

Being a Christian in Molecular and Cell Biology

Science in general throws up the challenge presented by some scientists that only scientific 'facts' are real. This is a view known as scientism or positivism and is seen in comments made by Richard Dawkins and others along the lines of 'science deals with evidence and facts while religion is only a matter of faith'. It is sometimes summed up colloquially in the phrase '*if you can't count it, it doesn't count*'. In biology that approach may also challenge our humanity, especially if it is served up with a dose of ultra-reductionism, that is that we are '*only the product of our genes*.' As Christians we can respond to these challenges by showing that knowledge is a far greater concept than just scientific facts and that faith is not blind. But actually, it is the joy of the subject that takes us into biology – finding out more about God's wonderful creation and the intricacies of how living organisms work, as Christians thanking God for all this – AND, with clear thinking and articulate arguments, rising to the challenges posed by atheistic scientists.

About the Authors

Clare was born in Leeds and studied Cell Biology at Durham as an undergrad, before staying on to do a PhD in the cell biology of colon cancer. After a short stint as a Research Associate and a year working as a Research Facilitator, she is now doing a Master's Degree in Public Health at Cambridge. Clare has been involved with Christians in Science for several years, both through setting up the Durham local group and serving on the CiS Committee.

John grew up in Croydon (and remains an avid supporter of Crystal Palace FC); he studied Natural Sciences at Cambridge, followed by a PhD in Plant Biochemistry. After a post-doctoral fellowship at the University of East Anglia, he held academic posts at Nottingham and Cardiff and then became Professor of Cell and Molecular Biology at Exeter. He is now Professor Emeritus. His main research interest has been the initiation of DNA replication and he is also involved in bioethics. John is a founder-member of Exeter Network Church where he is part of the teaching team and co-leader of Green-ENC. He was Chair of Christians in Science from 2001-2007.

Cell Biology as a Calling.

There are several challenges for a Christian working as a biologist, but there are also manifold joys. We experience the wonder and awe of creation through understanding the amazing intricate complexity of genes and cells. We know the excitement of looking down a

microscope or seeing a band on a gel and realising this is something no-one else has ever seen before. The beauty and complexity of what we see in cells and in the way that their thousands of activities are regulated induces a sense of awe and wonder in all biologists. However, specifically as Christians, we thank God for the joys of biology and the opportunities we have to learn more about His wonderful creation.

It is important to have Christians working in all areas of biology, to live out their faith as a witness to other scientists and to give a Christian perspective on ethical issues.

The latter are becoming more and more complex as our knowledge of biology gives greater ability to intervene in the way that living organisms, including humans, work. Forming a Christian perspective on these matters is not simple – it requires us to seek the gift of wisdom.

In academic jobs, there is the opportunity to be known as a Christian amongst one's students and colleagues, even though we do not explicitly evangelise. Some people are called to work in an area that might directly help other people, such as medical research. However, being involved in science is just as much a calling as being a medical doctor, a teacher or an ordained minister. It is full-time Christian service and we can honour God in doing the job properly.

Cell Biology and Christianity - Common Challenges

In the next few paragraphs we discuss our experience of several challenges facing Christians in biology. We have both found that linking up with other biologists through Christians in Science in local groups or at conferences is really valuable. It's helpful to find other Christians on your degree course or in your area of research that you can chat to about these issues.

Creation and Evolution

Clare: As evolution is central to most undergraduate biology courses, I think it's really important for Christian biologists to think carefully about their views on the creation – evolution discussion. I found Ernest Lucas's book '*Can We Believe Genesis Today?*' really useful and easy to read. After much thought, I have concluded that I have no problem accepting that God could have created human beings through evolution.

Discussions between Christians on creation can get very heated. I think it's really important for us to accept that other Christians may have views on creation that differ from our own: we all believe in a creator God but there are differing views on the how and when of creation. We also need to recognise that, even though for us as biologists this is important, it is actually a secondary issue in relation to the central truths of our faith.

John: Interestingly, evolution was for many years not much of an issue for me – I had a Christian biology teacher at school and in my own thinking did not believe that evolution was incompatible with Christian faith. It is only more recently that ‘creationism’ has developed a louder and perhaps more aggressive voice in some sections of the Christian church. I have continued to think and read about the subject and it has been especially good to get to grips with some serious theological thinking about the early chapters of Genesis. I have been newly challenged by a fresh understanding of what it means, in an evolving universe, to be made in the image of God. Thus, I am still very happy to accept evolution by natural selection as a wonderful set of mechanisms by which biodiversity has been and still is created. Further, I need to add that as a biologist, this is important for me. I also find it a privilege to help, as gently and graciously as possible, Christian biology students who are struggling in this area of their faith and, more widely, to talk to student (and other) Christian groups about this. Several articles and books on this topic are suggested in the Further Reading section.

Bioethics

Clare: When I was choosing a subject to study at university, I wondered if it was appropriate to be studying biology, which would involve controversial topics such as stem cells, reproductive technology, abortion, euthanasia, animal testing...I came to the realisation that it's important to have Christians studying and working in these tricky areas and bringing a Christian viewpoint to ethical discussions.

