

BELIEF IN GOD: A TRICK OF OUR BRAIN?

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Maths, Physics, and Babies

Anyone who has read even a little bit of psychology knows that the human mind is a strange thing. For example, we show marked and consistent psychological tendencies to think that, say, people with dilated pupils are more attractive, that people who smile a lot are untrustworthy, and that anything that has touched animal waste is disgusting. Where do these psychological dispositions come from? For hundreds of years the prevailing view in psychology was that these beliefs resulted either from cultural influences that shaped our reasoning and information processing, or simply from outright instruction ('Don't touch the dog poop, Johnny! You'll get sick!').

But the prevailing view was wrong. We now have conclusive evidence that human minds come into the world with all sorts of 'software' both pre-installed and booted up. Some of this software manifests itself right from birth, while other bits of it become operative at specifiable times in human development. For example, it has been shown that, from birth, human beings have certain

beliefs about both mathematics and physics. Babies know, for example, that one plus one is not three, and they know that solid objects fall to the floor, unless something or someone holds them up.

How do we know this? Like us, babies have certain ways of signalling their state of mind through their behaviour. When you give babies the same sensory stimulus over and over they (like us) tend to get bored with it and subsequently start to ignore it. When, on the other hand, you give them a series of novel, different, and unexpected sensory stimuli, they show their surprise by keeping their attention fixed on the unexpected event. Show them a picture of a red ball and they will look. Flash it again and they look again.

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Flash it a third, fourth and fifth time and, in most cases, their attention will start to drift, and they will start to attend to other things. This fact gives us a signal about babies' states of mind. When their attention remains fixed, it is obvious that what they are looking at is surprising or new to them. When their attention wanes, we can guess that what they are experiencing is old hat. Psychologists can thus infer some aspects of baby belief by measuring how long they fix their attention on certain things (that is, by measuring their 'gaze time').

How does this help us figure out babies' beliefs about maths and physics? In one experiment, researchers put babies on a table that had a screen that could be raised and lowered. When the screen

is first put in place, the babies could see that there was nothing behind it. Experimenters would bring one object behind the screen from the left, and another from the right. Anyone who can think mathematically should then expect to find two objects behind the screen. And in fact, when the screen is dropped and there are two objects there, babies tend to look away very quickly, since that is just what they expected. That's boring! But when the screen drops and there is one object, or three objects, babies tend to gaze for a much longer time. In cases where one plus one does not seem to equal two, they are surprised. This shows us that babies know that one plus one equals two, not one or three.¹

Another way we can look for beliefs that arise from built-in 'software' is to look for beliefs that are *pervasive across times and cultures*. Widespread beliefs might sometimes be explainable simply in terms of experience. If we found that people across the globe uniformly believe that, say, all human beings have two feet, we could chalk that up as something learned through common human experience. But there are other pervasive beliefs that seem to arise despite an absence of sufficient sensory evidence. Such beliefs are said to arise despite a 'poverty of the stimulus', and when such beliefs occur we have reason to look for built-in, on-board processing mechanisms that provide what our experiences do not. A good example of this is the belief that rotting food,

corpses and animal waste are dangerous. This set of beliefs and the accompanying desires, known in psychology as 'contagion avoidance' is found across cultures, even in cases where people have little or no direct evidence for its truth. We are, it seems, just 'wired' to believe it.²

Human Hardwiring and Morality

As scientists noted that such similarity of belief is often best explained by the human brain's hard-wiring, these scientists were naturally led to look for other areas of common belief in babies as well as across human times and cultures. While there are many such areas, I will discuss just two: human beliefs in and about morality and religion. Morality and religion, like the other beliefs mentioned above, are pervasive across times and cultures. The details differ in important and sometimes striking ways. But it is just as striking that every culture indeed has both moral codes and religious beliefs and practices. And this fact led some scientists to suppose that human brains are hard-wired to form beliefs about morality and religion as well.

There is indeed a good deal of

towards punishment is just a reasoned reaction to fundamental principles of morality and justice. But there is good evidence that something more is going on. In fact, there is reason to think that our tendency to want to punish is wired into our thought processes in a way that runs far ahead of any carefully reasoned thought process. This has been made evident by a variety of experiments, perhaps the most telling of which is one carried out by the Swiss scientist and economist Ernst Fehr.

