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Introducing the 'gay gene': media and scientific representations

David Miller

In 1993 a paper in the prestigious scientific journal *Science* announced the discovery of a linkage between genetics and male homosexuality. The linkage was promptly dubbed the 'gay gene' by the media, and the paper was widely reported. This article examines the reporting of the 'gay gene' in the British press and television news, and compares it with commentary in scientific journals. The article focuses on the representation of homosexuality and the representation of science. It considers the charges levelled at the media by some critics and finds many of them wanting. Finally, it concludes with some comments about the public understanding of science and the need for the scientific understanding of the media and the public.

Introduction

In 1993 a paper in the prestigious scientific journal *Science* announced the discovery of a linkage between genetics and male homosexuality.[1] The linkage was promptly dubbed the 'gay gene' by the media; the paper was widely reported, reactions were sought and the implications were discussed. This paper examines British press and television news coverage of the 'gay gene'.[2] It looks at the portrayal of homosexuality and genetics, and debates the coverage of science in the media. I argue that the major media response to the 'gay gene' was a liberal opposition to the use of the 'findings' to further discriminate against lesbians and gay men. There were many complaints in scientific journals that media coverage of the 'gay gene' was sensationalist and politically loaded. Yet an analysis of scientific journal coverage[3] of the 'gay gene' debate shows that there are many political and ideological assumptions in scientific papers and journals. Furthermore, the scientific journals' coverage of the debate was significantly narrower than that found in the mass media. This conclusion radically contradicts the conclusions of many critics of the representation of science in the media. Finally I make some comments about the role of the media in the public understanding of science, and about the propensity of critics of the media to misunderstand the media and the public.

Homosexuality and the media

In recent years the portrayal of homosexuality in the media has undergone something of a transformation. For years lesbians and gay men were invisible in the media. When

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they did appear, negative images, prejudice and derision predominated. The politics of broadcasting and film have enabled 'mean spirited condescension, untested hypotheses and jagged abuse to be highlighted in a way that, in the past as well as in the present day, would not have been allowed to be used against almost any other group in British society'.[4]

Even in the 1990s British broadcasters refuse to treat lesbians and gay men as fully human. For example, the BBC's policy is that 'Homosexuality is a matter on which society remains divided, and our output must reflect this too. . . . Those who express disapproval of homosexuality still seem to be in the majority according to most surveys. These are not the only considerations of course, but they cannot be left out of account'.[5] This distortion of news values by 'concession to homophobic opinion'[6] would not be openly contemplated for racist or sexist opinion.

Yet this continued bias in the media masks the real changes which have occurred in the status of lesbians and gay men in society and their representation in the media. One of the key factors which changed the climate was the terrible ravages of HIV, together with the onslaughts of the gay 'community' by the moral right, and sometimes by the government. Struggles around the representation of HIV/AIDS have shifted the boundaries of acceptable discourse. This has been, as Denis Altman has put it, 'legitimation through disaster'.[7] Coverage of lesbians has followed a roughly similar pattern to that of gay men, except that media sensitivities have remained tighter for rather longer in the representation of lesbians. 1994 saw the first lesbian kiss in a soap opera on both Channel Four (*Brookside*) and BBC1 (*Eastenders*). The first gay male kiss on a British soap opera was in 1987 (*Eastenders*). But the changes in the representation of homosexuality have not rendered broadcasting sensitivities redundant. Censorship remains a perennial threat to programmes dealing openly with issues of sexuality,[8] and media practice remains far from the routine consideration of lesbians and gay men as fully human.

What is most striking about the coverage of homosexuality in reporting on the 'gay gene' was the lack of overt homophobia[9] and the strong liberal position taken by the bulk of the press. The table lists people quoted by the British press on the day the story broke and the day after. Scientists were the most commonly quoted group, with Dean Hamer, the first-named author of the paper in *Science*, providing approximately one third of the quotations. None of the scientists suggested that screening foetuses for the 'gay gene' with a view to abortion was a good thing. Indeed, most followed Hamer and his colleagues in their declaration in *Science* that 'it would be fundamentally unethical to use such information to try to assess or alter a person's current or future sexual orientation, either homosexual or homosexual, or other normal attributes of human behaviour'.[10] Gay activists were the second most commonly cited group, appearing roughly two thirds as often as scientists. It is striking that the press turned to gay and scientific sources rather than religious or moral conservative sources. The table shows that only four religious or moral right sources appeared and expressed any sympathy for genetic screening to eradicate the 'gay gene'. While some overt homophobia was accessed in the form of interviews with spokespersons for the conservative right and with ex-Chief Rabbi Lord Jakobovits, or in the more open features and comment sections of the press,[11] such sentiment was generally frowned upon by the editorial content or by the structure of news items. Editorial endorsement of straightforwardly anti-gay sentiment was rare. Even tabloid papers mainly followed the liberal line. The *Daily Mirror* for example, devoted a whole page to the story. The first and larger of two pieces was made up for the most part of interviews with the actors Michael

Sources quoted in British press coverage of the 'Gay gene' 16–17 July 1993.

Source	Number of quotes	
Scientists		
Dean Hamer (National Institutes of Health)	14	
Simon Le Vay	4	
Dr John Bancroft (UK Medical Research Council Reproductive Biology Unit)	2	
Dr Steve Jones (geneticist, University College London)	2	
Richard Dawkins (zoologist, Oxford University)	2	
British Medical Association	2	
Dr Evans Balaban (research biologist, Harvard)	1	
Dr Mary Seller (geneticist, Guy's Hospital, London)	1	
Paul Nurse (biologist, Oxford University)	1	
Total		**29**
Gay activists		
Michael Cashman (Stonewall)	5	
Terry Harding (Stonewall)	3	
Stonewall	1	
Campaign for Homosexual Equality	2	
Peter Tatchell (OutRage!)	3	
Simon Watney (Red Hot Aids Charity)	1	
Sir Ian McKellen	1	
Revd Richard Kirker (Lesbian and Gay Christian movement)	1	
Gregory King (Human Rights Campaign Fund (US))	1	
George Neighbours (Federation of Parents and Friends of Lesbians and Gays (US))	1	
Darrell Yates Rist (Gay and Lesbian Alliance Against Defamation)	1	
Total		**20**
Medical ethicists/genetics interest groups		
Dr Richard Nicholson (editor, *Bulletin of Medical Ethics*)	7	
Dr Patrick Dixon (author, *The Gene Revolution*)	5	
Ranaan Gillon (medical ethicist, St Mary's Hospital, London)	1	
David Shapiro (Nuffield Council on Bioethics, London)	1	
Dr Clare Marris (chair, UK Genetics Forum)	1	
Total		**15**
Religious/moral right activists		
Revd Tony Higton (campaigner against gay clergy)	1	
Prof. John Bowker (former Dean of Trinity College, Cambridge)	1	
Luke Gormally (Catholic Bishops Committee for bio-ethical issues)	1	
Lord Jakobovits	1	
Total		**4**
Overall total		**68**

