

# GOD & SCIENCE

artificial intelligence  
bench to bedside & beyond  
climate change & health

the student journal of the christian medical fellowship

# Journal

# NUCLEUS



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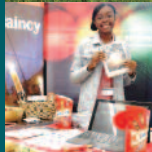
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## Contents



### FEATURE ARTICLES

#### GOD & SCIENCE

- 3 editorial
- 4 the machine will see you now
- 8 is science opposed to religion?
- 12 climate change & health
- 16 bench to bedside & beyond

### REGULAR FEATURES

- 20 back to basics: what's so amazing about church?
- 22 leadership: performance
- 25 just ask: clubs & societies
- 26 mythbusters: you can't trust the Bible and be an academic
- 29 distinctives: five tips for new students

### BE INSPIRED

- 31 my trip to: the ICMDA Western European Conference
- 32 counterparts: a banquet in the kingdom of God
- 34 local groups: King's College London freshers' week

### CULTURE

- 35 film review: *I Origins*
- 36 film review: *Ex-Machina*
- 37 film review: *The Exorcism of Emily Rose*
- 38 book review: *Am I Just My Brain?*
- 39 book review: *Miracles*
- 40 book review: *Seven Days that Divide the World*
- 41 news reviews



**'God is dead! God remains dead! And we have killed him!'** Friedrich Nietzsche<sup>1</sup>

Perhaps one of the most famous quotes of all time, Nietzsche's view is pretty absolute. But did Nietzsche have a point? Since the Age of Enlightenment and the valuing of scientific reason over religion, it really does appear sometimes that God has been made redundant. The world lets him exist in church on a Sunday and uses his name as a way of expressing emotion. Occasionally, he is let 'out of his cage' as a so-called 'God of the gaps'.

We reluctantly concede it could be divine activity if something occurs that truly defies all scientific explanation, but only until the 'true' explanation reveals itself. 'Eureka!' we cry, submit our manuscripts for publication and scramble to solve the next mystery.

How as Christian medical professionals can we possibly hope to bear up against the weight of secular science? In a world where religion is seen as intellectual suicide, how can we hold simultaneously the identities of 'scientist' and 'Christian'? *Nucleus* is a journal! Why am I not in fact the editor of *Religious Cloud Cuckoo Land*?

I for one fervently believe my seemingly double life holds up; you will be pleased to know CMF thinks the same. Our allegiance first and foremost is to God, but that in no way means we must eschew science. On the contrary: science and technology can and should remain at the cornerstone of our medical practice. This issue of *Nucleus* aims to address this interplay head-on and show where we can embrace science, where we can balance it with our beliefs, and how to deal with conflicts as they arise.

The main articles pack a punch this term! We begin with the huge, exciting and terrifying topic of artificial intelligence in healthcare. John Wyatt

explores a future where 'The machine will see you now'. Bernard Palmer tackles this edition's theme directly: 'Is science opposed to religion?' You will undoubtedly have noticed that climate change is a hot topic<sup>2</sup> these days; Amy McIntosh shows us what God has to say on the matter. Rachel Owusu-Ankomah shares about the ethics of translational medicine through a Christian lens.

Our regular features are top quality as usual. Our new Associate Head of Student Ministries, Ashley Stewart, answers the question 'What's so amazing about church?' Continuing our series on leadership, Caleb Owomoyela gives us a refreshing perspective on 'Performance'. Abi Randall answers your questions in 'Just ask!' I don the mantle of 'Mythbuster' and debunk the premise with which

## our allegiance first and foremost is to God, but that in no way means we must eschew science

I began this piece: that you can't trust the Bible and be an academic at the same time. Morenike Dasilva offers us five extremely helpful 'Distinctives' about being a Christian medical student. We get to enjoy reports on Teresa Mergia's trip to Belgium, life at King's College London and the recent Sydenham 2 Conference. We have a bumper crop of book and film reviews to share too, so join us in discovering everything from Lewis to Lennox, from demons to machines.

We live as children of God in the age of evidence-based medicine. Go therefore and be scientists, be bold warriors for Christ! And you never know - maybe you will find one day that your dual citizenship has its perks. Have a wonderful and blessed term! ■

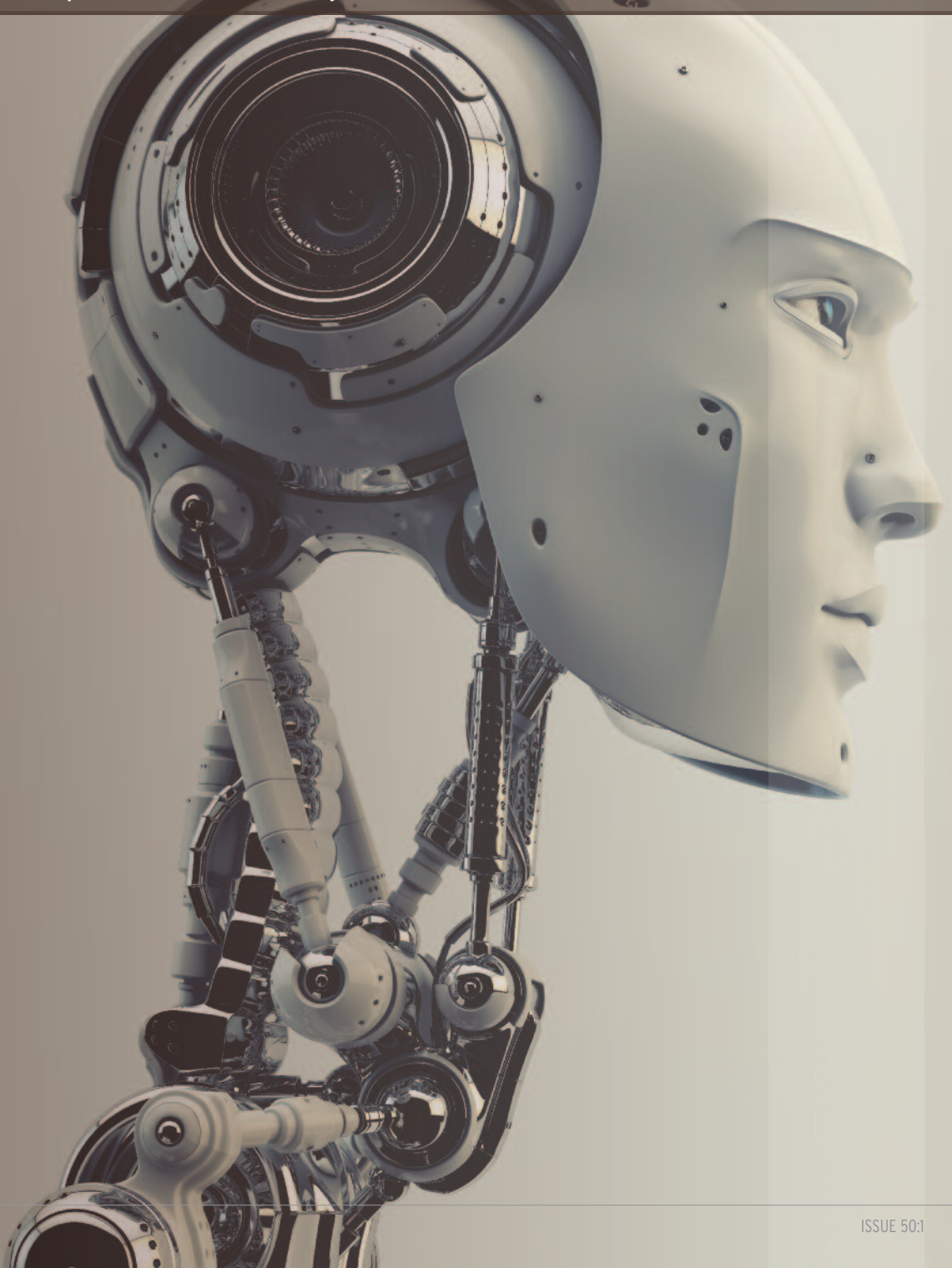
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# the machine will see you now

John Wyatt examines artificial intelligence (AI) and the future of healthcare





**John Wyatt** is Emeritus Professor of Neonatal Paediatrics at UCL and Senior Researcher at the Faraday Institute for Science and Religion, University of Cambridge.

**A**s a child growing up in the 1960s, I was an avid reader of science-based predictions of the future. By the year 2000 we would all be travelling in hover-cars, there would be colonies on the moon, nuclear fusion would provide free power, robots would do all the work and the major problem for humankind would be how to fill the endless hours of leisure time, once limitless resources and energy were on tap.

Sadly, reality has turned out to be somewhat different! Yet nobody in the 1960s predicted mobile phones, personal computers, or the all-pervasive nature, power and global spread of the internet, let alone virtual reality and cloud computing!

According to Moore's Law, computer technology has been doubling in power every 18-24 months since the 1960s and this rate of improvement is predicted to carry on for some time to come. Massive investments amounting to trillions of dollars are currently going into AI and robotics, not just in the US but in Japan, China, India, Europe and across the world. AI is already having a significant impact on our life, but much of this is invisible. Behind the scenes they are supervising our computer searches, selecting the adverts we see online, trading in financial markets, selecting job applicants and translating books.

It's clear that the fundamental driving force behind these remarkable changes is old-fashioned capitalism - maximising shareholder value. Intelligent automation optimises speed and productivity whilst minimising expense. AI and robotics can work 24/7 without getting tired, they don't demand pay raises, they are less likely to make mistakes and their function doesn't deteriorate with repetition. Instead they are constantly learning and improving on the job, leading to increased accuracy and efficiency. Above all, unlike human workers, they are infinitely scalable. Once you have one intelligent machine performing a task effectively, you can very rapidly

expand to a thousand, a million, a billion...

So although the speed with which automation will enter healthcare is debatable, the ultimate direction seems clear – the inexorable logic of the market economy will ultimately triumph.

## according to Moore's Law, computer technology has been doubling in power every 18-24 months since the 1960s

There is no doubt that AI technology offers considerable benefits in many areas of healthcare, including improved analysis of scans and laboratory data, improvements in hospital management and logistics and early warning of health emergencies. In the UK a commercial company, Babylon Health, is collaborating with the NHS to provide primary care via a smartphone app. The goal is to employ an AI-powered system combined with sophisticated personal health data tracking to enable early diagnosis, treatment advice and continuous monitoring of many medical conditions. Human clinicians may only be involved if automated systems cannot solve the problem.

As AI becomes pervasive within healthcare systems, issues of legal control, privacy, copyright and responsibility for malpractice are likely to become more problematic. In November 2019, controversy erupted because Google had gained access to healthcare information, including names and other identifiable data, of tens of millions of people in the USA without their knowledge.<sup>1</sup>

When it comes to caring for patients, systems are being developed to recognise human emotions using powerful face and speech recognition software and to respond in real time to these emotions. These systems can be virtual – existing purely as an avatar (a human-like form on a screen), or as a disembodied voice like Amazon's Alexa. But they may also be in a physical and

embodied form, for instance as a 'cute' childlike robot. It seems likely that in the future, AI systems will be developed to provide 24-hour supervision and 'friendship' for the elderly, the disabled, babies and infants, those with mental health problems and maybe ordinary people who feel lonely or isolated.

### Christian responses

Much of this may seem like science fiction and it is certainly true that it is often difficult to distinguish between the hype and the reality. But the drive for increasing automation seems clear and behind these developments there are deep philosophical and cultural trends. In particular, there seems to be a progressive blurring and merging of our concepts of what it means to be human and what it means to be a machine.

we need to celebrate the extraordinary achievements and promise of digital technology in modern healthcare. But we can't be naïve about the hidden power plays, and the invasion of personal space and privacy

### blurring of the concepts of human and machine

On the one hand modern academic disciplines, such as cognitive psychology and computational neuroscience, use advances in AI as a means of understanding how the human brain works. The more we understand how computers work, the more we can understand how the human brain works. This approach has been strikingly successful, leading to major advances in fields such as computational neuroscience and cognitive psychology.

On the other hand, we find ourselves projecting our humanity on to intelligent machines. In other words, we have a very strong and in-built tendency to anthropomorphise. We instinctively think of machines as having a first-person perspective, looking out at

the world as we do, having a 'self' with intentions and goals. One troubling aspect of anthropomorphism is that it is not under conscious control; our response is instantaneous and deeply emotionally engaged.

Some time ago I was with a group of senior church leaders who were debating the theological implications of AI and robotics. We visited a computer lab in which a group of small, childlike robots were active – speaking, waving and moving around on the floor. Instantly, the atmosphere changed – people waved back, laughing, engaging delightedly with the robots, as though they were precious and vulnerable children.

The irony is that our very humanity makes us open and vulnerable to manipulation by human-like machines and the aim of many AI and robotics designers is to encourage anthropomorphism because it improves the machine interaction.

### 1. We need a more profound understanding and critique of modern technology

A common understanding of technology sees it merely as a neutral tool, like a hammer which can be used equally for good or evil. But in reality, the power, widespread reach and hiddenness of advanced technology in our lives means that it changes and manipulates the world we see.

