

JOHN TURL**Theodicy and Geodesy: Who Is to Blame?**

The Christian faith is often questioned when disasters happen. Undoubtedly some people do not want answers so much as to justify unbelief. It is the conviction of the author that many 'know not what they ask' and 'do not stay for an answer'. Presumptions are made concerning God's nature that need to be either stated or queried, and assumptions made concerning the wisdom and consequences of intervention. The haste with which disasters are labelled 'acts of God' is a sad reflection on the human tendency to deny responsibility, even where the evidence is to the contrary. This article examines some possible responses to such challenges.

Key words: disaster, earthquake, evil, free will, Haiti, responsibility

Introduction

It is not new for believers to have their faith challenged when disaster strikes. Moses worried about it (Exod. 32:12); the psalmist suffered it (Ps. 42:10); Christ echoed it (Matt. 27:46). But it was the Great Lisbon Earthquake of 1755 that caused Europeans to query the optimism of Leibniz, that we live in the best of all possible worlds.¹ The bulk of this article was written following the Haiti earthquake of January 2010, when Christians were asked publicly more than once questions such as 'Why did God allow this to happen?'² Such were the urgency and limitations of the media that respondents were not always cast in the best light.³ Interviewers ask questions they think their audiences would like to hear answered, and interviewees are expected to answer those questions. What they are not expected to do is challenge the assumptions of their inquisitors, and that, I believe, is what has to be done if anything approaching a satisfactory response is to be given to this most difficult issue.

The literature on the problem of evil, which spans centuries,⁴ is vast and wide-ranging. Not only are the types of evil discussed diverse – natural and moral, human and animal, and so on – necessitating different arguments, but the problems raised also differ – challenging God's existence, or one of his

1 Leibniz, G.W. 'Essais de Théodicée sur la bonté de Dieu, la liberté de l'homme et l'origine du mal', 1710, Huggard, E.M. (trans.) 2005.

2 John Humphrys posed this question to the Archbishop of York, John Sentamu, on the BBC Radio Four 'Today' programme of 14 January 2010.

3 Humphrys confessed himself baffled by the Archbishop's answer.

4 Useful surveys & bibliographies can be found at the Stanford Encyclopedia of Philosophy, <http://plato.stanford.edu/entries/evil/>, and Wikipedia, http://en.wikipedia.org/wiki/Problem_of_evil.

attributes. In this article I restrict my attention to the problem presented by the occurrence of natural evil to human beings, given the presumption that God does exist. In this context there are different types of solution: some people want logical certainty, others possible reasons; some rigour, others solace. Many Christians will be familiar on the one hand with the helpful apologetics of C.S. Lewis,⁵ and on the other with simplistic interpretations of Genesis 3:17-18 found in some circles in which ‘thorns and thistles’ are liberally extended to include tectonics and thermodynamics. A useful introduction to the subject is that by M. Peterson.⁶ I will here offer a way of talking about the problem that is intellectually honest and non-evasive for the scientifically-minded Christian.

God’s nature

In traditional Christian theology God is omnibenevolent, omniscient, and omnipotent. If only two of these divine attributes are assumed the problem of evil does not occur. A loving almighty god may still not have the knowledge to enable him to act effectively. A loving all-knowing god may not have the power to prevent a disaster. An all-knowing almighty god may simply not care. Believers in any of these extremes may be uncommon, but to resolve the ‘tri-omni’ impasse some theologians have sought to review one or more of God’s attributes.⁷ So it is important to consider first what stance to take on God’s nature. I first consider briefly some views of God’s omniscience,⁸ because any debate about what we think he should do in the face of impending disaster must be based on what he knows of the future. The subheadings are not standard terms but are intended to indicate the progression of levels of omniscience among the views.

Temporal omniscience

Views of omniscience that allow for uncertainty in the future have been variously referred to as Limited Omniscience, Dynamic Omniscience, and now most commonly, Open Theism.

John Polkinghorne is one example of a scientist-theologian who defends such a view.⁹ In a recent book he states that God has

5 Lewis, C.S. *The Problem of Pain*, London: Geoffrey Bles (1940).

6 Peterson, M.L. *God and Evil: An Introduction to the Issues*, Boulder, CO: Westview Press (1998).

7 A. Plantinga has produced what many regard to be an answer to the logical problem (‘Free will defense’, in Black, M. (ed.) *Philosophy in America*, Ithaca: Cornell University Press/London: Allen & Unwin (1965). But this does not solve the evidential problem felt by some that in view of the quantity and types of evil in the world, God’s existence is unlikely.

8 Helpful surveys including this and related concepts can be found in some of the IVP ‘Four Views’ series, e.g.: Beilby, J.K. & Eddy, P.R. (eds.) *Divine Foreknowledge: four views*, Downers Grove: IVP (2001); Ganssle, G.E. (ed.) *God & Time: four views*, Downers Grove: IVP (2001); Basinger, D.&R. (eds.) *Predestination & Free Will: four views of divine sovereignty & human freedom*, Downers Grove: IVP (1986).

9 Other proponents of, or adherents to, positions of open theism include theologians Paul Fiddes and Jürgen Moltmann, and philosophers William Hasker, John Lucas and Richard Swinburne.

chosen to possess only a current omniscience, temporally indexed. God knows now all that can be known now, but God does not yet know all that will eventually become knowable.¹⁰

Many Christians take exception to this apparent limitation, and yet it is not unreasonable to limit God's knowledge to what is knowable, particularly if we judge that the limitation is self-imposed. *If* quantum mechanics is correct, then it is impossible to know a particle's position and momentum simultaneously with arbitrary precision; this is not an experimental limitation but a conceptual one. In this view, God would have created a universe which contains entities that are not wholly predictable even by him, because what we think classically *ought* to be knowable is just not there to be known. So any objection to Polkinghorne's position would have to be based on whether or not the future of the universe is entirely knowable. Quantum mechanics, with its ongoing argument over interpretation, together with chaos theory, with its sensitive dependence on initial conditions, would make this highly debatable, as would free will,¹¹ if it exists.

