

## 2.4

### Genes Aren't Us<sup>68</sup>

The bogey of genetic determinism needs to be laid to rest. The discovery of a so-called 'gay gene' is as good an opportunity as we'll get to lay it.

The facts are quickly stated. In the magazine *Science*<sup>69</sup>, a team of researchers from the National Institutes of Health, in Bethesda, Maryland, reported the following pattern. Homosexual males are more likely than you'd expect by chance to have homosexual brothers. Revealingly, they are also more likely than you'd expect by chance to have homosexual maternal uncles and homosexual cousins on the mother's side, but not on the father's side. This pattern raises the immediate suspicion that at least one gene causing homosexuality in males is carried on the X chromosome.\*

The Bethesda team went further. Modern technology made it possible for them to search for particular marker strings in the DNA code itself. In one region, called Xq28, near the tip of the X chromosome, they found five identical markers shared by a suggestively high percentage of homosexual brothers. These facts combine elegantly with one another to confirm earlier evidence of a hereditary component to male homosexuality.

So what? Are sociology's foundations trembling? Should theologians be wringing their hands with concern, and lawyers rubbing theirs with anticipation? Does this finding tell us anything new about 'blame' or 'responsibility'? Does it add anything, one way or the other, to arguments about whether homosexuality is a condition that could, or should, be 'cured'? Should it make individual homosexuals more or less proud, or ashamed, of their predilections? No to all these questions. If you are proud, you can stay proud. If you prefer to be guilty, stay guilty. Nothing has changed. In explaining what I mean,

\*Because males have only one X chromosome, which they necessarily get from their mother. Females have two X chromosomes, one from each parent. A male shares X chromosome genes with his maternal, but not his paternal, uncle.

I am less interested in this particular case than I am in using it to illustrate a more general point about genes and the bogey of genetic determinism.

There is an important distinction between a blueprint and a recipe.\* A blueprint is a detailed, point-for-point specification of some end product like a house or a car. One diagnostic feature of a blueprint is that it is reversible. Give an engineer a car and he can reconstruct its blueprint. But offer to a chef a rival's *pièce de résistance* to taste and he will fail to reconstruct the recipe. There is a one-to-one mapping between components of a blueprint and components of the end product. This bit of the car corresponds to this bit of the blueprint. That bit of the car corresponds to that bit of the blueprint. There is no such one-to-one mapping in the case of a recipe. You can't isolate a particular blob of soufflé and seek one word of the recipe that 'determines' that blob. All the words of the recipe, taken together with all the ingredients, combine to form the whole soufflé.

Genes, in different aspects of their behaviour, are sometimes like blueprints and sometimes like recipes. It is important to keep the two aspects separate. Genes are digital, textual information, and they retain their hard, textual integrity as they change partners down the generations. Chromosomes – long strings of genes – are formally just like long computer tapes. When a portion of genetic tape is read in a cell, the first thing that happens to the information is that it is translated from one code to another: from the DNA code to a related code that dictates the exact shape of a protein molecule. So far, the gene behaves like a blueprint. There really is a one-to-one mapping between bits of gene and bits of protein, and it really is deterministic.

It is in the next step of the process – the development of a whole body and its psychological predispositions – that things start to get more complicated and recipe-like. There is seldom a simple one-to-one mapping between particular genes and 'bits' of body. Rather, there is a mapping between genes and rates at which processes happen during embryonic development. The eventual effects on bodies and their behaviour are often multifarious and hard to unravel.

The recipe is a good metaphor but, as an even better one, think of the body as a blanket, suspended from the ceiling by 100,000 rubber bands, all tangled and twisted around one another. The shape of the blanket – the body – is determined by the tensions of all these rubber bands taken together. Some of the rubber bands represent genes, others

\*This distinction was also used in 'Darwin Triumphant' (p. 89).

#### LIGHT WILL BE THROWN

environmental factors. A change in a particular gene corresponds to a lengthening or shortening of one particular rubber band. But any one rubber band is linked to the blanket only indirectly via countless connections amid the welter of other rubber bands. If you cut one rubber band, or tighten it, there will be a distributed shift in tensions, and the effect on the shape of the blanket will be complex and hard to predict.

In the same way, possession of a particular gene need not infallibly dictate that an individual will be homosexual. Far more probably the causal influence will be statistical. The effect of genes on bodies and behaviour is like the effect of cigarette smoke on lungs. If you smoke heavily, you increase the statistical odds that you'll get lung cancer. You won't infallibly give yourself lung cancer. Nor does refraining from smoking protect you infallibly from cancer. We live in a statistical world.

Imagine the following newspaper headline: 'Scientists discover that homosexuality is caused.' Obviously this is not news at all; it is trivial. Everything is caused. To say that homosexuality is caused by genes is more interesting, and it has the aesthetic merit of discomfiting politically-inspired bores, but it doesn't say more than my trivial headline does about the irrevocability of homosexuality.

Some genetic causes are hard to reverse. Others are easy. Some environmental causes are easy to reverse. Others are hard. Think how tenaciously we cling to the accent of childhood: an adult immigrant is labelled a foreigner for life. This is far more ineluctably deterministic than many genetic effects. It would be interesting to know the statistical likelihood that a child, subjected to a particular environmental influence such as religious indoctrination by nuns, will be able to escape the influence later on. It would similarly be interesting to know the statistical likelihood that a man possessing a particular gene in the Xq28 region of the X chromosome will turn out to be homosexual. The mere demonstration that there exists a gene 'for' homosexuality leaves the value of that likelihood almost totally open. Genes have no monopoly on determinism.

So, if you hate homosexuals or love them, if you want to lock them up or 'cure' them, your reasons had better have nothing to do with genes.