Technology generates a 'reality distortion field'. On the one hand, modern technology can be seen as a fulfilment of the creation mandate given to the first humans by the Creator – 'Be fruitful and increase in number; fill the earth and subdue it...' (Genesis 1:28). As such we need to celebrate the extraordinary achievements and promise of digital technology in modern healthcare. But we can't be naïve about the hidden power plays, and the invasion of personal space and privacy. So before we accept new and powerful technological innovations in medical practice, perhaps we need to ask detailed questions about transparency, vested interests, privacy issues, and potential dehumanising consequences. As CS Lewis once put it '...Man's power over Nature turns out to be power exerted by some men over other men...'.<sup>2</sup>



## 2. We need to resist the conceptual blurring between our created embodied humanity and intelligent machines

It seems inevitable that AI technology will become increasingly effective at simulating many aspects of human intellectual, emotional and relational behaviour. The technology will be capable of providing physical and virtual companions, colleagues, teachers, therapists, carers and playmates. But this will raise complex and troubling issues. Is it appropriate to provide a simulated companion for an elderly person with dementia or a child with autistic spectrum disorder?

Behind these developments lies a conceptual and emotional blurring between the human person and the intelligent machine. It is clearly true that there are aspects of our humanity, including our thinking processes that are machine-like. But to understand ourselves as though we are in reality machines is a new and subtle form of idolatry. It is to worship the products of human ingenuity in place of the Creator. In Christian thinking human beings are unique in the cosmos because they are created in God's image, as embodied reflections of the being and character of God. The goodness of our embodied humanity is vindicated and reinforced in the Christmas and Easter miracles, the incarnation and resurrection of Jesus, when God himself takes on our humanity and is raised as a physical, recognisable and touchable human being. So, we

should ensure that sophisticated AI technology is employed to support and protect the centrality of human embodied face-to-face relationships, rather than to provide a simulated replacement.

## 3. We need to develop resilience to the dehumanising and manipulative possibilities of technology

There's a well-known saying that 'if you want to understand what water is, don't ask a fish...!' In the same way, we are so immersed in technology that it is almost impossible to comprehend its all-pervasive nature and influence on our lives and on our future practice as health professionals. Whilst we look forward to increasingly, powerful diagnostic, monitoring and therapeutic opportunities, I think we will need to develop arguments in favour of real human carers rather than simulated ones, real human relationships in favour of simulated compassion and real experiences in place of virtual reality. There is no substitute for human empathy, solidarity and love expressed in a face-to-face relationship of embodied human beings and in compassionate, thoughtful words spoken by human mouths. ■

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# is science opposed to religion?

**Bernard Palmer** says 'NO!'







Bernard Palmer is a retired surgeon in Hertfordshire

'Science and religion cannot be reconciled,' Peter Atkins, an Oxford Chemistry Professor boldly pronounced. How we need to rebut this view with good arguments to help those who think that science and the Bible are in conflict!

An Orthodox Jewish scientist was living in a village near Mount Carmel in Israel. He taught his son that God had revealed himself in the ancient Jewish Scriptures. As a scientist he delved into modern physics, helping to unravel the secrets of the universe; as a Jew he tried to understand God's revelation of himself as taught in the Bible.

On the slopes of Mount Carmel several large caves were being excavated and some bones of Neanderthal man, a prehistoric human were found. Analysis of these bones revealed virtually no carbon-14, suggesting that these bones must be over 50,000 years old. The geological strata in which the bones were found gave an age of 60,000 years. Yet a literal reading of the opening chapters of the Bible suggests that the world was created around 6,000 years ago. This discrepancy caused the scientist some problems. Is there really a God who has authoritatively revealed himself in the Bible? Is science reliable? Must he make a choice between science and acknowledging a God who has revealed himself? Are science and the Bible compatible? The scientist recognised that there are massive problems if there is no authoritative revelation from God. What was he to teach his son? Similar dilemmas face many thinking Christians today.

Scientific understanding suggests that the universe is about 13.79 billion years old, and the earth 4.56 billion years old. This challenges those in the church who hold that the earth is young. Saint Augustine's estimate was that the universe began 5,000 years before Christ. In 1650, Archbishop Ussher calculated from the genealogies in the Book of Genesis that the earth began at 6pm on Saturday

22 October 4004 BC!<sup>1</sup> Until 1910, Bibles printed by the Oxford University Press had Ussher's dating printed alongside the text.

Fossils reveal that very different types of animals once lived on this earth. The wide variety of dinosaurs were estimated to have become extinct 65 million years ago. Ancient human-like fossils suggest that hominid beings were on this earth for over a million years. Questions have been asked as to whether they were really humans and whether the dating is accurate. Modern *Homo sapiens* probably first appeared around 100,000 years ago.

## all true revelations of God must be compatible with the rational world he has made

### 'evolution'

There has been much misunderstanding over the meaning of the word 'evolution'. For some Christians, the word 'evolution' causes a strong reaction.

'I don't believe in evolution!' a student told me.

'Don't you think that dinosaurs once lived on this earth? Don't you think that England was once joined to Europe?' I asked.

'Oh yes, I can accept those things.'

'Then you are an evolutionist in the original meaning of the word, as all evolution means is that changes have occurred both in biological species living on earth and in geographical arrangements. Originally evolution only meant "change".'

The word 'evolution' is derived from the Latin - *volvere* which means 'to unroll'. Clearly, there has been an 'unrolling' or change over the years in the world we live. The boundaries of countries, governments, the shape of continents and dogs have changed. The fossil record shows that wild



plants and animals have changed. These varied changes in the world seem incontrovertible. In this respect we are all 'evolutionists'.

When biologists say that biological evolution has been proved by science, they are saying that science gives strong evidence that radical changes have occurred. The confusion comes when people also use the word 'evolution' to mean neo-Darwinism, which is a theory to explain how all these changes took place naturally.

What are the possible causes for these biological changes? Today, we are constantly told that the only plausible mechanism for these changes of living organisms is neo-Darwinism. This teaches that random genetic mutations occasionally produce advantageous changes and that these accumulate to produce altered characteristics, some of which give survival advantages. Natural selection does the rest. Some use the word 'evolution' as being synonymous with neo-Darwinism theory. Yet more and more scientific problems are appearing, concerning this theory.

The Bible begins with the story of the world being created in six 'days'. Has modern science discredited the Bible and is the Christian faith therefore discredited? Can people fairly use

'science' to reject the Christian message or have we misunderstood something?

### disunited worldviews

In my first year at university, I was introduced to a Christian teacher who encouraged us to start thinking more clearly about contemporary issues. His name was Francis Schaeffer. In one of his earliest books, *Escape from Reason*, he gave a historical overview about the growing tendency over the last few centuries to dissociate the spiritual world from the physical world. He argued that the 'spiritual' has increasingly been separated from 'normal life' to the extent that in some areas all links had been broken; the 'spiritual' was becoming irrational and the rational world unspiritual. Francis Schaeffer's plea was that this tendency should not be accepted. He argued that the one God who made us with our emotions, aesthetic senses and love of logic, also made this physical world with its physics, chemistry and biology. On this basis, all true revelations of God must be compatible with the rational world he has made. We can test the spiritual by rational means. All 'true truths' must be coherent. It is therefore just as acceptable for Christians to be interested



in science, art or philosophy as in theology - what matters to God is that we investigate everything with integrity and honesty.

The medieval astronomer, Galileo Galilei, used his telescope to investigate the stars and came up with different conclusions to those of the church of the time. What should he have done? Could he accept both worldviews at the same time? Or was one worldview wrong? How was he to determine what was true? He decided that God had given him a mind to try and answer the dilemma. He was to use that gift to try and understand what Scripture, God's book, was saying and to arrive at honest scientific conclusions. He said,

*'I do not feel obliged to believe that the same God who has endowed us with sense, reason, and intellect has intended us to forgo their use.'*<sup>2</sup>

## evidence

There is much evidence for God creating this extraordinary world and the life in it. We do not know how this occurred, but there is now very good evidence from a wide variety of scientific disciplines for God's involvement. How were all the constants of the universe set so precisely that life could occur? How could the precise language of DNA that defines species have come about by chance? If God was instrumental in creating the cosmos and forming living organisms, it should not be surprising that he would want to rule in his creation. Jesus claimed to be this same God come down to earth in the flesh.<sup>3</sup> There is good historical evidence supporting Jesus' claims and some of this has been discussed in my book *Cure for Life*, published by CMF.<sup>4</sup>

Every person inevitably comes to new ideas with preconceptions. These influence the way we look at information and so prejudice the acceptance of new ideas and concepts. The search for truth has

many moral undercurrents. So many of us have concepts derived from previous experiences or desires that can poison a true analysis of the evidence. Most people's thinking is based on core beliefs. Our logical deductions depend on these foundations. All too rarely, do we question these core beliefs.

The chemist Linus Pauling used the broad definition that 'science is the search for truth.'<sup>5</sup> He is the only person ever to receive two unshared Nobel Prizes for Chemistry (1954) and for Peace (1962). Indeed, searching for and living by 'the truth' is our responsibility.

## science

Science is possible because we can see design, pattern and order in the universe. One of the principles of science is that there is a unifying concept called 'truth'. This is also the principle behind Judeo-Christian teaching. We should be searching for truth both in science and theology. The Bible teaches that this unity will ultimately be found in the God who has made us. It teaches that everything - science, history, philosophy, theology and even quantum physics will eventually be unified in the truth of God.

*'...to bring unity to all things in heaven and on earth under Christ...'* (Ephesians 1:10)

Christians need to understand that there is a unity between what God has taught us in the Bible and what God is revealing to us through science. Once we have settled this, we can move on from endlessly debating intellectual tensions and go out into God's world, persuading people about the importance of the Lord Jesus - it is a relationship with him that really does matter. ■

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# climate change & health

Amy McIntosh explores what the Bible has to say





Amy McIntosh is an FYI in Norwich

The climate crisis is arguably one of the greatest threats to human health this century.<sup>1</sup> In our future practice, we are likely to be dealing with the consequences to health in the UK, mainly from heatwaves and flooding (based on current evidence and if we do not take sufficient preventative measures). Globally, healthcare professionals will be treating patients whose health is threatened by natural disasters; conflict and displacement; vector-borne disease; famine and drought – in locations and quantities never seen before. The public health ramifications are huge.<sup>2</sup>

But how do we respond as Christians?

Where does climate change fit in with God's plan for the world? Should we continue to live as we do or throw ourselves into climate change activism?

### man, earth & God – a relationship in restoration

In Genesis 1-3, we read how God created the earth with great biodiversity of plants and animals and saw that it was 'very good'

(Genesis 1:31). Creation was full of life, with plans for humanity to increase and fill all the earth. God sustained all living creatures and man through his creation. Humans had a balanced relationship with the earth, where resources were plentiful.

God gave man the privilege of naming and classifying this great diversity. But with it came great responsibility – to rule over it in God's likeness. This meant emulating God's grace, justice, kindness, mercy and love. God retained overall control, instructing Adam and Eve what they should and should not eat.<sup>4</sup> (Not everything was given to man to use.) This initial relationship with the earth was harmonious – if man followed the order God had created.

Then the curse of sin broke the ordered relationship with creation. In taking the forbidden fruit, Adam and Eve took from nature, what was not theirs to take, for the sake of gaining knowledge.<sup>5</sup> This broke the order of creation – and God's relationship with man.

The earth is cursed because of this first sin.<sup>6</sup> The harmonious, sustaining relationship between earth and man was broken. Where food had been plentiful and readily available through God's bountiful provision, it was now dependent on man's work. Earth no longer automatically sustained man – humans had to battle against the earth to sustain themselves.

## where does climate change fit in with God's plan for the world? Should we continue to live as we do or throw ourselves into climate change activism?

Today, humans still battle against the earth's seasons, diseases, floods and droughts to feed ourselves and sustain life. With a growing population and fluctuating climate, we struggle to produce enough and to distribute it fairly, so that all of humanity's need is met. Years of toiling against the earth have only worsened the problem, with food production being one of the biggest greenhouse gas emitters. The curse of sin is inescapable!

The earth is used again by God to demonstrate his wrath against sin, when it is flooded in the time of Noah.<sup>7</sup> The flood is used as punishment for humanity's sin, with all of God's good creation destroyed because of the action of man. It reminds us that human actions taint all of creation. Our sin is so great that God is willing to destroy all the earth in response and is justified in doing so. We imagine the flood to be a 'clean slate', with humans given a new

opportunity to be good. However, God did not look on the earth after the flood and see a sinless world. He still saw that 'every inclination of the human heart is evil' (Genesis 8:21). Once he had smelt the aroma of Noah's burnt animal sacrifice, God made a covenant never again to destroy man. It was not Noah's resolution to never sin again that preserved the earth and the life it sustains, but God's grace and mercy.<sup>8</sup> Climate change may alter life as we know it, but God's promise to never again destroy humanity through environmental disaster stands firm. Jesus fulfils the promise, as a greater sacrifice than Noah's, and has taken God's wrath on our behalf.<sup>9</sup>

Jesus taught us what will happen to earth and humanity in the future. We await the day of his return, when this old earth will pass away and a new heaven and a new earth will be seen.<sup>10</sup> He warned us

most of the world's greenhouse gas emissions are produced by the wealthy, yet the consequences... primarily affect those who have done the least to cause them

that the period between his ascension and his return will not be an easy time, with natural disasters that cause 'great distress' (Matthew 24:21) with loss of light, stars falling, famine and earthquakes, elements destroyed by fire, and the earth laid bare.<sup>11</sup> Climate change will contribute to natural disasters and distress for humanity. While we cannot predict when Jesus will return, we should heed his warning to 'keep watch' (Matthew 24:42) as he will 'come like a thief' (2 Peter 3:10) in the night.