The difficulty of reconciling free will with biblical predestination forms the basis of many open-theistic views. Just as it can be argued that any self-limitation on God's power is not a compromise of omnipotence because it is consequent upon how God chooses to act or not, so any apparent limitation of God's knowledge can be regarded as a divine choice about how the universe was constructed. Gregory Boyd expresses it thus:

The debate over the nature of God's foreknowledge is not primarily a debate about the scope or perfection of God's knowledge. All Christians agree that God is omniscient and therefore knows all of reality perfectly.... [It] is rather a debate over the content of reality that God perfectly knows. It has more to do with the doctrine of creation than it does with the doctrine of God.¹²

Boyd draws on a range of examples from Scripture (e.g. Gen. 22:12, Jer. 18:4-10, 2 Pet. 3:9) to argue that God's desire for a creation with responsible decision-making involved self-imposed uncertainties that can nevertheless be incorporated into a predictable framework on a sufficiently large scale.

Extra-temporal omniscience

A debatable aspect of Polkinghorne's position is his temporal view of God ('God

10 Polkinghorne, J. *Science and the Trinity: the Christian Encounter with Reality*, London: SPCK (2004), p. 108.

11 In this article this term, without qualification, is used to mean 'libertarian free will' which is the author's conviction, some account of which is given in Turl, E.J. 'Substance dualism or body-soul duality?', *Science and Christian Belief* (2010) 22 (1), 57-80.

12 Beilby & Eddy *op. cit.*, (8), chap. 1 'The open-theism view'.

knows now... God does not yet know...'). Calvin's portrait of God's omniscience, which is based on Augustinian & Thomistic theology, places God outside the space-time of our universe. That makes his omniscience total and renders temporal adverbs such as 'now' and 'yet' inappropriate:

When we attribute prescience to God, we mean that all things always were, and ever continue, under his eye; that to his knowledge there is no past or future, but all things are present, and indeed so present, that it is not merely the idea of them that is before him (as those objects are which we retain in our memory), but that he truly sees and contemplates them as actually under his immediate inspection.¹³

This however creates a different problem, for what God sees in this panorama is the entirety of space-time, which is therefore as unchangeable as is the past to us. To Calvin this would not have been a problem, because all is by 'the eternal decree of God, by which he determined with himself whatever he wished to happen with regard to every man'.¹⁴ What God 'foreknows', from our point of view, is really not foreknowledge, but knowledge; he sees actuality, not potentiality.

For Calvin, this foreknowledge is inseparable from, and subordinate to, predestination.¹⁵ Many Christians, however, would consider that greater justice is done to the multifaceted character of God by emphasising distinctions in his will which are freely used in the Bible. The most common and simplest of these is to allow for a difference between an active and passive will. An example of this can be found in the first of Zechariah's visions, where the angel of the Lord gives God's comment on the treatment of the Jews by the Babylonians prior to the exile: 'I was only a little angry, but they added to the calamity' (Zech. 1:15). Here God distinguishes between his own intent and that of the oppressing nation *which he used*. It cannot be denied that he *allowed* the oppressor to go beyond what was required, and that it must therefore have been his will, but it is a will of different character from that which served merely to achieve his ends.

Today, the dividing line between what are acceptably acknowledged as God's active and passive will is likely to be drawn elsewhere. It was commonplace for the Old Testament prophets to warn and interpret in the light of God's promises and sanctions in Leviticus 26. But we have no such mandate to do so under the New Covenant; God's people are no longer a political nation. It is therefore dangerous and unjustifiable to pronounce on disasters today in terms that imply God's anger and judgement (as regrettably occurs periodically). It is what C.S. Lewis refers to as the 'lowest form' of historicism, 'the belief that men

13 Calvin, *J. Institutes of the Christian Religion*, book III, chap. XXI, sec. 5.

14 *ibid.*

15 *ibid.* 'We, indeed, ascribe both prescience and predestination to God; but we say that it is absurd to make the latter subordinate to the former.'

can, *by the use of their natural powers*, discover an inner meaning in the historical process'.¹⁶ If eternity reveals more than we should surmise now, then that is probably the only safe time for us to know. The re-labelling of an event from 'decreed by God' to 'allowed by God' is not *of itself* going to render it immune from criticism. But it does make it more likely that it will illicit an enquiry rather than a condemnation¹⁷ from today's sceptics.

The placement of God's creative act outside our space-time framework only makes a difference to his omniscience if there is indeterminism in the universe, otherwise everything that happens is predictable and an extra-temporal viewpoint is redundant. Thus acts of human free will which are allowed by God would cause his extra-temporal omniscience to exceed temporal omniscience at any point in time (i.e. God knows eternally what he decides to do or allow at any moment in time). However it is very difficult to see how God could make use of this extra knowledge, because it would require him to act in our present on the basis of his knowledge of our future, which would be dependent on an existing causal chain.

