

Scientific enquiry and scientific truth

or, does science allow the possibility of miracles?

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1 Scientific enquiry

Scientific enquiry is mainly concerned with regularities, relationships and explanations.

The first scientists for which we have records, the *magi* (or mathematician-astronomers) in Babylon and Chinese astronomers, plotted *regularities* in the movements of the stars. To do this the *magi* invented a number system based on sixty which we still use today to count minutes, seconds and degrees (there are six \times sixty degrees in a circle which was probably useful because, with a year being around 360 days, a star would be at roughly the same angle in the sky on the same day each year).

We know that the *magi* worked out some key mathematical relationships which were not re-discovered until centuries later; however, we have very little information on how they originally used their mathematics other than for plotting heavenly movements, teaching mathematics and undertaking research. Around 800 BC, they began a project to map the regularities between heavenly events and events on earth; though this was obviously still under way at the time of Jesus' birth, there is no evidence that they were able to find significant correlations between heavenly and earthly events — the exception being the birth of Christ — and what they had learned 'degenerated' into astrology, which was kept alive because the Babylonian mathematics that astrologers used also allowed Christians to calculate the date of Easter.

Greek scientists began by studying *relationships* and were shocked to find that the diagonal of a square cannot be measured; as Pythagoras of Samos (c 570–c. 495 BC) pointed out, when the square is 1×1 , the diagonal is $\sqrt{2}$ or 1.4142135624... They soon realised that other mathematical relationships, such as π , the ratio between the circumference and the diameter of a circle, fell into the same category.

The other strand of enquiry was *explanations*, most notably of change, and two theories of change were developed to explain it. Heraclitus of Ephesus (c. 535–c. 475 BC) argued that 'everything changes' — his example being that you cannot jump into the same river twice. Democritus (c. 460–c. 370 BC) argued that matter consists of atoms and void and that change occurs when the atoms realign themselves. However, there was no way to prove either theory though scientists today (Capra and Luisi, 2014) are moving towards accepting Heraclitus' approach after a period when atomic theory seemed to be the answer.

2 Scientific truth

The ‘problem of knowledge,’ that is, how you can know that something is true, has existed since the dawn of philosophy with Socrates claiming to be more knowledgeable than other philosophers because the only thing he knew was that he did not know anything and so he knew one thing which was true whereas other philosophers claimed to ‘know’ things but could not prove that they were true. His pupil, Plato, argued that you could reach the truth through argument as long as there were no logical or actual inconsistencies in your argument. Since then, philosophers and scientists have tried in all sorts of ways to ‘prove’ that something is true without coming up with a definitive definition of scientific truth.

Today scientists tend to accept three types of scientific truth:

- probable truth,
- logical truth, and
- truth by consensus (Cole, 1998).

Probable truths are those truths which are derived from experiments because experimental results are always subject to the limits of measurement. This may be a physical limit in the sense that the measuring instrument is not accurate enough but all experimental results are subject to Heisenberg’s Uncertainty Principle, the principle that the more accurately you measure one dimension, the less accurate your measurement of another dimension becomes (Storr, 1960).

Since every measurement is approximate to some extent, experimental results are often expressed as statistical truths; it is more probable that so and so is the case. Positive statistical truths can never be certain, only certain negative ones; if a person’s DNA does not match that of the assailant, they cannot be the assailant. If it does match, that only gives you a probability; DNA test results can never give you certainty except when disproving things.

Logical truths are those that can be expressed logically; Archimedes of Samos used his own version of the calculus, which he did not regard as scientifically rigorous enough to use in his proofs (Netz and Noel, 2007), to find many of his results but he always expressed the proofs logically. The general success of logical problem solving in mathematics led David Hilbert to present a list of twenty-three unsolved mathematical problems at the 1900 International Congress of Mathematicians after which it was assumed that all the major problems in mathematics would have been solved. Unfortunately for these mathematicians, in the 1930s Kurt Gödel published his proofs that not all truths can be proved by logic.

Truth by consensus is widely accepted in scientific circles; no one challenged Aristotle’s view that the universe is timeless until Lemaître (1927) published what became known as the ‘big bang’ theory. The account of planetary motion by Ptolemy (c. 90–c. 168 AD) was not challenged until 1543 when Copernicus (1473–1543) published his account of the solar system — the account which was to get Galileo into trouble seventy years later! Until 1887 scientists believed that the empty space in the universe was filled with ether.