We should not be surprised that climate change is occurring. The earth is cursed because of our sin. Sins such as greed and oppression of the poor directly contribute to climate change. The rising temperatures, environmental destruction and natural disasters we see with climate change is creation groaning in childbirth.<sup>12</sup> We eagerly await a new heaven and a new earth, and with it our new

lives.<sup>13</sup> Creation will finally be liberated from the curse that our sin has placed on it. The relationship of humanity with God will be restored and the order that God created made right. No longer will we toil to sustain ourselves – we will live in a new heavenly city,<sup>14</sup> where resources are plentiful and we live alongside our Creator once again.<sup>15</sup>

### why should we act?

With the hope of a new earth, some may ask if there is any point in doing anything about climate change because it reflects humanity's broken relationship with the earth and instructs us to be ready for Jesus' return. Should we bother to try and reduce greenhouse emissions, understand more about it, or prepare for the consequences? I will focus on the 'why' (rather than 'how').

1. Local medical mission: 'Whatever you do, work at it with all your heart' (Colossians 3:23)

Some actions that reduce greenhouse gas emissions in the UK will have immediate benefits for our patients: cutting air pollution in the UK reduces respiratory and cardiovascular disease,<sup>16, 17</sup> using active transport (such as walking) and diets with less meat and dairy reduces mortality and morbidity; the list goes on.<sup>18, 19, 20, 21</sup> We can serve the Lord in our work by reducing our own personal carbon footprint and advocating for policies which will lead to these benefits for our patients.

2. Global medical mission: 'whatever you did for one of the least of these ... you did for me' (Matthew 25:40)

The climate crisis will affect the world's poorest communities the most. They usually live in areas more prone to natural disasters and have fewer resources to cope with the consequences. This is a great injustice. Most of the world's greenhouse gas emissions are produced by the wealthy, yet the consequences of these emissions primarily affect those who have done the least to cause them.<sup>22</sup> If we are to serve the poor and loosen the chains of



injustice through global medical mission, we will increasingly encounter the consequences of climate change. We must obey Jesus' command to serve the poor and demonstrate justice, and therefore need to consider our response to climate change as we do this.

3. 'In the image of God he created them ... (to) rule over the fish in the sea and the birds in the sky and over every living creature that moves on the ground.'  
(Genesis 1:27-28)

We were first created as part of God's good creation. He then gave that creation to man to rule over and sustain us. When God destroyed the whole earth with the flood, he was grieved. While we will never be able to take care of creation as God does without Jesus' help, we should not forget that this is a gift lovingly given to us by God. God longs for us to be like him – let us strive to act like him as we take care of his good creation.

4. A remedy for those who are anxious or suffering: 'See, I will create new heavens and a new earth.' (Isaiah 65:17)

Eco-anxiety is a new term coined by climate

activists to describe the fear, anxiety and distress induced by a changing climate.<sup>23</sup> There is little data on the prevalence or severity of this new 'diagnosis'. We may encounter this among our peers, patients, or even ourselves. The Bible acknowledges that as creation 'groan[s] as in the pains of childbirth' (Romans 8:22), there will be 'great distress' (Matthew 24:21). When we recognise the distress that climate change may bring to humanity, and that it is a result of our sin, we can stand alongside those experiencing eco-anxiety or suffering and point them to our only hope – Jesus.

## 5. The only cure: Jesus

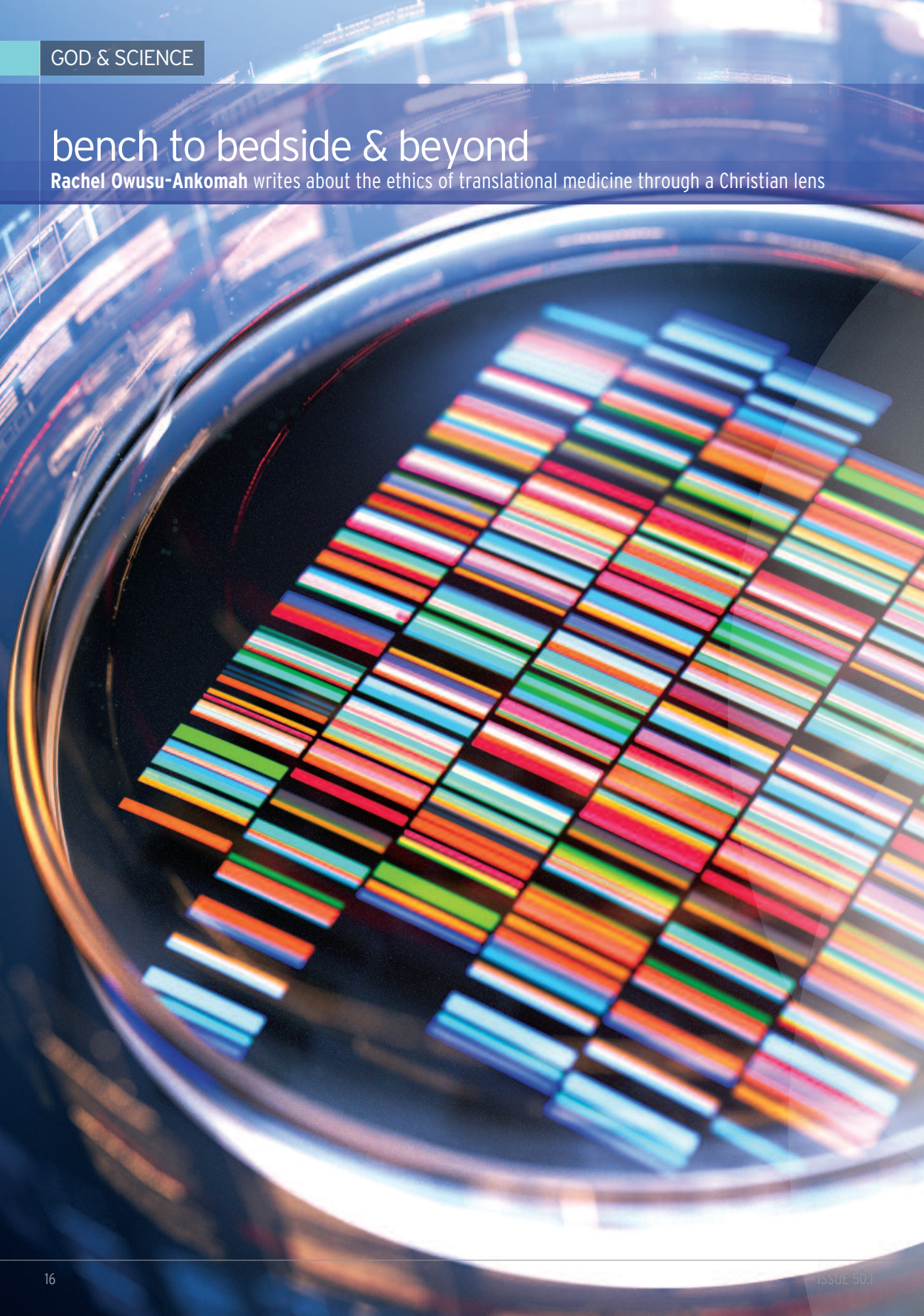
The climate crisis has in recent months generated a surge in action from campaigning groups, internationally and in the UK. Their hope is that with human effort, we can curtail climate change. While we might be able to reduce the impact, it is easy to be caught up in the belief that we can fix the world by ourselves if we try hard enough. But the Bible tells us that the earth and man will never be able to escape sin's curse by human effort. We must remember that Jesus is restoring the world through his death and resurrection – and we cannot save the earth without him. ■

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# bench to bedside & beyond

Rachel Owusu-Ankomah writes about the ethics of translational medicine through a Christian lens







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**W**ith researchers continually pushing forward the boundaries of biomedical science, what we know and how we use that knowledge is growing. Almost every month there is a new advancement or innovation that hopes to impact positively the health and well-being of humans. As Christian doctors, nurses and midwives, how does our Christian worldview shape our engagement and response?

### translational medicine explained

The process of going from bench (T0) to bedside (T1) is known as translational medicine or translational research.<sup>1</sup> This definition is now expanding to include not just taking research into clinical practice but also translating this to best clinical practice (T2), disseminating that into communities (T3), modifying population behaviour (T4) and ultimately improving global wellness (T5).<sup>2</sup> Taking it further, some would argue that we need to begin at the bedside with a clinical issue, as starting with fundamental research rarely succeeds.<sup>3</sup> It doesn't quite roll off the tongue as easily, but this would be a 'bedside to bench to bedside to global village approach!'<sup>4</sup>

To fully understand translational research, we need to acknowledge the presence of gaps between phases (T0-T5). The biggest is known as 'the valley of death', the gap between fundamental research and developing a medical 'product'.<sup>5</sup> These gaps can hold up the process; this might be due to several factors including lack of funding and primary investigators.<sup>6</sup> There also needs to be a good flow of information between the phases.<sup>7</sup> For example, we know that beta-blocker therapy improves outcomes following myocardial infarction (T2), but only 60% of eligible patients are treated with this therapy (T3). So, there is a gap in the flow of information between T2 and T3 phases in this case.<sup>8</sup>

The potential impact of translational medicine is immense, and it seems everyone from academic centres, to industry, to individual hospitals want in, with hundreds of millions of pounds being invested into this research globally.<sup>9</sup>

Should bioethics or even our Christian worldview have a seat at the table as we navigate the complexities and impact of this research? Or are they just further roadblocks to translational research and all that it hopes to achieve?<sup>10</sup>

### having a biblical ethical framework and utilising key biblical principles to guide our thinking and actions is helpful

#### response from bioethics

Traditional bioethics may not be sufficient to help us fully navigate the entire translational process as it typically focuses on the phases and does not focus on the gaps - the transfer of knowledge. For example, publishing work that has been critiqued by peers is the mainstay of biomedical research. Presenting methodologies is a way to reproduce and validate research, but problems may arise if doing so allows it to be used for harm.

#### towards a biblical theology

Having a biblical ethical framework and utilising key biblical principles to guide our thinking and actions is helpful. There are often no easy answers or quick fixes and we must work hard to apply these principles well. We have seen throughout history the cost of dubious morality<sup>11</sup> in research and the importance of rigorous testing to maintain patient safety.<sup>12</sup> We need to learn from history as we move forward into the future.

In Genesis 1, we read God's first commands to humans, including the call to 'fill the earth and subdue it'(Genesis 1:28). From this we see that work



was part of the 'very good' (Genesis 1:31) world that God created, before the fall.

'Subduing the earth' here, a translation of the Hebrew word *kabash*, has been debated among scholars - is God pronouncing a forceful dominance?

Many, including the multidenominational, 1986 Christian declaration on nature, have concluded that this dominion is in fact stewardship.<sup>13</sup> Stewardship here is: 'utilizing and managing all resources God provides for the glory of God and the betterment of His creation'.<sup>14</sup> The Bible also warns us that things may be doable, 'but not everything is beneficial... not everything is constructive' (1 Corinthians 10:23). How then do we work and be good stewards in the context of research and its application in the clinical setting?

we all want to see the furtherment of humanity, but the Christian worldview realises that the ultimate betterment is in the new creation

### translational medicine in practice - CRISPR-Cas9

The moral and ethical challenges facing translational research are exemplified best in the emerging technology of gene editing through CRISPR-Cas9.

Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is based on a bacterial immune system function used to fight viruses. Like the 'Find' function on a computer system, the Cas9 protein, normally present in bacteria, can find and cut specific DNA sequences. It does this by using a guide RNA to recognise that specific sequence. What scientists have done with the CRISPR-Cas9 system is create the specific segments of guide RNA and introduced it to a target cell, where it can then be used to delete, insert or modify specific sequences of DNA.<sup>15,16</sup>

Currently this technology is being utilised by a

diverse group of people including scientists who work out of research labs and translational centres across the globe. Scientists, for example, are looking at the zebrafish's ability to regenerate and seeing if their genes can be utilised to grow organs for humans. On the other end are the biohackers, often people from non-biomedical backgrounds working out of the kitchens and garages who are buying CRISPR kits online for a few hundred dollars. They are seeing how they can harness this technology in anything from improving dog breeding to trying to create new treatments for HIV.<sup>17</sup>

This technology it seems, is rapidly being translated from T0 to T1. It is interesting to examine the motivations driving this. Scientists, including CRISPR-Cas9 co-founder, Professor Jennifer Doudna hope it can be used to treat genetic conditions such as cystic fibrosis and sickle cell.<sup>18</sup> Biotech companies are set to make millions from new FDA approved therapies for some of the most debilitating genetic conditions. Spiranza, a gene-therapy for spinal muscular atrophy (SMA) costs \$750,000 in its first year and \$375,000 annually thereafter.<sup>19,20</sup> In 2018, He Jiankui, a Chinese scientist, claimed that he had used CRISPR-Cas9 to delete a gene in human embryos in order to make babies resistant to HIV. In an online video, he stated that those embryos had developed into a set of healthy twins named Lulu and Nana.<sup>21</sup> Biohackers like Josiah Zayner want to put this technology in the hands of the people and away from research scientists and big pharmaceutical companies, so that they can freely use it for their benefit.<sup>22,23</sup>

As these various stakeholders look at CRISPR, they seem very much stuck in the T0/T1 phases of their own pursuits and critiques. Many scientists express concerns over the safety of gene editing as germline cells could be passed to successive generations. The lack of justice is seen in this technology being the sole preserve of researchers, pharmaceutical companies and the rich, the potential dangers of biohackers anywhere in the world utilising this technology, for any purpose.