Hyper-temporal omniscience

A third view of God's omniscience is that developed by Luis de Molina (1535-1600) in an attempt to reconcile predestination with free-will.¹⁸ This attributes to God 'middle knowledge', which is knowledge of potentiality in addition to actuality. Molinism asserts that God can know what free agents *would* choose given any set of circumstances. A scriptural text in favour of the possibility might be 'Woe to you, Korazin!... Bethsaida! For if the miracles that were performed in you had been performed in Tyre and Sidon, they would have repented long ago' (Lk. 10:13). This suggests that God knows what free agents would choose if he had acted differently. A counter-text might be 'Remember how the LORD your God led you... to humble you and to test you in order to know what was in your heart, whether or not you would keep his commands' (Deut. 8:2). This, by contrast, suggests that God needs real scenarios to furnish him with knowledge of what free agents choose, regardless of whether this knowledge is possessed by him eternally.

Molinism has enjoyed a resurgence in recent years through the writings of proponents such as W.L. Craig¹⁹ and T.P. Flint²⁰ but is challenged by opponents

16 Lewis, C.S. 'Historicism', *The Month* (1950) vol. IV and in Lewis, C.S. *Christian Reflections*, London: Geoffrey Bles (1967).

17 The condemnation would, of course, not be *of God* for decreeing it, but *of believers* for believing in such a God.

18 Molina, L. de *De liberi arbitrii cum gratiae donis, divina praescientia, praedestinatione et reprobatione concordia*, Lisbon, 1588.

19 Craig, W.L. *Divine Foreknowledge and Human Freedom: the Coherence of Theism I: Omniscience*, Brill's Studies in Intellectual History 19, Leiden: E.J. Brill (1991), pp. 246-278.

20 Flint, T.P. *Divine Providence: the Molinist Account*, Ithaca: Cornell University Press (1998).

such as W. Hasker²¹ and R.M. Adams²² on the ground that knowledge of ‘counterfactuals’ is incompatible with libertarian freedom. With God there is not even a ‘minority report’.²³ If an event has not happened, a choice not yet been made, the only possible source of knowledge is the current state of an agent’s personality. If this is sufficient to determine a future choice, then there is no free will.

The usefulness of middle knowledge to theodicy would be that it would enable us to understand that God may well be justified in allowing evil in order that a greater good may be obtained. Even if we cannot see, in any given disaster, what possible good may come of it, we may accept that God through middle knowledge can assess all possible outcomes of alternative histories and judge which is for the best. Many commonplace remarks by Christians betray an implicit belief in Molinism, especially those based on a misinterpretation of Romans 8:28.

In summary: (1) temporal omniscience is the ‘base level’ of knowledge which would be attributed to an omniscient God on all views, namely all the past, the present, and the predictable future; (2) extra-temporal omniscience adds all that he knows about indeterministic events, such as free-will choices, and (3) hyper-temporal omniscience adds all the might-have-beens.

God’s options

What then could be said in response to the question ‘How do you reconcile faith in a loving, omniscient, omnipotent God with a disaster like this?’? I think it would be reasonable to ask ‘What do you think God should have done?’ It is interesting that the question of the nature and even the existence of special divine action, which is of concern to a number of theologians,²⁴ is seldom considered to be an issue amongst those who wish to challenge Christianity. So what were God’s options? If we assume only the minimum level of omniscience, provided by open theism, we might propose the following alternatives in the context, for example, of a devastating earthquake:

1. God could have done a superman-type job²⁵ of preventing the tectonic plates from slipping;
2. God could have sent a prophetic message to warn people to get to safety.

21 Hasker, W. *God, Time, and Knowledge*, Ithaca: Cornell University Press (1989), chap. 2.

22 Adams, R. ‘Middle knowledge and the problem of evil’, *American Philosophical Quarterly* (1977) vol.14, no.2.

23 Dick, P.K. ‘The Minority Report’, *Fantastic Universe* (1956), (and film, Steven Spielberg, 2002).

24 See, e.g. Saunders, N. *Divine Action and Modern Science*, Cambridge: Cambridge University Press (2002); Peters, Ted & Hallanger, N. (eds.) *God’s action in nature’s world*, Aldershot: Ashgate (2006).

25 *Superman*, 1978, Warner Bros.

1. The Superman Option

What would God do to science?

We may feel happy to sacrifice the regularities of science to save thousands of people as an occasional act of mercy. But what would have been the consequences of God doing this throughout history? One incentive for scientists has been that they are 'thinking God's thoughts after Him'.²⁶ The theologian/geologist G.F. Wright regarded this possibility as a moral good capable of offsetting the natural evils that such regularity entailed.²⁷ Now, however, we might give more weight to the ensuing social benefits. Consider the detrimental effect on this incentive if it had been common knowledge that the so-called laws of nature were subject to God's overruling at the slightest threat of tragedy. What laws would have remained undiscovered? What applications of such laws in medicine, industry, commerce, and so on would not yet have been made? It would seem that the whole fabric of human endeavour would be unravelled if God made a habit of interfering with the laws that he himself had instituted.

What would God do to nature?

One lesson from the butterfly effect is that you cannot assume that interference in nature to prevent one problem will not create others. In some countries cloud-seeding has been practised in an attempt to induce rain in a drought affected area, but this has caused controversy in states downwind where people feel that 'their' rain has been 'stolen'. In addressing the current issue of global warming, some of the proposed solutions have caused anxiety that we do not know what we shall be doing to the system long-term. If God stops two plates from slipping this year, preventing a magnitude 7.0 quake, next year there may be an extra 1015J of strain energy stored in the fault, giving enough for the original quake plus another magnitude 5.6 quake.²⁸ What sort of a solution is that? If we imagine even more exotic solutions, such as changing the rigidity of the rock or the fault coupling ratios, have we even the remotest idea what the ramifications would be? One thing that would be certain is that any attempts to understand the science behind the seism so that we can help ourselves would be completely subverted. It is evident that God places a high value on human self-help, and the effect that this has on the characters and souls of those who practise it.

