Behavior and Social Issues, **Volume 6, No. 2, Fall 1996**

A BEHAVIOR-ANALYTIC VIEW OF SEXUALITY, TRANSSEXUALITY, HOMOSEXUALITY, AND HETEROSEXUALITY

Richard W. Malott
Western Michigan University

ABSTRACT: This article presents a behavior-analytic view suggesting that biological factors, whether genetic or otherwise, have little to do with our preference for same-gender or opposite-gender sexual stimulation. This view stresses the importance of behavioral history and current behavioral contingencies in understanding the causes of an individual's behavior and values. This view states that genetic and other biological factors are crucial in determining the behavioral processes that interact with our behavioral history and current behavioral contingencies; however biological factors have little direct effect on differences among human beings in their behavior and values. In addition, this behavior-analytic view suggests that the particular forms of behavior are arbitrary; whatever the human behavior with which we are concerned, the contingencies of reinforcement and punishment determine its particular forms.

Key words: **behavior analysis, sex, transsexual, homosexual, heterosexual.**

Keller and Schoenfeld (1950, pp. 294-303) may have been the first behavior analysts to address the general question of "how sex activities reflect behavioral principles." The present article continues the attempt to answer that question. Sexual orientation (sex-role, style of behavior, and sex values) is an important issue in its own right. But sexual orientation is also important as a model issue, and our analysis of sexual orientation can serve as a model analysis that we might apply to many other issues, such as the nature of sex roles more generally, "intelligence," "personality," "mental illness," crime, and poverty. In other words, an analysis of sexual orientation also allows us to illustrate a behavioral world view, though no doubt not the only behavioral world view.

Usually people talk about being heterosexual, gay, lesbian, transsexual, or bisexual, but that may be painting with too wide a brush. Instead, perhaps we should analyze sex roles into at least two components—style of sexual behavior and sexual values (reinforcers and aversive conditions). So this article looks at these two separate components in order to addresses the role of nature and nurture in determining individual differences in sexual orientation: (a) sex-role and style of behavior, and (b) sex values.

AUTHOR'S NOTE:

Please address all correspondence to: Richard W. Malott, Department of Psychology, Western Michigan University, Kalamazoo, MI 49008, or Richard_Malott@compuserve.com.

Is Style of Sexual Behavior Learned or Inherited?

Generally, in behavior analysis, we have found it useful to consider as arbitrary the form of the particular behavior that produces a behavioral outcome (i.e., a reinforcer or aversive condition), though some would now like to temper this view (Honig & Staddon, 1977). In any event, behavior analysts have no particular interest in the behavior of lever pressing, chain pulling, treadle pushing, or key pecking, per se; instead, behavior analysts use these common forms of behavior simply as convenient, representative samples of behavior in general. The view underlying the present analysis is that it is the contingency and behavioral outcome that are inherently important, not the form of the behavior. One of the best examples of the arbitrariness of behavior is the phenomenon of imprinting. In the normal environment, a bird gets the imprinted reinforcer (a bigger or better or clearer sight of its mother) by making the response of approaching its mother. But laboratory demonstrations show that any response will do, as long as it produces a closer view of the imprinted reinforcer. The bird will peck a response key, if that peck will produce the reinforcer (a closer view). In one amazing experiment, using an especially contrived apparatus, the bird had to walk away from the imprinted reinforcer in order to get nearer to it. (Peterson, 1960). As a result, the bird learned to walk away, instead of learning the more natural and more typical learned response of walking toward its mother.

Perhaps sex-role behavior and style of behavior are as arbitrary as the behavior producing the imprinted reinforcer; in other words, what particular sex-role and style of behavior is learned is a function of what particular behavior is reinforced. With regard to style of sex-role behavior, Barlow, Reynolds, and Agras (1973) have demonstrated that a transsexual male can learn to sit, walk, and even talk in a traditional male manner rather than in the traditional female manner he had previously learned. Just as the behavior analysts taught the young man traditional male behaviors, his mother had taught him, at an early age, traditional female behaviors, though not intentionally; we get what we reinforce, ready or not.

Other observations also suggest that style of sex-role behavior is arbitrary and learned and depends on the contingencies of reinforcement and punishment. Many people who consider themselves gay or lesbian, behave in a style typical of their sex, rather than the other sex. And others switch between a "female" and "male" style, depending on the contingencies of reinforcement and punishment operating at the moment. So, contrary to popular belief, there may be little inherent in being male or female that determines our sex-role style.