Cashman and Sir Ian McKellen as 'prominent gays', while the second piece also quoted gay organizations together with Dean Hamer.[12] The *Daily Express* had a similar item, featuring a picture of Michael Cashman and, quite remarkably, a picture of a demonstration by the gay activist group OutRage! labelled 'PRIDE: The new findings may prove that gays are born, not made'.[13] Even the *Sun* took the liberal line, again quoting Michael Cashman, Hamer, the gay civil rights group Stonewall and a medical ethicist.[14]

Meanwhile at the *People*, columnist Carol Sarler went further, arguing:

> What do we say of the woman who will opt for an abortion rather than for raising a gentle, caring boy who might—only might, mind you—grow up to love another gentle, caring boy? . . . We say that she is a warped dysfunctional monster who—if forced to have the child—will make the child's life hell. We say that no child should be forced to have her as a parent.[15]

Only the *Daily Mail* ran the openly anti-gay headline 'Abortion hope after "gay genes" find', deep in the paper on page 29. But this active endorsement of eugenic screening was not matched by the text of the article, which quoted Dean Hamer, together with an American gay activist. The report opened as follows:

> Scientists in America claim to have found the first definite evidence of a genetic link to homosexuality. Researchers at the National Cancer Institute near Washington DC, say their findings help prove that sexual orientation can be inherited. Isolation of the genes means it could soon be possible to predict whether a baby will be gay and give the mother the option of an abortion.[16]

After quoting Hamer and referring to the likely reaction from gay and pro-life groups, the report continues:

> This latest study strengthens the argument by the gay community that homosexuality is not a matter of choice, but of biological destiny.

This is hardly consistent with the headline. Here we have a classic case of the intervention of the sub-editor. Sub-editors write headlines, and on tabloid papers especially, these may bear little relation to the story beneath them. Subs on the national press have a reputation among medical and health journalists for homophobic interventions.[17] The next day the *Daily Mail* ran an opinion piece by Steve Jones, professor of genetics at University College London, in which he stated that the 'very idea' of selective abortion of foetuses 'fills me—and I suspect most people—with revulsion'.[18] The *Daily Mail* also published a piece by its medical correspondent, echoing what she called the 'widespread concern over its ethical implications'[19]—concern aroused partly by the previous coverage in the *Daily Mail*.

The gay gene story was predominantly framed by the assumption that the ethical implications were important and that the potential for discrimination against lesbians and gay men was a serious and feared possibility. Thus we found Independent Television News science editor Lawrence McGinty filming his report from 'Gay's the Word' bookshop in London:

> The first thing to say is that if there is a link between a gene and homosexuality it's not going to be a 100% link. So that if you're carrying an unborn child you could never be 100% sure that that child was going to be a gay man or lesbian. And people here—we're at 'Gay's the Word' bookshop—what they've been

> saying to us is 'what kind of society is it where people would even contemplate carrying out an abortion just because the unborn child might be gay?'. To prevent a child being born because it might have a terrible disease like cystic fibrosis is one thing, but most people don't think that homosexuality is a disease.[20]

This type of reporting would have been unthinkable 10 years previously when 'Gay's the Word' was under threat of closure following raids by Customs and Excise officials to seize imported gay-related publications. I am not suggesting that there were no problems with the reporting discussed above or with the predominant focus of the papers on the question of prenatal screening and abortion. The coverage would certainly not have been acceptable to gay activist groups such as OutRage!. Ian McKellen, of the less radical, more liberal, pressure group Stonewall, has argued, for example, that the announcement of the 'gay gene' 'was leapt upon with lurid enthusiasm across the media. . . . The one overriding issue was whether a mother should or should not have the right to abort her gay foetus. In other words, what a problem we gays cause our parents.'[21] However, the open endorsement of selective abortion for 'gay' foetuses was very marginal in the press. There are clear problems with the liberal position defended by the press, but it is important to recognize that it is distinct from the 'bad choices' model of some Christians which sees homosexuality as a voluntary sin.

Explaining the coverage

One key reason for the lack of moral-right voices calling for the eradication of the 'gay gene' is that doing so would contravene a more fundamental value position. The opposition of the moral right to 'a woman's right to choose' seems to outweigh their disdain for lesbians and gay men. Thus David Alton MP, a leading anti-abortionist, was calling not for the elimination of the gay gene but for a 'gene charter' limiting the use to which genetic information could be put. This division of the right is very important for understanding its ability to mobilize support for homophobic legislation. It is also the case that some sections of the Christian right see homosexuality as a bad choice which can be reversed, and so were critical of genetic determinist arguments. It is interesting to note that such perspectives were confined to the margins of the press, for example in the letters page of the *Evening Standard*. Here Stephen Green, the press officer of the Conservative Family Campaign, described homosexuality as a 'perversion' in which choice is a major factor.[22]