26 Kepler, J. (1571-1630), attributed, although this precise quotation has not been found in his writings.

27 'The pleasurable sensations of the intellect, investigating and interpreting the ways of God... are likewise a part of that good included in the end for which all things were made... it may reasonably be supposed that it is of more account to God's creatures as a whole that the universe be capable of interpretation, and that the method of God in his works be manifested, than that any amount of temporary good should occur during the earlier stages of the process of development.' Wright, G.F. *Studies in Science and Religion*, Andover: Draper (1882), p. 243.

28 Estimated using data given below.

What would God do to humanity?

A blow to the regularities of nature is a blow to the essence of humanity – rationality and morality. On a small scale this is more obvious. If God interferes with my nervous system whenever I plan an immoral act so that I cannot carry it out and perhaps cannot even think it, I am not a free agent and my good intentions have no significance either, since they alone are allowed by God.

Without the regularity which results from the governance of natural laws, rational action would be impossible.... agents could not entertain rational expectations, make predictions, estimate probabilities, or calculate prudence. They would not be able to know what to expect about any course of action they would like to take. ... [They] could neither propose action nor act themselves... essential for an agent's determination as a moral being.²⁹

On a larger and more natural scale the threat is less obvious but perhaps more insidious and far-reaching. If God might prevent an earthquake, why should the government of a vulnerable nation make provision for the welfare of its people? Governments are already prone to corruption and negligence. It takes little effort to imagine the consequences if politicians felt that the national budget need not cover what the Supreme Being will underwrite. If God might feed the starving thousands, why should we respond to aid appeals? In short, if God takes control of compassion, we shall not learn it.

Where would God draw the line?

If we accept that there may be some good reasons for God not to intervene, we must ask whether we think that he should, and to what extent. R. Swinburne considers that there is no clear obligation on God to prevent all evil from occurring, and that he has already set limits to the amount of evil that any one person can suffer which do not involve intervention, namely those entailed by limited lifespan and mental capacity.³⁰ P. Richmond goes further, saying that 'it seems arguable that God has some right to cause undeserved suffering'.³¹ This line of argument might lead us to think that if God does intervene at all, it should be where there is a great deal of suffering, where we are forced to question whether the evil could be offset by the good. This is indeed the 'evidential'³² problem generally recognised³³ not to be answered by the 'logical' argument. But if God does a superman stunt for an earthquake that threatens the lives

29 Reichenbach, B.R. *Evil and a Good God*, New York: Fordham University Press (1982), p. 103.

30 Swinburne, R. 'A theistic response to the problem of evil', in Brown, S.C. (ed.) *Reason & Religion*, Ithaca: Cornell University Press (1977).

31 Richmond, P. 'Neuroscientific determinism and the problem of evil', *Science and Christian Belief* (2004) 16 (2), 139-156.

32 Howard-Snyder, D. (ed.) *The Evidential Argument from Evil*, Bloomington: Indiana University Press (1996).

33 Tooley, M. 'The Argument from Evil', *Philosophical Perspectives* (1991) 5, 89-134, see 91-93.

of thousands of people, should he not also do it for a falling tree that threatens the life of one child? There is no moral argument that many people are more worthy of being saved than one. A thousand people suffering is not a thousand times more suffering than one person suffering, since each person only suffers his/her own pain.³⁴ If God intervenes in today's earthquake, he should in fairness intervene in the whole of history's natural tragedies, or he is open to a charge of unjust discrimination.

2. The Prophet Option

Whom shall I send?

Perhaps we would expect God to speak to someone in a vision, dream or premonition, or even through a scientist. Possibly the first time it happens that person would be regarded as a crank, but not the second time, though it is optimistic to think that in our materialist society prophets would fare better than they did in Old Testament times. If we accept the above logic, God would in fairness be self-obliged to communicate a great number of warnings. It follows that a large number of people would be required as spokespeople. It is entirely possible that the system would break down for want of suitable candidates. It is also likely that a large number of mentally unstable people would think they have messages from God when they have not, and this would introduce doubt about the validity of claims to be prophets. The whole issue of messages from God would be subject to statistical testing, and might simply become – amazingly – a matter of belief. It would resemble the status of healing ministry where outlandish claims are taken with a pinch of salt by unbelievers and moderates, and where lesser claims are assumed to have more mundane interpretations. Even now it is not difficult to find claims from people to be clairvoyant, and a post-disaster internet search will usually reveal that we could have known in advance what was going to happen if we had known where to look and listen.³⁵ How are such people regarded now? Is it not probable that they are dismissed without investigation by those who do not believe in such powers? Claims of precognition are also attended by philosophical difficulties and paradoxes. In the case of 'minor' or 'avoidable' catastrophes (e.g. being hit by a bus), it is possible that precognition is a contributory cause of the event or even of its prevention, both eventualities calling into question the credibility of the one who foresaw the event. This was a problem in Old Testament times. After Jonah had warned that 'forty more days and Nineveh will be destroyed' the Ninevites repented and God relented. Jonah complained 'O Lord, is this not

34 Lewis, C.S. *The Problem of Pain*, London: Geoffrey Bles (1940), chap.VII 'Human pain (cont.)': 'There is no such thing as sum of suffering, for no one suffers it.'

35 e.g. Israel's Richest Woman Can 'See The Future', <http://www.neatorama.com/tag/clairvoyance/> (Indonesian tsunami, hurricane Katrina).

what I said when I was still at home? That is why I was so quick to flee to Tarshish'. He knew that a prophet is judged by results.³⁶

A voice from heaven?