However, most of us would find it impossible to change our style from "female" to "male" or vice versa. And because of that difficulty, we may erroneously assume our style is innate. But most of us would also find it impossible to speak Spanish without sounding like a gringo. And yet, because of that difficulty, we would not assume our gringo accent is innate; instead, we just learned it so well while we were children that we cannot get around it. The same goes for our sex-role style.

Is the Reinforcing and Punishing Value of Different Sexual Stimuli and Sources of Those Stimuli Learned or Innate?

What about direct physical, stimulation of the erogenous zones? The physical stimulation itself is probably an unlearned reinforcer. And what about the source of that stimulation—whether it be man, woman, or inanimate object?

Well, in the dark, all cats are gray; if we do not know, it cannot matter. However, in the light, when we do know, it is crucial. The source of the sexual stimulation, whether by the wrong person, a person of the wrong sex, or a disgusting object, may have such. a powerfully aversive component that it overwhelms the reinforcing component of the stimulation itself.

What about this aversiveness of sexual stimulation when in association with certain visual stimuli? Surely that conditional aversiveness is learned. Consider this thought experiment: Suppose every time we were sexually stimulated in the presence of a red light, we were also shocked; and suppose sexual stimulation in the presence of the green light had no shock paired with it. No doubt, the pairing of the compound stimulus (sexual stimulation and the red light) with the aversive stimulus (shock) would cause that compound stimulus to become aversive.

Now, for most of us, such conditional aversiveness may not be acquired through direct pairings of that sort. Instead, like so many of our values, it is probably acquired through a verbal analog to pairing, for example, other people's comments about how inappropriate (immoral, disgusting) certain sources of sexual stimulation are. While there is no experiment exactly. like the one we described, there is some relevant experimental research. In working with a transsexual male, Barlow et al. (1973) paired electric shock with erotic images of males. By the end of 20 sessions, such imagery evoked minimal arousal and lost much of its value to reinforce the imagining of erotic male images.

In another relevant experiment, male rats were raised from birth without contact with females. These rats acquired the behavior of mounting their male companions because such behavior produced reinforcing sexual stimulation. And, as adults, they would then mount males more frequently than females (Moss, 1924). Again, this is not to say most of the sexual values of human beings result from such direct pairing. But it is to say that the conditional reinforcing value can result from our learning history rather than our biological inheritance.

Other cross-species data also suggest our innate sexual flexibility. The bonobos (pigmy chimps of the equatorial forests of central and west Africa) are vigorously bisexual. They appear to be our closest relatives in the rest of nature (de Waal, 1995).

And cross-cultural data further suggest our innate sexual flexibility:

> **Historically, homosexuality has commanded much interest and attention. Attitudes toward such preference have varied in different epochs and among diverse cultural and subcultural groups, ranging from acceptance (as among the ancient Greeks), to measured tolerance (in Roman times), to outright condemnation. During modern times ambivalent attitudes have prevailed. Of 76 societies studied by the American**

> **anthropologist Clellan Ford and the psychobiologist Frank A. Beach, two-thirds consider homosexual activities normal and socially acceptable. In some societies, such as the Arunta (Aranda) of central Australia, homosexuality is almost universal. Some nations, such as Great Britain and Germany, have legalized homosexual relations between consenting adults. One-third of the societies studied by Ford and Beach, including those of many industrialized countries, give little or no sanction to homosexuality, its practice often leading to long-term imprisonment. In many countries, it can at the very least result in job loss, housing discrimination, government blacklisting, and social ostracism. (Wolberg, 1994)**

All of this suggests to me that we are born bisexual or even multisexual (i.e., susceptible to sexual reinforcers from a wide variety of sources). It is only through our behavioral history that we become more. focused in our sexual behavior and in our preferences for and aversions against specific sources of sexual stimulation.

But it is hard for most people to imagine that our sexual values are learned because those values seem too natural, something we were born with. This is because we are unaware of the subtle but ever-present social programming forcing us into the sex roles we acquire, just as we are unaware of the subtle social programming forcing us to learn to speak like gringos. And, given that the large majority of us end up with heterosexual repertoires and values, it is even harder for most people to imagine how a minority end up with gay and lesbian repertoires and values, let alone transsexual repertoires and values, just as it is hard to imagine how a minority of gringos can learn to speak Spanish without that telltale gringo accent. But few would argue that these bilingual gringos inherited their perfect Spanish accent. And by the same logic, a behavioral world view suggests that we should not argue that our sexual style and values are inherited.