In practice, a great many theories are regarded by scientists as true when there is little or no experimental or logical evidence to support them. One explanation for this is that our beliefs are influenced by the cultures in which we live and, because scientists have to persuade other

scientists that their theories are true, this is easier if the theories fit the prevailing beliefs of the culture in which they operate.

3 Philosophical considerations

Two philosophical concepts have implications for scientific enquiry and scientific truth: the nature of statements and causality.

3.1 Universal and existential statements

Statements can be universal (all horses are animals) or existential (there is a black swan) (Popper, 1959). You can disprove a universal statement by finding a horse that is not an animal but you can never prove it because you would have to find every horse that had ever been in existence. You can prove an existential statement by finding a black swan but it does not matter how many white swans you find, you can never disprove the statement that there is a black swan. You can say that it is highly improbable but you can never say that it is impossible. Richard Dawkins (2006) is just one of many scientists to have written nonsense in their attempts to disprove the existence of God since, by definition, the existential statement 'God exists' can never be disproved.

3.2 Causality

It has long been assumed by scientists that, if something regularly happens before something else, there must be cause and effect. However, this is by no means certain. As philosophers have pointed out, causes can be described as sufficient, insufficient, necessary and unnecessary. If all members of a firing squad hit the condemned man, each bullet is a sufficient but unnecessary cause of the condemned man's death since, if a bullet missed, the others would have been enough to kill the man. On the other hand, some combustible material, a source of ignition and oxygen are all insufficient but necessary causes of a fire. Each on their own cannot start a fire and if you take one away the fire will not start.

More difficult are causes that are both insufficient and unnecessary; Michael Rutter et al. (1975) found that six factors (severe marital discord, low social status, overcrowding, psychiatric disorder in the mother, criminal father and being taken into care) taken in isolation had no adverse effect on a child but that two together made it four times more likely that a child would suffer an adverse outcome, with the probability of an adverse outcome rising the more factors were present. Here none of the factors are sufficient to cause an adverse outcome on their own and any four can be unnecessary as long as the two others are present.

But these two do not cause the adverse outcome; they simply raise the probability of an adverse outcome; it may not happen and a child may survive multiple adverse factors without any adverse outcome. One explanation is that, if you give sufficient long term love and care to someone who has been harmed, they will recover fully because what is happening in the present counteracts whatever may have happened in the past (Clarke and Clarke, 1976; Kadushin, 1970).

From a scientific perspective, Ilya Prigogine showed that, when dissipative systems reach a bifurcation, their behaviour is random and therefore that there is no cause and effect as traditionally argued by classical scientists. Prigogine and Stengers (1984) have also argued that saying that A caused B is rarely meaningful. The best we can often say is that, if A, B

and C are present, there is a likelihood that X will happen. But if they are absent, it does not mean that X will not happen; for example, X might happen if D, E and F are present or it might not because P, Q and R are present.

Unfortunately, this is too complicated for many people, particularly politicians, who like to be able to ‘blame’ something or claim responsibility for ‘stopping it’ or ‘rooting it out’ when in practice addressing the problem is far more complex than this.

4 The Bible and scientific enquiry

The idea that the Bible and science address different disciplines was put forward in the mid nineteenth century by a group of clerics including Baden Powell, a clergyman and Professor of Geometry at Oxford University who was the father of the creator of the Scout Movement (Parker, 1860). But it came to prominence with the attack by John William Draper (1874) on the Roman Catholic Church and has never gone away.

One advantage of this approach is that it avoids having to address the issue of miracles and other ‘supernatural’ or ‘divine’ events in the Bible. But much has changed in our understanding of science since the mid nineteenth century and there is plenty of evidence that, far from addressing different issues, the Bible and science address many of the same issues.

4.1 Regularities and relationships

Much attention is given in the Bible to regularities but the emphasis changes between the Old Testament and the New Testament. In the Old Testament, the regularities are those between people’s observance of God’s laws and God’s treatment of them. In the New Testament, the regularities are between the relationships which people have with other people and with God. Research in the last fifty years has confirmed the centrality of these relationships in people’s lives (Brugha et al., 1993; Ladd, 2005; Williams and Sternthal, 2007).