In Fehr's study, subjects would play a game with a series of groups of three other individuals. Each person starts the game with \$20. In the game, each player can contribute as much as they choose, \$0-\$20, to a central pool of funds. After the contributions are made, the total pot is revealed and tallied, and each player receives back 40% of the total amount contributed. Thus, if everyone donated all his money, the total pot would be \$80, and each player would receive 40% of that total (\$32), thus generating a \$12 profit (as should be clear, the game includes a bank to supply additional funds to the pot if necessary). However, if one player contributes *nothing* and

your cheating behaviour need never 'come back to haunt you' in future rounds.

However, Fehr's game had one further twist. After the funds were contributed, tallied, and redistributed, players had a chance to do one more thing. Each player could contribute up to \$10 to punish another player of their choosing (for any reason). For every dollar spent on punishing, the victim of the punishment would be charged \$3. The funds received from all of the punishing activity went back into the bank.

A player who wants to maximize her earnings (if reasoning carefully) should (a) contribute nothing and (b) never punish. Let's think just about (b) here. Punishing in this game really serves no point for the punisher. For the punisher, it simply costs him money that will never be recouped in future rounds (since even if the punished is deterred, that will only help the punished players' *future* fellow players). And yet, despite this, players in the game show a marked tendency to spend a lot of their resources on this pointless punishing activity.

What does this show? A reasonable conclusion is this: we are hard-wired to seek to punish wrongdoers, even when there is no possible future benefit to doing so. This aspect of our moral beliefs and desires is an innate disposition that we can escape only by expending great effort to resist these innate tendencies.

Human Hardwiring and Religion

In recent years, some psychologists have gone even further, arguing that in addition to many of our fundamental moral beliefs and desires, many of our natural dispositions towards religion are also hard-wired into our brains. In fact, a wide range of evidence from psychology, neuroscience and evolutionary theory has been mustered as a way of showing that, like the aspects of morality described above, God is hard-wired into our brain. And some scientists have argued that this fact leads to devastating conclusions for religious believers.

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evidence that lots of human behaviour that we would describe as 'moral' arises from innate or hard-wired dispositions. Like beliefs and desires associated with contagion avoidance, moral beliefs and desires appear to be part of our built-in 'operating system'. One quick example will suffice to give us a glimpse of this. Across times and cultures human beings display firm beliefs and feel strong desires pulling them in the direction of punishing those who do wrong. When we learn that someone has abused a child, or even when we see someone run a red light, we feel strongly that the wrongdoer deserves to be penalised (the severity of the suffering depending on the severity of the crime).

One might think that this disposition

the rest contribute all of theirs, the total pot would be \$60, and each player—including the non-contributor—would receive \$24 dollars. The cheapskate would now have his original \$20 *plus* the \$24 earned from other contributions to the pot, for a total of \$44, while his fellow players had earned a mere \$4 profit. This, as you might guess, would make the other players angry. As the experiment is set up, players would play with (or against!) their fellow players only *one time* (something they are told before the game starts). So, if you were the cheapskate, you could move on to the next round of the game, with all new players, and no one would know of your past cheapskate behaviour. In other words,

Does recent psychology and neuroscience show us that belief in God is the result of a hard-wired natural psychological process? The answer to that question is: 'probably'. Evolutionary and cognitive psychologists have recently developed a number of different naturalistic explanations of religion. These explanations aim to show that human beings are naturally disposed towards religious belief and ritual because of certain innate or native 'mental tools'. Some theorists go on to argue that we have these mental tools because they, or the religion they spawn, is and/or was adaptive for our ancestors, and were thus passed down to us.

What sort of evidence is there for such a claim? The answer to that question depends on which of the six major models of explanation one adopts. The most popular model (which we can call the 'Cognitive Model') argues that human beings have specific and identifiable mental tools that make religious belief easy and natural. For example, we have a mental tool that makes us think there are agents around when we detect certain sounds (bumps in the night), motions (rustling in the bushes), or configurations (crop circles) in nature. This 'Hyperactive Agency Detection Device' (or 'HADD') leads us to hypothesise invisible agents that, for example, control the forces of nature. And this disposes us to belief in the supernatural.