Another part of the problem is that people do not seem to understand the power of behavioral histories. They think we either inherit our sexual values or we must choose them like we would choose which hat to wear to the supermarket. They do not understand the concept I call *preschool fatalism*—many of the behaviors and values we learn before certain ages (e.g., preschool) interact with existing contingencies of reinforcement and punishment in such a way as to make them almost impossible to change when we become adults (e.g., a gringo accent or autistic behavior and autistic reinforcers and aversive stimuli, such as contact with others).

There has been much correlational research purporting to point to the relation between inheritance and biological structure and male homosexuality (Ezzell, 1991; Hamer, Hu, Magnuson, Hu, & Pattatucci, 1993; Hu, Pattatucci, Patterson, Li, Fulker, Cherny, Kruglyak, & Hamer, 1995). But others have been unable to replicate some of these results (Simon, 1996; Watson & Shapiro, 1995). Furthermore, it is difficult for such correlational research to eliminate the possibility of environmental confounding.

For example, Hamer, et al. (1993) claim to have shown an apparent maternal transmission of male homosexual orientation based on a linkage between DNA markers on the X chromosome and male sexual orientation. But such a correlation does not seem to rule out the equally implausible possibility that what is inherited is

the maternal tendency to rear sons to be homosexual rather than the tendency for those sons to be homosexual.

There are similar problems with the correlational data showing "a particular cluster of cells in the forefront of the hypothalamus was, on average, less than half as large in the brains of homosexual men as in their heterosexual counterparts" (Ezzell, 1991, p. 134). Even if this correlation were replicable, it is not clear whether the brain structure caused the homosexual orientation (sex-role, style of behavior, and sex values) or vice versa. Geneticists Billings and Beckwith (1993) make a similar point:

> **Even if one were to accept that these studies indicate a biological correlation with human behavior, this would not mean that some gene or brain difference is responsible for that behavior. LeVay [whose data suggest a correlation] admits that the difference in brain structure he has observed may be due to homosexual activity rather than a cause of it. Techniques that visualize brain structure, such as magnetic resonance imaging and positron emission tomography scanning, reveal that the experience of an individual, even as an adult, can significantly. affect brain development. One's emotions, life's stresses, and numerous other environmental factors can alter the metabolism of the brain and presumably its internal connections_Studies of human behavioral genetics could benefit society. But until geneticists pay more than lip service to the problems in their studies and the complex interactions of genes and the environment, history may simply repeat itself. (p. 62)**

The history to which Billings and Beckwith refer is described earlier in their article:

> **We are uneasy about the current unbridled enthusiasm for studies relating genes with human behavior. Scientists' arguments for a biological basis for human differences have previously been used for insidious ends; the arguments by German scientists before World War II for the genetic inferiority of Jews is just one example.**
>
> **Moreover, much of the older scientific analysis of the origins of human behavior, particularly using biological methods, has been debunked. In the nineteenth century, for instance, "phrenologists" claimed that they could predict aspects of an individual's personality, such as sexuality, intelligence, and criminal tendencies, merely by examining the skull's structure. Despite its popularity, this "science," which often included explicitly racist implications, was not based on any reliable evidence. More recently, after studies in prisons in the 1960s, geneticists jumped to the conclusion that males with an extra Y chromosome were more likely to be criminals than other men. Follow-up studies in the general population showed that this claim was unwarranted.**
>
> **But that is the past It's always possible that the field of human behavioral genetics has shaken off its tawdry history. Today, when sophisticated techniques can be used to analyze human DNA, maybe the renewed interest in connecting biology and behavior portends the development of a more scientific era On the other hand, maybe not. A look at recent studies seeking a genetic basis for homosexuality suggests that many of the problems of the past have recurred. We may be in for a new molecular phrenology rather than true scientific progress and insight into behavior. (p. 60)**

Billings and Beckwith also write, "In an era when researchers have located the genes for conditions such as Huntington's disease, cystic fibrosis, and Duchenne muscular dystrophy, some scientists believe that 'homosexual' genes will soon be found" (p. 60). This statement seems to me to be an example of the negative

influence of the medical model or disease model on the analysis of behavior. Although, in 1973, the American Psychiatric Association finally officially stopped classifying homosexuality as a disease, the tendency lingers on, as Billings and Beckwith suggest, for researchers to classify homosexuality with Huntington's disease, cystic fibrosis, and Duchenne muscular dystrophy. And it may be this medical-model or disease-model orientation that causes the researchers to search for "homosexual genes" rather than "heterosexual genes." Putting quotations around words does not seem to reduce our tendency to reify behavioral processes.

