 pairs were found in which one person was homosexually active as an adult. In one pair of male twins separated at birth both were homosexual as adults, but both had additional problems - learning disability, hyperactive, speech impediment with lisp

as a child, emotionally labile, subject to episodes of anxiety and depression. One member of the other set of male twins had engaged in homosexual activity with an adult as an adolescent, subsequently married and fathered four children with no further homosexual activity and did not consider himself homosexual. In addition the study does not consider the effect of being adopted on the psychological development of boys. McGuire (see below) points out other flaws in the report. In none of the four female pairs were both women homosexual. Eckert et al. appear to assign homosexuality and bisexuality to people who insist they are happily heterosexual.

Eckert, E., Bouchard, T., Bohlen, J., Heston, L. (1986) Homosexuality in monozygotic twins reared apart. *British Journal of Psychiatry*. 148: 421 - 425.

ABSTRACT: We describe six pairs of monozygotic twins, in which at least one member of five pairs were homosexual, and one of the remaining pair was bisexual, from a series of 55 pairs, reared apart from infancy; all the female pairs were discordant for homosexual behavior. This and other evidence suggest that female homosexuality may be an acquired trait. One male pair was concordant for homosexuality, while the other was not clearly concordant or discordant; **this suggests that male homosexuality may be associated with a complex interaction, in which genes play some part.**

TWIN 2B: ... Homosexual affair with an older man between ages 15--18. First heterosexual experience, age 20 with future spouse. No heterosexual contact, except with spouse. Married age 20, four children. Regards himself as exclusively heterosexual.

THE FEMALE PAIRS: ... Without reservation, three of the four pairs were discordant for sexual preference. One member of pair 4 had a homosexual affair, which was intense and prolonged, so that we regard her as bisexual although she describes herself as exclusively heterosexual since her second marriage in her late twenties. Her co-twin, like the other three co-twins, denied any homosexual experiences and described herself as enthusiastically heterosexual ... In every pair, the homosexual member was larger throughout life, but had experienced menarche later than her co-twin.

TWINS STUDIES

Another way to study genetic influences is to compare identical twins (monozygotic) with fraternal twins (dizygotic), brothers, and adopted siblings.

If homosexuality were genetically determined then 100% of identical twins would be identical, since identical twins have the same inherited temperament and same environment, it would be expected that they would be more likely to have the same sexual orientation

While the Bailey/Pillard study does not claim that homosexuality is genetically determined, in an interview Pillard gives the impression that his study proves that the childhood experiences have no effect on sexual orientation, which the study neither proves nor claims.

Bailey, J., Pillard, R. (1991) A genetic study of male sexual orientation. *Archives of General Psychiatry*. 48: 1089 - 1096.

ABSTRACT: ... Of the relatives whose sexual orientation could be rated, 52% (29/56) of monozygotic co-twins, 22% (12/54) of dizygotic co-twins, and 11% (6/57) of adoptive brothers

were homosexual... rate of homosexuality among non-twin biological siblings, as reported by probands, 9.2% (13/142) was significantly lower than would be predicted by a simple genetic hypotheses.

INTRODUCTION: ... A recent survey found that those who believed that homosexuals are "born that way" held significantly more positive attitudes toward homosexual than subjects who believed that homosexuals "choose to be that way" and/or "learn to be that way."(Ernulf 1989)

IMPLICATIONS FOR THE GENETICS OF SEXUAL ORIENTATION: ... Heritability is not informative regarding the development of sexual orientation (or, for that matter, of any trait.)

That is, given any heritability estimate, there are a variety of possible developmental mechanisms. For instance, these data are consistent with heritable variation in prenatal brain development or in some aspect of physical appearance that, **by way of differential parental treatment, leads to differences in sexual orientation.**

... one assumption of the heritability analyses presented above is that there are no major genes for homosexuality,

IMPLICATIONS FOR THE DEVELOPMENT OF SEXUAL ORIENTATION: ... Monozygotic pairs concordant for homosexuality tended to be concordant for the degree of childhood gender nonconformity. **This suggests that among homosexuals, individual differences in development are largely determined by genetic and/or shared environmental factors.**

PILLARD MISCHARACTERIZES HIS OWN RESEARCH

Emery, E. (1991) New study: Homosexuality genetic: Latest finding does little to alter opinions toward gays locally. *Providence Journal*. Dec.

"I think the results of this study should be a signal to parents that having a child who's gay isn't the result of being an inadequate parent," said Boston University psychiatrist Richard C. Pillard, one of the authors of the study.

IDENTICAL TWINS, DIFFERENT EXPERIENCES, DIFFERENT OUTCOMES

Case histories of identical twins discordant for sexual preference suggest that other factors play a significant role in the development of gender identity and sexual preference. For example, identical twin Frank, Jr. was born first and "badly mutilated" during the process. He was considered by his parents as "very ugly infant." Co-twin Paul had big eyes and was perceived as good-looking at birth. Strangers seeing them together commented, "Oh how nice! A boy and a girl." At three Paul contracted an infectious disease which required extensive medical attention. For two and a half years his mother drove him to a hospital in a distant city -- a two hour round trip -- while the father stayed home with Frank, Jr. Because of the medical problems, the father was reticent to engage in rough play with Paul.

At age 8 Paul was evaluated for feminine behavior, which included cross-dressing, doll play, female role play, and avoidance rough-and-tumble play. When asked to draw a person, Paul drew a female and Frank drew a male. In an interview with the therapist, the twins' mother commented on the impact on Paul of not being named after his father,

Green, R. (1974) *Sexual Identity Conflict in Children and Adults*. Baltimore: Penguin. pp.206 - 207.

"I can see, looking through Paul's eyes -- that he [Frank, Jr.] got Daddy's name because he's the one that Daddy liked."