4.2 Explanations

The Bible explains the creation of the universe as an act of God; while secular scientists reject this explanation, they agree that the universe came into being at a point in time, as did the solar system and the earth. The Bible explains sin in terms of the failure of Adam and Eve to heed the orders of God; science explains sin in terms of our inability to achieve perfection in anything (Deming, 2000). Jesus rejects the traditional causal explanations of disability and sin as does science (section 3.2).

5 The Bible and scientific truth

In the eighteenth century some people believed that the Old Testament was, like the Greek myths or the Norse sagas, a collection of moral truths which bore little relationship to actual events; the nineteenth century discoveries that many places mentioned in the Old Testament are real places led to a re-evaluation of the Bible and also to continuing controversies about the ‘truth’ of the Bible. But we can identify a number of ‘truths’ in the Bible which have parallels in scientific truth and in some cases the ways in which the writers of the Bible and scientists argue about the ‘truth’ are similar.

5.1 Probable historical truth

Among the controversies about the relationship of the Biblical narrative to other historical narratives or reconstructions of historical events, *From Eden to exile* by David Rohl (2003) best represents the strand which argues that, beneath the narrative of God's relationship with his chosen people, their frequent failures to live up to His expectations and His various dealings with them in those circumstances, the Bible tells largely the same story as other historical narratives or reconstructions of historical events.

Rohl's argument relies on finding *relationships* which are probably true; in other words, his approach will never be able to prove that the Bible, or indeed any other historical document, is historically true, only that it is probably historically true and there are likely to be continuing arguments about how probable this is.

5.2 Probable emotional truth

A number of statements in the Bible have found echoes in modern psychological research. 'Love your neighbour as yourself' is similar to the highest level of moral thinking discovered by Carol Gilligan (1982) in her research. David's account in Psalm 91 of coming to terms with being an adulterer and a murderer reflects the stages which offenders go through today in coming to terms with their offences. Jesus' injunction to forgive 'seventy times seven' (Mt 18:22) is supported by Robert Enright's research (2001) showing that victims who forgive make a better recovery than those who do not. Chris Marshall (2012) has shown that the parables of the Good Samaritan and the Prodigal Son have powerful lessons for us today in how to treat both victims and offenders. Such parallels show both that human beings have not changed that much in 4,000 years and that there are emotional truths in the Bible which are similar to modern scientific truths.

5.3 Logical truth

Perfect knowledge is impossible in this world (1 Cor 13:12); the Greeks were astounded that simple things like the diagonal of a square or the relationship between the circumference and the diameter of a circle could not be expressed as real numbers and there was reluctance among the Arab and some European mathematicians to accept that imaginary numbers like $\sqrt{-1}$ could safely be used in mathematical calculations. But after mathematicians had come to terms with this, the work of Gödel and Heisenberg in the nineteen thirties showed that it would never be possible to have perfect knowledge — something many scientists have yet to accept fully.

Perfect performance is impossible in this world (Deming, 2000); the Greek word, *hamartia*, chosen by the writers of the Septuagint to translate 'sin,' means 'falling short of the target.' In saying that 'all have sinned and fallen short of the glory of God' (Rom 3.23), Paul is saying that perfection, in the sense of perfect performance, is impossible in this world. In human terms, to expect perfection of anyone is to ask the impossible of them; the most we can ask people to do is to improve their performance so that the difference between it and a perfect performance decreases (Deming, 2000). Giving up on seeking to approach perfect performance, even if we can never attain it, is not an option, as Paul points out in Romans 2:5–8.

However, use of the word 'perfection' in English translations of the Bible often causes confusion because it is also used to translate '*teleios*' which first meant 'without spot or blemish' and later came to mean 'having reached their goal' and therefore 'accomplished' or, sometimes,

‘married.’ It confused Newton who expected the orbits of the planets to be ‘perfect’ and, when he observed they were not, assumed that God would nudge them back into place leading a century later, when there was greater understanding of planetary motion, to LaGrange’s famous comment that he had ‘no need of that hypothesis.’ So when Jesus says, ‘Be perfect as your heavenly Father is perfect’ (Mt 5:48), he isn’t referring to performance but to lacking anything that would spoil others’ impression of you. This comes after Jesus has told people to love their enemies because, if they only love their friends, they are no different from anyone else. Even though they are sinners, they need to try and create a different impression, one ‘without spot or blemish,’ the same impression as their loving Father radiates.