Perhaps a more molecular analysis of human sexuality, as opposed to **a** restricted, global analysis of homosexuality, might illustrate the foolishness of the traditional medical model, disease model, reification model of human behavior. For example, would we search for a genetic cause for individual differences in **a** preference for *receiving* manual, oral, anal, or genital stimulation of one's genitalia? And would we search for a genetic cause for individual differences in a preference for *providing* one's partner with manual, oral, anal, or genital stimulation of their genitalia? In other words, the very search for a genetic/biological basis for homosexuality seems based on the erroneous notion that homosexuality is a thing and that that thing is a disease. (Incidentally, if such a search does not already appear clearly absurd, perhaps it will if you consider that these preferences are often established before any direct experience with receiving or providing such stimulation.)

There is another problem with psychology's propensity toward labels like *autistic* and *autism, normal, homosexual* and *homosexuality,* and *heterosexual* (though we hear much less about *heterosexuality).* This additional problem is that labeling discourages a molecular analysis of various repertoire components. If we want to study child behavior, we might be ahead to stop using terms like *autistic* and *autism.* Instead we might simply look at the variables controlling various components of a child's repertoire and values (e.g., self-stimulation, self-injury, tantruming, stimulus control, language, and imitation), as Lovaas and his colleagues have done so successfully (Lovaas, 1987; McEachin, Smith, & Lovaas, 1993). Similarly, if we want to study sexual and sex-role behavior we might be ahead to stop using terms like *homosexual, heterosexual,* and *homosexuality.* Instead we might simply look at the variables controlling various components of sexual and sex-role behavior (e.g., types of sexual stimulation provided and received, sexual fantasies, and styles of walking, talking, working, playing, dressing, and thinking), as Rekers and Lovaas (1974) and Barlow and his colleagues (1973) have so successfully done.

Just as we should not be mislead by superficially molar analyses of behavior, we should also not be mislead by superficially molar analyses of stimuli. For example, LeVay tested the hypothesis that brain structure was correlated "with individuals sexually oriented toward women (heterosexual men and homosexual women)," on the one hand, and with "individuals sexually oriented toward men (heterosexual women and homosexual men)," on the other hand (Burr, 1993, p. 55). But what do we mean by the stimuli of orientation—by men and women? Do we

mean people with long hair, beards, ear rings, slacks, dresses, large breasts, small breasts, mascara, high voices, low voices? There is so much variation within a culture, let alone among cultures and subcultures in the visual and auditory stimuli that constitute men and women, that those visual and auditory concepts clearly would seem to be learned, culturally programmed concepts. We are not talking about the male stickleback fish's courtship response evoked by the swollen belly of the female stickleback gravid with roe (Pelkwijk & Tinbergen's 1937 study as cited in Hinde, 1966). Furthermore, it does not help our understanding simply to define the stimuli of orientation in terms of their genitalia. Sexual behavior and values often become well established long before contact or even rudimentary knowledge of the genitalia of the other sex.

The silly extent to which even scientists will go in their search for genetic causes of behavioral "traits" (things) is illustrated in psychiatrist Richard Pillard's reference to "two male identical twins separated at birth, raised in different families, and reunited as adults by the Minnesota twin-study researchers. These men displayed striking similarities in virtually all aspects of their lives. They even discovered a shared proclivity for wearing leather garments during sex and employing various devices to heighten stimulation. Yet one man was gay, the other heterosexual" (Bower, 1992). Presumably Pillard's reference to the Minnesota study was to demonstrate that, although environmental variables may occasionally override the homosexual gene(s), the leather gene(s) and the electric-vibrator gene(s) are just too powerful to be swayed by mere environmental influences.

Other correlational data suggest a relation between homosexual behavior in rams (also male rats) and an insensitivity to the hormone estradiol (Pennisi, 1994). However, for this to have much relevance to human sexual preference may require that we assume the smell of the female and male play as important a role in the sexual behavior of human beings as it may in the sexual behavior of some other animals, an assumption I am not inclined to make.