We should also note the key divisions among lesbians and gays on the role of genes. For some the 'gay gene' and the earlier work on the hypothalamus by Simon Le Vay were welcome as part of an argument against the view that homosexuality involves bad choices or 'immorality'. Simon Le Vay has argued that his evidence of differences between gay and straight brains will drive 'one more nail in the coffin of those who believe homosexuality is a choice, and therefore immoral'.[23] On the other hand there have been some, including especially lesbian activists and writers, who have queried both the effectiveness of such a strategy and the evidential and conceptual basis of reductionism. These differences of approach did gain some mainstream media space, although there was some variation in newspaper accounts of the reaction of the gay 'community'. For example, the *Evening Standard* had 'Gay groups today reacted in

fury',[24] while the *Daily Express* reported 'Gay rights groups welcomed the discovery with open arms'.[25] To be fair, it was also true that some gay sources were ambivalent about what they believed. Ian McKellen, for example wrote that 'My initial reaction to the "gay gene" was to laugh. Since I was about 10, I felt I was born gay. . . . Whatever it was, genetic, social, familial, environmental, consciously or unconsciously, everything happily conspired to form my sexuality'.[21]

The importance of these divisions is that they may mean the formation of new configurations in politics, as divisions on the right, among lesbians and gays and among feminists react with developments in the field of genetics. In one example of this process, Simon Le Vay, himself an out gay man, declared publicly that he would support a woman's right to choose to abort a foetus carrying a 'gay gene'.[26] In the brouhaha about the gay gene these developments slipped out of view as the media and their sources concentrated on a defence of the liberal position on homosexuality.

It is equally my argument that the coverage of the 'gay gene' does show the partial success of groups such as OutRage! and Stonewall in supplying information to the media and in allowing journalists to take gay issues more seriously. It is also important to note that the journalists who covered the 'gay gene' were mostly science or medical specialists, rather than general reporters. Specialist correspondents are closer to their regular sources in the scientific community and more likely to regard themselves as having an 'educative function' than are general reporters.[27] The reporting of the 'gay gene' stands in marked contrast to the darker days of the tabloid reporting of the anti-discrimination policies of some Labour councils, which were attacked under the rubric of the 'loony left' in the 1980s.[28] However, the alignment and strategies of source organizations together with the journalists involved are crucial in shaping coverage. Only four days after the 'gay gene' story broke, the *Daily Express* ran a story by a general reporter and followed it up with an editorial about homosexuality and sex education. The editorial was headed 'stop this ugly propaganda' and together with the news story, the *Daily Express* was back in the homophobic swing of things, reporting:

> Rotherham's schoolchildren are to be the victims of a systematic campaign of sexual harassment. The Labour-controlled council . . . intends that their immature, impressionable minds be polluted by propaganda—there is no other word—on behalf of homosexuality.[29]

The defence of the liberal position on homosexuality found in the bulk of the mainstream media coverage of the 'gay gene' had much to do with the credibility of the sources used by journalists, particularly scientists and ethicists. Quite different sources are used in covering the education policies of Labour-controlled councils.

Science and the media

Media coverage of science is often criticised for misrepresentation. The coverage of the 'gay gene' was no exception. The following two quotations are typical of criticism of media coverage of science and illustrate quite neatly the major preoccupations and assumptions of such critique.[30] The journal *Nature Genetics* argued in an editorial that the paper on the 'gay gene':

> . . . predictably led to a deluge of comment. Unfortunately, much of this comment has concentrated on the politics of homosexuality and all but ignored the nature of the scientific report. . . . The general press has devoted many column inches to discussion on the way in which the report is received by different groups within the community. The result has been to dramatize what is a simple and undramatic report.[31]

Meanwhile John Maddox, the editor of *Nature*, complained of 'Wilful public misunderstanding of genetics':

> The worry in this is neither ethical nor educational, but the tendency of even sobersided newspapers to over-dramatize discoveries only, afterwards, to complain that they have been misled. Even a casual reading of the original article will reveal a commendable list of caveats. Every serious person telephoned by the newspapers has repeated them and others (and often has been reported as having done so). Yet the overall effect is to pass off inference as fact, and to conceal the certainty that if there is a genetic component of male homosexuality, its influence will be much more complicated than the simple picture rehearsed in the last few days.[32]

There are three points here. First, the public are seen as misunderstanding scientific findings. This is largely a result of the second factor, which is that the media are seen as sensationalist and irresponsible purveyors of half-truth, as ignoring caveats for a good story, and as oversimplifying a complex debate. But, media coverage is seen not just as randomly sensationalist, but as wrongly concentrating on the possible consequences of the 'discovery' for lesbians and gay men. This was seen as 'unfortunate', as diverting discussion from the science. Thirdly, underlying these critiques, the report in *Science* is conceptualized as a simple empirical 'discovery' uncontaminated by moral values or social or political ideology. *Nature Genetics* referred to the work, with no obvious irony, as 'Straight genetics'.

Firstly, Maddox fundamentally misunderstands the relationship between science, the media and public belief. He writes of 'wilful public misunderstanding', as though the public were somewhat immature and irresponsible in much the same way as he conceives of the press. Yet he cites no evidence that the public have any views whatever on the gay gene. In fact he is confusing media coverage with public (mis)understanding. This is a not uncommon problem in discussions of the media, but it does need to be said that public understanding is not *necessarily* synonymous with, or causally related to, media coverage.

Second, it was not only the mass media which regarded the 'gay gene' as newsworthy. *Science* itself was engaged in pre-publication hype, priming the media that this was a big story.[33] The over-dramatizing of the story was, then, partly the result of scientific public relations. In fact, Hamer made himself widely available for interview on television and radio helping to promote the findings. As we saw in the table, he was by far the most commonly quoted person in British press coverage.[34] It is important to remember that the promotional activities of scientific journals, large companies and scientists themselves are a key ingredient in the portrayal of science in the media more broadly.[35]

The identification of a tendency in the 'sobersided' press to over-dramatize the findings is inadequate. In fact some newspapers discounted the 'gay gene' story. The *Observer* even headlined its report 'The myth of the gay gene',[36] and ITN reported:

> They haven't, repeat haven't, found the gene for homosexuality. All that the American research group is saying is that they have found a cluster of five different genes that are linked to sexual orientation in men. Further research might narrow that down to one particular gene. But even that wouldn't be the whole story'.[20]

However, the mainstream media response to the gay gene did take for granted that genetics influenced homosexuality, and endorsed biological determinism as if it were uncontested. The BBC's science correspondent James Wilkinson was not untypical:

> Genes are small lengths of DNA in the nucleus of cells which determine all our characteristics. Previous research on identical twins has suggested that homosexuality is at least in part determined by one's genes.[37]

It is of course true that contemporary news values lead the news media to favour dramatic stories which journalists perceive can be presented as new. This is however a perennial feature of the news media and often results in coverage which hypes scientific 'discoveries' and favours particular science or business interests. In this case it is not at all clear that the media exposure damaged either Hamer and his colleagues, or the Human Genome Project, of which Hamer's work was a part, either in terms of public profile or the flow of research funds. Certainly one result of uncritical media coverage of the Human Genome Project is to help to legitimize the enterprise, thus promoting the availability and acceptability of research funding.