IDENTICAL TWINS, ONE HETEROSEXUAL, ONE HOMOSEXUAL

Identical twins Sam and Howard differed in weight at birth and that difference persisted into adulthood. As a result they could always be told apart. According to the report, Sam had homosexual fantasies and engaged in homosexual activity. Howard's fantasy life was heterosexual. He is married.

Friedman, R. (1988) *Male Homosexuality: A Contemporary Psychoanalytic Perspective*. New Haven: Yale U. Press.

Psychological development diverged from early childhood. Sam's first memories were feeling insecure and vulnerable. He recalled that at age five, he had been envious of girls because they were taken care of by men when they grew up. Sam always felt closer to his mother than to his father, perceiving the latter as withdrawn and passive... Sam stayed home after school helping his mother with housework or playing hopscotch with neighborhood girls, while Howard remained outside with male peers. Although not effeminate, Sam was athletically awkward and temperamentally unassertive. The last to be chosen for team sports, frightened of rough-and-tumble activities, he had low status with other boys.

Sam was ashamed of his body. As early as age five, he recalled, he felt that his nipples were similar to his mother's. In later years, he felt that he had a feminine habitus, even though others perceived him to be masculine. During his boyhood and early adolescence Sam was labeled a "mama's boy" and "the twin who like to read" by causal acquaintances, peers and extended family. . .

Howard recalled feeling secure as a young child. He perceived his father as quiet in disposition but loving, gentle, and strong. He always felt closer to his father than to his mother and actively rebelled against her control. . . .

Howard was the target of continual maternal disfavor because of his sloppiness, rowdiness, and poor performance as student. During boyhood and adolescence, he was a peer group leader, athletically graceful, and fiercely competitive at team sports. He responded to challenge with attack and usually emerged the victor in fights with other boys. Howard viewed his body with pride and never felt unmasculine or feminine. From about age eight, he was known as "the twin who liked sports." (p. 28 - 29)

PART 2 - "GAY GENE" STUDIES

HAMER STUDY MAKES CLAIMS OF GENETIC INFLUENCE

Hamer presents a mass of technical evidence, much of which is incomprehensible to the lay person. The charts and data do not, however, compensate for the small sample size and methodological deficiencies. Even if the conclusion that homosexuality is "genetically influenced" were accepted, this would not be proof that homosexuality is "genetically determined." The McGuire article (reviewed below) analyzes Hamer's investigation of the family histories and finds that the claim of maternal influence is not justified. Other researchers have failed to replicate his claims of a particular gene associated with homosexuality, and a second study by Hamer found a smaller percentage of correlation.

Hamer, D., Hu, S., Magnuson, V., Hu, A., Pattatucci, A. (1993) A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*. 261: 321 - 327.

ABSTRACT: The role of genetics in male sexual orientation was investigated by pedigree and linkage analysis on 114 families of homosexual men. Increased rates of same-sex orientation were found in the maternal uncles and male cousins of these subjects, but not in their fathers or paternal relatives, suggesting the possibility of sex-linked transmission in a portion of the population. DNA linkage analysis of a selected group of 40 families in which there were two gay brothers and no indication of nonmaternal transmission revealed a correlation between homosexual orientation and the inheritance of polymorphic markers on the X chromosome in approximately 64 percent of the sib-pairs tested. The linkage to markers of Xq28, the subtelomeric region of the long arm of the sex chromosome, had a multipoint lod score of 4.0 ($P = 10^{-5}$), indicating a statistical confidence level of more than 99 percent that at least one subtype of male sexual orientation is genetically influenced.

STUDY OF FAMILY TREES OF HOMOSEXUAL

While Hamer claimed to have found more homosexuals on the mothers side of the family than would be expected, this study of effeminate boys (possibly pre-homosexual) did not find a high rate of homosexuality in relatives on either side. In both cases, the numbers studied were so small and the means of determining who was homosexual so unreliable that the results can not be said to have "proved" anything.

Zuger, B. (1989) Homosexuality in families of boys with early effeminate behavior: An epidemiological study. *Archives of Sexual Behavior*. 18, 2: 155 - 166.

ABSTRACT: In the course of a long-term study of 55 boys with early effeminate (cross-gender) behavior an effort was also made to ascertain the presence of sexual deviance in their parents, siblings, uncles, and aunts. For most of these groups of relatives, only one to three members of each group was found to be homosexual, equaling 4% male and 1% female for the total test population.

PARENTS: Three of the 49 fathers were homosexual.... [Three others may have been homosexual. One of the mothers engaged in homosexual episodes.]

... one homosexual brother and one homosexual sister were reported for the respective 48

brothers and 40 sisters.

UNCLES AND AUNTS: Among the 47 paternal uncles and 61 paternal aunts of the effeminate boys, there was 1 definite homosexual in each group. Possible homosexuals among the uncles were 4 and none for the aunts. On the maternal side, 3 of the 41 uncles were definite homosexuals and 1 a possible homosexual. There were no homosexuals among the 44 maternal aunts.

HAND/EYE COORDINATION

The results could also be interpreted to add the massive body of evidence which suggests that rejection by male peers because of lack of hand/eye coordination contributes to a need for masculine acceptance and affirmation, and that this need leads to same-sex attraction. It is also possible that hand/eye coordination is developed through early play experiences with the father and therefore that a boy who did not have interaction with the father would be more prone to lack the experiences which develop those parts of the brain which control hand/eye coordination.

Hall, J., Kimure, D. (1995) Sexual orientation and performance on sexually dimorphic motor tasks. *Archives of Sexual Behavior*. 24, 4: 395 - 407.