5.4 Truth by consensus

Truth by consensus, albeit supported by the guidance of the Holy Spirit, emerges in the Bible only with the development of the early Christian church when the church in Jerusalem is asked to reach a decision on the admission of non-Jews to the faith (Lk 15:6–29), when the churches are called on to test doctrine and during the Reformation when the ‘congregational’ churches affirm the authority of the congregation over episcopal ministers. As within science such truth by consensus can be adjudged to have been in error, as happened within the New Connection churches when they rejected the Arianism of some General Baptist churches in the late eighteenth century (Taylor, 1818).

6 Miracles

You will find plenty of discussion on the Internet of an older idea of science, that it can only study the repeatable and predictable. If we create a matrix of these ideas we get:

	HIGH PREDICTABILITY	LOW PREDICTABILITY
HIGH REPEATABILITY	Planetary motion	Epidemics
LOW REPEATABILITY	Climate change	Miracles

You can see from this why scientists love astrophysics; it has a lot of stuff that is highly predictable and highly repeatable. But, if something cannot be predicted and isn’t repeated, it is difficult to find any regularities or relationships that might help to explain it. This partly explains why issues like climate change and miracles tend to be so controversial; they don’t fit easily into the traditional idea of science being the study of the repeatable and predictable.

A more modern approach is to say that the probability of the laws of planetary motion is high, that of miracles is not. Probability theory assumes that all outcomes are possible but that some are more probable than others; so miracles are not impossible — they are simply less probable — but the improbable must happen from time to time (Cole, 1998).

Another approach is to recognise the limitations of human knowledge and accept that there are some situations in which we simply do not understand what is happening, in much the same way as people without any astronomical understanding used to regard eclipses as inexplicable events. Indeed, in 1715 Edmond Halley had to publish a pamphlet explaining to people that they should not see the eclipse of the sun as a bad omen (Fauvel, 2000).

6.1 Specific miracles

Many miracles recorded in the Bible have subsequently been explained in a similar way; for example, the plagues (Ex 7–11), the arrival of the quails and the manna (Ex 16) and the flow of water out of the rocks (Ex 17) recorded as miracles by Moses have all been given modern scientific explanations. Similarly, miracles like the shoal of fishes and the nets not breaking (Jn 21:1–11) can be explained in terms of the refraction of light, enabling Jesus to see fish from one angle which was not visible to the disciples from another, and what we know about quality testing — that some materials will perform a lot better than their design and manufacture might lead us to expect.

It is important to recognise that, like the probabilities between the events in the Bible and events recorded in other sources which are claimed by Rohl to increase the probability that the Bible is a reliable historical narrative, these scientific explanations only offer probable explanations of miracles. They say nothing about whether they were miracles in the traditional sense, simply that they are not as improbable as the people at the time might have believed them to be.

Similarly, at least some healing miracles can be explained by our greater understanding of the interaction between how we think about something and how our body responds to it. Though faith may not be able to change the ultimate outcome of every illness, it can certainly have a positive impact on the course of some. Perhaps the most well-known modern miracle is the survival of Stephen Hawking who was given a few years to live in the 1960s and has survived a condition which would have killed anyone else long ago. One explanation may be that, since his contribution to society was more highly valued than that of others with his condition, this gave him a better attitude to fighting the condition than most other people have and so influenced the progress of the condition. Or it may be that he was the one improbable long term survivor.

It is important to stress that being able to *explain* a miracle does not mean that it was not a miracle; it may still have been a sufficiently improbable event to qualify as a miracle because this sequence of events happens so rarely. The miracles which present the greatest *explanatory difficulty* to modern science are those like the jar of meal and the jug of oil which never become empty (1 Kgs 17:16); interestingly, we may be able to *explain* turning the water into wine (Jn 2:1–11), feeding of the five thousand (Jn 6:1–13) and the raising of Lazarus (Jn 11:38–44), miracles which, unlike the other gospel writers, John does not call ‘miracles’ but ‘signs,’ that is, deliberate messages from God, as examples of God ‘breaking the laws of nature.’