The media do not usually produce stories from nowhere: they require sources of information, and especially sources which appear to them to be credible. Scientists are among the most credible of all sources. As we saw in the table, scientists were the largest category of interviewee in the press. Indeed, the discovery of a genetic linkage was, by and large, taken at face value. There was very little critique of the findings from the perspective of cultural explanations. Where these were found they were largely in the margins of the newspapers under the name of a particular columnist or guest writer. The *Independent* ran a column satirizing the 'gay gene' headed 'It's not in the genes, it's in the culture'.[38] The *Sunday Times* also published a satirical column in which it was argued:

> When you start to poke around this tale it tends to sag a bit. It turns out that this gene—which they haven't, well, actually, found—might only, possibly, sort of, well, *predispose* somebody to homosexuality. One person might have it and not be gay and another might *not* have it and be Julian Clary [emphasis in original].[39]

In addition, there were a number of feature articles in the broadsheet press which used the 'gay gene' as a peg on which to hang discussion of the ethical, social, political and legal implications and progress of the Human Genome Project.[40] Some space was devoted to critical perspectives on the links between science and business, on the dangers of reductionist science, and on the moral and political implications of genetic research. However, the majority of press reporting did not question the conceptual basis on which the science depended. Here, as in other examples:

> science is presented as a generator of certainty, when it is properly conducted. Uncertainties and ambiguities are the result of incompetence of the scientists, or

> inadequacy of the apparatus, or of the limited tests conducted so far. Residual uncertainties will be eliminated by future tests.[41]

This media approach also shares key elements with the official version of scientific endeavour. In the coverage of the gay gene there was, as we have seen, some attempt by journalists to move away from this model of science and towards showing science through what Collins calls 'the window of uncertainty'.[42]

This approach, found across the broadsheet press and in popular science journals such as *New Scientist*, can be usefully contrasted with the reportage in the scientific journals. One of the criticisms made of the press reporting was the use of the term 'gay gene', which was thought most unscientific. Yet *Science* itself ran a research news piece heralding the paper which used the term 'homosexuality gene' in its headline.[43] In the scientific press we can find rather elementary misunderstandings of the relationship between the social and the biological. For example a news piece on the 'gay gene' in *Nature* contained the following phrase: 'sexuality—that is being female'.[44] Being 'female' is of course, not a matter of sexuality or indeed of gender but of sex.

The most prominent issues in British media coverage of the 'gay gene' were the discussion of ethical implications and of the politics of homosexuality in relation to genetics. Such discussion was almost entirely absent from the scientific journals. Indeed, discussions of the social, political and ethical implications of the findings was seen by *Nature Genetics* as an 'unfortunate' distraction from the real nature of the scientific report, and by John Maddox as 'entirely misplaced, as are the hopes and fears of the gays themselves'.[45] At root this debate is a contest over the 'correct' way of conceptualizing, discussing and reporting scientific research findings. For defenders of the 'gay gene' research, the work is a simple empirical discovery which needs further verification and replication if it is to be confirmed.[46] In this view science is a value neutral activity which simply accumulates empirical data. The 'politics' of homosexuality are therefore something of a distraction. But, in truth, there is no 'correct' way either of conceptualizing or of reporting scientific findings. The very essence of (natural or social) science is, or should be, scepticism, so it would be unusual to find complete agreement on the importance or significance of any piece of 'raw' scientific data. The reporting, or popularizing, of science will inevitably be attended by a further set of contests over the way in which findings should be mediated, and which issues and implications should be discussed. It is not at all clear that the 'gay gene' research should be covered only as a straightforward scientific discovery. In the context of public understanding of science, Harry Collins and Trevor Pinch have argued:

> What should be explained is methods of science, but what most people concerned with the issues want the public to know is the truth about the natural world—that is, what the powerful believe to be the truth about the natural world. . . . We agree . . . that the citizen needs to be informed . . . but the information needed is not about the content of science; it is about the relationship of experts to politicians, to the media and to the rest of us'.[47]

It might also be argued that information by itself is not enough: changes in power relationships, and accountability, are also necessary.

From the point of view of the human rights of lesbians and gay men or the informed consent of the public for continued genome research, the media coverage of the 'gay gene' was, relatively speaking, broader and more critical than the coverage in the scientific journals. It was the case that both the original paper in *Science* and

commentaries on it in the journals did give caveats and cautiously pointed out limitations of the research or of previous research in the area. But, they did not seriously consider the concerns of lesbian and gay groups or give space to alternative views on the nature of such research,[48] such as those concerned with the development of a new eugenics in which the 'consumer' is sovereign.[49] There is already a very close relationship between science and journalism. The critiques of media coverage outlined above would prefer the closure of the gap that remains. In the light of the evidence presented here, the public would be poorly served were the mass media to become more like scientific journals.

In the case of the 'gay gene', many of the problems of the media coverage of science do not originate with the gullible public or the guilty media. Some key problems originate in the limitations of this type of science. It is not my position that scientific and popular perspectives are equally socially constructed. I am suggesting that the genetic reductionism of the science involved in the 'gay gene' research is wrong.[50] In other words, the following section is not intended simply as a deconstruction of the paper but as a refutation.