ABSTRACT: ... Heterosexual men outperformed heterosexual women, whereas gay men threw less accurately and lesbians tended to throw more accurately than their heterosexual counterparts. Differences in sports history or hand strength did not account for these effects. DISCUSSION: ... Pegboard scores found no interaction or main effect of sexual orientation, but the effect of sex was significant. Regardless of sexual orientation, women outperformed men and this difference remained significant even when a measure of finger size was partialled out. this study provides new evidence suggesting an association between sexual orientation and motor-performance profiles.

The results of the study are consistent with the notion that early hormones mediate changes in neural functioning that underlie both sexual and nonsexual behaviors in humans. More specifically, the study adds evidence that sexual orientation and motor/cognitive predispositions have early biological contributions.

THEORY OF CAUSATION OF SEXUAL ORIENTATION

This study presents an interesting theory and one with which some of those who stress treatment and prevention would not totally disagree - namely that homosexuals as children saw themselves as different from their same-sex peers and this contributed to the development of same-sex attraction. The disagreement arises over whether this feeling was healthy and normal. Zucker and Bradley (1995) argue convincingly that the early alienation from one's own sex is the result of negative experiences and that such children are not happy non-conformists, but troubled, rigid and phobic. Furthermore, while the homosexual may be attracted to what is perceived as different from himself, another homosexual is not in fact different and the complementarity desired will not be found in a homosexual relationship,

Bem, D. (1996) Exotic becomes erotic: A developmental theory of sexual orientation. *Psychological Review*. 103, 2: 320 - 335.

ABSTRACT: A developmental theory of erotic/romantic attraction is presented that provides the same basic account for opposite and same-sex desire in both men and women. It proposes that biological variables, such as genes, prenatal hormones, and brain neuroanatomy, do not code for sexual orientation per se but for childhood temperaments that influence a child's preferences for sex-typical or sex atypical activities or peers. These preferences lead children to feel different from opposite or same-sex peers -- to perceive them as dissimilar, unfamiliar, and exotic. This, in turn, produces heightened nonspecific autonomic arousal that subsequently gets eroticized to that same class of dissimilar peers. Exotic becomes erotic.

	Men		Women	
	Gay (n=686)	Heterosexual (n=337)	Lesbian (n=293)	Heterosexual (n=140)
Had not enjoyed sex-typical activities	63%	10%	63%	15%
Had enjoyed sex-atypical activities	48%	11%	81%	61%
Atypically sex-typed	56%	8%	80%	24%
Most childhood friends were opposite sex	42%	13%	60%	40%

EVIDENCE FOR THE THEORY: ... relatively more women than men had enjoyed sex-atypical activities and had opposite-sex friends during childhood. (In fact, more heterosexual women than gay men had enjoyed boys' activities as children --61% vs. 37%, respectively.)

GENDER CONFORMITY AND NONCONFORMITY PRODUCE FEELINGS OF BEING DIFFERENT: ... They found that 71% of gay men and 70% of lesbian women recalled having felt different from same-sex children during the grade-school years, compared with 38% and 51% of heterosexual men and women, respectively.

When asked in what way they felt different, gay men were most likely to say that they did not like sports; lesbians were most likely to say that they were more interested in sports or were more masculine than other girls. In contrast, the heterosexual men and women who had felt different from their same-sex peers in childhood typically cited differences unrelated to gender.

EXOTIC BECOMES EROTIC [EBE]: ... Most people choose members of the opposite sex to be their romantic and sexual partners. It is an indication of how unthinkingly heterosexuality is taken for granted that authors of articles and textbooks never seem to notice this quintessential complementarity and its challenge to the conclusion that similarity produces attraction.

BIOLOGICAL CONNECTION: ... the mediating temperaments should possess three characteristics: First, they should be plausibly related to those play activities that define gender conformity and nonconformity. Second, because they manifest themselves in sex-typed preferences, they should show sex differences. And third, because they are hypothesized to derive from the genotype, they should have significant heritabilities. One likely candidate is

aggression and its benign cousin, rough-and-tumble play.

INDIVIDUAL VARIATIONS: EBE theory predicts that the effect of any childhood variable on an individual's sexual orientation depends on whether it prompts him or her to feel more similar to or more different from same-sex or opposite-sex peers.

Finally, some women who would otherwise be predicted by the EBE model to have a heterosexual orientation might choose for social or political reasons to center their lives around other women. This could lead them to avoid seeking out for sexual or romantic relationships, to develop affectional and erotic ties to other women, and to self-identify as lesbians or bisexuals.

CHANDLER BURR WANTS TO BELIEVE IN A BIOLOGICAL CAUSE

Burr presents a mass of scientific information all of which is either irrelevant to the question or scientifically deficient. Burr lists "the various scientists pursuing this biological mystery" and stresses the political importance of evidence which could prove homosexuality is biologically determined.

Burr C. (1996) *A Separate Creation: The Search for the Biological Origins of Sexual Orientation*. NY: Hyperion.

"what... would it mean to the Church's view of sexuality and reproduction if there were a subgroup of human beings genetically directed to have nonreproductive sex? -- the implications derived their importance from a profound equalizing effect, a leveling of political, social, and even theological hierarchies. Because if this research showed that homosexuals were biologically different from other people in tiny variations in genetic helices and patterns of microscopic neurons deep inside them, it also said that in the larger, important ways -- in their basic humanity, in their capacity for feeling and thought, in the aspects of day-to-day life -- heterosexuals and homosexuals were the same."

[Quoting Hamer on the Nightline show with Ted Koppel] "What is important today," he concludes, "is that we've clearly demonstrated that genes are involved." After a commercial break, Koppel introduces the Reverend Peter Gomes, professor of Christian Morals at Harvard University [and a homosexual] Gomes..."I think part of the whole conversation about homosexuality has been to confuse it with some deliberate choice of lifestyle, confuse it with a 'lifestyle,' and suggest that it is somehow an option that other people were normal, as it were, do not have, " he says."In the sense that homosexuality is now to be seen as part of the equipment with which some people are born into the world, in some respects I think normalizes the debate, and I think that's helpful."