6.2 Does God break the laws of nature?

One way of answering this is to say that the laws of nature are nothing like as rigid as people thought in Newton’s day. Newton lived through a period when people had executed a king for not obeying the laws of God. So it was really important for people like Newton to present God’s laws for the world as rigid and, where they were not, as in planetary motion, to explain that God would make sure they were corrected — an explanation at least as old as the first century AD Jewish historian, Josephus.

Today we are reasonably sure that God made provision for a degree of randomness in the laws of nature and that many of the regularities in the universe are subject to the laws of probability. Indeed, without probability, it is almost certain that we would not exist because the universe is highly improbable (Rees, 2000). So just our being here is a miracle because it

is so improbable but

- we cannot *explain*, as we can with some improbable miracles, how this miracle came about;
- we got here without God needing to break any of the laws of nature.

Another way of answering this question is to say that we have a different understanding of the laws of nature from Newton. For many people in Newton's day the laws of nature worked like clockwork and Newton became a Unitarian because he could not understand how God could appear in three different ways, as Father, Son and Holy Spirit. We now know that light can appear to us both as a wave and as a particle; since light can appear to us in two different ways, there is no scientific reason why God could not appear to us in three different ways. So some miracles may be miracles to us simply because we don't understand enough about God's world to know what needs *explaining*.

Another way of answering this question is to look at how God most commonly intervenes in the world — by establishing relationships with and between people. We develop both as children and as adults only through the relationships which we make with others and others make with us. Those who never experience loving relationships never develop as much as those who do and even those who experience loving relationships do not all develop at the same rate because those who express loving relationships do so in different ways, some of which are more likely to assist in our development. However, those who have a greater variety of relationships are more likely to develop more rapidly (Ladd, 2005).

If the relationships we have with others lead us into a relationship with God which we sustain over our lives, we are likely on average to be healthier and to live longer than people who do not have such a relationship (Williams and Sternthal, 2007). In other words, our spiritual relationship with God has an impact on the physical systems which sustain us. Since we are told that God always intended to have a relationship with us and scientists tell us that human beings evolved a part of the brain which is concerned with spirituality, it seems reasonable to assume that within God's laws is one which says that human beings can benefit from having a relationship with God — which is, after all, the whole point of the Christian message! In other words, if we enter into a relationship, we allow that person, including God, to affect what happens to us without breaking any laws of nature.

A fourth way of answering this question is to look at the power of faith; we can affect the physical systems which manage how we behave in stressful situations by seeing a stressful situation as an opportunity rather than as a problem (Osterweis et al., 1984); so, if our relationship with anyone, including God, means that we see difficulties as an opportunity rather than as a problem, the existence of that relationship will have a direct effect on our physical systems and we will be more likely to believe that there must be a way of dealing with the difficulty, and go in search of it, than if we believe there is no way of dealing with the difficulty.

Though, so far, no scientific correlation has been found between praying for people with whom we do not have a relationship and different outcomes, that does not mean that it does not happen — simply that it has not happened with sufficient regularity for it to be observed scientifically. However, praying in faith for people with whom we do have a relationship, however limited, almost always changes the relationship we have with the person and therefore can have a measurable direct influence on them. Conversely, if someone believes they are being prayed for, they are more likely to have faith that the difficulty is going to be dealt with satisfactorily. So, even without the 'faith to move mountains' (Mt 17:20), any level of faith

can change outcomes without breaking the laws of nature whether your faith results in you having a different relationship with a person in a difficulty or their faith in your support for them gives them a confidence to deal with the difficulty which they lacked before.

So we have four reasons for believing that what may appear to us as miracles may take place entirely within the laws of nature which God established at the outset:

1. miracles are consistent with a universe which is governed by probability and includes a degree of randomness;
2. we think certain things are miracles because we don't understand the laws of nature sufficiently well;
3. because our development as people is influenced by the quality and variety of the relationships we have, God can influence what happens to us through the relationships we have, sometimes with 'miraculous,' that is, highly improbable, outcomes;
4. because what happens to us can be changed by the ways we think about it, God can intervene in the world by helping us to think about things differently and so cause a 'miraculous,' or highly improbable, outcome.

But, in addition to intervening in the world within the laws of nature, could God break those laws of nature over a short period without affecting them in the long term?

