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Genes, Genesis and God: values and their origins in natural and human history

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'There's a new *explanation* (my italics) for all those theatrical and political dynasties: research into identical twins with spookily similar career paths suggests that our choice of job may be prompted by our DNA.' Thus writes Oliver Burkeman in an article entitled *Wear your genes to work* in *The Guardian* of November 3 1999. Of course I can now see the error of my previous thinking! The three successive generations of men in the same family working in the same coal mine or farming the same land has nothing to do with socio-economic conditions or the daughter who follows her father or mother into medicine has not been inspired by their example. All are simply following the pathway mapped for them by their genes. In fact, the work on which Burkeman bases his bold statement leads to rather less cut-and-dried conclusions. Professor Nancy Segal's study of twins leads her to suggest 'that choice of any job reflects many characteristics that are genetically based' while she is at pains to emphasise that she is 'not saying that there is a single gene for being a carpenter or a single gene for being an artist.' Segal's statements correspond much more closely to the actual data and yet Burkeman's apparent desire for a totally genetic explanation is a symptom of the pervasive genetic reductionism that the media seem to have espoused so enthusiastically. I share with my more distinguished colleagues Steven Rose and Steve Jones an utter frustration at the mentality that simply looks for a gene for this, a gene for that, a gene for everything.

It is against this background that I set my review of *Genes, Genesis and God*. The book is based on the Gifford Lectures given by the author at the University of Edinburgh in November 1997 and if ever the 'book of the play' made one wish one had seen the play this book did that for me in

respect of the Gifford Lectures. I found the book inspirational and I am sure that the lectures would have been at least equally so. The book's theme is succinctly summarised in the 'blurb' on the back cover: 'Can the phenomena of religion and ethics be reduced to the phenomena of biology? Holmes Rolston says no . . .' In the development of this theme the author takes us through six long, extensively subdivided chapters. It is worth listing the chapter headings because they reveal clearly the plot of the book: 1, *Genetic values: diversity and complexity in natural history*; 2, *Genetic identity: conserved and integrated values*; 3, *Culture: Genes and the genesis of human culture*; 4, *Science: naturalized, socialized, evaluated*; 5, *Ethics: naturalized, socialised, evaluated*; 6, *Religion: naturalized, socialized, evaluated*. Reading the book straight through (although certainly not at one sitting) is like listening to a long, beautifully crafted, stirring piece of music that gradually works towards a memorable finale or slowly climbing from the plains through the foothills, with views getting better and better, until one finally reaches the summit. The author starts with the naturalistic setting for genes and their action. He then discusses what genes can and cannot do, pointing out that even in the realm of developmental biology, there are some things that genes cannot directly specify. As also pointed out by biologists such as Brian Goodwin and Steven Rose, these include the development of neuronal connections, the possible number of which exceeds the number of genes by many orders of magnitude. Having dealt with the biological background, he then moves into areas where humans start to be different from even their closest relatives. Thus human culture is firstly compared to the 'cultures' seen in social animals, including primates, but is held to rise above the level of the genes, even though it is acknowledged that many of the actual processes that enable us to participate are obviously rooted in our genes. Rolston then moves to extensive discussions of three aspects of human culture, namely science, ethics and religion. Again it is held that, although they are

Book Reviews

physically out-worked in our nature as biological beings, these activities, which are specifically human, take us above the level of our genes and out of the purely biological. In the earlier chapters, the author had seriously questioned whether the progress of evolution could be entirely compatible with a selfish gene hypothesis and had further suggested that many facets of the behaviour of higher animals actually run counter to that hypothesis. In these later chapters he continues to counter the ultra-reductionist selfish gene approach and also the less molecular, although philosophically equally bleak approach of socio-biologists such as E.O. Wilson. The discussion is conducted at too great a depth and length to reproduce here but let me just draw our readers' attention to Rolston's satirical re-interpretation of the parable of the Good Samaritan, based on the socio-biologists' view that there is no such thing as altruism. I particularly liked the lines on page 253: 'The Good Samaritan . . . really assisted the luckless victim on the Jericho road in order to leave more genes in the next generation. What a hypocrite! The selfish bastard!'

For many readers of this journal, the last chapter, dealing with religion will be especially interesting. The author does actually discuss religion, and not specifically Christianity, although he is clearly coming from a Judaeo-Christian background.

There is not much in the way of a developed theology here. Rather, Rolston identifies common themes in what he calls the world's great religions, ie those that have survived and spread across the globe. The themes are ethics, dealing with attitudes to other people (and in some, to the natural world) and God, ie the concept of a supernatural being. There is some very telling discussion of the limits of science, and a clear rejection of the attempts to reduce religion to a biological phenomenon. He discusses at some length the emergence of life, concluding 'It hardly seems coherent to hold that non-biological materials are randomly the more and more de-randomized across

long structural sequences and thus ordered up to life. That is quite as miraculous as walking on water.' I was reminded at this point of Paul Davies who, in his recent book *The Fifth Miracle*, suggests that the origin of life, even given the existence of proteins, was like a kite assembling itself into a radio-controlled aircraft. This then leads to the author's last sub-theme where he moves clearly to a statement of the reasonableness of belief in a creator God who is able to make 'informationless matter-energy' into a 'splendid information maker'. 'Biologists cannot deny this creativity; indeed, better than anyone else, biologists know that Earth has brought forth the natural kinds, prolifically, exuberantly over the millenia, and that enormous amounts of information are required to do this.'

Finally I have some general comments about the book. It is, as already hinted, a real masterpiece. The author's grasp of a wide range of disciplines including theology, philosophy and various scientific disciplines, but especially biology, is mind-blowing and the width of his reading is immense. Having said that, I should also say that there are a few minor biological errors: however, although these might lose marks in a biology exam they do not in any way detract from the thrust of the author's arguments. Like many masterpieces, the book requires a little effort to appreciate it fully. Of its 400 pages, 370 are actual text and it is very meaty stuff. It is not, as I discovered, a book to be dipped into as one sits by a gently lapping Aegean or by the Atlantic rollers of North Cornwall (I abandoned both those attempts to get into the book and started again in less distracting surroundings!). It needs concentration to get the best out of it, coupled with a willingness to take notes. However one approaches this book, it is certainly well worth reading and I hope that many readers of this journal will be able to have access to a copy.

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