



Determined Homosexuality?

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The Church of England's appointment of the homosexual Canon Jeffrey John as the new Bishop of Reading has added fuel to the spiritual and moral debate surrounding homosexuality. Unfortunately, discussion of the complex questions underlying this issue, is often hindered by a lack of information and accurate data.

As our contribution to the debate we are publishing a short extract from Nick Pollard's forthcoming book *The Good Sex Bible* (to be published soon). This addresses one of the important underlying questions - is homosexuality a lifestyle choice or is it, in some way, determined biologically?

Is homosexuality determined biologically, or even genetically? There are many people who will express a definite answer to this question - one way or the other. They seem to assume that the evidence is clear. However, a consideration of the research in this area shows that no definite answer can yet be given. It is possible that there may be some biological and even genetic component in the clearly complex and multi-factorial causes of homosexuality, but the process is far from clear.

In 1991 Bailey and Pillard¹ investigated the sexuality of the brothers of homosexual men - and considered the correlation between the genetic relationship and their sexuality. They reported that identical twins were both homosexual 52% of the time; non-identical twins, 22%; other biological brothers, 9.2%; and adoptive brothers, 10.5%. This seemed to indicate some genetic basis for homosexuality, but there is a problem with the research model (which has been acknowledged

by Bailey²). They failed to use a random selection process - instead, participants were recruited through adverts in gay publications. So they could be considered a biased and unrepresentative sample group.

However, even if one can accept the research at face value it doesn't show a direct correlation between genes and homosexuality. The identical twins share 100% of their genes, but only 52% are both homosexual - if this was determined genetically one would expect them all to be homosexual. The adoptive brothers are completely unrelated genetically - and yet they were more likely to be homosexual (10.5%) than biological brothers who share genes (9.2%). Whatever else this result shows, it is clear that homosexuality is not directly and unavoidably determined by one's genes.

In 1991, Simon LeVay³, reported his research into the anterior hypothalamus - part of the brain that participates in the regulation of male-typical sexual behaviour. He measured the volumes of four cell groups in this region⁴ and found that for one of these⁵ the volume was larger in heterosexual men than it was in women or homosexual men. He suggested that this shows that 'sexual orientation has a biological substrate.' Once again, there are some problems with this research. Out of the 41 brains that were studied, there was a lot of variation between the results. Indeed one of the homosexual men had the second largest volume of all - if sexual orientation was determined by the size of the anterior hypothalamus then he should be very strongly heterosexual. Furthermore, the sexual labelling was uncertain. The heterosexual men were only presumed to be heterosexual - only two of them had denied homosexual activities, for the rest of them sexual histories were not available.

However, even if we can accept the research data at face value, we must be clear that it still doesn't show that the size of the anterior hypothalamus causes the sexual orientation. It could easily be the other way around. We know that the brain is very malleable and changes according to behaviour. For example, the size of the area of the brain controlling the finger grows in people who take up reading Braille. So, if a homosexual's anterior hypothalamus is smaller than that of a heterosexual male it could be the result of the

homosexual activity rather than its cause.

It was the research of Dean Hamer and his team at the National Cancer Institute, published in 1993⁶, that has led many people to assume that homosexuality is determined genetically - largely due to headlines in the popular press, such as *Time* magazine's front page feature, 'Born Gay: Science finds a genetic link.'⁷ Hamer studied 40 pairs of homosexual brothers. He observed that they had more homosexuals on the mother's side of their family than on the father's, and therefore investigated the X chromosome (which, in boys, is inherited from the mother and not the father). They discovered that 33 of the 40 pairs of brothers shared markers on one part of the X chromosome - known as Xq28. This gave them 'a statistical confidence level of more than 99% that at least one subtype of male sexual orientation is genetically influenced.'⁸

Once again, there are problems with this research. Neil Risch, a professor of biostatistics at Yale University (who developed the methods used by Hamer) questioned the statistical significance of the study⁹ in view of the small sample size. Others have found that they cannot replicate Hamer's results - even with larger sample groups. As George Rice said in the conclusion to his study of more homosexual brothers, 'We found no evidence of linkage of sexual orientation to Xq28.'¹⁰

But, even if we can take the research at face value, once again this does not mean that the homosexuality was directly caused by the genes. Indeed, the fact that 7 of Hamer's homosexual brothers did not share this gene shows that, in their case at least, their homosexuality could not have been determined by that gene. Hamer's team themselves recognise this. Angela Pattatucci, one of his co-workers, says: 'We have made no claims about causality, or even that the Xq28 region contributes to male homosexuality. We have just said that there is a correlation. Causality is what the media suggested - they went further with the results than we did.'¹¹

Others have taken a slightly different approach to the issue: looking for a cause of homosexuality, not in the genes of the homosexual, but in the effects of the hormone levels they experienced whilst forming in their mother's womb. It has been

known for some time that the sexual behaviour of rats can be altered by changing the hormones to which they are exposed before birth. There is, of course, a problem in interpreting this since it depends upon how one defines and understands the sexual behaviour of the rat. One cannot simply ask a rat about his sexual orientation; one can only observe the mating posture. But this is reflex-like and can be induced, for example, by the touch of a researcher's hand. So it is questionable whether this can tell us anything about the effect of hormones on sexual orientation in the rats.

What about the effects of hormone levels on humans? It is obviously not ethical to experiment upon the hormonal levels in a human womb. But we can measure naturally occurring hormone levels and see if they correlate with subsequent sexual orientation. That is what researchers are doing as part of the Avon Longitudinal Study of Parents and Children¹² at Bristol University. According to the initial reports it appears that girls exposed to higher doses of testosterone in the womb are more likely to prefer toy cars to dolls, rough-and-tumble games to dressing up, and mud pies to tea parties. Time will tell whether their sexuality has also been affected.

So, as the debate continues about the appointment of the Bishop of Reading, whatever people may say about homosexuality being an unavoidable aspect of some people's physical nature - the evidence is far from clear. There may, or may not be a genetic predisposition towards homosexuality - certainly there is no direct genetic cause for it. There may or may not be a hormonal predisposition - time will tell.

But there is one thing about which we can be certain - as in every aspect of human behaviour, we are affected by the culture around us. And the appointment of an openly homosexual Bishop does mark a significant change in our culture which will have an influence upon people's beliefs about sexuality in general and homosexuality in particular.

To find out more about The Good Sex Bible see www.GoodSexBible.com

Footnotes

48: 1089-1096, 1991.

9[3]:1, Feb. 06, 1995

253: 1034-1037, 1991

4. INAH (Interstitial Nucleus of the Anterior Hypothalamus) 1, 2, 3 and 4

5. INAH 3

6. A linkage between DNA markers on the X chromosome and male sexual orientation. Hamer DH, Hu S, Magnuson VL, Hu N, Pattatucci AM. Science 1993 Jul 16;261(5119):321-7

7. Time, July 26th, 1993

8. A linkage between DNA markers on the X chromosome and male sexual orientation. Hamer DH, Hu S, Magnuson VL, Hu N, Pattatucci AM. Science 1993 Jul 16;261(5119):321-7

9. Risch, N.; Squires-Wheeler, E.; Keats, B. J. B. Male sexual orientation and genetic evidence. (Letter) Science 262: 2063-2065, 1993

10. Male homosexuality: absence of linkage to microsatellite markers at Xq28. Rice G, Anderson C, Risch N, Ebers G. Science. 1999 Apr 23;284(5414):571

11. Quoted in The Scientist 9[3]:1, Feb. 06, 1995