DESIRE FOR ASSIMILATION MOTIVATES DESIRE TO BELIEVE IN BIOLOGICAL CAUSE FOR HOMOSEXUALITY

Burr, C. (1996) Suppose there is a gay gene...What then?: Why conservatives should embrace the gay gene. *The Weekly Standard*. Dec. 16.

I am a Colin Powell Republican and a gay person who is an ardent assimilationist. I am an assimilationist in part because I look at a homosexual orientation as a biological roll of the dice that has all the political importance of left handedness, i.e., none at all.

PART 3 CRITICS OF STUDIES WHICH CLAIM A BIOLOGICAL CAUSE

BAILEY AND PILLARD STUDY CRITIQUED

This article explains how the studies which supposedly prove "heritability," actually offer evidence of the importance of environmental factors.

Goldberg, S. (1992) What is normal?: If something is heritable, can it be called abnormal? But is homosexuality heritable. *National Review*. Feb. 3. p.36 - 38.

... there is a crucial distinction that Bailey and Pillard did not make, a distinction between predispositional and a *determinative* physiological factor. The latter would be a factor that generated basic sexual orientation *regardless of the environment in which the individual grew*.

Homosexuality can be conceived as a series of "go"/"no go" steps, with a "go" required at every step if homosexuality is to develop. A person who lacks the physiological necessary condition (if there is such a condition), will not become a homosexual no matter what his subsequent environment. Another person, who meets the physiological necessary condition, will not become a homosexual if he encounters one series of environments, but will if he encounters another. This is now the implicit view of virtually all researchers who offer causal explanations of homosexuality.

RULE OF LAW: ... Is the greater frequency in homosexuals of depression, general unhappiness, and other undeniably undesirable tendencies a function only of social ostracism or also, perhaps primarily, of factors inherent in the development of homosexuality? At one time, homosexual spokesmen denied that there were any differences between homosexuals and heterosexuals other than in choice of sexual partner. This argument was surrendered even before the evidence required because it ignored the fact that it is only the negative *effects* of social sanctions that would lead anyone to be bothered by such sanctions.

One major study attempted to answer the question by studying societies with varying attitudes toward homosexuality. It found that the degree of tolerance was unrelated to the rates of depression, unhappiness, and the like. Astonishingly, the authors of this study concluded that this demonstrates that tolerance is not enough; equal acceptance is required if the rates of pathology are to decline.

What this evidence far more plausibly seems to imply is that social ostracism has little to do with the correlated behavior (which is a function of the same processes -- whatever they are -- that generate the homosexuality).

... evidence like that provided by Bailey and Pillard indicates that such a physiologically determinative factor will not be found.

HAMER STUDY QUESTIONED BY FEMINIST AUTHOR

Radical feminists and some of their lesbian allies hold to a post-modernist deconstructionist ideological position, namely that gender differences, gender roles, and sexual orientation are socially constructed and can be changed. They therefore reject the claim that homosexuality (or for that matter heterosexuality) are genetically determined. Ms. Falsto-Sterling is also the author of "The Five Sexes: Why male and female are not enough" *Science. March/April 1993*, in which she writes "Imagine that the sexes have multiplied beyond currently imaginable limits."

Falsto-Sterling, A., Balaban, E. (1993) Letters: Genetics and male sexual orientation. *Science*. 261: 1257.

We wish to emphasize a point with which we are sure Hamer *et al.* would agree: correlation does not necessarily indicate causation. A gene affecting sexual orientation in some segment of the male population might do so very indirectly. For instance, any gene that might increase the tendency of brothers to psychologically identify with one another might influence their similarity in such matters and sexual orientation and would be picked up in the present study.

We wonder whether it might not have been prudent for the authors and the editors of *Science* to have waited until more of the holes in the study had been plugged (or not, as the future will tell.)

BIOLOGICAL THEORIES QUESTIONED

Byne and Parsons carefully analyze the biological cause studies and find no evidence to support the claims for a genetic cause for homosexuality.

Byne, W., Parsons, B. (1993) Human sexual orientation: The biologic theories reappraisal. *Archives of General Psychiatry*. 50: 229 - 239.

ABSTRACT: ... there is no evidence at present to substantiate a biologic theory, just as there is no compelling evidence to support any singular psychosocial explanation. While all behavior must have an ultimate biologic substrate, the appeal of current biologic explanation for sexual orientation may derive more from dissatisfaction with the present status of psychosocial explanations than from a substantiating body of experimental data. Critical review shows the evidence favoring a biologic theory to be lacking. In an alternative model, temperamental and personality traits interact with familial and social milieu as the individual's sexuality emerges. Because such traits may be heritable or developmentally influenced by hormones, the model

predicts an apparent nonzero heritability for homosexuality without requiring that either genes or hormones directly influence sexual orientation per se.

WHY LOOK TO BIOLOGY?: ... as reviewed by Van den Aardweg, the literature suggests that many, perhaps a majority of homosexual men report family constellations similar to those suggested by Bieber et al to be causally associated with the development of homosexuality (e.g. overly involved, anxiously overcontrolling mothers, poor father-son relationships). this association has been observed in nonclinical as well as clinical samples.

AN INTERACTIONIST MODEL: ... Research into the heritability of personality variants suggests that some personality dimensions may be heritable, including novelty seeking, harm avoidance, and reward dependence. Applying these dimensions to the above scenario, one might predict that a boy who was high in novelty seeking, but low in harm avoidance and reward dependence, would be likely to disregard his mother's discouragement of baseball. On the other hand, a boy who was low in novelty seeking, but high in harm avoidance and reward dependence, would be more likely to need the rewards of maternal approval, would be less likely to seek and encounter male role models outside the family, and would be more likely to avoid baseball for fear of being hurt. In the absence of encouragement from an accepting father or alternative male role model, such a boy would be likely to feel different from his male peers and as a consequence be subject to nonerotic experiences in childhood that may contribute to the subsequent emergence of homoerotic preferences. Such experiences could include those described by Friedman as being common in prehomosexual boys, including low masculine self-regard, isolation, scapegoating, and rejection by male peers and older males, including the father.