Another problem with this genetic research is that

> **the field of behavioral genetics is littered with apparent discoveries that were later called into question or retracted. Over the past few years, several groups of researchers have reported locating genes for various mental illnesses—manic depression, schizophrenia, alcoholism—only to see their evidence evaporate after they assembled more evidence or reanalyzed the original data. "There's almost no finding that would be convincing by itself in this field," notes Elliot Gershon, chief of the clinical neurogenetics branch of the National Institute of Mental Health. "We really have to see an independent replication." (Pool, 1993, p. 291)**

Baron makes a similar point:

> **There are lessons too from other studies—for example, of the hypothesis that another behavioural trait, manic depressive illness, is X linked. Support for this hypothesis was initially furnished by segregation patterns consistent with X linked transmission and reports of linkage to chromosomal region Xq27-28. In some studies the statistical support of these findings far exceeded the significance levels reported by Hamer et al. Moreover, the evidence from twin and adoption studies for a genetic component in**

> **manic depressive illness was far more compelling than that for homosexuality. Unfortunately, non-replication of the linkage findings by other investigators, as well as extension and reevaluation of the original data, has resulted in diminished support for this hypothesis. This outcome underscores the uncertainties in linkage studies of complex behavioural traits. (1993, p. 337)**

Baron also makes the following points:

> **The claim that male homosexuality is linked to chromosome Xq228 has enlivened the debate over nature versus nurture in human sexual orientation. When viewed against other genetic and epidemiological data and the complexities of linkage studies in general, however, the results invite further scrutiny. . . . Twin studies of male homosexuality abound. Some show similar concordance in monozygotic and dizygotic twins whereas other suggest higher concordance in the monozygotic group. Most of these results are uninterpretable because of small samples or unresolved questions about phenotypic classification, the selection of cases, and the diagnosis of twin zygosity or because they make the untested assumption that monozygotic and dizygotic twins have similar environmental experiences such that any difference in concordance rate would be genetic in origin.... Support for a genetic hypothesis is further complicated by cultural and evolutionary considerations. Some cultures—for example, the Assyrian and Greco-Roman—were very tolerant of homosexuality. The behavior was practiced openly and was highly prevalent. Sexual patterns are to some extent a product of society's expectations, but it would be difficult to envisage a change in the prevalence of a genetic trait merely in response to changing cultural norms. Also, from an evolutionary perspective, genetically determined homosexuality would have become extinct long ago because of reduced reproduction. (1993, p. 337)**

For a further critique of the support for the inheritance of sex roles and preferences, see Byne (1994).

So it is hard to say what the case is. No doubt the search for a biological basis for sexual "preference" will continue as it does for "criminal tendencies," "intelligence," and "mental illness." And no doubt the results will continue to be so ambiguous that people will be able to conclude whatever they wish (i.e., whatever conclusion is compatible with their own behavioral histories), as they have done in those other previously mentioned areas. And it is equally certain that this type of research will continue to generate much heated controversy.

One reason for the heated nature of the learned versus inherited debate is its political implications. Some advocates of gay and lesbian rights argue that society will be more tolerant if it believes gay and lesbian sexual behavior and values are inherited and not the "fault" of the gay or lesbian person, and other advocates think just the opposite (Shapiro, 1991; Watson & Shapiro, 1995). My suspicion is that homophobia is so deeply imbedded in our culture that a resolution of the nature/nurture debate would have little impact either way.

Is Homophobia Learned or Inherited?

During his presidential campaign and for a short period after his election, President Bill Clinton was so brave, or so naive, as to suggest that the military should treat gay and lesbian personnel as normal human beings and not abnormal

creatures of the night to be tarred and feathered and ridden out of military service on a rail. Now, what amazed me was the strong, negative reaction by the American citizens and their leaders. For example, General Colin Powell almost resigned in protest (Dumas, 1995). Although he is African American, he seemed unaffected by the fact that his appointment as chairman of the Joint Chiefs of Staff in 1989 occurred only a few years after half a million black Americas served overseas in segregated World War II military units (Knight & Carson, 1995); it was not until Harry Truman's presidential administration that racial discrimination and segregation were banned in the military service. Homophobia is so powerful that the parallel between furious military resistance to racial integration and furious military resistance to sexual-orientation integration did not seem to exert much stimulus control over General Powell's behavior. Homophobia was so powerful that military leaders such as Powell and members of Congress forced Clinton to the weak, irrational "don't ask, don't tell" compromise (Dumas, 1995).

(Interestingly, the argument that homosexuality and same-sex stimulation destroys the effectiveness of the military ignores a long cross-cultural history of officially sanctioned homosexuality in effective fighting forces. "Greek soldiers were regularly accompanied into battle by young boys who served as their sexual partners and sleeping companions in return for being taught the martial arts. Thebes, an early city-state north of Athens, possessed an elite battalion known as the Sacred Band, whose reputation for invincible courage rested on the unity and devotion of its male warrior couples" [Harris, 1989, p. 240]. Harris also cites many other similar examples from around the world. In these other cultures where same-sex stimulation was or is common in the military or out, the source of stimulation was typically not exclusively same-sex. Instead, it was a matter of expedience, or one stage in a career, or was concurrently accessed with opposite-sex stimulation.)