Perhaps God should dispense with human intermediaries and deliver messages personally. How would this be done? Direct manipulation of the air to create sound waves would seem to be an unnecessary over-interference with nature since the desired end could equally well be accomplished by interference with the brain. Biblical instances can be interpreted in this manner. At his conversion, Saul himself heard 'a voice', but those travelling with him heard 'the sound' (Acts 9:4-7); he later said they did not hear/understand the voice (Acts 22:9). At Pentecost people heard the disciples' preaching in their own languages. When Gabriel announced the birth of John the Baptist to Zechariah, there is no record that other people in the temple heard his voice; they simply deduced that Zechariah had seen a vision. For 'a voice from heaven' to be distinct from 'a human prophecy' it would seem necessary that more than one person should 'hear' it, whatever the mechanism used. Yet there is still no guarantee that all the people will react as intended. Some of the crowd at Pentecost attributed what they heard to an early drinking spree on the part of the disciples (Acts 2:13). But it is difficult to believe that an all-powerful God could not, if he chose, cause a group of people to hear a clear consistent message, whether or not they wanted to acknowledge its divine source. The question that would then have to be asked is whether most people would want to live in such a divinely controlled and cosseted environment. I submit that it is an essential part of human maturity for people to want, on the contrary, to take responsibility for their own safety, and to be free to take risks whenever they choose. Most parents will hear from their teenage children at some stage, words to the effect 'Don't tell me what to do; I can make my own decisions.'

Biblical examples of God's intervention, for example, the parting of the Red Sea, the miracles of Elijah, the miracles of Christ, have a variety of interpretations among Christians. Some, such as the Red Sea crossing, may be seen as miracles of timing. Others, such as Christ's changing water into wine and raising Lazarus, may be seen as exercises of sovereign rule over nature in order to establish new revelation. But none could be considered the norm, and Christ himself condemned the attitude that had an *appetite* for signs (Matt. 12:39).

Nevertheless, a careful examination of the miracles of Jesus will convince the reader that they were performed for definite theological purposes, the depths of which many have sought to plumb,³⁷ and not for theatrical effect or to compensate for deficiencies in the natural order. To say that they were

³⁶ Deut. 18:22: 'If what a prophet proclaims in the name of the LORD does not take place or come true, that is a message the LORD has not spoken.' See Matthew Henry's Commentary, Jonah IV:1-4.

³⁷ Van der Loos, H. *The Miracles of Jesus*, Leiden: E.J. Brill Press (1965); a perceptive documentary scripted by Michael Symmons Roberts, 'The Miracles of Jesus', was shown on BBC1, 12 July 2006.

intended solely for theological purposes would be misleading and would suggest that they were utilitarian and devoid of compassion. That was certainly not the case,³⁸ but it was clearly understood by the gospel writers that they were intended to signify, identify, and convince.³⁹

While intervention cannot be ruled out, the arguments given in this section together with the everyday evidence of nomic regularity (referring to the law-like reproducibility of the properties of matter), strongly suggest that God will normally work out his plans within the framework of the natural order, rather than by overruling it, the latter being reserved for special occasions and reasons. Unsurprisingly, those plans give significance to the manner in which both victims and viewers of adversity react to its effects.

Human responsibility

Having pointed the finger at God, it is reasonable to consider the other three pointing back at ourselves.⁴⁰ With regard to earthquakes we have extensive knowledge of tectonic plate boundaries. We know where volcanic and seismic activity will occur and have an abundance of statistical data indicating how often these occur even though we cannot predict actual events. In areas where minor activity is frequent and major activity occasional it could well be argued that the minor activity discharges God's responsibility to inform by giving inhabitants both reason and time to take precautionary measures.

Perhaps only a child (or a philosopher)⁴¹ could get away with asking why people continue to live in places where they are likely to get killed by earthquakes, but as adults we are at least entitled to ask if the leaders of the people who cannot choose are doing what they can to protect those people. On the principle that 'I am my brother's keeper', we should also enquire if individuals, institutions and nations with more knowledge, technology, money and power are doing all they can to support vulnerable nations with less of these resources. Regardless of whether they are doing this or not, we can still ask if it is reasonable to expect supernatural warning and/or help where there is a known risk. If in a developed country a housing authority were to plan a new estate on a known flood plain, would we expect a warning from heaven to say that it was unwise, or a divine finger in the dyke when the inevitable happened?

1. Knowledge

Haiti lies close to the North American and Caribbean plate boundaries, and is

38 Matt. 14:14; 20:34.

39 Jn 2:11; Lk. 5:24; 10:17; 8:25; Ps. 107:28-30; Jn. 20:31.

40 Archbishop Sentamu made reference to this cautionary advice in his response on 14 Jan. 2010.

41 'If I choose to build a home on a known fault-line... and my home is later destroyed by an earthquake... the result, strictly speaking, is not a natural evil.' Murray, M.J. *Nature Red in Tooth and Claw: Theism and the Problem of Animal Suffering*, Oxford: Oxford University Press (2008).

crossed by the Septentrional Fault to the north and the Enriquillo-Plantain Garden Fault Zone (E-PGFZ) to the south. Thus much of the land lies on the Gonave 'microplate' sandwiched between the two. The fault that ruptured on 12 January 2010 causing a magnitude 7.0 earthquake was the E-PGFZ. This is a strike-slip, transform boundary like the San Andreas fault, and just as in that more famous case, which is still awaiting 'the big one', the Haiti earthquake did not come as a surprise within geophysical academia. In 2008 two teams, one led by P. Mann of the Jackson School of Geosciences at the University of Texas, Austin, and another by D.M. Manaker in the Department of Earth and Atmospheric Sciences at Purdue University, Indiana, both presented papers highlighting the seismic risk in the area.⁴² Significantly, the Mann paper was presented at a conference in Dominican Republic, warning that 'such studies should be considered high priority in Jamaica, Haiti and the Dominican Republic given the seismic hazards posed by the fault', and the Manaker team included Claude Prépétit, a Haitian engineer/geologist.