HAMER STUDY QUESTIONED

This article gives the background on the investigation by the Office of Research Integrity into the methods used by Hamer.

Crewdson, John (1995) Study on 'gay gene' challenged. *Chicago Tribune*. June 25.

.... no other laboratory has confirmed Hamer's findings. Now, Hamer and his lawyers are defending his study before the Office of Research Integrity which is investigating allegations by one Hamer's collaborators that he selectively reported his data in ways that enhanced the study's conclusions.

His accuser, a junior researcher who performed the computerized genetic mapping that is at the heart of Hamer's claimed discovery, also refused to speak about the investigation

Questions about Hamer's choice of data were first raised in March of last year by the researcher, a 38-year-old post-doctoral fellow in NCI's Laboratory of Biochemistry, where Hamer is chief of the section on gene structure and regulation.

Shortly after voicing her questions the woman was abruptly ordered to leave the laboratory without even removing her personal effects.

The researcher then took her concerns to higher-ups at the National Institutes of Health, the federal biomedical research complex of which the NC is a part. NIH officials referred the

matter to the Office of Research Integrity, the federal agency charged with investigating possible scientific misconduct.

Only one independent laboratory has reported attempting such a replication, and it has found no evidence to support Hamer. "We can't reproduce Hamer's data," says Dr. George Ebers, a neurogeneticist from the University of Western Ontario, who has searched unsuccessfully for a Hamer-style genetic link to homosexuality in more than 50 pairs of gay Canadian brothers.

Exactly half of his brother pairs, Eber said, shared genetic markers on the X chromosome, where Hamer found evidence for genes linked to homosexuality. Such a 50-50 split is the precise distribution that would be expected by chance alone, leading Ebers to conclude that "there is no support for the idea that anything on the X chromosome is disposing you to homosexuality.'

GENETIC CLAIMS QUESTIONED

McGuire faults the various studies which claim that homosexuality is biologically determined.

McGuire, T. (1995) Is homosexuality genetic? A critical review and some suggestions. *Journal of Homosexuality*. 28,1 & 2: 115 - 145.

ABSTRACT: Genetic analysis of behavioral differences among human beings requires both careful experimental design and appropriate genetic modes. Any genetic study must use (1) valid and precise measures of individual differences, (2) appropriate methods to ascertain biological relationships, (3) research subjects who have been randomly recruited, (4) appropriate sample sizes, and (5) appropriate genetic models to interpret the data. In addition, the researchers must exercise caution in interpreting biosocial effects from the observed phenotypic correlations. To date, all studies of the genetic basis of sexual orientation of men and women have failed to meet one or more or any of the above criteria.

TWIN STUDIES:

Hamer et al.

I have to agree with King(1993) that "Were virtually any other trait involved, the paper would have received little public notice until the results had been independently replicated."

I compared similar pairs of relatives (maternal vs. paternal uncles; maternal cousins from uncles and aunts and paternal cousins from uncles and aunts) In none of these three cases did I find a significant difference. That is, there was no evidence for a maternal effect.

Until these results are replicated with better recruitment procedures, accurate, reliable, and consistent assessment of sexual orientation, sufficient sample sizes, appropriate statistics, and rigorous testing of all members of the pedigrees, they should be viewed with extreme skepticism.

Eckert et al.

The experimenters were willing to "forgive" the adolescent heterosexual affairs of twin A and label him as homosexual. However, the 15 years of exclusive heterosexual activity of twin B with his wife was not persuasive enough for the experimenters to diagnose his sexual orientation.

Instead they concluded: "it is hard to deny genetic factors as an aetiological role." .

Three of the female twin pairs were definitely discordant for homosexuality. The fourth pair had one member who had extensive homosexual affairs until her second marriage at age 29 and had been exclusively heterosexual for 19 years. The other sister was homosexual. The experimenters concluded that homosexuality [in women] was 'acquired after conception, most likely after birth, but before menarche'. None of these conclusions, however, followed from their data.

Kallman

Kallman (1952) recruited a total of 85 MZ and DZ twins. Kallman claimed that all co-twins of his MZ index cases were homosexual -- 100 concordance, while the DZ twins showed only moderate concordance. Kallman (1960) later acknowledged that the 100% concordance was only a statistical artifact.

Heston and Shields

... studied a few male twins included in the Maudsley twin study who were acknowledged homosexuals.. Two of five pairs of MZ twins were concordant for homosexuality and one of the seven pairs of DZ twins was concordant. (Heston 1968)

King and MacDonald

They recruited 46 homosexual men and women who were twins... King and MacDonald (1992) did not find any evidence for a genetic basis of homosexuality. Only 9 of the co-twins were rated as homosexual or bisexual (5 out of 15 MZ twins and 3 out of 22 DZ twins). the researchers also reported that 7 of the twins (6 MZ, 1 DZ) had had sexual contact with their same-sex twin. In five of these seven cases, however, the co-twin was regarded as heterosexual.

SOCIAL IMPLICATIONS OF THE GENETIC MODEL: ... some people want homosexuality to be biological or genetic because they then believe that because homosexuals are "born that way" they will somehow be tolerated. Others advocate environmental causes since this justifies their belief that individuals "chose a gay lifestyle."