This brings us to the third objection to the comments cited above, which is the assumption that this type of scientific research has no political, moral, social or monetary commitments or motivations. The ethical statement added by Hamer and his colleagues at the end of their paper is a clear illustration of the view that ethical issues are not intrinsic to pure scientific research. In fact, Hamer went so far as to claim that he would patent any gay gene so that it could not be misused. At best, as Hilary Rose points out, this is a naive approach, since patents do not apply outside the country in which they are taken out.[49] Furthermore, tacking on an ethical statement at the end of the article should not obscure the social, political or moral issues and agendas embedded in asking particular questions about the world.

If we take the commitment to disinterested inquiry at face value, there are methodological problems only some of which are acknowledged by the researchers. For example, their results are based simply on correlation. They found that 33 out of 40 pairs of gay brothers shared a particular cluster of genetic markers. It is well known that such correlation is not evidence for causation.[51] The researchers need to be able to show that the same sets of genetic markers do not exist in straight brothers. Furthermore, they need to explain the stickier issue of why seven pairs of gay brothers they studied did not share the cluster of markers.

Hamer *et al.* refer to their results as a 'statistically significant correlation between the inheritance of genetic markers on chromosomal region Xq28 and sexual orientation in a selected group of homosexual males'.[52] While they acknowledge that such a correlation is inadequate as scientific proof, they suggest that further work of a similar, incremental, kind is required. However, as *New Scientist* pointed out, the much heralded claim that genes for schizophrenia and manic depression had been discovered quickly vanished 'into the night'[53]:

> All have made front page stories. Yet every one has subsequently been withdrawn after further research has disproved the original findings. These retractions have scarcely merited a word in the press.[36]

Hamer *et al.* fail to note that the seven pairs of brothers who did not have the genetic marker are a radical problem for their theory. They have shown correlation, not causation. Nevertheless, they go on to claim that they have produced 'evidence that one form of male homosexuality is preferentially transmitted through the maternal

side'.[54] In fact, they have done nothing of the sort. Transmission implies determination rather than correlation.

The researchers do make an apparently contradictory point when they say that they have assumed that the determination of human sexuality is very complex. This statement helps to get round the problem of the seven pairs of gay brothers who did not show an X linkage. In one of their most striking statements, they invent an entirely new concept: 'forms' of homosexuality. These may be determined in different ways. Perhaps some gay men are the result of culture while others are genetically determined. There is a fundamental contradiction here which results from the 'peculiar conflation between natural and social categories'[55] in the reasoning of the authors. Homosexual 'behaviour' is not at all the same thing as homosexual 'identity'. Yet scientific studies of homosexual 'behaviour' (including this one) are carried out by examining people who identify as gay. In the spirit of natural science this observation should be regarded as falsifying all such biological reductionism. Yet those scientists involved immediately abandon scientific method in favour of their own theory-driven research agendas[56] and the rewards of renewable funding.

A key problem is the slippery use of the concept of 'determination'. Scientific journal reports of the research are littered with references to a 'genetic determinant' of a 'behavioural trait'.[45] Yet the same authors are anxious to point out that the role of the alleged gene is likely to be only one influence among many. They seem not to notice that if homosexuality is multifactorial, then it is not 'determined', in any sense of the word, by genes. Either genes (singly or in combination) do determine characteristics strictly, or they don't. If they don't, the whole argument of the essentialists collapses into a kind of multifactorialism. From this it follows that the genes do not *determine* anything at all (even in the weaker sense of setting limits or parameters) since the 'genetic' influence can be ignored by an act of human decision or negated by culture (not to mention interaction with other genes).[57] Yet scientists continue to carry out research directed by the unacknowledged premise that the study of genetic function will explain the complexities of human culture.

This takes us to a more serious objection, which is that the whole field of study is misconceived and driven by unstated theory and ideology. It is clear that this type of work is premised upon assumptions about the role of genes in sexual behaviour. The theory of natural selection suggests that the 'fittest' genes survive. This raises the question: why are there lesbians and gay men? The assumption in much of this work is that homosexuality is worthy of investigation because it is maladaptive. This is occasionally explicitly acknowledged. *Nature*'s news report argued that evidence of a genetic influence would indicate that homosexuality 'would be established as a biological reality, just as heterosexuality is'.[44] Here is a clear indication that heterosexuality is perceived as the 'normal' state of affairs, the benchmark against which lesbian and gay identities can be compared. The presence of such political ideology masquerading as scientific commentary is one indication of the profound ways in which science emerges from, and contributes to, the construction of lived cultures. As *New Scientist* pointed out, 'the sad truth seems to be that geneticists began to study homosexuality only after it became perfectly respectible to support homosexuals' rights. . . . Scientists, it seems, follow the spirit of the times'.[58]

However, the spirit of this type of science, which is built on heterosexist ideology, adherence to the theory of natural selection, the convenience of funding, and the prestige of genetic research, is one which some scientists actively promote rather than passively follow. The role of the journal *Science* in supporting the Human Genome

Project is also worth mentioning. According to Harvard biologist Ruth Hubbard: 'anything that enhances the sense that genes are important gets a ready platform. The journal has taken the line that this will enable use to solve all kinds of social problems from mental illness to homelessness'.[59] We should also remember that the Human Genome Project is big business: 'more than 30 leading genome scientists have already made deals with venture capitalists. To the alarm of European nations, who argue that research paid for by the taxpayer should be freely available to everyone, some American scientists in the project have been furiously applying for patents on lengths of genetic code by the thousand, and the big companies have been taking an ever greater interest in every aspect of their work'.[60] The resurgence of genetic explanations for human behaviour, exemplified in the 'gay gene' research, is underpinned by economic interest and is likely to remain prominent on media agendas for some years to come as more social problems are alleged to be linked to particular 'genes'.

Conclusions

Media coverage of the 'gay gene' generally eschewed traditional homophobia. This was partly because of the liberal statements of the scientists and ethicists used by the media, partly because of the success of gay pressure groups in supplying the media with information, partly because of divisions on the conservative right and partly because the story was, in general, covered by science or medical correspondents rather than general correspondents. Press and television coverage dealt with the complexities of the debate about the 'causation' of homosexuality rather better than the journals in that they gave prominence to concerns about human rights implications and to lesbian and gay voices, and seriously debated the possibilities of eugenics—concerns dismissed out of hand by some in scientific journals. The problems of representing science in the media are due in part to contemporary news values, but it is my argument that many of the problems originate in the inadequate methodology of this type of science, and more particularly in its unacknowledged political, moral and monetary agendas.