So, let us step back and look at the entire translational process through the overarching narrative of the Bible. The ultimate aim of all of this research is the betterment of humanity. The Christian recognises that humans were created by a loving God in his image, that this is what gives us value and dignity regardless of our age, sex, geography, wealth or even disability.<sup>24</sup> The fall, has caused brokenness primarily with God, but also with each other, the world around us and our own bodies. God has not left us in this state but offers us redemption and comfort through his Son. His Son, who was conceived and recognisable as our saviour in utero,<sup>25</sup> was born, suffered and died for us. He understands what it is to suffer and feel alone and abandoned. He comforts those who are unwell and mourning and calls us to do the same,<sup>26</sup> as stewards restoring flawed masterpieces rather than as Lego kit creators.<sup>27</sup> We all want to see the furtherment of humanity, but the Christian worldview realises that the ultimate betterment is in the new creation, through the redemption offered by Jesus Christ, where there will be no more pain, suffering or tears.<sup>28</sup> This gives us hope for the future in the midst of present disease and suffering.

## conclusions

Christian doctors, nurses and midwives need to be involved as clinicians and researchers in the entire translational process. We can often get siloed in our own area whether that be clinical care, lab research or public health. Each of these in and of themselves can be good and important, but the ethical impact of all phases, gaps and developments need to be considered. We also need to look at these through the lens of our faith (the Christian worldview). This may be in step with society, science and the academy, as we seek to have compassion, alleviate pain and suffering and restore God's masterpieces. But it may also be out of step. We ultimately need to remember our role - we are stewards of the earth. Not the creator, but created in his image. ■

## RESPONSESE

- **Get informed.** Watch documentaries like *Unnatural Selection* on Netflix. Read research papers and commentaries on the science and new innovations.
- **Engage in research and the application of innovation,** whether that be basic sciences, new technologies, clinical trials or public health initiatives.
- **Be active in critiquing the ethics** of every stage of research and clinical practice through your Christian worldview.

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# *back to basics* : church

Ashley Stewart asks what's so amazing about church?



It's Sunday morning. You have had a busy week. The world outside your duvet is cold and all you want in life right now is another few hours of sleep. Yet your alarm is summoning you to get up for church, so why should you bother? Surely, you could listen to a sermon online, play some praise music or pray with a friend tomorrow? Anyway, today's preacher is often boring, the music feels outdated and you just don't have the energy for making conversation over lukewarm coffee! Plus, you are already involved in CU and CMF so why you need to attend church as well?

If any of this sounds familiar this article is written for you. It is also written for me. I love Jesus and I want to serve him, but if I'm honest, being committed to my local church sometimes feels more of a discipline than a delight. So, what's so amazing about the local church? Why are we called to be devoted to it? In short: your calling a Christian is to care deeply about what Jesus cares about, to love what he loves, and Jesus passionately loves his church. Once we catch a glimpse of how Christ views the church and understand that church is God's plan for us to flourish in him, then we will realise that CMF or CU, as important as they are, can never take the place of church.

So first, what is church? You might say it is a gathering of believers, the people not the building, a place to listen to Bible teaching, unite in praise and spread the gospel. It's all those things, but it's also much more. The Bible gives us various metaphors to describe how God views the church. It is the beloved bride who Jesus bought with his own blood, whom he feeds, cares for and purifies and will return to claim for his own.<sup>1</sup> It is also the body of Christ: the physical manifestation of Jesus on earth.<sup>2</sup> Just as we relate to the world through our bodies, the church is God's chosen method of carrying on Christ's work on earth. There is only one body, the universal church; however each local church is a tangible expression of Christ's body and is comprised of all the different but equally valuable members working together in unity.<sup>3</sup> Speaking to all believers, Sam Allberry says 'You are a member of the body of Christ and you express that membership by belonging to the body of his local church.'<sup>4</sup>

The Bible also describes the church as the temple of God, with each member being like 'living stones' (1 Peter 2:5) who are 'being built together to become a dwelling in which God lives by his Spirit' (Ephesians 2:22). Just as the physical temple displayed God's glory to the surrounding nations so





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the church 'declares the praises of [God]' (1 Peter 2:9) to a broken world. Yet this glory cannot be displayed by individual Christians in the way that it can by the local church. When others see a diverse community of believers, with countless differences, uniting together as a family, to love, serve and forgive, they catch a glimpse of the transforming power of the gospel to reconcile us to God and to each other.<sup>5</sup> Finally, not only is the church God's witness to the world, it is 'through the church, [that] the manifold wisdom of God should be made known to the rulers and authorities in the heavenly realms' (Ephesians 3:10). In a world rife with divisions, God displays his wisdom to the spiritual realms through the church; a restored humanity reconciled to God and each other through the finished work of Christ.

But why can CMF or CU not count as your church? Throughout the New Testament we see various God-ordained practices distinctive to the local church. The church is called to baptise disciples, to eat the Lord's Supper together and to appoint pastors and elders to shepherd God's flock.<sup>6</sup> These practices are not usually part of CU or CMF groups. Likewise, the diverse yet unified nature of the body of Christ is not reflected as clearly in these groups comprised of believers of a similar age or profession. In short, they complement the local church, they should partner closely with the local church, but they are not a substitute for it.

So how then should I relate to my local church – my local church which is flawed, full of sinners and sometimes leaves me wishing I'd just stayed in bed? To answer this, we must look to the first church, which Luke describes in Acts 2:42-47. The disciples did not simply go to church, they were 'devoted' to being the church. They devoted themselves to meeting together for 'teaching, fellowship, the breaking of bread and prayer' (Acts 2:42). They demonstrated their loving devotion to one another by sharing financially as needs arose

and God blessed their devotion by growing their numbers daily. In short, they prioritised church as a central part of their lives: central to their pursuit of holiness and their witness in the world. It is no surprise then that the writer to the Hebrews urges the believers to persevere in meeting together in order to 'encourage one another' and 'spur one another on toward love and good deeds' (Hebrews 10:24-25). If you want to grow in Christ and battle against sin then you need your church and your church needs you, because 'holiness is a community project'.<sup>7</sup>

Whilst working some weekends is part of a career in healthcare, generally make it a weekly priority to be part of your church gathering and intentionally seek to serve and encourage your brothers and sisters. Remember that 'service' will look different at different times: you may need to come off a rota when you are away on placement or studying for finals, but this doesn't stop you from loving and serving your church. I doubt the early church had a welcome team or a creche, but they served one another by being devoted to meeting together, building each other up in love, praying for their leaders and giving sacrificially.

Perhaps if we went to church asking 'how might God use me today?' instead of 'what can I get from this?' then our church experience and the place it holds in our hearts might radically change. We may start to understand why Spurgeon called the local church 'the dearest place on earth'.<sup>8</sup> ■

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# *leadership*: performance

Caleb Owomoyela encourages us to emphasise our identity in Christ



**H**ow many times do we read the exploits of some leaders in the Bible and ask ourselves, *what were they doing?* King Saul, Israel's first king, can fall into that category. In 1 Samuel 15, we see God give Saul clear instructions to thoroughly defeat the Amalekites (a nation that had tried to destroy the Israelites shortly after their exodus from Egypt). However, Saul spared their king and allowed his soldiers to keep some of their animals. After being confronted by the prophet Samuel, Saul initially defends his position but eventually appears to repent and show remorse.

He says to Samuel, 'I have sinned. But please honour me before the elders of my people and before Israel; come back with me, so that I may worship the LORD your God' (1 Samuel 15:30). His comment speaks volumes about the mind and character of Saul. He was conscious of and sensitive about the elders' opinions. But more than that he highly valued their assessment of him. He sought to please them to uphold his reputation. As Christian leaders, it can be easy to be critical of Saul, but perhaps first, we should reflect, be honest with ourselves, and seek out the lessons we can learn from his life.



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Saul's failures hit close to home. Over the course of my medical school years, I have come to realise that one of the idols of my heart is my own reputation and pride. Psychologists refer to a concept known as 'the imposter syndrome' – the idea that people can feel a deep sense of insecurity and doubt their abilities. To avoid getting 'found out', we may compensate by trying to live up to an idealised image of ourselves, which may take many forms.<sup>1</sup> On a personal level, this has manifested itself academically by achieving high grades and accolades; socially through my image and status; and religiously, by doing things to try and curry favour with God. I found myself like Saul being conscious of and highly sensitive about the opinions of others, particularly regarding my performance. This created a real sense of drive in me and made me work harder. However, this mindset meant my mood and self-worth largely depended on how well I was doing. Since there was always a better grade or status, it meant I was never truly satisfied.

As Christians in leadership, we are to push back against the way the secular world approaches performance. Effective leadership shouldn't be measured by how much we achieve or produce, but instead by our maturity in faith and knowledge of Jesus.<sup>2</sup> The highly competitive nature of many industries and workplaces means there is an emphasis on constant improvement and growth, both individually and corporately. However, what happens when we begin to internalise this performance mindset and it starts to contribute to our fundamental sense of worth? Tim Keller, author of *Counterfeit Gods*, gives a sign that one has made success an idol: '...when we are unable to maintain our self-confidence in life unless we remain at the top of our field'.<sup>3</sup> This is not to criticise the growth mindset but rather to emphasise that despite the busyness of life, we are called to a different kind of growth, one that influences our hearts and

transforms our minds.<sup>4</sup> Peter Scazzero, author of *The Emotionally Healthy Church*, puts it this way: 'When our life *with* God is not sufficient to sustain our work *for* God, we will eventually struggle.'<sup>5</sup>

## called to rest

There is a collective shift in today's culture towards 'workaholism' as we have come to associate busyness with importance. We are impressed by the surgical SHO that can work twelve-hour shifts without a break. It is almost used as a status symbol: the busier I look, the more important I must be. Many of us now possess apps on our smartphones that help us relax and remind us to take breaks. Considering all of this, perhaps the fourth commandment should come as no surprise – 'Remember the Sabbath day by keeping it holy.' (Exodus 20:8)

## we are called to a different kind of growth, one that influences our hearts and transforms our minds

Rest and stillness were created to be a fundamental part of our everyday lives. I believe over the last few months, God has been teaching me a profound lesson about the notion of rest. Compared to my early years in medical school, I now make sure I prioritise downtime. I find this routine indispensable. It teaches me to humble myself before God and reminds me that ultimately, what I do and how well I do it, isn't necessarily out of my strength, but God working through me.<sup>6</sup> When we stop micromanaging our lives and set aside time to rest and be still before God, we practice faithful humility. In that moment, we surrender all and recognise God's sovereign power and rule over everything in our lives.

*'I am the true vine, and my Father is the gardener. He cuts off every branch in me that bears no fruit,*



*while every branch that does bear fruit he prunes so that it will be even more fruitful... Remain in me, as I also remain in you. No branch can bear fruit by itself; it must remain in the vine. Neither can you bear fruit unless you remain in me'. (John 15:1-4)*

## My performance as a Christian, leader, or student doesn't justify me. My justification comes directly from the outpouring love of God

As we live for Jesus in leadership, we should remember to remain in him for we cannot bear fruit by ourselves. Jesus Christ, the model of the perfect leader, was always connected with the Father. Throughout the gospels, the authors emphasise Jesus' intimate relationship with his Father. Our natural abilities as leaders are God-given, but we need to be empowered by the Holy Spirit to cultivate these abilities to glorify our Father in heaven. As Oswald Saunders puts it, *'new birth in Christ does not change natural qualities but brings them in line with holy purpose; when they are placed under the control of the Holy Spirit, they are raised to new effectiveness'*.<sup>7</sup> We must remember that, *'every branch that does bear fruit he prunes'* (John 15:2). Our heavenly Father does the pruning, the shaping, the character-building, and the cleansing that we all require to be fruitful branches. This is all dependent on remaining in the vine, which is Jesus Christ.