John: When I went to Cambridge to study biology most current bioethical issues were unheard of. It was during my post-doctoral research that another Christian (who was not a biologist) challenged me to think about how I would view the possibility of genetic modification (which was then just round the corner) – and that started my interest in bioethics. The main challenge here is working out whether, in relation to particular issues, there is a ‘Christian view’. After all, it is inevitable that the Bible does not provide direct instruction on genetics, cloning, stem cells and so on. It really is a case of applying, with wisdom and grace, Christian principles to these issues. It does not take long to realise that different Christians actually hold different views on many of these topics and that raises another challenge: to accept each other's views with love and grace.

Philosophical Challenges

John: Actually I think the major challenges for Christians in biology are often philosophical, as we mentioned in the opening paragraph – the extreme reductionist tendency amongst some biologists (we are just the result of our genes) and the logical positivism/scientism among many scientists (the only realities are those that can be investigated by science). I am thankful for the writing of McGrath and others for helping my thinking on this. In the bioethical area I

am equally grateful for the writing of Alasdair MacIntyre who blows out of the water the moral relativism that arises from positivist thinking.

I also think that some elements of Enlightenment thinking remain embedded in our view of science. There is almost a worship of progress in science and technology, for which some have coined the term 'progressivism' and others call modernism.

On the other hand there is also a set of views known under the general heading of post-modernism. This started in the 1970s and really gathered momentum in the 1990s so that it is now embedded to varying extents in the media. In general, post-modernism states that there are no over-arching truths, no 'big stories' and that everything is relative. Religious beliefs and scientific results are both regarded as social constructs (i.e. they bear little relation to objective reality – if indeed there is such a thing) and on almost everything, one person's view is taken as being as valid as another person's view. This means that it too leads to moral relativism. Post-modernism is thus a philosophy at odds with both science and faith.

Clare: In my experience, many scientists don't give the philosophy of science a second thought. Some scientists hold the worldviews described above without ever considering why. As a scientist, I think it's important to have logical thought behind the way you interpret the world. John and I both like the comment of Ard Louis, a physicist at Oxford, who states that '*too many people lead unexamined lives*'.

Lab ethics

Clare: There are various honesty-based issues you may come across when conducting research, such as plagiarism and the encouragement or temptation to fiddle data. As a Christian, it is important to act with integrity in the lab. I thought this might make life difficult for me as a scientist, but I have actually found that my lab-mates respect and acknowledge my honesty.

John: Yes, issues of integrity remain throughout our careers. They crop up as we write grant applications (temptations to exaggerate what we have already discovered), as we present our science to the media or to a wider public (exaggerating the significance of what we have found) and as we write papers (temptations to ignore the results that don't quite fit with the neat story we are telling and temptations to 'overlook' and therefore not quote the work of 'rival' research groups). And the day-to-day lab temptations that Clare mentions are with us until we stop doing research: taking shortcuts which make our results less reliable, even if we get there more quickly, ignoring 'troublesome' data points when we have no reason for doing so, casual attitudes to safety requirements (e.g., when working with radio-isotopes) and so on. Further, in these days in which science has become very competitive and market-driven and when the most success seems to come to those who are most aggressive or

shout loudest, we need to pray for constant top-ups of Christian grace and love. Scientists, whether our colleagues, or members of our research group, or rivals, are people too. They are our neighbours.

John Bryant and Clare Foster

FURTHER INFORMATION

Articles:

Bryant, J. *Faraday Paper 7*, “Ethical Issues in Genetic Modification”

One of several easy to read articles on subjects related to the science-faith discussion, www.st-edmunds.cam.ac.uk/faraday/Papers.php

Bancewicz, R. ‘*Making Your Mind Up About the How of Creation*’

www.cis.org.uk/upload/Resources/Students/thinking_about_creation.pdf

Bryant, J. *Embryos and Genes, Clones and Cybrids*.

klice.co.uk/uploads/EiB/Bryant%20v13.3%20pub.pdf

Berry, R.J., Higgs, N.J., “*Being a Christian in Biology i) Whole Organism Biology*” Kolstoe, S., Mooreh, H., “*Being a Christian in Research*”. Other leaflets in this series, www.cis.org.uk/resources/articles-talks-and-links/students/

Books:

Lucas, E., “*Can We Believe Genesis Today?*” (2005) ISBN 978-1844741205

Wilkinson, D., “*The Message of Creation*” (2002), ISBN 978-0851112695

Collins, F., “*The Language of God*” (2007), ISBN 978-1847390929

Alexander, D., “*Creation or Evolution: Do We Have To Choose?*” (2008) ISBN 978-1854247469

Bryant, J., and Searle, J. “*Life In Our Hands*” (2004), ISBN 978-0851117959

Tomlin, G., “*Spiritual Fitness*” (2006), ISBN 978-0826486776

Wright, T., “*Virtue Reborn*” (2010), ISBN 978-0281061440

Useful Websites:

Christians in Science: www.cis.org.uk

ASA, CiS’s US sister organisation: www.asa3.org

Be Thinking: www.bethinking.org/science-christianity/

The Faraday Institute for Science and Religion: www.faraday-institute.org

Test of Faith: www.testoffaith.com – many downloadable resources

Biologos: www.biologos.org

Christians in Science Ltd., incorporated in England and Wales.
Registered address: 4 Sackville Close, Sevenoaks, TN13 3QD
Company No. 05959444, Registered Charity No. 1121422