The last major earthquakes on the E-PG fault had been in 1751 and 1770, and they destroyed much of the newly-founded (1749) French city of L'Hôpital, later rebuilt as Port-au-Prince. Mann's and Manaker's teams calculated the strain energy which had accumulated, using the slip rate deficit found from Global Positioning System (GPS) data, which Manaker gave as 7.3 ± 1.6 mm/year. The predicted magnitude of an earthquake releasing all of the strain energy should it happen then was 7.2, in close agreement with that of the actual 2010 event.⁴³ The task of publicising this risk was taken up by Patrick Charles, geologist and former professor at the Geological Institute of Havana. His comments were reported in media worldwide including Haiti's 'Le Matin' and in a post to the website HaitiXchange: 'conditions are ripe for major seismic activity in Port-au-Prince. The inhabitants of the Haitian capital need to prepare themselves for an event which will inevitably occur.'⁴⁴

Data from the National Geophysical Data Centre⁴⁵ show that since 1750 in the region centred on Haiti within longitudes 65°-80°W and latitudes 15°-25°N there have been 62 significant earthquakes of which 12, from 1842 onwards, are recorded⁴⁶ as at least magnitude 7.0. It is probable that the devastating quakes of 1751 and 1770 were also above this value.

42 Mann, P. et al. 'Enriquillo-Plantain Garden Strike-Slip Fault Zone: a major seismic hazard affecting Dominican Republic, Haiti and Jamaica', 18th Caribbean Geological Conference, March 2008; Manaker, D.M. et al. 'Interseismic plate coupling and strain partitioning in the Northeastern Caribbean', *Geophys. J. Int.* (2008) 174, 889-903.

43 In reality it is more likely that most but not all of the energy will be released in the primary event, with lesser amounts being released in after-shocks.

44 Phoenix Delacroix, *Le Matin*, 25 septembre 2008; 'Can there possibly be an earthquake in Port-au-Prince?', <http://www.haitixchange.com/index.php/hx/Articles/possibility-of-earthquake-in-port-au-prince/>. One wonders if those who will not listen to a geologist would listen to a prophet.

45 NGDC Significant Earthquake Database at <http://www.ngdc.noaa.gov/nndc/struts/form?t=101650&s=1&d=1>

46 But note that the Richter scale was developed in 1935.

2. Technology

The randomness of seismic events and the difficulty of obtaining relevant data make forecasting very difficult, though statistical prediction based on detection and pattern of foreshocks has been practised in California since 1988. But however sophisticated and widespread such techniques become they will not remove the need for preventive measures designed to reduce damage and fatalities. Thus there is a moral obligation for geophysics to inform engineering, architecture, building practice and legislation. Earthquake-proofing is primarily about preventing collapse. One important area of research has been how to make new buildings that maintain their structural integrity, particularly large buildings such as schools and office blocks, and this is very relevant in affluent regions with enforceable building regulations. But in vulnerable poor nations the biggest need is for affordable 'seismic retrofitting' and public education to alert the people to that need. Claude Prépetit is on record as having condemned Haiti school building practice following the collapse of the College La Promesse in Pétienville near Port-au-Prince on 7 November 2008, killing nearly 100 people.⁴⁷

Port-au-Prince Mayor Jean-Yves Jason estimates 60 percent of buildings in his city are unsafe, built shoddily and now standing on ground weakened by a torrential hurricane season. Petionville lawmaker Steven Benoit said 2 million people need to be relocated nationwide. 'There are no studies for these buildings. They aren't built by engineers,' said Claude Prépetit, an engineer and geologist with Haiti's Bureau of Mines and Energy. 'They just buy any materials they can find and have no respect for building rules.'⁴⁸

Zygmunt Lubkowski, who is Associate Director at Arup Geotechnics, has extensive experience of reconstruction and retrofitting. Even something as simple as wall-ties can make the difference between life and death: 'For most people the bottom line is a building they will get out of alive. If you can prevent the roof caving in you have a better chance of that.'⁴⁹ A simple internet search such as 'earthquake conference' will indicate how much effort is being put into making disaster mitigation possible.

3. Money & Power

Much of the applied science has already been done. What are still needed are the administrative bodies with sufficient funding and status to get the solutions to where they are needed before time runs out. Robin Spence is Professor of Architectural Engineering at the University of Cambridge, and Director of the Cambridge University Centre for Risk in the Built Environment. His

47 Katz, J.M. 'Hope fades, grief sets in near fallen Haiti school', USA TODAY, 11 Nov. 2008.

48 Katz, J.M. 'Poor oversight means many Haiti schools are unsafe', Associated Press, 27 Nov. 2008.

49 BBC News, Wednesday, 27 Jan. 1999: <http://news.bbc.co.uk/1/hi/world/americas/264164.stm>

declared research aim is ‘to improve understanding of the performance of building structures at an urban scale and to create computer modelling tools for risk assessment and evaluation of the cost-effectiveness of building strengthening and other mitigation work’.⁵⁰ But he also has a vision for international cooperation in implementing these solutions:

There is presently no global strategy for resolving this problem, and no international body with responsibility for developing one.... There needs to be a shift of emphasis in development aid towards mitigation as opposed to relief.... The engineering and scientific community must become engaged in efforts to convince politicians of the need for action, and ally themselves with groups of individuals who are prepared to campaign for change. This will involve engineers and scientists in some unconventional activities and some unusual alliances.⁵¹

He sees ‘earthquake protection activity as a public health matter to be advanced in a manner similar to globally successful disease-control measures’ and believes that ‘international collaboration is essential to ensure that the resources and expertise available in the richer countries is shared with those most in need of help’.⁵²

4. Local Response

When the aforementioned warning of impending seismic activity was posted on the HaitiXchange website, comments in response included the following:

you guys make this look serious, aren't you scared talking like this, I don't even want to imagine something like this.