What is needed is not simply public or media understanding of science, but scientific understanding of the media and the public. A first step would be an awareness that media coverage and public belief are not necessarily identical. So long as scientific discourse is dominated by references to the guilty media or the gullible public, there will be little chance for serious debate about the relationship between scientists, politicians, interest groups, the media and the public or about the compatibility of science and democracy.

The consequences of my argument for the public understanding of science are relatively straightforward. Scientists and other critics should stop bashing the media and patronizing the public. Part of the key to public understanding of science is the opening up of science itself to public scrutiny. However, it is at this point that the potential contradiction of different conceptions of public understanding of science emerge. For many, the 'public understanding of science' is about securing consent for increasing the power, influence and resources available to science. This can be seen in the promotional activities of scientists and scientific journals and is, in any case, basic to the production of public knowledge in contemporary societies. The public are seen as needing more scientific knowledge in order that they will agree with the experts on questions of science and technology. Yet the obvious possibility of really bringing scientific debates to the centre of the public sphere (in the news and popular media and

elsewhere) is that natural science will be shorn of some of its mystique and be forced to compete with alternative ways of explaining the world. Such competition will not guarantee the supremacy of natural science and may result in non-(natural) scientists winning debates on explaining human culture.

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References

1 Hamer D., Hu, S., Magnuson, V., Hu, N., and Pattatucci, A., 1993, A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*, **261**, 16 July, 321–327.

2 The sample included all coverage in what can best be termed the 'British national press': daily and Sunday papers produced in London for British circulation (these were: the *Star*, the *Sun*, the *Daily Mirror*, *Today*, the *Daily Express*, the *Daily Mail*, the *Daily Telegraph*, *The Times*, the *Guardian*, the *Independent*, the *Financial Times*, the *Sunday Sport*, the *News of the World*, the *People*, the *Sunday Mirror*, the *Sunday Express*, the *Mail on Sunday*, the *Sunday Telegraph*, the *Sunday Times*, the *Observer* and the *Independent on Sunday*), plus the London evening paper the *Evening Standard* and the main British network television news bulletins (early evening and main evening bulletins by the BBC for BBC1 and by Independent Television News for ITV, together with *Channel Four News* and BBC2's *Newsnight*). The sample period was from the 16 July 1993, the date the press first covered the story, until 6 August 1993. The bulk of the press coverage was concentrated in the first three days (16–18 July). It was only on these days that more than half the newspapers covered the story. From 24 July to 6 August the story mainly appeared in the letters pages of the press, with some news coverage on the comments of Lord Jakobovits that any 'gay gene' should be eliminated. The television news programmes only covered the story on 16 July.

3 The sample of scientific journal coverage is based on a search of the *Science Citation Index* and of Embase. All articles on homosexuality and genetics between January 1993 and June 1994 were retrieved and those specifically dealing with the paper in *Science* were analysed.

4 Howes, K., 1993, *Broadcasting It: An Encyclopaedia of Homosexuality on Film, Radio and TV in the UK 1923–1993* (London: Cassell), p.xi. For critiques of media treatment of lesbians and gay men in the British media see notes 5 and 8, and Armitage, G., Dickey, J., and Sharples, S., 1987, *Out of the Gutter: A Survey of the Treatment of Homosexuality by the Press* (London: Campaign for Press and Broadcasting Freedom); Dyer, R., 1993, *The Matter of Images* (London: Routledge); Groocock, V., 1994, Lesbian journalism: mainstream and alternative press, and Collis, R., 1994, Screened out: lesbians and television, both in *Daring to Dissent: Lesbian Culture from Margin to Mainstream*, edited by L. Gibbs (London: Cassell); Kitzinger, J., and Kitzinger, C., 1993, Doing it: representations of lesbian sex. *Outwrite: Lesbianism and Popular Culture*, edited by G. Griffin (London: Pluto).