In addition, our minds are naturally disposed to remember and transmit ideas that violate certain *innate expectations* that we have about the workings of the

world. For example, we are born (it is claimed) thinking that agents are *physical things*. When we (through HADD) are led to hypothesise agents causing the lightning or the wind, we assume that these are invisible, supernatural agents. But invisible, supernatural agents are, given our innate categories, counter-intuitive and strange. And because of their distinctive strangeness, we easily remember them and talk about them, and this makes these religious concepts spread rapidly from mind to mind (thus explaining the tendency of religious concepts to spread quickly).³

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In addition, there is very strong evidence that we are naturally disposed, from an early age, to see *goal-directedness* in everything, including the natural world. Cognitive theorists call this tendency 'intuitive theism' or 'natural teleology', since it is a tendency to see purposiveness as a pervasive feature of our world. This naturally disposes us to believe in a purpose-giving force in the universe, that is, to believe in gods or a God.⁴

Some advocates of the Cognitive Model further argue that religious beliefs and behavior carry useful benefits for religious individuals and religious groups. For example, it is argued that religious individuals and groups are much more inclined to abide by moral rules and engage in cooperative behaviour, traits

that are very useful in large, interacting groups where individuals specialise and are forced to rely on one another for survival.⁵ This claim is based not only on common sense beliefs or anecdotal observation, but on systematic empirical study.

For example, Jesse Bering⁶ has shown that, even from an early age, children tend to follow rules more consistently

when they are primed to believe that a supernatural agent is watching them. In one experiment, subjects were brought into a room and shown a box under two conditions. In one condition, the child is told that there is an invisible princess in the room named Alice, who is watching the whole experiment very carefully. In the control condition, children are not told any story about Alice. The children were then told that inside the box was a very special prize, and that they could have the prize if only they could guess what it was. However, they must guess what the prize is without looking in the

box. After giving the child the instructions, the experimenter tells the child that he needs to step out of the room for the moment. Children who had received the Alice prime cheated significantly less than those who did not, and even among cheaters, it took much longer for primed subjects to cheat than subjects who were not primed.

Evidence indicates similar effects in adults. Norenzayan and Sharif had pairs of students play the Dictator Game. In this game, one subject is given a sum of money which he can share with his partner. The game is played only one time, and the giver can choose to give the receiver all of the money, only some of it, or none of it. The giver then keeps the rest. Prior to playing the game, students are required to read scrambled sentences. In one condition, the scrambled sentences contained one or more of the following words: spirit, divine, God, sacred and prophet. In the other condition the sentences contained no words with religious connotations. Givers were provided with \$10 to distribute. The results showed the student primed with the religious words before the start of the game gave, on average, \$2 more to the receiver than those without the prime (\$4.56 versus \$2.56). This is at



least some indication that distinctively religious concepts dispose us towards greater cooperative behavior and thus enhance the ‘usefulness’ of religion.⁷

Is religion an artifact of the brain?

There is a great deal of additional evidence of this sort, all of which makes it seem that religion is a natural product of the mental tools of a properly functioning human mind. But doesn't this show that religion is just a trick that our minds play on us? Some scientists and philosophers have answered with a resounding ‘yes!’. Michael Persinger, Professor of Behavioral Neuroscience at Laurentian University argues that this work shows us that ‘God is an artifact of

other scholars. It is going to dry up even the most verdant suburban landscapes and leave spiritual leaders with their tongues out, dying for a drop of faith.’¹⁰

Are these scientists right? Has science shown belief in God to be a delusion? Not exactly. It looks as if those drawing this radical conclusion must be arguing as follows:

(1) The development of the human mind through natural history has provided those minds with a number of special properties.

(2) When considering the natural and social world, these properties encourage humans to believe in *gods*.

(3) Therefore, the development of human minds has produced belief in *gods* (i.e., *God* is an ‘accident’ of evolution.)

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the brain’. Arch-atheist Richard Dawkins concludes that: ‘The irrationality of religion is a by-product of the built-in irrationality mechanism in the brain.’⁸ Matthew Alpers, author of *The God Part of the Brain*, argues as follows:

If belief in God is produced by a genetically inherited trait, if the human species is ‘hardwired’ to believe in a spirit world, this could suggest that God doesn’t exist as something ‘out there’, beyond and independent of us, but rather as the product of an inherited perception, the manifestation of an evolutionary adaptation that exists exclusively within the human brain. If true, this would imply that there is no actual spiritual reality, no God or gods, no soul or afterlife. Consequently, humankind can no longer be viewed as a product of God but rather God must be viewed as a product of human cognition.⁹

Even less subtle is Jesse Bering who is quoted as saying that with such research, ‘We’ve got God by the throat and I’m not going to stop until one of us is dead.’ For Bering, the deliverances of the psychology of religion are ‘not going to remain in the privileged chapels of scientists and

(4) Therefore, belief in *gods* is false. However, this argument commits a well-known logical fallacy called the ‘genetic fallacy’. Genetically fallacious reasoning aims to argue for the truth or falsity of a belief simply from considerations of the origin of belief. But, of course, perfectly true beliefs can emerge even from crazy sources. I might think there are 449 people in the library because my watch reads 4:49. Can we conclude that this belief is *false* as a result of my strange reasoning? Of course not. It may be true, despite the strange origin.