### called to work

The work we do as leaders has eternal significance; it is a privilege to play a role in the bigger story God is writing in his world. However, we are called to spend time with Jesus before we are sent out by him. According to Mark's account of the calling of the twelve disciples, Jesus chose them first *'that they might be with him'*. Second, that *'he might send them out to preach'* and third, *'to have authority to drive out demons'* (Mark 3:13-15). Before the apostles received the privilege or power to perform signs and wonders, they were first to be

with him. Our work isn't for earthly accolades, but for doing the will of our heavenly Father with a servant heart.

In leadership, we don't achieve in order to receive affirmation. When Jesus was baptised, the Father spoke from heaven of his acceptance and affirmation as God's Son.<sup>8</sup> It was only then that he started his ministry. His achievements flowed from his acceptance of his identity as God's Son. In the same way, our achievements should flow from being accepted as children of God, rather than trying to use our achievements to gain the acceptance that we already have because of Jesus.

The amazing and awe-inspiring truth of the gospel has radically transformed my approach to work as a leader. I am starting to internalise the fundamental truth that because of what Jesus has done, God delights in my very existence.<sup>9</sup> My performance as a Christian, leader, or student doesn't justify me. My justification comes directly from the outpouring love of God, through Jesus Christ. Because of this affirmative truth, and through the power of the Holy Spirit, I can be used as an instrument for his holy purpose.<sup>10</sup> This principle contends directly with today's worldview, but as Jesus encourages us in his prayer recorded in John 17, we are not of the world but have been sent into the world just as he was.<sup>11</sup> As we live our daily lives and lead others, this radical truth of our acceptance by God means we are free to do the *'good works God has prepared in advance for us to do'*. (Ephesians 2:10) ■

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# Just Ask clubs & societies

Abigail Randall, a GP in East London and medical school link for Bart's and the London Medical School



At the Freshers' Fair recently, I seem to have signed up for dozens of different clubs and societies. Now I'm on all their mailing lists and just don't know what to commit to and what to say no to... HELP!

**Y**our student years are full of wonderful opportunities for exploring different interests, staying physically active and building strong relationships with peers. What a blessing to be able to develop interests and skills away from your medical or nursing training! But it's impossible to take part in all that's on offer; how do you decide what to get involved with and what to drop?

It's great to pursue extracurricular activities. Medics can be guilty of being too academically focused, which can be unhealthy. I would suggest it's a good idea to be involved in at least one club or society, besides the Christian Union. Aim to be committed on at least an annual basis, rather than spreading yourself too thin. Look for opportunities to build deeper friendships, rather than just knowing lots of different people's names (although this is also important!)

As to how to choose, do something you enjoy. We all have different God-given interests, personalities and abilities. *What are you good at?* You might want to do something highly competitive which you can take to a high standard, or challenge yourself with something you haven't tried before, or find something that's just for fun.

**Be strategic about friendships.** As a Christian, you have the opportunity to get alongside specific friends or individuals and share life with them. Later, this might lead to natural chances to share your faith. Being ready to invest in particular relationships may mean you settle on your second or third choice sport in order to get alongside your flatmate or classmate.

**Get stuck in and commit.** After taking time to decide realistically what is manageable with your schedule, make a good go of it. Be a reliable team member. Don't let people down if you can possibly help it; turn up to training sessions and matches alike.

If there are lots of different activities you want to get involved in, consider a time-limited commitment. Ecclesiastes 3:1 reassures us that, 'There is a time for everything, and a season for every activity under the heavens...'; so for you that might mean rugby for two years, and the dramatic society after!

**Be wise in thinking about how a particular activity might impact your Christian life.** For example, are football games on a Sunday? Does the street dance clash with CU night? Does the hockey club have a culture of compulsory post-match drinking games, which you find hard to resist?

**Be thankful for the opportunities!** In my work as an east London GP I often reflect on the relative lack of low-cost social or physical activities for many patients who may be isolated or lonely. Conversely, taking my children on Wednesday afternoons to their weekly swimming lessons, it's a joy to see our local leisure centre filled with the Barts & the London Swimming Club, with all the accompanying banter and endorphin-release of sports practice! Whatever you opt for, make the most of it. ■

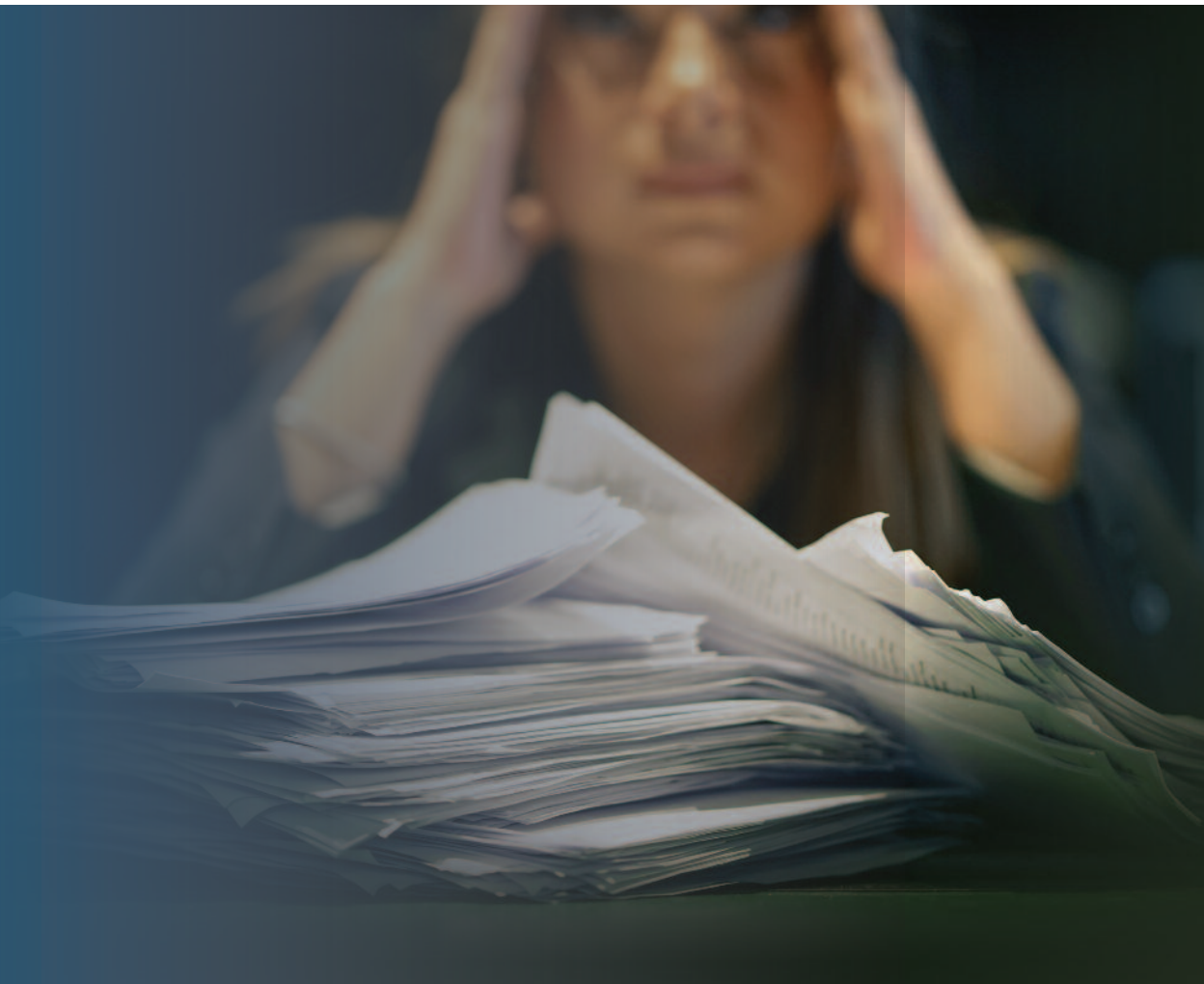
If you have a burning question, email us at: [nucleus@cmf.org.uk](mailto:nucleus@cmf.org.uk). The best question each issue wins free student membership for a year.

regular features

# mythbusters

## you can't trust the Bible and be an academic

Zack Millar considers the Bible and research



**H**ave you ever gone to a seminar on how to read a paper? If your medical school is anything like mine, these seminars are held all the time. You start with a system: read the abstract, read the conclusion then the introduction, look at the figures. You learn the pitfalls of non-blinded trials and the limitations of retrospective cohort studies. You copy it all down diligently and

commit it to memory. Maybe you even buy a copy of Greenhalgh's *How to Read a Paper*<sup>1</sup> and read it cover-to-cover.

But it can be a struggle to be taken seriously as an academic and a Christian. Science and faith have long had a strained relationship. How can we reconcile the two?





Zack Millar is *Nucleus* editor and a clinical medical student in Cambridge

## start by being a good academic

I would hope that any decent scientist would share a lot of the same concerns as a Christian. Research should be ethical, should accurately report the truth (however unsatisfying the outcome) and be transparent in its method. Whilst as Christians we should not be afraid to be countercultural – when necessary, we need to get the basics first. Get familiar with scientific method, maybe get involved with research yourself... and yes, learn how to read a paper! There is Greenhalgh's book but there are also countless<sup>2</sup> web articles on the subject.

## does this research contradict the Bible?

Regardless of your beliefs on any specific issue, there will always be times when the Bible and science seem to be in conflict. How should we resolve these discrepancies? There are essentially three approaches. (They are not limited to scientific disputes – they are equally useful in historical and moral debates.)

**Approach one** is to hold scientific fact as absolute and make the Bible fit around that. We use words like 'context', 'symbolic' and 'not literal', so for any dispute, it is our understanding and interpretation of Scripture that is at fault, not our understanding of science.

**Approach two** is the exact opposite of approach one. We declare what we understand to be the literal words of the Bible to be unequivocal and find ourselves suppressing righteous indignation when anybody dares to question our theology. The world has shifted in the secular direction and our role must be one of resistance.

There is a middle ground, of course.

**Approach three** is that we should devote no less energy to our understanding of the Bible as of the world.<sup>3</sup> There is undoubtedly a place for context, symbolic writing and non-literality; a proper understanding of the Bible requires acknowledging all three approaches. But like medical treatments, we must only apply them where indicated and resist the temptation to apply them because we *want to*, rather than because we *should*.

So, when we read a new piece of research, always hold it up against the Bible. Do the findings contradict anything we hold to be true? If so, be especially careful before accepting the findings as fact.

## for any dispute, it is our understanding and interpretation of Scripture that is at fault, not our understanding of science

### does this research break God's laws?

As an undergraduate, I once was involved in a lab experiment where we transfected HEK 293 cells. This is a cell line dating back to 1973, when Human Embryonic Kidney cells were obtained from a foetus legally aborted under Dutch law. I did not personally create or destroy any embryos, nor was I responsible for that original abortion in 1973. But should Christians use these types of cell lines in our research, even if we are now extremely far removed from the original act? That question has been turning over in my mind ever since and its answer is probably unique to all of us.

Every scientist would agree that the only good type of study is an ethical study. Fundamentally, research ethics exist to protect the rights of the

participants. They are protected from harm, exploitation and unnecessary risk. The Christian difference then, lies in the ethical principles we hold true.

When I say the rights of the *participants*, I could broaden that out and say the rights of the *person*. The ploy is to attempt to redefine what constitutes personhood. Is an unborn baby a person? How about a 24-week foetus? How about a blastocyst? The creation of embryonic stem cell lines is currently permitted in UK research, but there are many Christians who wish that were not the case.

'This study was approved by the Sacred Heart Research Ethics Committee.' That simple statement would satisfy most editorial boards and readers. We as Christians should dive deeper, beyond the Declaration of Helsinki,<sup>4</sup> and ask whether the research conforms not just to our laws, but to God's laws too.

### who will benefit from this research?

Have you heard of the massive transfusion protocol? Historically, when patients lost a lot of blood, we used to pump them full of 0.9% saline. In a short while, the fluid in their vessels became salty water and a lot of people died. Now, we know to give a 1:1:1 ratio of packed red cells, fresh frozen plasma and pooled platelets. It has been shown to reduce mortality in trauma patients. Great research; ten out of ten; *tick*.

But, a single unit of blood costs around £165,<sup>5</sup> and we often give tens of units for the worst cases. In low and middle-income countries, the expenditure alone is simply not feasible, regardless of the availability of blood products. Massive transfusion protocols may be great in first-world trauma centres, but they are largely not applicable to the rest of the world.

Christians have a calling to provide care to the entire world, not just those with money who can access it. As exciting as it is to push the boundaries of medical research, we have to consider who the research will benefit. Does the latest frighteningly

### questions for reflection

- Where do you find science coming into conflict with your faith? What would it look like to rationalise those conflicts appropriately?
- How could you use ethical dilemmas as springboards for evangelism? Perhaps in your own research or discussions of other work?
- If you could design a piece of research to benefit as many people as possible, what would it be and why?

expensive monoclonal cancer therapy help the family struggling in sub-Saharan Africa? Probably not. Does that mean we should only do research that will benefit everyone? Again, probably not, but when it comes to funding, it should definitely be a consideration. As you read a paper, ask whether all of God's people have been helped by the work in front of you.