5 Cited in Tatchell, P., 1993, The British Bigotry Corporation. *Gay Times*, May, 8–9.

6 Tatchell, P., 1993, The British Bigotry Corporation. *Gay Times*, May, 8.

7 Altman, D., 1988, Legitimation through disaster: AIDS and the gay movement. *AIDS: The Burdens of History*, edited by E. Fee and D. Fox (Berkley, CA: University of California Press).
8 Watney, S., 1987, *Policing Desire: Pornography, AIDS and the Media* (London: Comedia).
9 The term 'homophobia' is problematic for two reasons. First is its psychologizing tendency in which anti-gay discourse is seen as the result of individual prejudice (or psychological disorder) which can be countered by 'education'. Analysis of the institutional, legal and political structures and ideologies which maintain discriminatory practice is thus impeded. Secondly, divisions and competition between perspectives which do not accept lesbians and gay men as fully human can often be disguised in the catch-all term 'homophobia'. Nevertheless, it is in common usage and will be used in this article to denote anti-gay perspectives.
10 Hamer D., Hu, S., Magnuson, V., Hu, N., and Pattatucci, A., 1993, A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*, **261**, 16 July, 326.
11 For an analysis of press formats see Miller, D., 1994, *Don't Mention the War: Northern Ireland, Propaganda and the Media* (London: Pluto Press), Chap. 4.
12 *Daily Mirror*, 1993, It's in the genes—how homosexuals are born different; and Seek out and destroy fears, 17 July.
13 *Daily Express*, 1993, The gay gene, 17 July, p.19. It should be noted that this piece was in the features section of the *Express* known as 'Expressions', which is targeted especially at women readers. It is here that tabloid papers often give a more nuanced view than that available in the news pages.
14 Watson, P., 1993, Mums pass gay gene to sons say doctors. *Sun*, 17 July.
15 Sarler, C., 1993, Moral majority gets it's genes all in a twist. *People*, 25 July, p.27.
16 Lewis, J.,1993, Abortion hope after 'gay genes' find. *Daily Mail*, 16 July, p.29.
17 In the context of AIDS reporting, Andrew Veitch, the former medical correspondent of the *Guardian* says: 'I think [reporters] have failed to get through to the people who really make the papers—the editors, the sub-editors, the guys who decide what goes in the pages, the guys who write the headlines. . . . Sometimes I wonder exactly what we're up against. I think that one answer, to put it simply, may be sexual hang-ups. You have to be pretty queer to work on a newspaper, you have to be very queer to work on a newspaper at night, and the result is that you end up with a lot of macho hairy-ass guys who are terrified to admit that one time in their dim and distant past they may have had a homosexual relationship.' See Veitch, A., 1986, Comments on 'Education and communication: enhancing public understanding and fostering disease prevention', in *AIDS: Impact on Public Policy, Proceedings of a Conference*, 28–30 May 1986 (New York: New York State Department of Health and the Milbank Foundation), p.128. For more details see Miller, D., and Williams, K., 1993, Negotiating HIV/AIDS information: agendas, media strategies and the news. *Getting the Message: News, Truth and Power*, edited by the Glasgow University Media Group (London: Routledge). For more material on the impact of gender ideology on news values see Miller, D., Reilly, J., Macintyre, S., and Eldridge, J., 1994, *The Role of the Media in the Emergence of Food Panics*, End of Award Report to ESRC Ref No. L209-25-2011.
18 Jones, S., 1993, Genes, gays and a moral minefield. *Daily Mail*, 17 July, p.8.
19 Hope, J., 1993, Genes that may chart course of a sex life. *Daily Mail*, 17 July.
20 ITN Early Evening News, 17.40, 16 July 1993.
21 McKellen, I., 1993, Through a gay viewfinder. *Guardian*, 22 July, p.18.
22 Green, S., 1993, Don't blame biology. *Evening Standard*, 2 August. See also Green, S., 1992, *The Sexual Dead-End* (London: Broadview Books), where Green endorses 'curing' homosexuality.
23 Cited in Fernbach, D., 1993, Hyping the hypothalamus. *Gay Times*, July, 60–61.
24 Revill, J., 1993, 'Gay gene' claims spark anger and dismay. *Evening Standard*, 16 July.
25 *Daily Express*, 1993, The gay gene, 17 July, p.19.
26 Cited in Rose, H., 1995, Gay brains, gay genes and feminist science theory. *Sexual Cultures*, edited by J. Weeks, J. Holland *et al.* (London: Macmillan).
27 Miller, D., and Williams, K., 1993, Negotiating HIV/AIDS information: agendas, media strategies and the news. *Getting the Message: News, Truth and Power*, edited by the Glasgow University Media Group (London: Routledge).
28 Curran, J., 1987, *Media Coverage of the London Councils: Interim Report* (London: Goldsmiths College).
29 *Daily Express*, 1993, Stop this ugly propaganda, 20 July, p.8; MacDonald, T., 1993, Children of five will learn that it's natural to be gay. *Daily Express*, 20 July, p.15.
30 For examples see Nelkin, D., 1987, *Selling Science: How the Press Covers Science and Technology* (New York: W.H. Freeman).

31 *Nature Genetics*, 1993, Straight genetics, **5**(1), September, 1–2.

32 Maddox, J., 1993, Wilful public misunderstanding of genetics. *Nature*, **364**, 281. Maddox is well known for his controversial statements. However, it is clear that those cited here are typical of critiques of science in the media and furthermore are of intrinsic interest because of Maddox's status as editor of one of the most prestigious British science journals.

33 Fernbach, D., 1993, Xq28 marks the spot. *New Statesmen and Society*, 30 July, 29–30. This was also the case for a 1991 report in *Science* by Simon Le Vay, which claimed to have found differences in the size of the hypothalamus of gay and straight men. See Fernbach, D., 1993, Hyping the hypothalamus. *Gay Times*, July, 60–61. The original paper is Le Vay, S., 1991, A difference in hypothalamic structure between heterosexual and homosexual men. *Science*, **253**, 1034–1037.

34 In fact at least three other papers linking homosexuality with genetics were published in scientific journals in 1993 alone. See Bailey, J., Pillard, R., Neale, M., and Agyei, Y., 1993, Heritable factors influence sexual orientation in women. *Archives of General Psychiatry*, **50**, 217–223; Byne, W., and Parsons, B., 1993, Human sexual orientation: the biologic theories reappeared. *Archives of General Psychiatry*, **50**, 228–239; Whitam, F., Diamond, M., Martin, J., 1993, Homosexual Orientation in twins. *Behavioural Genetics*, **23**, 21–28. For critiques of some of this material see Hubbard, R., and Wald, E., 1993, *Exploring the Gene Myth* (Boston: Beacon Press). However, none of these gained widespread coverage in the British media. These papers, like the paper in *Science*, did not discount genetic explanations. However, there is one key reason why they did not lead to publicity: precisely that they were not published in *Science*. *Science* has a very high credibility for journalists, and is regularly used, along with a small number of other journals, as a source of stories by medical and science journalists in Britain and the USA. Clearly, the status of *Science* is nurtured by the promotional activities of the journal itself.

35 On this see Karpf, A., 1990, *Doctoring the Media* (London: Routledge); Nelkin, D., 1987, *Selling Science: How the Press Covers Science and Technology* (New York: W. H. Freeman).

36 McKie, R., 1993, The myth of the gay gene. *Observer*, 18 July, p.21.

37 BBC1, *Six O'Clock News*, 16 July 1993.

38 Fenton, J., 1993, It's not in the genes, it's in the culture. *Independent*, 19 July, p.19.

39 Julian Clary is a popular camp gay comedian. See Deer, B., 1993, Knit one for me too, mum. *Sunday Times*, 18 July, p.1/12.

40 See for example Radford, T., 1993, Code of conduct. *Guardian*, II, 21 July, pp.2–3.

41 Collins, H. M., 1987, Certainty and the public understanding of science: science on television. *Social Studies of Science*, **17**, 689–713; see also Hornig, S., 1990, Television's *NOVA* and the construction of scientific truth. *Critical Studies in Mass Communication*, **7**, 11–23; Murrell, R. K., 1987, Telling it like it isn't: representations of science in *Tomorrow's World*. *Theory, Culture and Society*, **4**, 89–106.