At first, I thought General Powell and our homophobic political leaders were just cynically playing it for a few redneck Neanderthals in the peanut gallery. But instead, as events developed, it seemed they were possessors of the genuine homophobia that permeates the very soul of our culture. Why?

Many who object to gay and lesbian citizens quote the *Holy Bible* (and, of course, the *Bible* can be quoted back at them). But what is the *Bible?* To a large extent it is an impressive, illustrated code of behavior the leaders of our culture, past and present, consider best for the well-being of our society, regardless of whether the bible is the word of God from a few thousand years ago or the word of human leaders from a few thousand years ago.

And why would our leaders be concerned with sexual behavior? In biblical days and continuing up to the recent past, the rate of infant mortality was high. Perhaps a large population was considered most viable, especially when competing with other warlike societies. In addition, "throughout most of history and prehistory, modes of production were such as to be more likely to reward those who could rear large numbers of children" (Harris, 1989, p. 227). And, even in modern times, "society needs children even if sexually active adults do not" (Harris, 1989, p. 233). So, perhaps our leaders claimed and claim alternative sexual behavior to be taboo and

immoral because such behavior did and does not lead to procreation whether the prohibited alternative sexual behavior be:

• *onanism (masturbation* and *coitus interruptus*—named after Onan, son of Judah [Genesis 38:9]) (Onanism, 1994)

• *sodomy {anal intercourse* or *copulation with an animal*—-named after Sodom of Sodom and Gomorra fame, the two cities destroyed by fire from heaven because of their unnatural carnal wickedness, according to the *Holy Bible;* so great a sin was sodomy that, while fleeing Sodom's coming destruction, Lot's wife disobeyed God's orders, looked back at the city, and was turned into a pillar of salt for her voyeuristic sin) (Sodomy, 1994)

• *homosexuality* ("if a man also lie with mankind, as he lieth with a woman, both of them have committed an abomination: they shall surely be put to death; their blood shall be upon them" *[Hebrew Bible.* Leviticus 20:13]. In European cultures, religious and secular laws against homosexuality began in the Middle Ages as prohibitions against any kind of sexual activity not aimed at procreation). (Homosexuality, 1994)

Strong language. Traditionally, our religious and secular leaders have been serious about preventing their flock from straying. But notice that our leaders do not have much to say about self-injurious behavior, other than an occasional injunction about harming "the temple of thy body." Why not? Why are there no major religious and legal laws against gouging out one's own eyes or pounding one's head on the floor until it bleeds? Surely those acts are just as harmful to the individual and to society as are sexual variations. Imagine a whole culture full of people emitting high rates of self-injurious behavior. But that does strain the imagination. Our religious and legal leaders have not spent much time addressing self-injury because it is so rare, because the behavior of only a few people has come under the control of the reinforcement contingencies associated with self-injury. (Furthermore, most people who are seriously self-injurious are not under the control of religious and legal rules.)

But the behavior of quite a few people has come under the control of the reinforcement contingencies associated with nonprocreative sexual reinforcers. These concurrent contingencies of alternate sources of sexual reinforcers are so powerful and so readily available that they might seriously decrease the rate of procreative sexual behavior and, thus, the rate of procreation. So there might not be enough true begetting and begatting. Again, this might be the historical concern of our leaders. Furthermore, Harris (1989) suggests that:

> **In reaction to the prospect of widespread reproductive failure brought on by the shift from agrarian to industrial economies, employers of labor pushed legislation that condemned and severely punished every form of nonreproductive sex.... As a glaring example of nonreproductive sex, homosexuality became a major target of the pronatalist forces, along with masturbation, premarital sex, contraception, and abortion. (pp. 244-245)**

It should be acknowledged, however, that the strong homophobia of Western culture is rarely equaled in other cultures where similar materialistic contingencies would also seem to require a high rate of procreation:

> **There is the case of the modern gay male, a form of institutionalized homosexuality that has probably never existed anywhere except in recent Western culture. What makes the gays unique is that the American heterosexual majority condemns all manifestations of homosexual behavior and up until a few years ago used the criminal justice system to punish anyone found guilty of even a single homosexual encounter. (Harris, 1989, p. 244)**