### conclusion

This article touches upon issues about which tomes have been written – ethics, research economics and conflicts between the Bible and science. I cannot begin to address them fully here. But in short, every healthcare professional is also an academic. I do hope that we will all, therefore, think differently and scrutinise research a little deeper as Christians. ■

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# Distinctives: five tips

Morenike Dasilva offers five tips for new students



Morenike Dasilva is a medical student at Brighton and Sussex Medical School.



**C**ongratulations on making it through your first term. I hope you have had a lovely Christmas!

The unique challenges of being a Christian medic may take time to adjust to. Here are some practical tips to help you deal with them, which I hope support and guide you throughout the rest of the year.

## TIP 1: Be confident that God foresaw you would be on this course

*'Many are the plans in a person's heart, but it is the Lord's purpose that prevails.'* (Proverbs 19:21)

Medicine is competitive and you may be wondering why you were chosen over other students with similar qualifications. We can be guilty of comparing ourselves to other students and feeling as though we were accepted 'by mistake'. These feelings are known as 'imposter syndrome', a phenomenon described by psychologists Suzanne Imes and Pauline Clance.<sup>1</sup> It is common amongst high achievers such as university students, and symptoms include 'feelings of self-doubt, of not truly having earned your place' and 'of being the least able person in a room of geniuses'.<sup>2</sup> It is important to remember that the

course you are on and the university you are at is not a surprise to God. Trust and take comfort in the fact that God foreknew that you would be at your medical school.<sup>3</sup>

## TIP 2: Know that your value comes from being a child of God and not your academic performance

*'For you know that it was not with perishable things such as silver or gold that you were redeemed from the empty way of life handed down to you from your ancestors, but with the precious blood of Christ, a lamb without blemish or defect.'* (1 Peter 1:18-19)

If silver and gold can't redeem you, neither can good grades. There is nothing wrong with working hard and setting goals, but it is important to remember that God's love for you does not change when you achieve less than you hoped for. During these challenging moments at university, remember that God present to comfort you: *'Come to me, all you who are weary and burdened, and I will give you rest. Take my yoke upon you and learn from me, for I am gentle and humble in heart, and you will find rest for your souls. For my yoke is easy and my burden is light.'* (Matthew 11:28-30)



### TIP 3: Find a church early on and build your support system

*'But seek first his kingdom and his righteousness, and all these things will be given to you as well.'*  
(Matthew 6:33)

*'And let us consider how we may spur one another on toward love and good deeds, not giving up meeting together, as some are in the habit of doing, but encouraging one another – and all the more as you see the Day approaching.'* (Hebrews 10:24-25)

If you have moved away from home for university, finding a regular church to attend should be a priority. You should choose a church that is biblically focused and encourages you to be like Christ. It is also beneficial if the church hosts events that you can invite your friends to. Belonging to a church is also helpful for building a community at university and making Christian friends for mutual support and accountability. Medicine is stressful! Further guidance on choosing a church can be found in the Freshers' Edition of *Nucleus*.<sup>4</sup>

### TIP 4: Prepare to stand out and defend your faith

*'But in your hearts revere Christ as Lord. Always be prepared to give an answer to everyone who asks you to give the reason for the hope that you have. But do this with gentleness and respect.'*  
(1 Peter 3:15)

In an increasingly secular world, you will almost certainly feel like an outsider at some point. Feeling uncomfortable during a game of 'never have I ever...' during Freshers' Week is a common experience for Christian students. Other students will be curious about what you believe, and some will even challenge your faith. You'll also need to apply your faith to medical ethical issues. Whilst this can be nerve-wracking, memorising a concise explanation of the gospel and researching the biblical perspective on these issues can help prepare you for these situations. A range of resources exploring issues related to medicine can be found on the CMF website.<sup>5</sup> There is an easy to

remember gospel outline,<sup>6</sup> as well as *CMF Files* which offer more detail on a wide variety of ethical topics from contraception to climate change.

### TIP 5: Make time for rest and things that you enjoy

*'By the seventh day God had finished the work he had been doing; so on the seventh day he rested from all his work. Then God blessed the seventh day and made it holy, because on it he rested from all the work of creating that he had done.'* (Genesis 2:2-3)

With medical school comes a seemingly infinite list of things to learn and it can feel like you're 'too busy' to get involved in societies and to take a break. However, the reality is that God, who foresaw you would be a medical student, values rest! Rest is vital for maintaining your mental and physical health. Research by Boni et al revealed that a routine of exhaustive study was associated with burnout amongst medical students.<sup>7</sup> Also, internationally, a third of medical students experience depression.<sup>8</sup> Be intentional about making time for rest and the things you enjoy; otherwise they'll be neglected and burnout may ensue. ■

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# my trip to...: the ICMDA WEC

Teresa Mergia reports on the 2019 ICMDA Western European Conference



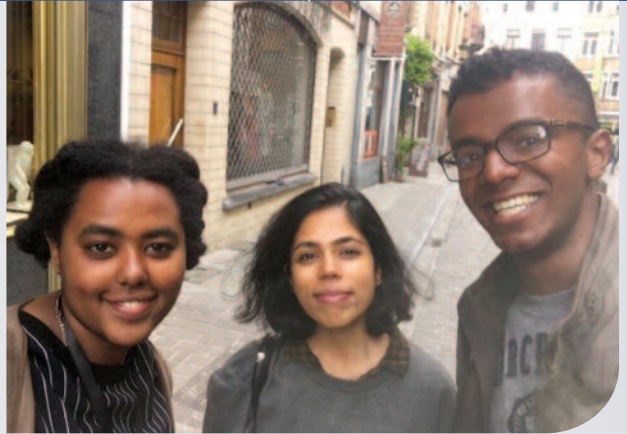
Teresa Mergia is a medical student at University College London

**T**ruth comes as a revelation from God, not man.' That was just one profound piece of learning from my trip to Belgium in May 2019. Being my first ICMDA conference, I didn't know what to expect, but a medical student from the year above assured me that he had enjoyed the times he'd gone and described it as an intimate setting of like-minded people.

We arrived early in the day which allowed us time to sit out in the sun, see the city and shop for chocolate. Everyone was kind and willingly offered car space to get to La Foresta, the beautiful monastery that we were staying at for the weekend. There were visitors from all over Europe: Portugal, the Netherlands, Italy, Georgia, France, Germany, Spain, Switzerland and Belgium. In the middle of our seminars on Saturday, we got the chance to explore the nearby town of Leuven and were shown around by a tour guide.

Conference talks encouraged us to maintain Christian unity and to keep the Great Commandment. A highlight was Peter Saunders' insight into the role of the gospel in the Christian heritage of Western Europe. I was struck by the example of William Wilberforce; his understanding of divine judgement, the work of Christ on the cross, justification by faith alone and regeneration by the Holy Spirit, led him to political reformation. It is the revelation of Christ's divinity in people's hearts and minds that leads to the manifestation of compassion, love, peace and gentleness. Today in secular Europe, those who do not acknowledge that God is good are the same people who benefit from Christian historical influence, which brought acceptance, tolerance, freedom of speech and loving kindness.

Peter Saunders explained the stark fundamental difference between the basis for the Enlightenment (where men were keen to discover truth for themselves) and the Christian's discovery of truth. I came to understand that morals can only ever be



revealed to us - truth comes in a form of a revelation from God not from man.

It was a wonderful learning experience, and I left with a greater understanding of the mighty work God has and is still doing in Europe and the importance of still loving and obeying him. I heard

it is the revelation of Christ's divinity in people's hearts and minds that leads to the manifestation of compassion, love, peace and gentleness

true stories of Christian martyrs like William Tyndale who fought during his life to translate the Bible into English and was burned at the stake for it. But my favourite story was that of James Simpson, who despite discovering chloroform, confessed the greatest discovery he ever made was that he was a sinner in need of a Saviour.

As a result of the conference, I have grown in confidence and understanding of the God that I serve. I was able to interact with people from other countries, connected by our love for Jesus. Any UK medical student attending a future conference is likely to be inspired and encouraged. Join the ICMDA Western Europe group on [facebook.com/groups/529681407152850](https://www.facebook.com/groups/529681407152850) to keep up-to-date with future plans. ■

# counterparts: a banquet in God's kingdom

Leo Hacking reports on the SYD2 conference

*'But the Lord stood at my side and strengthened me'*  
(2 Timothy 4:17)



The Sydenham 2 Conference 2019 saw 13 delegates from many corners of the globe gather in the UK for a week of engaging talks and activities. Named after the Puritan doctor Thomas Sydenham, the conference aims to encourage international junior doctors and dentists to live as faithful Christians in their jobs and to equip them to lead Christian medical movements within their countries.

During the conference, we began each day (apart from Wednesday) with a talk from 2 Timothy. We learnt from Paul's encouragement to Timothy that in living as a faithful Christian, we should expect opposition and endure suffering.<sup>1</sup> But, it is a huge comfort to know that the Lord dwells in us through

the Holy Spirit. He will strengthen us to persevere and to guard what has been entrusted to us.<sup>2</sup> Many of the delegates attending the course face many different pressures and challenges, so we hope these talks encouraged them.

During the rest of each day, we addressed a specific topic. These topics included ethics and advocacy, evangelism, leadership and global mission. We were privileged to hear talks from Mark Pickering and Jennie Pollock on current medical ethical issues, Peter Saunders on sharing our Christian faith (using the Confident Christianity course) as well as many other CMF staff. We were privileged to receive a visit from Rick Paul from the Netherlands who spoke of the work of the ICMDA





Leo Hacking is a CMF Deep:ER Fellow and FY3 Doctor in London

(International Christian Medical and Dental Association – jokingly called by Rick the 'International Christian Marriage and Dating Association'!)

Each evening we hosted the delegates for dinner, mostly at local restaurants. One of the delegates said that fellowship over these dinners reminded them of the 'banquet in the kingdom of God' (Luke 14:15 NLT)

On Wednesday, we did a fantastic Christian Heritage walking tour of London run by Ben Virgo. In visiting many sites around the City of London, we learnt more about the rich mercy of our Lord in the way he preserved, restored and pardoned many unworthy people (from John Newton to William Tyndale) and used them to bring hope to London and the rest of the world.

We ended the week by heading off to the annual Junior Doctors' Conference in Leicestershire, which was attended by doctors from all over the UK. The delegates found it really encouraging to meet so many contemporaries excited and passionate about living for Jesus in medicine. During the weekend, we heard talks from John Wyatt on 'Walking the talk – practical obedience to Christ as a doctor' and seminars covering a wide range of topics.

We were very thankful to God for the wonderful encouragement this week was to all involved.

### David & Nathalie

David and his wife Nathalie are soon-to-be qualified junior doctors working in Burkina Faso. To attend the Sydenham Conference, they travelled from Ouagadougou to London on a two-day (6,800 mile) journey that took them via Lome (Togo) and Addis Ababa (Ethiopia).

Having just arrived in the UK, they mislaid a bag containing their passports on the Underground. This was a challenging time as CMF office staff tried to navigate the Transport for London lost property system and seek alternative travel documents from

the nearest embassy in Belgium. But it was also a time when we knew that the Lord was standing with and strengthening us<sup>3</sup> and a time when one of our leaders choked with tears of joy, in seeing others within the group give generously for the relief of the saints from 'poorer' countries.<sup>4</sup>

## we learnt more about the rich mercy of our Lord in the way he preserved, restored and pardoned many unworthy people

David in his feedback wrote:

*'We have seen the love of Christ through your work in our lives; We have been touched by your sympathy; You bear our burdens; We are so grateful for your support.'*

### Robin

Robin travelled to the UK from Bern in Switzerland, completing the final stage of his journey by boat! He is a junior doctor currently considering specialty training. He has recently begun to lead the student ministry branch of the Swiss Christian Medical Fellowship (AGEAS). AGEAS is an older but significantly smaller group than CMF. Robin applied for this conference to equip him to start this new role.

During the conference, Robin was very supportive and encouraging towards the other participants. He brought a lot of expertise that he has gained in Christian medical ministry. During the week he enjoyed the Christian Heritage tour and even stayed on to do an extra tour of the British Museum! ■

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3. 2 Timothy 4:17
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# local groups : KCL

Rebecca Hotchkin reports on Freshers' Week at King's College London



Rebecca Hotchkin is a medical student at King's College London

Starting back at university at the beginning of September was a strange experience. Guy's quad was empty; there was hardly anyone in the student union café and even fewer in the library. Then suddenly, with the newfound chill in the air, our university campuses had come to life again - the freshers had arrived!

At the time of writing, Welcome Week has just happened at King's College London (KCL), and at universities all over the country. A new set of medical students have started out, meeting lots of new people, signing up to endless societies, and beginning a journey that will last for many years. At KCL CMF we took part in all the freshers' activities, hoping to guide and support new students and show them how they can grow in their faith as they train.

This year has been a busy one. Our four committee members have worked tirelessly to balance their own busy start to the year with organising supplies for the Freshers' Fairs and welcome events. We were able to have stalls at both the medical school and university Freshers' Fairs over three days; spreading the word about CMF, giving out copies of *Nucleus*, smiles and the obligatory sweets!