I think Haiti had enough bad luck, please stop bad mouth this poor country. only God knows!!!

How sure are you with this info? Is there any way that the people can be warned in case if this happens?

Internet forums may not be a reliable indicator of popular opinion, but taken in the context of Haiti's past history and present societal conditions, such comments may well be considered symptomatic of a lack of local awareness and preparedness. Nevertheless, according to Eric Calais, a member of Manaker's team, commenting after the Haiti 2010 event: ‘We had talked to a number of government officials about the risk and they were very receptive. They just didn't have enough time to do much to prepare for such an event, especially with

50 <http://www.cei.group.cam.ac.uk/directory/people/record.html?id=105>

51 Spence, R. ‘Earthquake Risk Mitigation – The Global Challenge’, in Tugrul Tankut, A. (ed.) *Earthquakes and Tsunamis: Civil Engineering Disaster Mitigation Activities*, Springer Netherlands (2009).

52 Spence, R. ‘Saving lives in earthquakes: successes and failures in seismic protection since 1960’, *Bulletin of Earthquake Engineering*, Vol 5, Number 2 / May 2007, Springer.

Haiti's other pressing problems.⁵³ By contrast, former U.S. Ambassador to the Organization of American States (OAS), Roger Noriega, comments:

Before the hurricanes, flooding, mudslides, and earthquakes that have befallen Haiti in the last decade came the man-made disaster. Ineffective political institutions, a predatory state, corrupt and venal politicians, and a weak civil society have conspired to wreck Haiti's western third of the island of Hispaniola....What a difference the rule of law makes: Haitians' gross domestic product per capita was \$1,300 in 2008, while their Dominican neighbors attained a rate *six times* greater. The lack of enforced building codes in the capital city is evident in piles of broken rubble today; while few undeveloped countries' structures could withstand a quake of the magnitude that struck Haiti, shoddy, unsupervised construction has exacted a terrible price.⁵⁴

There are clearly problems with implementing preventive measures both at the grass-roots and at the legislative levels in poorer areas at risk.

Spence sees the following important lessons that at-risk countries must learn:

1. That public awareness, rather than either building codes or law, is everywhere the most important basis for action.
2. That education, training and registration of professionals are vital ingredients of success.
3. That the experience of damaging earthquakes has given great impetus to progress; it seems vital to be prepared with changes in regulations and practices which can then be rapidly implemented in this moment of opportunity.

And he sees as common concerns:

- That their uncontrolled urbanisation means that the vast majority of the new building stock is built without any concern for earthquake risk. Attempts to create a system of building control are hampered by corruption, and by the attitude that the issue of building permits is a revenue-generating process, not connected with public safety, and this is building up the potential for huge disasters in the future.
- Where the need for strengthening of key public buildings such as schools and hospitals is identified, and shown to be feasible, resources to undertake it are not made available.⁵⁵

53 Morton, M.C. 'Haitian quake no shock to geologists', in *Earth* magazine, American Geological Institute, 21 Jan. 2010.

54 Noriega, R. 'Haiti's Disasters: Natural and Man-Made', in *The American*, the journal of the American Enterprise Institute, 14 Jan. 2010.

55 Spence, *op. cit.*, (51).

It would seem that, considered over the years, there was no shortage of knowledge and warning of the risk in Haiti, nor of advice and desire to help, but a severe lack of acceptance and action. What comparative study was made of the cost, either human or financial, to both Haiti and the rest of the world, of *preparing* versus *repairing* Haiti?

World Order

When the arguments over who should have done what have been exhausted, it is likely that the position of the goalposts will be queried. If God in any sense created the universe, why should he have allowed a world that was so likely to cause grief to its inhabitants?

Considered in its entirety Earth is not particularly hospitable to humanity. Much of it is uninhabitable and even in the places where we can live we have to exercise care to protect ourselves from the elements and laws of nature. The combination of gravitational and electromagnetic forces alone is capable of doing great damage to the human frame; if I fall over I risk breaking a bone. But we do not normally question the wisdom of physical laws in everyday life. Indeed we find that we can use them to our advantage in an ever-expanding variety of ways. We accept that their power is necessary for their potentiality, and that with that power comes risk which we have to assess and allow for. Whilst much of the world is inhospitable, most of it is amazingly useful.

It is in this context that we can accept that it was not a capricious act of God to place us on a world with a dynamic cracked crust that is at certain places and times dangerous to us. Leibniz set out to demonstrate that our world was the 'best of all possible worlds' because a good, wise, powerful God would not create a worse one. I think that quest was misguided because of the multiplicity of unquantifiable factors that would require rating on a goodness scale. Rather it is sufficient to believe that God created a world that was fit for purpose, and as such it was 'very good' (Gen. 1:31). Earthquakes and volcanic eruptions, which we now tend to associate with disasters, were probably primary mechanisms for producing an environment capable of supporting life. Tectonic plate movement is the main cause of vulcanism, and volcanic eruptions, on a much greater scale than now, would have been a source of early atmospheric gases such as water vapour, hydrogen, carbon dioxide, sulphur dioxide, nitrogen, ammonia and methane. Oxygen would have arisen from photochemical dissociation, and hydrocarbons and amino acids from electrical discharges.⁵⁶ Present-day benefits of volcanoes may include a measure of counterbalance to global warming.⁵⁷ Similar arguments may be advanced in support of

⁵⁶ Brahic, C. 'Volcanic lightning may have sparked life on Earth', *New Scientist* 16 Oct. 2008. 'One of the most famous experiments of all time [the Miller-Urey experiment of 1952] has just been found to have been even more successful than anyone realised.'