Still, we can modify the above argument in such a way that it does not commit the fallacy but still seems to raise trouble for religious belief, as follows:

(1) The development of the human mind through natural history has provided those minds with a number of special properties.

(2) When considering the natural and social world, these properties encourage humans to believe in *gods*.

(3) Therefore, the development of human minds has produced belief in *gods* (i.e., *God* is an “accident” of evolution.)

(5) Therefore, belief in *gods* is unwarranted.

Just as my belief that there are 449 people in the library on the basis of reading my watch would be *unwarranted*, perhaps believing in the existence of God based on the workings of the identified mental tools would be unwarranted.

But would it be? Let’s look at the argument again, taking out the italicised word ‘gods’ and replacing it with any of the following: *human minds, rocks, rainbows, the past, that science can discover the truth*, etc. Surely scientists would accept that each of the sentences including the replacement words is true. But those scientists would be equally convinced that the conclusion of those arguments is, in each case, false. Human minds naturally form beliefs in those things and in doing so, we think, they get things right. So why not conclude that we get things right when it comes to belief in God? What makes this case different? One could say: ‘Well, because religious belief is false.’ But that is not much of an argument—it just assumes what the critic was trying to prove.

Perhaps the problem raised by these accounts is something different altogether. We might put the worry this way. In the case of our natural disposition to believe in rocks or human minds, the beliefs we form are caused by rocks and human minds acting directly on our minds (through our senses, for example). But in the case of religious belief, belief in God arises from our ‘agency detector’ firing off in the presence of the wind and the waves. That makes these religious beliefs very different. Rock beliefs are caused by rocks, while God beliefs are caused by ... the wind. So, one might say, we would believe in God, *even if there were no God there*. And that is a problem.

This critic is right—if this is the way things are, that would be a problem. If our belief in God has no causal connection with the actual existence of God, that would seem to undermine the justification of our belief. But it is not clear that things are that way, even if these scientific accounts are right. For

on it. But in the context of eternity, buildings do not really matter—only people. That is not to say that architecture is unimportant now. For as long as we are living in this cursed world we still need buildings. But the primary goal for architects and designers is not building for building's sake. Rather, it is the ethical obligation to love others by creating structures that function well, providing their clients with the necessary protection, as well as beauty and material benefit. In this way, they can help provide places for safe and loving communities to develop.

But such communities will only develop if the occupants of those spaces love others as they use them. We may create the most inviting spaces that have the potential to draw people together, but if the occupants of those spaces are not hospitable in their use of them then those spaces actually become barriers to the growth of community relationships. In the gospel of Christ, God has

removed the barriers that separate people and has welcomed us into an eternal community (Ephesians 2:11-22). God has loved us by opening the door to himself in heaven. Those who have gratefully accepted God's loving welcome reflect his treatment of us when we, in love, open our space to others in the name of Christ. It is in such communities that we see a glimpse of the day when we will no longer need our buildings, but will live securely in God, praising him along with the rest of his redeemed people, forever. ©

ENDNOTES

- 1 Hoekema, A.A. (1994). *The Bible and the Future*. Grand Rapids: Eerdmans, p286. See also Berkhof, H. (1966). *The Meaning of History*. London: SCM, pp188-193.
- 2 Kostof, S. (1985). *A History of Architecture*. Oxford: Oxford University, p13.
- 3 This is how architect Peter Eisenman described architecture in a recent lecture at Vanderbilt University. This lecture can be found at: <http://e-archiv.vanderbilt.edu/handle/1803/1378?show=full>.
- 4 This idea that our activity of shaping the material world is the way we show our dominion of it is

expressed by Abraham Kuyper as quoted in Op cit, Berkhof, p191.