> **Attitudes toward homosexuality in the Western world were determined largely by prevailing Judeo-Christian moral codes, which treat homosexuality as immoral or sinful. But like many other sins, homosexual relations were seen as expressions of the weakness inherent in all human beings, and not as a mental illness or as the behavior of a specific type of person. This latter view, which regarded homosexuality as a pathology, developed in the late 19th century. (Simon, 1996)**

Here is the point: If we were biologically wired to find nonprocreative sex (including same-gender sexual stimulation) aversive rather than reinforcing, there would be no need for all these religious and legal sanctions. But we are not. Instead, we seem to be biologically wired to find any nonabrasive source of sexual stimulation reinforcing. So, if our sexual behavior is to be restricted to procreative sex, stimulation from all nonprocreative sources must be made shameful, dirty, nasty, unnatural learned aversive stimuli. And this is done through direct pairing with aversive stimuli, such as physical punishment, and more often, through verbal analogs to such pairings, such as spoken and written social, religious, and legal sanctions.

These relatively subtle pairings and analogs to pairings are surprisingly effective; they are so effective that, by adulthood, many people seem to believe we are biologically wired to find same-gender sexual stimulation horribly aversive. The result is that such people often cannot stand the idea of being in the military service with those who do not find same-gender sexual stimulation aversive.

But sometimes those relatively subtle pairings between same-gender sexual stimulation and aversive stimuli and analogs to such pairings were not done effectively. Instead, because of slight differences in behavioral histories, those pairings were too subtle, so that same-gender sexual stimulation maintained its strong reinforcing value. And in some of those cases, opposite-gender sexual stimulation was paired with aversive stimulation, either directly or through verbal analogs to direct pairing; and thus opposite-gender sexual stimulation became a learned aversive stimulus.

So, from the present behavior-analytic perspective (not the only behavior-analytic perspective), we inherit susceptibility for our behavior to be reinforced by sexual stimulation from almost any source, including same-gender and opposite-gender sources. It is only through aversive control that those sources are restricted. And our different behavioral histories cause different sexual stimulation from different sources to become learned aversive stimuli, some from same-gender

sources, some from opposite-gender sources. And only with intense behavioral intervention, can those aversions be reversed, even with voluntary participation (Barlow, Reynolds, & Agras, 1973).

Finally, let me mention another political or social-systems concern: Cultural-materialistic reality has changed greatly since biblical times. Now we have more problems with overpopulation than with underpopulation. Yet society continues persecuting transsexual, gay, and lesbian citizens (social values usually lag painfully behind materialistic reality). So who should change—the persecuted citizens or the outdated persecuting society? Some concerned with the development of a more tolerant society, might argue for fighting rather than switching, arguing that people with alternate lifestyles should not cave in to bigotry. I argue for doing whatever is possible to help the individuals who find themselves with alternate sexual lifestyles (whether that be to help them acquire mainstream sexual lifestyles, as Barlow et al. did, or to resist the oppression of the traditional majority); but, at the same time, all involved can work for a more tolerant society compatible with the material and social realities of the 20th and 21st centuries.

Conclusions

This behavior-analytic world view stresses the importance of behavioral history and current behavioral contingencies in understanding the causes of an individual's behavior and values. It argues that although our genetic history is crucial in determining the behavioral processes that interact with our behavioral history and current behavioral contingencies, that genetic history has little direct effect on individual differences in the behavior and values among human beings. Cross-cultural variation in such behaviors and values supports the importance of behavioral rather than genetic causes. Similarly, the necessity for social, legal, and religious governance argues against genetic causes. In addition, this behavior-analytic world view argues for the arbitrariness of the particular forms of behavior involved and for the relevance of the contingencies involved in determining many important forms of human behavior.

As an example, this behavior-analytic world view suggests that our biological inheritance has no more to do with our preference for the source of our sexual stimulation than it does with our preference for the source of our auditory stimulation. There is no gene that determines whether we prefer same-gender or opposite-gender sexual stimulation, just as there is no gene that determines whether we prefer heavy metal music, new wave music, or polkas—well, maybe there *is* a polka gene.

REFERENCES

Barlow, D. H., Reynolds, E. H., & Agras, W. S. (1973). Gender identity change in transsexuals. *Archives of General Psychiatry, 28,* 569-579. http://dx.doi.org/10.1001/archpsyc.1973.01750340089014

Baron, M. (1993) Genetic linkage and male homosexual orientation: reasons to be cautious. (Editorial) *British Medical Journal, 307,* 337-338. http://dx.doi.org/10.1136/bmj.307.6900.337

Billings, P., & Beckwith, J. (1993). Born gay? *Technology Review, 96,* 60-62.