⁵⁷ Douglass, D.H. & Knox, R.S. 'Climate forcing by volcanic eruption of Mount Pinatubo', *Geophys. Res. Lett.* (2005) 32, L05710, doi:10.1029/2004GL022119.

other dangerous phenomena and resources, for example hurricanes and other storms act like energy safety valves taking heat away from the tropics. Bacteria play critical roles in food cycles and in contributing nutrients to our own bodies.

In our technological world we live in the presence of dangerous machines. We deem them useful and essential to our way of life. We teach our children to respect them and as far as possible get the best possible balance between safety and enjoyment of their usefulness. Nevertheless accidents happen, and yet we do not blame ourselves for inventing them. We do not consider it morally wrong to invent something good, such as an electricity supply, that has the power to harm in some circumstances. But there is a difference between humankind's creations and those of God. Human discoveries and inventions are often made blindly; we cannot predict the consequences even when we glimpse the potential, and sometimes we may wonder if the world would be a better place if some discovery had not been made.

Divine creation, however, is done with omniscience. From our position of limited knowledge we may well wonder if God's ends could not have been better achieved by a better route. Why not, for example, create a life-supporting atmosphere *ex nihilo* and avoid the need for life-threatening volcanoes? The answer is aggravatingly simple. He must have had other ends, and in due course we may discover some of them and be able to see why volcanoes were a necessary consequence. If we keep asking questions of the same form, so that we end up proposing that God should have created all the good bits and have left out all the bad bits, if necessary without using physical laws with their annoying habit of producing undesirable side-effects, we find that in essence we are proposing that God should dispense with nomic regularity for the sake of maintaining the comfort of his creatures during their limited lifespans. Is that what he had in mind for humanity? Such a world, which could well be constructed in six working days, might certainly reflect God's omniscience, but hardly his intelligence. I cannot then imagine many scientists considering it worthwhile thinking God's thoughts after him. But then, there probably wouldn't be any scientists anyway.

Arguments for⁵⁸ and against⁵⁹ the value of nomic regularity have proved singularly inconclusive philosophically. For Christians, the bare fact that God obviously does place such a high value on it implies a correspondingly high value for both human responsibility and human reason. It is conceivable that in rational physical beings God has created something which is impossible in the world of pure spirits. Why, after all, would God create a physical universe if the purely spiritual were, and always would be, superior? Traditionally, angels have been understood to be intellectual beings for whom truth is self-

58 e.g. Inwagen, P. van *The Problem of Evil*, Oxford: Oxford University Press (2006).

59 e.g. Trakakis, N. 'God, gratuitous evil, and van Inwagen's attempt to reconcile the two', *Ars Disputandi* [<http://www.ArsDisputandi.org>] (2003) 3.

evident;⁶⁰ they do not experience the joy of reasoning. Similarly, their devotion to God is unquestioning; they have no direct knowledge of repentance or forgiveness.⁶¹ Perhaps therein is a clue to why God guards so jealously the nature of his creation and has taken, and will take, such trouble to redeem and restore it. It is not a toy world,⁶² nor as is sometimes claimed a mere shadow of the spiritual world,⁶³ but the embryo of something completely new.⁶⁴

Ultimately it has to be admitted that a theodicy that only seeks to address the problems of temporal welfare cannot be expected to meet all the objections of those who will not allow eternity into the equation. Paul gives value to suffering because of its spiritual consequences⁶⁵ and Christ's parable of Lazarus reminds us that what we might call unfair suffering cannot be assessed in isolation from God's final judgement.⁶⁶ We know a little about the final act of the play,⁶⁷ but not the end of all the players.

Conclusion

It is hoped that this approach to theodicy shows that it is naive to 'blame God' for 'not doing anything' and to expect Christians to come up with neat and tidy answers when disasters happen. Nevertheless, they will continue to happen, and it is just as incumbent on Christians to prepare for the inevitable questions as it is on society to prepare for the disasters themselves. It is a reasonable apologetic, if done in an appropriate manner and at an appropriate time, to affirm the nature of the God in whom we believe, to discuss the limits to which we can reasonably expect him to act consistent with his purposes, to admit the extent of our own responsibility and to accept the world for what it is with all its potential for both great good and attendant danger. However the manner in which we communicate our message is probably as important as its content, and it may be more productive to ask questions than just to give answers so that enquirers can identify truths which are best suited to their experience.

When calamity comes, for an onlooker to ask Christians if they have had their faith tested is probably as insensitive as it is for an interviewer to ask 'How does that make you feel?' when a loved one has been mindlessly murdered. There is a far more productive question following a disaster than 'Why did God let this happen?' It is 'Why did *we* let this happen?'

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60 Lewis, C.S. *The Discarded Image*, Cambridge: Cambridge University Press (1964), VII: D.

61 1 Pet. 1:10-12.

62 Swinburne, R. *Is there a God?*, Oxford: Oxford University Press (2010), p. 93.

63 Milton, J. 'Paradise Lost', V: 574-576.

64 Rom. 8:22-25.

65 Rom. 5:3-5.

66 Lk. 16:19-31.

67 Rev. 21:3-5.