After many interesting conversations and sign-ups, we're very grateful to be able to welcome new members to our community, whether they have heard of CMF before or are exploring what it means



to be a Christian medical student and, in the future, a doctor. This year, we were also blessed to be joined by members of the London CMF Nurses and Midwives group who were also able to welcome new students.

After Freshers' Fair came our welcome evening! We had a pizza and games night to start the year. It was a great evening of fun and fellowship, coming back together as a group after our summer break and meeting new faces both from first year and older years.

This year, we have organised an exciting new mentorship scheme where older students mentor younger students, allowing them to pass on their experience, be there for them in hard times, and most

importantly, to support them in prayer. As a committee, we pray that this will be an opportunity for growth for all the students involved, both mentors and mentees!

An additional freshers' event was the London-wide CMF barbecue, which was an amazing opportunity for freshers to meet other medical students from across London and to enjoy some great food! It was also a chance to get a wider glimpse of what CMF does as an organisation, inspiring a new generation to get involved and join a community of healthcare professionals who seek to live and work for Christ.

Our prayer as KCL CMF for all the new students, amid all the busyness and change, is that they will seek what truly matters and find peace and fellowship in Christ during this new phase of their lives. ■

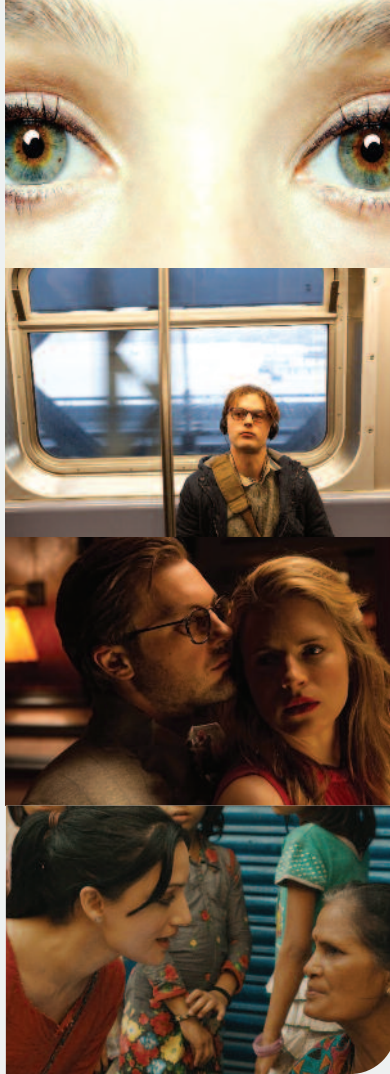
# Review

film: *I Origins*

In this delightfully different film, molecular biologist Michael Pitt and his lab partner Brit Marling make an unexpected discovery. In an escalating plot, we see two main themes: the young researcher's romantic endeavours with a woman who is quite his opposite, and his on-the-cusp-of-greatness ophthalmic research on mice. The film also introduces wider concepts: there are emotive scenes of tragedy and loss, and the emerging primary theme of the interface between scientism and spirituality. Throughout the film, the battle between 'science and faith' is considered, until eventually the two are forced to confront each other.

This is a profoundly human film, without cliché, which makes it easy to watch. It is a thought-provoking introduction to thinking critically about the possibility of an afterlife, or at the very least, a spiritual dimension to the human experience.

I viewed the film with two friends: one Christian and one non-Christian. In contrast to some cinematic experiences where I have only been too glad that the film has finally ended, this film was immediately followed by discussion, despite the



lateness of the hour. This is a testament to the film's ability to begin a wider conversation for which there is rarely a natural opportunity. While it begins the conversation, the film does not progress to the conclusion that the Christian may desire (either for himself or his friend) insofar as it does not point to a spirituality and afterlife with Jesus (and only Jesus) at the centre.

This is an intricate film with value beyond its one hour and 47 minutes. Watch with friends, particularly those who have differing beliefs concerning the relationship between science and spirituality, and reap the benefits of such a natural conversation starter. Consider asking: 'What would it take for you to believe in a spiritual realm?' Reflect on and share the different narrative of the fullness of life that Jesus provides<sup>1</sup> and the completeness of the revelation God has given through the life, death and resurrection of his Son.<sup>2</sup> ■

**Sophie Latta** is a medical student in Bristol

## REFS

1. John 10:10
2. Hebrews 1:1-3



The Latin term (in full) *Deus Ex Machina* translates as 'god from a machine' and instantaneously introduces the perceived dichotomy between religion and science. In harmony with its title, *Ex-Machina* cleverly explores some of our fears surrounding the exponential growth of technology in recent years.

Released in 2015, this sci-fi film follows the experiences of Caleb, a keen coder after he 'wins' the highly coveted opportunity to visit the CEO of his company, Nathan, in his lavish home for a week. Nathan's home, surrounded by natural beauty and cut off from all connection with reality also functions as a research facility. On arrival, Caleb's role for the week is revealed – he is to assess the ability of Ava, a female android, to pass the Turing test (a measure of a machine's abilities which makes it indistinguishable to those of a human). This opportunity, sold to Caleb as 'a moment in history', requires him to formally assess Ava's ability to think, feel and form connections, all qualities involved in human consciousness.

Through a subsequent series of encounters, Caleb grows closer to Ava. He understands her and even trusts her more than Nathan, the only other human on site – an idea that is currently inconceivable. Following the formality of this test, every encounter Caleb has with Ava is filmed for later viewing by Nathan, except the moments during the 'power cuts', secretly orchestrated by Ava. In these moments, the pair can communicate freely and form an emotional intimacy without anyone watching. It is during these moments that Ava can encourage Caleb to aid her escape.



Through a tense series of plot twists, a battle ensues – will AI outsmart the human race?

In his directorial debut, Alex Garland skilfully cultivates a sense of isolation and uncertainty, which given the context, creates tense and uneasy viewing at a time when the dark side of technology 'is increasingly becoming a reality. It address our fears of technological advancement; namely the invasion of privacy and the dangers of transitioning from an 'I-it'

relationship to an 'I-you' dynamic with our devices, as we begin to assign qualities of personhood to man-made products.

To Christians, the notion of an artificial organism exhibiting qualities intrinsic to human existence is uncomfortable. It directly conflicts with how we are uniquely 'made in God's image.' (Genesis 1:27) This plays on the dangers of humans acting in the role of God, resonating with themes from the tower of Babel<sup>1</sup> and reminding us of the futility of our efforts when we lose sight of God.

Though uneasy viewing at times, this film is beautifully crafted, relates well to its audience and effectively relays some key questions for debate, such as: *Should we enforce limits on technological advancement? How do we know when we have crossed the line?* ■

**Rebekah Rajiah** is an intercalating student at Bart's and the London medical school and CMF Deep:ER fellow

# Review

## film: *The Exorcism of Emily Rose: Demons and Medicine*

'She was always hungry but they wouldn't let her eat... the forces

inside of her, the demons'.<sup>1</sup>

Based on the true story of Anneliese Michel who died aged 24 in 1976 in Germany,<sup>2</sup> *The Exorcism of Emily Rose* revolves around a charge of negligent homicide after an 'exorcism gone wrong'. The prosecution argues that a young woman called Emily, diagnosed with 'psychotic epileptic disorder', was neglected by the defendant,

Father Moore, who attempted multiple exorcisms on 'symptoms' for demon possession – but there are cases in the New Testament we could study. These vary in their presentation, from a manifestation of great strength<sup>5</sup> and deliberate self-harm to convulsions.<sup>6</sup> As is often the case in psychiatry, one size does not fit all. But we are not alone in this, the Holy Spirit is our helper and God gives us the gift of discernment.<sup>7</sup> Through intimacy and daily friendship with the trinity, God will give us eyes to see the unseen as well as the seen.

The defence argues for a case of deliverance from demon possession to which Emily willingly submitted. The purpose of telling her story is to show the existence of the spiritual real. The film seems to hold fairly true to the original trial (with some artistic licence of course!).

Does the film provide an answer? Ultimately no, but that's the director's aim. It is thought-provoking and left me pondering several questions about disease and demonic possession. As the story unfolded, I jumped between the two arguments. As a medic I know there are biological, genetic and social causes for psychosis and epilepsy; as a Christian I know we exist in a tension between the physical and spiritual realm;<sup>3</sup> I read about Jesus casting out demons and healing sickness.<sup>4</sup> The Bible talks of both disease and demon possession. If Jesus saw both then we should expect both to still exist today; this world is no less in contact with the spiritual realm than in the time Jesus walked the earth. One of the challenges of being a Christian medic is bringing these two aspects together in a balanced way.



We live in an increasingly

secular society and curriculums don't give space to think about the spiritual aspects of disease. Christians may be well placed to consider this missing element, important in day-to-day psychiatry, even if demon possession may appear very rare. As Erin, the defence attorney in the film says 'Maybe they see possession for what it really is; maybe we've taught ourselves not to see it.' Unlike our textbooks, the Bible doesn't have a list of

cases in the New Testament we could study. These vary in their presentation, from a manifestation of great strength<sup>5</sup> and deliberate self-harm to convulsions.<sup>6</sup> As is often the case in psychiatry, one size does not fit all. But we are not alone in this, the Holy Spirit is our helper and God gives us the gift of discernment.<sup>7</sup> Through intimacy and daily friendship with the trinity, God will give us eyes to see the unseen as well as the seen.

This is a controversial but important topic which we're in a prime position to consider. Sometimes this expertise on the spiritual aspects of disease may be of help to our church family if we take time to allow God to teach us. ■

**Iris McIntosh** is a psychiatry core trainee in London

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3. Ephesians 6:12
4. Mark 9:17-29
5. Mark 5: 2-14
6. Luke 9: 37-43
7. 1 Corinthians 12:10

# Review

## book: *Am I Just My Brain?*

Am  
I just  
my  
brain?



### Am I Just My Brain?

Sharon Dirckx

143pp, The Good Book Company,  
2019.

ISBN: 9781784982751  
paperback £8.00

**Matthew Amer** is a medical  
student in Dundee

Perfectly balancing an introduction and an explanation of one of the most topical issues in neuroscience. The book not only helped me understand the topic, but left me with a refreshed viewpoint on such matters as free will, science and the wonder of our being made in God's image.

Can mind and brain be one and the same? Although current scientific thinking may suggest that this is the case, Dirckx shows that this presumption is based on a tunnel-vision, materialist worldview and not science. Other questions follow. Has the concept of a soul been thrown out? Aren't brains just machines? Is free will an illusion? Is religious experience hard-wired into our brains? Dirckx makes a strong case that indeed we are more than our brains. She uses the brain as a 'neuro-signpost' to the beauty of a creator God and the truth of our God-given human reality.

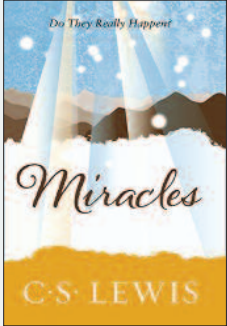
The last part of the book challenges readers to explore the Christian worldview and what it means for us. Our response affects how we live at the most fundamental level. If we are to show the consistency, reality and amazing love that OChrist offers, we should see the brain (and the tricky questions around it) not as a contentious issue to avoid, but as a wonderful demonstration of who God is, who we are, and our ultimate value created by the relationship between the two.

This paperback is a worthy companion when tackling some of the biggest questions in our society. It examines questions that science cannot answer, and points to the reality of who we really are, in a concise way with a bigger, better explanation. Dirckx is a former brain imaging researcher, now apologetics lecturer. The book is easy to read, with Dirckx masterfully using basic language and concepts to explain difficult yet interesting questions, in a way not always managed by other writers.

For me, *Am I Just my Brain?* came at a timely moment; just as I was starting my neurology block at university. Naturally, Christian friends were poked and prodded with questions and answers that may differ from those of secular friends. Many conversations, answers and conundrums were pondered, with this book acting as a firm foundation to base them on. The last chapter of the book revealed a brilliant argument for the Christian worldview by considering why we can think in the first place. No satisfactory answer has arisen from the naturalistic worldview. It is this issue that proved an excellent talking point - from neurology to Christianity - that my friends and I, greatly benefited from.

Both the Christian and the sceptic should find this book a superb introduction to the topic. It is an excellent starter guide to the realm of free will, the soul and all things brain related. ■





## Miracles CS Lewis

304pp, Collins ISBN:  
9780007461257 paperback  
£8.99

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Ministries and GP in London

**M**ediaeval literature expert CS Lewis was no stranger to science, having written the *Planetary Trilogy*<sup>1</sup> describing voyages to both Mars and Venus and the perils of the National Institute of Co-Ordinated Experiments.<sup>2</sup>

Published in 1947, *Miracles* deals with philosophical questions that must be addressed before proper consideration of historical evidence is possible. If miracles are thought to be impossible, then no historical evidence is likely to convince the sceptic. So, what does Lewis think is necessary for a miracle to be plausible?

First, there must be more than a 'naturalistic' world. In such a world, any event can be explained because of some other event within the world. Miracles clearly can't happen, but where does such a world leave human thought and reason? If there are only atoms and their movements, aren't our thoughts just consequences of those? If so, can they have any rational meaning at all?