- 5 See, for example, Genesis 3:8 where God is described as walking in the garden in the cool of the evening.
- 6 Beale, G. K. (1994). *The Temple and the Church's Mission*. Downers Grove: IVP, p97.
- 7 Ellul, J. (1997). *The Meaning of the City*. Carlisle: Paternoster, pp5-6. See also Sailhamer, J.H. (1992). *The Pentateuch as Narrative*. Grand Rapids: Zondervan, pp114-115.
- 8 Ibid, p16.
- 9 Op cit, Beale, pp36-38. See also Op cit, Sailhamer, p299.
- 10 Kollar, L.P. (1975). *Symbolism in Christian Architecture of the First Millenium*. PhD Thesis: UNSW, p142.
- 11 Tigerman, S. (1988). *The Architecture of Exile*. New York: Rizzoli, p23.
- 12 De Botton, A. (2006). *The Architecture of Happiness*. Camberwell: Penguin, pp20-21.
- 13 Till, Jeremy. (2009). *Architecture Depends*. Cambridge: MIT, p177.
- 14 Ibid, p174-75.
- 15 James, J. (1990). *The Master Masons of Chartres*. Sydney: West Grinstead, p85.
- 16 Beale, G.K. (1999). *The Book of Revelation*. Grand Rapids: Eerdmans, p1079
- 17 Ibid, p1095. See also Baukham, Richard (1993). *The Climax of Prophecy: Studies on the Book of Revelation*. Edinburgh: T & T Clark, p315.

CONTINUED FROM PAGE 18. these scientific accounts to generate a real problem, (6) would have to be true:

(6) Human minds would exist and believe in God, even if there were no God.

Is it true? I don't think so. I don't think there would be a *universe* if there were no God. I don't think the universe would be *fine-tuned for life* if there were no God. And I don't think there would be *any actual life, believers, human beings, or religion* either if there were no God. Am I wrong? If I am, nothing about evolutionary or cognitive psychology leads me to conclude that I am. So, contrary to our initial conclusion, these psychological accounts of religious belief do not teach us that we would have religious beliefs whether or not they are true. What the atheist assumes, but has not by any means shown, is that the origin of religious belief arises from *purely natural causes alone*, with no divine involvement at all. But all the science shows us is that natural causes are involved in the origin of religious belief, not that those causes are the *only* ones involved.

As a result, these accounts do not undermine the justification for religious belief, and thus this argument fails.

Perhaps there are other reasons to think that these psychological accounts raise problems for religious belief, but it is not at all clear what those reasons would be. For the moment, it seems perfectly acceptable for the Christian to hold that God created the world, human beings and human minds in such a way that when they are functioning properly, they form beliefs in the existence of rocks, rainbows, human minds and ... God.

For now, what we should conclude is that contemporary psychology has shown us the (rather unsurprising) fact that, in the words of Oxford psychologist Justin Barrett, 'Belief in gods and God particularly arises through the natural, ordinary operation of human minds in natural ordinary environments.'¹¹ This discovery echoes the claim made 400 plus years earlier by John Calvin: 'There is within the human mind, and indeed by natural instinct, an awareness of divinity.'¹² ©

ENDNOTES

- 1 Bloom, Paul (2004). *Descartes' Baby*. New York: Basic Books.
- 2 Boyer, Pascal (2003). 'Religious Thought and Behaviour as By-products of Brain Function'. In *Trends in Cognitive Science* 7/3: 119-24.
- 3 Boyer, Pascal (2001). *Religion Explained*. New York: Basic Books.
- 4 Kelemen, D. (2004). 'Are Children "Intuitive Theists"?' In *Psychological Science* 15: 295-301.
- 5 Haidt, Jonathan (2008). 'Moral Psychology and the Misunderstanding of Religion'. In Murray, Michael and Schloss, Jeffrey (eds). *The Spiritual Primate: Scientific, Philosophical, and Theological Reflections on the Origin of Religious Belief*. Oxford: Oxford University Press.
- 6 Bering, Jesse M. (2004). 'The evolutionary history of an illusion: Religious causal beliefs in children and adults'. In Ellis, B. and Bjorklund, D. (eds). *Origins of the Social Mind: Evolutionary Psychology and Child Development*. New York: Guilford Press, pp411-37.
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- 9 Alper, Matthew (2000). *The God Part of the Brain—A Scientific Interpretation of Human Spirituality and God*. New York: Rogue Press, p79.
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- 11 Barrett, Justin (2004). *Why Would Anyone Believe in God?* Lanham, MD: Alta Mira Press.
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