Even if we knew absolutely everything about genes and absolutely everything about environment, we still could not predict the final phenotype of any individual. It is very likely that behavior, in general, and sexual identity, in particular, are results of idiosyncratic processes. Minor events can be amplified to have major effects.

HAMER STUDY QUESTIONED

Editorial questions the studies claiming to prove the existence of a "gay gene."

Simon LeVay has since left the Salk Institute in La Jolla CA to actively work for gay rights.

It could not be proved that Hamer had engaged in research irregularities and the charges were dropped.

Horgan, J. (1995) Gay genes, revisited: Doubts arise over research on the biology of homosexuality. *Scientific American*. Nov. p.28

In 1991 Simon LeVay (1991), then at the Salk Institute for Biological Studies in San Diego, reported finding subtle but significant differences between the brains of homosexual and

heterosexual. Two years later a group led by Dean H. Hamer of the National Cancer Institute linked male homosexuality to a gene on the X chromosome, which is inherited exclusively from the mother.

Both announcements made headlines worldwide. LeVay and Hamer appeared on talk shows and wrote books. They also co-authored an article published in this magazine in May 1994. But LeVay's finding has yet to be fully replicated by another researcher. As for Hamer, one study has contradicted his results. More disturbingly, he has been charged with research improprieties and is now under investigation by the Federal Office of Research Integrity.

George Ebers of the university of Western Ontario says his examination of 52 pairs of gay brothers yielded no evidence for a linkage of homosexuality markers on the X chromosome or elsewhere. Ebers and an associate, George Rice, have also analyzed the pattern of sexual orientation in 400 families with one or more gay males and found no evidence for the X-linked, mother-to-son transmission posited by Hamer.

SEXUAL ORIENTATION CAN CHANGE

This book by Simon LeVay and lesbian activist Nonas appears to back away from the assertion that homosexuality is genetically determined and adopts the theory that gender and identity are social constructed roles that can change. LeVay produced a study claiming to find differences between the brains of heterosexual and homosexual men.

LeVay, S., Nonas, E. (1995) *City of Friends: A Portrait of the Gay and Lesbian Community in America*. Cambridge MA; MIT Press.

There are probably very few people who have not felt, at some time or another, some sexual attraction to both men and women. Where the division between homosexual (or heterosexual) and bisexual should be placed is arbitrary, because sexual orientation is a continuum.

A person's sexual orientation is not necessarily a fixed, life-long attribute. Sexual orientation can change: for example a woman may be predominantly attracted to men for many years, and perhaps have a happy marriage and children during that time, and then become increasingly aware of same-sex attraction in her thirties, forties, or later. This does not mean that she was concealing or repressing her homosexuality during that early period. To argue that she was really homosexual all the time would be to change the definition of sexual orientation into something murky and inaccessible.(p.5)

Lesbians identified with women - perhaps it would be more accurate to say that they identified women with themselves. Gay men identified with men: not real, heterosexual, homophobic men, of course, but with some celluloid vision of how men ought to be : manly, clean-cut, go getting. (p.61)

The attitudes of lesbians and gays concerning gender are not entirely healthy. First comes the belief, subscribed to by many lesbian and gay therapists, that gender identity and general are solely the products of socialization. Not only is there little scientific evidence to support this

belief; it is also damaging, in that it makes gays and lesbians who are gender nonconformist, as well as transsexual men and women, search futility in their childhood memories for what made them so, and it also leads them to separate off their gender nonconformity conceptionally from their homosexuality, which many gay and lesbian therapists *do* consider innate. In fact, whatever their causes, homosexuality and gender nonconformity are intimately related.

Second, many gays and lesbians, especially in the past, have disliked and, as best they could, concealed their own gender nonconformity. Of course, this is understandable, given childhood teasing and adult sexism...But still gays and lesbians refuse to simply *be* gender nonconformity. Instead, they have to *act* gender nonconformist, to have an intellectualized reason for it. Either they are intent on overthrowing the patriarchy, and have chosen the abolition of gender as the means to that end, or they are cultural trendsetters for whom genderfuck is the mode du jour.(p. 396)

LE VAY BRAIN STUDY CRITIQUED

This review of Simon LeVay's book points out the flaws in his research.

Porter, R. (1996) Born that Way: A review of *Queer Science: The Use and Abuse of Research into Homosexuality* by Simon LeVay and *A Separate Creation* by Chandler Burr. *New York Times Book Review*. August 11.

... Dr. LeVay argued that science was at last solving the homosexuality questions. Being gay as not a matter of choice or a consequence of upbringing but was coded into biological destiny. Sexual orientation was in your genes, brain or metabolism, embedded in your very nature.

Dr. LeVay and his colleagues are enthusiastic about dramatic breakthroughs, but read carefully and find the house of sexual science is built on sand. Dr. LeVay did his research on brains. You and I might think that a neurologist would investigate quite a few -- a though, perhaps, before claiming to have solved the Sphinx riddle. So how many brains did Dr. LeVay slice? Forty-one. How many more has he done since then? None, it seems. A new form of inverse square law appears to be operating: bigger and bigger claims based on minuscule amount of research.

Moreover, as Mr. Burr's interviewees note, there are dozens of ways in which Dr. LeVay's original experiments might have been flawed -- a fact that Dr. LeVay frankly admits. The homosexual brains he sliced all came from men who have died of AIDS.

HAMER STUDY QUESTIONED AGAIN

Another study failed to replicating Hamer's findings on the "gay gene" lending credence to the accusation that Hamer may have manipulated his data.

Gadd, Jane (1998) New study fails to find so-called 'gay gene'. *Toronto Globe and Mail*. June 2.

In 1993 Dr. Dean Hamer, a researcher at the U.S. National Institutes of Health, captured headlines when his study of 33 pairs of gay brothers found similarities in parts of their X chromosomes that suggested homosexuality could be an inherited trait.