6.3 Does God break the laws of nature over a short period without affecting them in the long term?

This is nothing like as serious an infraction as was believed in Newton's day. Then it was believed that the universe worked like clockwork and that, if you disrupted one aspect of the way in which the universe behaved, it would have an eternal effect on the universe. There is no evidence for this, no least because dissipative systems create new systems which have no causal relationships with any prior system (Prigogine and Stengers, 1984) and, as we saw in section 3, the causes of most things lie in the present, not in the past. There simply isn't a comprehensive causal chain from the start of the universe into the distant future.

The 'butterfly effect' is most well known because it shows that a very small change in the initial conditions of a situation can have a massive effect on later outcomes (Lorenz, 1969); however, the other side of the effect is that an equally small change can have no effect at all on later outcomes. Today, weather forecasters run a series of simulations in which they make a tiny change to their initial predictions; if they get the same result every time, they can be reasonably confident of their predictions; if they get a different result every time, they are reasonably sure that the weather is going to be unpredictable.

So, is it possible that God intervenes in the world by breaking His laws in such a way that the effect does not last? For example, turning the water into wine, feeding the five thousand and raising Lazarus changed situations in the present but had no effect on the ways in which people would prepare food or live in the future. Indeed, in the parable of the rich man and Lazarus, Jesus explicitly says, 'Even if someone rose from the dead, they will not believe' (Lk 16:31). This is normally seen as referring to His impending crucifixion and resurrection but it could also be seen as a general statement that miracles only have a short-lived effect, if any, and that the most important ways in which God intervenes in the world are not through miracles but through the relationships which people make with Him.

Moreover, even though the memory of their wedding or not feeling hungry on the way home from hearing Jesus may have stayed with people for years afterwards, what actually happened to them later would have been more dependent, as it is today, on their social situations or on what they thought about the miracle than on the effect of that miracle. If miracles have any long lasting effect, it is not on the world of nature but in the minds of those who saw or experienced the miracle.

This is certainly true of the birth of Jesus; Luke is careful to explain that Jesus' birth will not be a 'virgin birth' in the sense that scientists now use to term — to describe the birth of female offspring to a female without any male intervention. To Mary's question, 'How shall this be, since I am not having sex with a man?' (Lk 1:34), the messenger replies, 'A holy spirit will suddenly come upon you and a power of the highest will throw a shade over you. For this reason, the holy offspring will be called a son of God' (Lk 1:35). To put it another way, male chromosomes will be joined with Mary's female chromosomes to produce a son of God. Otherwise, Mary's offspring would have only had female chromosomes.

However, the point of Jesus' life was to offer, through His death and resurrection, the long term possibility of a new form of relationship between God and human beings; so, whether you regard the virgin birth as breaking the laws of nature or as adapting to them by ensuring that Jesus had male and female chromosomes, this intervention has had no long term effect on the laws of nature, only on the relationships we can have with our neighbour and with God.

In the end none of these types of 'explanation' can explain long term miracles like the jar of meal and the jug of oil (1 Kgs 17:16). Our current scientific understanding can accommodate long term miracles in which God intervenes through His relationship with a human being in ways which keep them alive for longer because that can be explained through the impact that positive relationships have on us all. It can accommodate short term interventions by God which, however improbable, are explicable within the laws of nature or involve breaking the 'laws of nature' momentarily without having a long term impact on them but, at present, the ways in which we think about scientific enquiry and scientific truth make it difficult to find a scientific explanation for a continuing intervention in the natural world like the jar of meal and the jug of oil.

7 Conclusion

Some events which people in the past regarded as miraculous can today be given a possible scientific explanation; this does not mean that they were not miraculous in the sense that they were highly improbable but that the miraculous effect they had can be explained as part of the laws of nature which God laid down at the outset.

The laws of nature include probability and the possibility of random events; so some events that people in the past regarded as miraculous because they happened so rarely and could not be the subject of scientific enquiry will continue to happen from time to time; they are miraculous not because they are scientifically impossible but because they are scientifically improbable — such as surviving an accident which would kill most people.