So, if our thoughts are rational, there must be some 'outside input' into such a world. Such input must logically come from an entity independent of the world, otherwise it too would only be a product of events in the world. Such an entity would enable not only reason, but miracles, if it can interact with the world.

So, second, if such a supernatural being exists, it must interact with the world for miracles to be possible. The deist 'god' who creates a world, sets it going, but then withdraws, will not explain this. Neither will a pantheistic model where any supreme being is effectively part of nature, part of the 'system'. But a being who both creates and sustains a universe could logically intervene.

Third, if such a creator-sustainer being exists, is it probable that it might perform miracles? If a miracle might appear plausible given what is known about such a being, straightforward, historical evidence is more likely to be convincing. Lewis uses the incarnation as an example: if Christian concepts of a creator and sin are accepted, such an event may not seem quite so unreasonable as first supposed.

Turning water into wine is not unusual; but it takes a grape harvest and a lot of hard work. Should it surprise us that the creator can circumvent the usual process?<sup>3</sup> Such 'old creation' miracles seem plausible; but we also see 'new creation' miracles – such as the resurrection of Jesus. Something that would not naturally happen occurs. It seems odd, yet in fact it prefigures something that *will* happen in the new creation. It is a foretaste of something God will do, and no less plausible than an 'old creation' miracle.

This book reminded me that God is bigger than we think. We often hold a narrow view of him that underestimates his role in sustaining every moment of our being. Were we to understand him better, miracles would not pose such an intellectual difficulty.

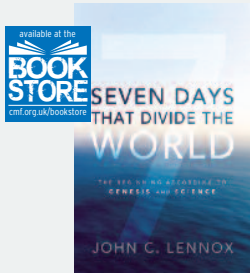
This book may not be the easiest reading for the non-philosopher, with a medically inclined brain which may need extra time and space for the existential thinking needed. Such investment would not be wasted: Lewis' work will not only help you answer friends' questions, but expand your view of God. ■

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2. Readers are left to work out the obvious resulting acronym. If you read *That Hideous Strength*, you may never quite see a guideline the same way again!
3. John 2:1-12

# Review

book: *Seven Days that Divide the World*



## Seven Days that Divide the World: The beginning according to Genesis and science

John C. Lennox  
ISBN: 9780310494607  
Zondervan, 2011 £10

**Katy Fischbacher** is a clinical medical student in Cambridge

I bought this book in my second year of medical school following a series of lectures on evolution and anthropology. It unnerved me how they revealed my limited knowledge of the subject from a Christian perspective and how the little that I did know, often contradicted what I was being taught. I was afraid of finding out more about the origin of the universe and mankind, fearing it would make me doubt the Bible's account. This appears to be a common experience. Professor Lennox states that his book is 'for the many convinced Christians who are disturbed not only by the controversy but also by the fact that even those who take the Bible seriously do not agree on the interpretation of the creation account.'

I finally read the book in my fifth year, but I wish I had done so earlier as it would have transformed my approach to science during my undergraduate days. I am now utterly convinced that the Genesis account of creation is true and that there must be harmony between it and our scientific understanding; the same mind lies behind them both. Lennox emphasises that we would be 'unwise to ignore science through obscurantism or fear, and to present to the world an image of Christianity that is anti-intellectual. No Christian has anything to fear from true science...' Knowing this now, I pray I will be emboldened to have more conversations with my non-Christian friends about science and the gospel.

The book comprises five chapters and five appendices, which could be read independently if time is limited, but each is extremely helpful for understanding the other. Topics discussed include the principles of biblical interpretation, the

different possible meanings of the Genesis days, the account of the origin of human beings and the relevance of the narrative for us today. The appendices look at the cultural and literary context of Genesis, the convergence of Genesis and science over the fact that space-time has a beginning and theistic evolution. Every section satisfies intellectually and explores concepts deeply and rationally. Lennox has an uncanny ability to answer your questions as they form.

A key illustration throughout is Galileo's theory that the earth moves in space, which in the sixteenth century was in disagreement with the widely held biblical interpretation of a fixed earth. Lennox challenges us 'Why do Christians accept this "new" interpretation, and not still insist on a "literal" understanding of the "pillars of the earth"?...Is it really because we have all compromised, and made Scripture subservient to science?' We need to be humble enough to distinguish between what the Bible says and our interpretations of it using scientific discoveries to help us decide between the possible meanings.

The most important chapter is the last one, which discusses the message of Genesis and what it means for humans. Lennox very honestly writes 'It is one thing to wrestle with the meaning of the days of Genesis; it is another to understand, apply and live the whole message of Genesis. And if we are not doing the latter, I am not sure that the former will profit us much.' I now love the topic of science and faith, but I have been challenged not to lose sight of the fundamental message of Genesis. ■

## RCP neutrality vote on assisted suicide challenge approved by the High Court

Three doctors, including two CMF members, took the Royal College of Physicians to court in 2019, after the RCP adopted a neutral stance on assisted suicide. The judge agreed that the RCP had acted irrationally; in fact, the judge was quite scathing about the voting process.<sup>1</sup>

In March 2019, the Royal College of Physicians adopted a neutral stance toward assisted suicide following a dubious voting process that required 60 per cent of members to vote against this stance for it to be rejected. In the event, 43 per cent of members voted against it with only 25 per cent supporting neutrality on the issue. Therefore, the RCP were unjustified in adopting a neutral position.

A statement released on behalf of cardiologist Dr Dermot Kearney MRCP, retired palliative medicine consultant Dr Kathy Myers FRCP and renal medicine registrar Dr David Randall MRCP said:

*'Despite agreement from the Charity Commission that it was a legally sustainable claim, the charities regulator withheld permission to allow the doctors to progress legal action, as they had already raised their concerns with the RCP and warned them not to repeat these mistakes. Today [22 October], in the High Court, this decision by the Charity Commission has been reversed, giving the doctors a green light to take further action against the RCP.'*

1. Court allows RCP challenge. Care Not Killing 22 October 2019. [bit.ly/2M5Wfb9](http://bit.ly/2M5Wfb9) [Accessed 3 December 2019]

## 2019 Lancet Countdown report

**'A** child born today will experience a world that is more than four degrees warmer than the pre-industrial average, with climate change impacting human health from infancy and adolescence to adulthood and old age. Across the world, children are among the worst affected by climate change.' - *The Lancet Countdown*<sup>1</sup>

This is the stark warning contained within the report, which is based on findings from 35 academic institutions and UN agencies from round the world.

There are health implications globally, but especially for developing countries as crop yields diminish; temperature-dependent diseases like dengue fever and vibrio have a longer transmission season; air pollution caused by industrialisation and a massive increase in wildfires compromise respiratory health; and extreme heatwaves carry off the old and the already ill. Flooding in some areas, drought in others, and sea-level rise as ice caps melt further threaten to overwhelm all but the most resilient countries.

The executive summary concludes: 'Bold new approaches to policy making, research, and business are needed in order to change course. An unprecedented challenge demands an unprecedented response, and it will take the work of the 7.5 billion people currently alive to ensure that the health of a child born today is not defined by a changing climate.' Can we - will we - rise to the challenge?

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## complementary cancer therapies - worse than useless

**S**o-called natural cancer remedies not only do not help, they may actually interfere with the effectiveness of medically prescribed treatments and therapies.

Herbal substances popularly believed to have a positive impact on cancer outcomes include garlic, ginger, turmeric, ginkgo, ginseng and feverfew. There is no evidence that any of these substances improve or speed up recovery from cancer, but there is growing awareness that they can interfere with hormone treatment or chemotherapy. For



example, a range of herbs, including commonly used ginseng, and ginkgo biloba, slow down the clotting process so that wounds resulting from skin cancer take longer to heal.

Even normally healthy foods like citrus fruits can interfere with the body's ability to break down cancer drugs potentially leading to a toxic build-up.

Doctors are being encouraged to check whether patients are using natural therapies when preparing a medically approved and proven treatment regimen - and patients are being encouraged to disclose this information.

1. Complementary cancer therapies 'do more harm than good'. BBC 14 November 2019 [bbc.in/2S7ZQsW](http://bbc.in/2S7ZQsW) [Accessed 3 December 2019]

## Geohealth: embracing global health

Climate change and associated natural disasters are encouraging an interdisciplinary approach to global health. Geologists in America are recognising the role they can play both in anticipating and responding to natural disasters so as to minimise their impact on human health and well-being.

The American Geophysical Union (AGU) established a geohealth journal in 2016 to showcase the increasing numbers of studies relating geoscience to health issues.

In the November 2019 issue, examples are given where geoscientists have helped communities in Puerto Rico recover from Hurricane Maria which disrupted water distribution in the country. An ongoing phased intervention will result in improved resilience in water supply infrastructure that will mitigate future weather disasters.

In earthquake-prone Haiti, geoscientists are enlisting community support for a widespread network of small seismic monitors that will not only increase understanding of the risks but raise hazard awareness amongst ordinary citizens.

For more fascinating case studies of the

interface between geology and health, visit Earth and Space Science News 1

1. [bit.ly/2RqVLVx](http://bit.ly/2RqVLVx)

## ebola vaccine now available

A vaccine against this deadly viral disease, recently approved by the European Medicines Agency, gives hope to millions of people living in the Democratic Republic of the Congo where it has killed 2,000 since the disease flared up again, late last year. So far, 250,000 people at greatest risk of contracting the disease have been inoculated. It will also be a boon to healthcare workers on the frontline as it has already been shown to offer a high level of protection.

However, there are several strains of Ebola and research into effective vaccines for them are ongoing - seven are currently being clinically tested.

1. Callaway E. 'Make Ebola a thing of the past': first vaccine against deadly virus approved. Nature 12 November 2019 [go.nature.com/2S4PU3x](http://go.nature.com/2S4PU3x) [Accessed 3 December 2019]

## hypnosis and medicine

According to an article in the New Scientist,<sup>1</sup> research has confirmed the value of hypnosis for some people in dealing with issues such as anxiety and chronic pain, and that 'it's use in mainstream medicine is increasing'. It reports that hypnobirthing courses are now accredited by the Royal College of Midwives which also funds training. Some anaesthetists are using hypnosis to induce a state of anaesthesia comparable to that of pharmacological anaesthesia, and it has the advantage of avoiding pain-related cardiovascular responses.<sup>2</sup>

The availability of functional magnetic resonance imaging has enabled researchers to see what is happening in the brains of individuals susceptible to hypnosis and also to understand why some people are not susceptible.<sup>3</sup>

If hypnosis really does become more prevalent in clinical practice, then Christians will have to think carefully about the implications for patients and medical practitioners alike.<sup>4</sup>

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## suicide - men at greater risk

The striking thing about suicide statistics is that men are three times more likely to end their own lives than women. In the UK, the suicide rate went up by nearly 11 per cent in 2018. Most were men between the ages of 45 and 49 though 730 deaths occurred in people 25 and under. 'Despite occupying what most people assume is a privileged position in society, doctors and medical students are not immune – the suicide rate amongst doctors is higher than average – and female doctors are at greater risk, in contrast to the trend in the rest of the population.'<sup>2</sup>

Christians also commit suicide and the Mind and Soul Foundation recently published an article encouraging the Church to address the issue. '*Christians get stirred up by all sorts of justice issues - from homelessness and trafficking to debt and adoption - yet it seems that we have little to say about an issue that kills a person every 40 seconds. Suicide is not the choice of the weak or selfish, it is an act of desperation in people who are unwell and need our assertive love and intervention.*'<sup>3</sup>

Keep an eye on your fellow medical and nursing students and don't be afraid to 'get involved' if you think they are at risk. If you yourself are contemplating ending it all, don't let shame or guilt stop you from talking to someone who can help.

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3. Using the S word. Mind and Soul Foundation [bit.ly/385992r](https://www.mindandsoul.org.uk/using-the-s-word) [Accessed 3 December 2019]

## alcohol - the state of the nation

The *Lancet* recently reviewed *Britain's Drink Problem*,<sup>1</sup> a film aired on BBC1 in June 2019.

The documentary focused on people who drink a great deal more than 14 units per week (the Chief Medical Officers' recommended maximum), but still manage to avoid descending into chaotic alcoholism. Nevertheless they are harming their health and many end up with alcohol-related liver disease, thus increasing pressure on the NHS from a totally avoidable cause. A recent article in *The Guardian*<sup>2</sup> estimates that one in ten hospital beds are taken up by people with alcohol dependencies and that one in five are drinking at harmful levels.

Despite repeated public health warnings and numerous documentaries about the health consequences of excessive alcohol consumption, many drinkers ignore the guidelines. Health warnings on bottles and cans are not that obvious and are easily missed by those who don't want to see them.

The article highlights the lack of government action in England to curb the ready-availability of cheap alcohol. With the alcohol industry providing over £10 billion in taxes, this is perhaps not surprising.

Nick Sheron, Professor and Head of the Population Hepatology Research Group within Medicine at the University of Southampton, laments, 'The government spends more time listening to the drinks industry than they do listening to doctors and the chief medical officer'.

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