But an NIH colleague, Dr. Alan Sanders, reported yesterday that an attempt to replicate the results using 54 sets of gay brothers was not successful.

"No [genetic] marker reached statistically significant criteria" in Dr. Sander's study, he told reporters at the American Psychiatric Associations annual conference yesterday in Toronto.

BIBLIOGRAPHY

- @ Adelman, K (1997) Nature vs. nurture in the policy debate. *Washington Times*. Jan 13. **GENETIC**
- @ * Bailey, J., Pillard, R. (1991) A genetic study of male sexual orientation. *Archives of General Psychiatry*. 48: 1089 - 1096. **GENETIC**
- Bancroft, J. (1990) Commentary: Biological contributions to sexual orientation. (in McWhirter, D., Sanders, S., Reinisch, J.(eds) *Homosexuality/Heterosexuality*. NY: Oxford U. Press) 101 - 136.
- @ Barinaga, M. (1993) Differences in brain structure may cause homosexuality.(in *Homosexuality: Opposing Viewpoints*. San Diego: Greenhaven) 17 -22
- @ * Bem, D. (1996) Exotic becomes erotic: A developmental theory of sexual orientation. *Psychological Review*. 103, 2: 320 - 335.**GENETIC**
- @ Blancard, R., Zucker, K. (1994) Reanalysis of Bell, Weinberg, and Hammersmith's data on birth order, sibling sex ratio, and parental age in homosexual men. *American Journal of Psychiatry*. 151, 9: 1375 - 1376. **GENETIC**
- @ \$ * Burr C. (1996) *A Separate Creation: The Search for the Biological Origins of Sexual Orientation*. NY: Hyperion. **GENETIC**
- @ * Burr, C. (1996) Suppose there is a gay gene...What then?: Why conservatives should embrace the gay gene. *The Weekly Standard*. Dec. 16.**GENETIC**
- @ * Byne, W., Parsons, B. (1993) Human sexual orientation: The biologic theories reappraisal. *Archives of General Psychiatry*. 50: 229 - 239.**GENETIC**
- @ * Crewdson, John (1995) Study on 'gay gene' challenged. *Chicago Tribune*. June 25.**GENETIC**
- @ Diamond, R. () Letters **GENETIC**
- @ * Eckert, E., Bouchard, T., Bohlen, J., Heston, L. (1986) Homosexuality in monozygotic twins reared apart. *British Journal of Psychiatry*. 148: 421 - 425. **GENETIC**
- @ * Emery, E. (1991) New study: Homosexuality genetic: Latest finding does little to alter opinions toward gays locally. *Providence Journal*. Dec. **GENETIC**
- # Ernulf, K., Innala, S., Whitam, F. (1989) Biological explanation, psychological explanation, and tolerance of homosexual: A cross-national analysis of beliefs and attitudes. *Psychological Reports*. 65: 1003 -1010. [in Bailey 1991] **GENETIC**
- @ * Falsto-Sterling, A., Balaban, E. (1993) Letters: Genetics and male sexual orientation. *Science*. 261: 1257.**GENETIC**
- @ Family Research Council (nd) *Flawed Science Nurtures Genetic Origin for Homosexuality*. Washington DC **GENETIC**
- *Friedman, R. (1988) *Male Homosexuality: A Contemporary Psychoanalytic Perspective*. New Haven: Yale U. Press. **GENETIC**
- @ * Gadd, Jane (1998) New study fails to find so-called 'gay gene'. *Toronto Globe and Mail*. June 2. **GENETIC**
- Gartrell, N. (1982) Hormones and homosexuality.(in Paul, W., Weinrich, J., Gonsiorek, J., Hotvedt, M.(eds) *Homosexuality: Social, Psychological and Biological Issues*. *The Final report of the Society for the*

Psychological Study of Social Issues Task Force of Sexual Orientation. Beverly Hills CA: Sage.) 169 -182

- @ * Goldberg, S. (1992) What is normal?: If something is heritable, can it be called abnormal? But is homosexuality heritable. *National Review*. Feb. 3. p.36 - 38. **GENETIC**
- @ Goode, E.(1999) Study questions gene influence on male homosexuality. *New York Times*. April 23. **GENETIC**
- *Green, R. (1974) *Sexual Identity Conflict in Children and Adults*. Baltimore: Penguin. pp.206 - 207. **GENETIC**
- @ Griffin, C. (1993) Parent-child relationships do not affect homosexuality (in *Homosexuality: Opposing Viewpoints*. San Diego: Greenhaven) 36 - 44.**GENETIC**
- @ * Hall, J., Kimure, D. (1995) Sexual orientation and performance on sexually dimorphic motor tasks. *Archives of Sexual Behavior*. 24, 4: 395-407. **GENETIC**
- @ * Hamer, D., Hu, S., Magnuson, V., Hu, A., Pattatucci, A. (1993) A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*. 261: 321 - 327. **GENETIC**
- @ Hamer () Response to Diamond. *Science* **GENETIC**
- @ Harrison, B. (1993) The link between brain structure and homosexuality remains unproven .(in *Homosexuality: Opposing Viewpoints*. San Diego: Greenhaven) 23 - 27.**GENETIC**
- # Heston, L., Shield, J. (1968) Homosexuality in twins. *Achieves of General Psychiatry*. 18: 149 - 160.[in McGuire 1995]**GENETIC**
- @ * Horgan, J. (1995) Gay Genes, Revisited: Doubts arise over research on the biology of homosexuality. *Scientific American*. Nov. p.28. **GENETIC**
- @ Jefferson, D. () Science Besieged: Studying the biology of sexual orientation has political fallout: Researchers find their labs turn into battlegrounds for opposing viewpoints. *Wall Street Journal*. 222, 30: 1. **GENETIC**
- # Kallman F. (1952) Comparative twin study on the genetic aspects of male homosexuality. *The Journal of Nervous and Mental Disease*. 115: 283 - 298. [in McGuire 1995]**GENETIC**
- # Kallman F. (1952) Twin and sib ship study of overt male homosexuality. *American Journal of Human Genetics*. 4: 136 -146. [in McGuire 1995]**GENETIC**
- # Kallman, F. (1960) Discussion of Rainier, J.D., Mesnikoff, M.D., Kolb, L.C., & Carr, A., Homosexuality and heterosexuality in identical twins. *Psychosomatic Medicine*. 22: 258 - 259.[in McGuire 1995] **GENETIC**
- # King, M, McDonald, E. (1992) Homosexuals who are twins: A study of 46 probands. *British Journal of Psychiatry*. 160: 407 - 409.[in McGuire 1995] **GENETIC**
- # King, M. (1993) Sexual orientation and the X. *Nature*. 364: 288 - 289.**GENETIC** [in McGuire 1995]
- @ Knight, R. (1993) Genes or science awry? *Syndicated column*. Oct. 3 **GENETIC**
- @ Krauthhammer, C. (199*) If homosexuality is in the genes, so what'? *Providence Journal*. **GENETIC**
- @ Krauthhammer, C. (199*) Parents' push heterosexuality to help their children be happy. *Providence Journal*. **GENETIC**
- # LeVay, S. (1991) A difference in hypothalamic structure between heterosexual and homosexual men. *Science*. 258: 1034 - 1037. [in Horgan 1995] **GENETIC**
- * LeVay, S., Nonas, E. (1995) *City of Friends: A Portrait of the Gay and Lesbian Community in America*. Cambridge MA; MIT Press. **GENETIC**