The laws of human nature encompass the interactions between our physical systems and our mental systems; each can affect the others. So, while our physical health can affect the way we think about things — whether or not we feel up to doing something — this in turn can affect the ways in which our physical systems react — how quickly we recover from a physically or emotionally stressful event. How we think about things is influenced in turn by

our relationships with other people and with God. If we allow God to change our attitude to a situation in which we find ourselves, God can intervene in the world without breaking His laws through the relationships which people have with Him. In this way He can continue to perform miracles in people's lives in much the same ways in which He always has — the Age of Miracles has not ceased. By conditioning ourselves to think that miracles are rare or just confined to the Bible, we don't recognise the miracles, the highly improbable events, which are going on around us. And we deny ourselves the possibility of recognising the miracles that may be going on in our own lives.

Taking this argument a bit further, the most powerful influence on all our lives is the love we receive; it can help to repair all the emotional and much of the physical pain we experience — in other words, the power of love is not an accident, it is built into God's laws for the universe. Since God has planned a universe in which love plays such a central part, expressing that love towards us would be entirely consistent with the laws of that universe.

God in Jesus chose to subject Himself to His laws on earth including the consequences of being crucified. He is then recorded as appearing in the same bodily form after His resurrection but, since this has only happened once, it cannot be the subject of any scientific explanation other than to say that it is highly improbable — it may be so improbable that its likelihood of happening within the life of our universe is also extremely low. But that makes it an even more special event; its unique purpose was to enable people in this universe to make a new relationship with God which they would not have been able to have without it.

However, long before there were scientists who had any reservations about miracles, Jesus predicted in the parable of the rich man and Lazarus that people would not believe even if they saw a miracle (Lk 16:31). So, one way of seeing the arguments over miracles is as a sideshow for those who ultimately don't want to accept Jesus' message. Even if we cannot find a scientific explanation for some miracles, most of the events that people consider to be miracles can be understood as highly improbable, but not scientifically impossible, events or as the result of God intervening in people's lives through His relationships with them in much the same way that human beings can intervene in other people's lives through the relationships they offer them. Miracles have certainly not ceased to happen but there will always be those who want to dismiss them because accepting them means that they have to rethink their whole attitude to God and what He did through His Son.

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Scientific "truth" is a theory (note that word) that something will happen again because we have observed it happening many times before, and we can demonstrate that it happens. The word for this is empiricism. We can establish the theory of gravity because everything we've ever examined or tested has demonstrated gravity (i.e. has fallen) and we can establish the theory of a revolving planet because that corresponds to all our observations and measurements and, recently, we have seen it from space. Designing Social Inquiry. SCIENTIFIC INFERENCE IN QUALITATIVE RESEARCH Gary King Robert O. Keohane Sidney Verba. Princeton university press princeton, new jersey. Copyright © 1994 by Princeton University Press Published by Princeton University Press, 41 William Street, Princeton, New Jersey 08540 In The United Kingdom: Princeton University Press, Chichester, West Sussex. Some quantitative researchers believe that systematic statistical analysis is the only road to truth in the social sciences. Advocates of qualitative research vehemently disagree. This difference of opinion leads to lively debate; but unfortunately, it also bifurcates the social sciences into a quantitative-systematic-generalizing branch and a qualitative-humanistic-discursive branch. From the standpoint of scientific inquiry, truth indicates not just accepted beliefs, but beliefs accepted in virtue of a certain method. To science, truth denotes verified beliefs, propositions that have emerged from a certain procedure of inquiry and testing. By that I mean that if a scientific man were asked to point to samples of what he meant by truth, he would pick beliefs which were the outcome of the best technique of inquiry available in some particular field; and he would do this no matter what his conception of the Nature of Truth. (1911 [2008: 28]). Truth and falsity are properties only of that subject-matter which is the end, the close, of the inquiry by means of which it is reached. (1941: 176). Are scientific theories true? The debate between scientific realism and anti-realism. A debate about the aims of science. Does science give a true story about phenomena? Part Three - Truth? Galileo and Copernican Astronomy Galileo "1609 built the first telescope the size of objects, later another one was built at 30x. 1610 observed 4 stars around Jupiter Trying to reconcile with religious truth He defended metaphysics against the meta-astronomers (saving the phenomena). Part Four - Scientific Realism and the No Miracles Argument Scientific Realism "aim of science is to provide us with theories that are true. Theories are considered true according to scientific language. Scientific Realism has a semantic aspect and an epistemic aspect. What is the semantic as