Bower, B. (1992). Genetic clues to female homosexuality. *Science News, 142,* 117-140. http://dx.doi.org/10.2307/3976848

Burr, C. (1993). Homosexuality and biology. *The Atlantic, 271,* 47-60.

Byne, W. (1994). The biological evidence challenged. *Scientific American, 270,* 50-5. http://dx.doi.org/10.1038/scientificamerican0594-50

de Waal, F. B. M. (1995, March). Bonobo sex and society. *Scientific American, 272,* 82-88.

Dumas, E. C. (1995). Bill Clinton. In *Microsoft encarta 96 encyclopedia* [CD-ROM]. Redmond WA: Microsoft.

Ezzell, C. (1991). Brain feature linked to sexual orientation. *Science News, 140,*134. http://dx.doi.org/10.2307/3975838

Hamer, D. H., Hu, S., Magnuson, V. A., Hu, N., & Pattatucci, A. M. L. (1993). A linkage between DNA markers on the X chromosome and male sexual orientation. *Science, 261,* 321-7. http://dx.doi.org/10.1126/science.8332896

Harris, M. (1989). *Our land.* New York: Harper & Row.

Hinde, R. A. (1966). *Animal behavior: A synthesis of ethology and comparative psychology.* New York: McGraw-Hill

Hu, S., Pattatucci, A. M., Patterson, C, Li, L., Fulker, D. W., Cherny, S. S., Kruglyak, L., & Hamer, D. H. (1995). Linkage between sexual orientation and chromosome Xq28 in males but not in females. *Nature Genetics, 11,* 1061-4036. http://dx.doi.org/10.1038/ng1195-248

Homosexuality (1994). *Microsoft bookshelf '95: Multimedia reference library* [CD-ROM]. Redmond WA: Microsoft.

Honig, W. K., & Staddon, J. E. R. (1977). Introduction. In W. K. Honig and J. E. R. Staddon (Eds.), *Handbook of operant behavior.* Englewood Cliffs, NJ: Prentice-Hall.

Keller, F. S., & Schoenfeld, W. M. (1950). *Principles of psychology.* Acton, MA: Copley Publishing Group.

Knight, F. W., & Carson, C. (1995). Blacks in the Americas. In *Microsoft encarta 96 encyclopedia* [CD-ROM]. Redmond WA: Microsoft.

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in young autistic children. *Journal of Consulting and Clinical Psychology, 55,* 3-9. http://dx.doi.org/10.1037/0022-006X.55.1.3

McEachin, J. J., Smith, T. & Lovaas, I. O. (1993). Long-term outcome for children with autism who received early intensive behavioral treatment. *American Journal of Mental Retardation, 97,* 359-372.

Moss, F. A. 1924, Study of animal drives. *Journal of Experimental Psychology, 7,*165-185. http://dx.doi.org/10.1037/h0070966

Onanism (1994). *Microsoft bookshelf '95: Multimedia reference library* [CD-ROM]. Redmond WA: Microsoft.

Pennisi, E. (1994). Gay rams lack hormone sensitivity. *Science News, 145,* 159. http://dx.doi.org/10.2307/3978014

Peterson, N. (1960). Control of behavior by presentation of an imprinted stimulus. *Science, 132,* 1395-1396. http://dx.doi.org/10.1126/science.132.3437.1395

Pool, R. (1993). Evidence for homosexuality gene. *Science, 261,*291-292. http://dx.doi.org/10.1126/science.8332894

Rekers, G. A., & Lovaas, O. I. (1974) Behavioral treatment of deviant sex-role behaviors in a male child. *Journal of Applied Behavior Analysis,* 7,257-262. http://dx.doi.org/10.1901/jaba.1974.7-173

Simon, W. (1996) Homosexuality. In *Microsoft encarta 96 encyclopedia* [CD-ROM]. Redmond WA: Microsoft.

Shapiro, J. P. (Dec. 30, 1991). Among twin men. *U. S. News & World Report, 111,* 32.

Sodomy (1994). *Microsoft bookshelf '95: Multimedia reference library* [CD-ROM]. Redmond WA: Microsoft.

Watson, T. & Shapiro, J. P. (1995, November 13) Is there a "gay gene"? *U. S. News & World Report, 119,* 93, 94, 96.

Wolberg, L. R. (1994). Homosexuality. In *Microsoft encarta 96 encyclopedia* [CD-**ROM]. Redmond WA: Microsoft.**