- @ Levinson, D. *et al* (1998) Genome scan of schizophrenia. *American Journal of Psychiatry*. 153: 741 - 750. **GENETIC**
- @ Masters, R. (1993) Poor parent-child relationships cause homosexuality.(in *Homosexuality: Opposing Viewpoints*. San Diego: Greenhaven) 28 - 35. **GENETIC**
- @ * McGuire, T. (1995) Is homosexuality genetic? A critical review and some suggestions. *Journal of Homosexuality*. 28,1&2: 115 - 145. **GENETIC**
- @ Piskur, J., Degelman, D. (1992) Effect of reading a summary of research about biological bases of homosexual orientation on attitudes toward homosexuals. *Psychological Reports*. 71: 1219 - 1225. **GENETIC**
- @ * Porter, R. (1996) Born that Way: A review of *Queer Science: The Use and Abuse of Research into Homosexuality* by Simon LeVay and *A Separate Creation* by Chandler Burr. *New York Times Book Review*. August 11. **GENETIC**
- @ Rice, G. Anderson, C., Risch, N. Ebers, G. (1999) Male homosexuality: Absence of linkage to microstellite markers at xq28. **GENETIC**
- @ Snyder, P., Weinrich, J., Pillard, R. (1994) Personality and lipid level differences associated with homosexual and bisexual identity in men. *Archives of Sexual Behavior*: 23, 4: 433 - 451. **GENETIC**
- @ Thomas, C. (1995) Disinformation and the 'gay gene" *Buffalo News*. Nov. 9. **GENETIC**
- @ * Zuger, B. (1989) Homosexuality in families of boys with early effeminate behavior: An epidemiological study. *Archives of Sexual Behavior*. 18, 2: 155 - 166. **GENETIC**
- @ ____ Study identifies gene with link to schizophrenia. **GENETIC**
- @ _____, Scientists find gene linked to anxiety. **GENETIC**
- @ _____, Scientists say lesbians physically different from heterosexual women (1998) *Providence Journal Bulletin*. March 3. **GENETIC**
- _____, "Gay Gene Revisited: Doubts Arise over research on the biology of homosexuality. (1995) *Scientific American* Nov. : 28. **GENETIC**
- Pare, C. (1965) Etiology of homosexuality: Genetic and chromosomal aspects.(in Marmor, J. *Sexual Inversion: The Multiple Roots of Homosexuality*. NY: Basic) 70 - 82.
- Perloof, W.(1965) , Hormones and homosexuality. (in Marmor, J. *Sexual Inversion: The Multiple Roots of Homosexuality*. NY: Basic) 44 - 69.
- Kolb, L., Johnson, A. (1955) Etiology and therapy of overt homosexuality. *Psychoanalytic Quarterly*. 24: 506 -515.
- McConaghy, (1980) A pair of monozygotic twins discordant for homosexuality: Sex-Dimorphic behavior and penile volume responses. *Archives of Sexual Behavior*: 9: 123.
- Zuger, (1976) Monozygotic twins discordant for homosexuality - Report of pair and significance of Phenomenon. *Comprehensive Psychiatry* 17: 661
- Rainer, (1960) Homosexuality and heterosexuality in identical twins. *Psychosomatic Medicine*. 22: 251.
- Friedman (1976) Psychological development and blood levels of sex steroids in male identical twins of divergent sexual orientation. *Journal of Nervous Mental Dis*. 163: 282.
- Parker, (1964) Homosexuality in twins: A report on three discordant pairs. *British Journal of Psychiatry*. 110: 489.

Heston, Shields (1968) Homosexuality in twins. *Archives of General Psychiatry*. 18:149.

Meyers (1982) Homosexuality, sexual dysfunction, and incest in male identical twins. *Canadian Journal of Psychiatry*. 27: 144

Eckert (1981) Monozygotic twins reared apart: Preliminary findings of psychiatric disturbances and traits. *Prog. Clinical Biological Research*. 69: 179.

King, M., McDonald, E. (1992) Homosexuals who are twins: A study of 46 probands. *British Journal of Psychiatry*. 160: 407 - 409