42 Collins, H. M., 1987, Certainty and the public understanding of science: science on television. *Social Studies of Science*, **17**, 710.

43 Pool, R., 1993, Evidence for homosexuality gene. *Science*, **261**, 291–292.

44 King, M.-C., 1993, Sexual orientation and the X. *Nature*, **364**, 288–289.

45 Maddox, J., 1993, Wilful public misunderstanding of genetics. *Nature*, **364**, 281.

46 As Miron Baron argued in a *British Medical Journal* editorial: 'the scientific question is a complex one, and the interpretation of these results is hampered by methodological uncertainties. Further study is crucial to confirm or refute this finding'. See Baron, M., 1993, Genetic linkage and male homosexual orientation. *British Medical Journal*, **307**, 337–338.

47 Collins, H., and Pinch, T., 1993, *The Golem: What Everyone Should Know About Science* (Cambridge University Press), pp.144–145.

48 Except in letters of response, see Fausto-Sterling, A., and Balaban, E., 1993, Genetics and male sexual orientation. *Science*, **261**, 1257; Diamond, R., 1993, Genetics and male sexual orientation. *Science*, **261**, 1258–1259.

49 See Rose, H., 1995, Gay brains, gay genes and feminist science theory. *Sexual Cultures*, edited by J. Weeks, J. Holland *et al.* (London: Macmillan).

50 For a discussion of the limits of social constructionist approaches, especially as regards relativism see Miller, D., and Reilly, J., 1995, Making an issue of food safety: pressure groups, the media and the public sphere. *Eating Agendas: Food and Nutrition as Social Problems*, edited by D. Maurer and J. Sobal (New York: Aldine De Gruyter). For classic critiques see Gellner, E., 1979, *Spectacles and Predicaments* (Cambridge University Press); Thompson, E. P., 1978, *The Poverty of Theory* (London: Merlin Press).

51 This piece of knowledge has, however, apparently passed by some scientific journals. *Nature Genetics*, for example, claimed that correlation of this type is 'an unambiguous and proven method of calculating the statistical likelihood that an association is real as opposed to one that has come about by chance'. See *Nature Genetics*, 1993, Straight genetics, 5(1), September, 2. In the case of the 'gay gene', statistical methods are invoked to suggest that the observed correlation had a one in 10 000 chance of being an anomaly.

52 Hamer D., Hu, S., Magnuson, V., Hu, N., and Pattatucci, A., 1993, A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*, **261**, 321.

53 *New Scientist*, 1993, A gene for our times? 24 July, 3. *Science* also reported that the 'discovery' of these genes had failed to be replicated, but only in arguing for a model of incremental science rather than as a critique of methodology or media coverage. See Pool, R., 1993, Evidence for homosexuality gene. *Science*, **261**, 291–292.

54 Hamer, D., Hu, S., Magnuson, V., Hu, N., and Pattatucci, A., 1993, A linkage between DNA markers on the X chromosome and male sexual orientation. *Science*, **261**, 325.

55 Fernbach, D., 1993, Hyping the hypothalamus. *Gay Times*, July, 60–61; Rose, H., 1995, Gay brains, gay genes and feminist science theory. *Sexual Cultures*, edited by J. Weeks, J. Holland *et al.* (London: Macmillan).

56 Indeed, some researchers in this area are quite candid that their observations on evolution are driven by theory. The psychologist and adherent of sociobiology John Archer has written that the 'starting point adopted by sociobiologists is to begin with the principle of natural selection, to deduce the types of general attributes and motives we would expect human beings to possess, and then to look for these. This provides a more consistent view of human nature'. (See Archer, J., 1995, Sociobiology and social psychology. *Introduction to Social Psychology: A European Perspective* (2nd edn), edited by M. Hewstone, W. Stroebe and G. Stephenson (Oxford: Basil Blackwell).) It certainly is more consistent, since all observations are explained in terms of the prior theory. The problem of explaining homosexuality in terms of natural selection is notoriously difficult and leads sociobiologists into all sorts of tangled arguments, none of which is convincing even to themselves. Richard Dawkins, for example, has himself concluded that 'intriguing as several of these theories may be, I have to conclude that it remains a problem'. See Dawkins, R., 1993, Could a gay gene really survive? *Daily Telegraph*, 16 August, p.12.

57 On this see Lewontin, R. C., 1993, *The Doctrine of DNA: Biology as Ideology* (London: Penguin); Rose, S., Lewontin, R., and Kamin, L., 1984, *Not in our Genes: Biology, Ideology and Human Nature* (London: Penguin).

58 *New Scientist*, 1993, A gene for our times? Comment, 24 July, 3.

59 Cited in Hodgkinson, N., 1993, Gender Bender? *Sunday Times*, 18 July, p.1/12; See also Lewontin, R. C., 1993, *The Doctrine of DNA: Biology as Ideology* (London: Penguin); Rose, H., 1994, *Love, Power and Knowledge: Towards a Feminist Transformation of the Sciences* (Oxford: Polity); Rose, H., 1995, Gay brains, gay genes and feminist science theory. *Sexual Cultures*, edited by J. Weeks, J. Holland *et al.* (London: Macmillan). For statements about the promise of the Human Genome Project in solving social (or should we say genetic?) problems see Koshland, D., 1989, Sequences and consequences of the human genome. *Science*, **246**, 189.

60 Radford, T., 1993, Code of conduct. *Guardian*, II, 21 July, pp.2–3. See also Lewontin, R. C., 1993, *The Doctrine of DNA: Biology as Ideology* (London: Penguin), pp.48–53 and 61–83.

Author

David Miller is Lecturer in Film and Media Studies at Stirling University and a member of the Stirling Media Research Institute. His main research interests include the Northern Ireland conflict, propaganda and public relations and the media politics of science, risk, health and illness. He is the author of *Don't Mention the War: Northern Ireland, Propaganda and the Media* (London: Pluto, 1994) and co-author of *Dying of Ignorance?: AIDS, the Media and Public Belief* (Sage, forthcoming).