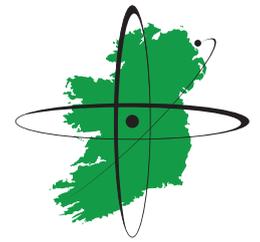


Should Christianity be Insulated from Science or Integrated with It?



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Abstract. Christianity has been adjusting slowly to scientific findings that undercut what were long seen as key Christian beliefs. One way of adjusting is to reframe Christianity in a way that ensures science cannot threaten it – to insulate it. The alternative is to accept that it ought to cohere with the best contemporary understanding of the world. That route has deep historical roots, and the developing sciences of mind and knowledge point to ways of developing it. Trust is a key area where rich interaction seems possible and thoroughly desirable.

Christianity identifies informed trust as fundamental to living well, and offers sophisticated ideas about the kind of trust that is valid in our world. Science does not dictate choices about trust – partly because they are to do with feeling as well as knowledge per se – but it underlines the importance of trust, and has a great deal to say about the kind of trust that can be justified in the kind of world we live in. Both should recognize the importance of offering people sound guidance on the kind of trust that allows people to live well; and if that is to be achieved, it is right and proper that the two should be at least intertwined, and arguably inseparable.

Finding Solutions to the Puzzle

The first thing I want to do in this talk is to explain the spirit of it. In one sense, I understand what I am talking about fairly well. I have a scientific career that includes some respectable achievements; I have been an active Christian all my life, and a conscientious lay reader for the last six years; and for over a decade I taught one of the biggest courses on psychology and religion in the UK. The point of saying these things is not to blow my own trumpet. It is to ask you not to write me off too quickly when you realize that I am struggling.

I think my background gives me a fairly good understanding of the pieces that I will be putting before you. But what I want to talk about is not just the pieces. It is the feeling that those pieces are crying out to be put together in a way that we have not quite grasped yet. I have tried hard and long to put them together, and I know for sure that I don't have a satisfying solution to the puzzle. But I think some of the ideas that flicker through my mind could be of some use to other people who are interested in the issues. So I want to set them out as clearly as I can, and hope that some of you can help me to get things clearer, or pick them up yourselves.

Let me start by stating the obvious. For the last couple of centuries, there has been a long drawn-out conflict between people speaking in the name of science and people speaking in the name of Christianity. Matters came to a head when science showed beyond reasonable doubt that some ideas with deep roots in Christianity were plain wrong. As a result, Christianity had no option but to adjust.

Christianity has responded in a variety of ways. Some are presented openly as adjustments, others are unspoken shifts of emphasis. But it seems to me that most of them have one thing in common. They try to carve out a territory for Christianity that science can't attack. In a word, they are about insulation. Some insulate by focusing on claims about an otherworld

that is permanently beyond the reach of science; some insulate by ceding the domain of fact to science, and laying claim to the domain of morality; some insulate by presenting the church as a social organization with membership conditions that you have to buy into if you want to be a member (and science can't disprove membership rules); some insulate by brazenly out their claims and defying anyone to absolutely prove anything different (that is actually a variant of scepticism); some insulate by systematic vagueness that gives nobody anything solid to attack. I won't dwell on these, but I am sure you recognize cases where those various descriptions apply.

My feeling is that none of those can work in the long term; and they can't work partly because the insulation cuts them off from things that are fundamental to Christianity. 19th century Christians were shaken by new findings in geology and biology because they thought that it mattered to Christianity how the world as they knew it had come about, and where they fitted into it. I don't think that they were wrong in that, and they were certainly in line with very deep themes in Christianity. Christianity has always invited us to understand God through his creation and through history: therefore, it ought to be affected by new discoveries about creation and its history. A movement that cuts that connection isn't Christianity as I understand it, and I don't think it has a long term future; because if it isn't grounded in the way the world is, reasonable people will eventually lose interest in it. Of course there will always be unreasonable people, but pity help a Christianity that is only for unreasonable people.

The Logic of Reintegration

That is a very short statement of a long argument that leads me to think insulation is not what Christianity should be aiming at. I think it should be aiming towards integration with the disciplines that tell us about the creation, and its history, and - not least - about our own place in it. I keep wanting to say reintegration, because through the long central

passage of Christianity's history, these things were integrated. We should not forget that Christianity is the ground that science grew from. Of course Renaissance science owed debts to scholars from pagan Greece and the Islamic world; but the insights they took from those were stems grafted onto a great trunk of thought that developed in the Christian monasteries of the Middle Ages, through men like Anselm and Abelard and Aquinas and Buridan and Occam and Bacon. Reintegration seems to me totally natural, because the branches that grew from that common trunk still have a huge amount in common. I will come back to that image at various points.

Saying that reintegration is natural does not mean it can be quick and easy. I will spend most of the talk trying to point the directions that I think we need to explore. But there are some general principles that I can set out at the start, as landmarks.

First, I think one of the keys is reaffirming ideas that bound the ancient trunk together. Perhaps the most important is that Christianity is centrally concerned with bringing people to a right understanding of the world they live in and their place in it. Ancient Christianity and early science were inseparable because they shared that commitment: and bringing it back to centre stage is fundamental to reintegrating. Linked to that, I think Christianity needs to reaffirm that it is a peculiarly empirical religion. It actively prohibits us from trusting images of God that we conjure out of our own heads, and requires us to look out and learn from the way he has ordered the world and the way he is revealed in history. That was another idea that unified the ancient trunk, and I think it needs to be reasserted. Note that insulation often marginalizes both of those ideas.

Second, I think it is also critical that Christianity finds ways of engaging with intellectual values and norms that modern science takes for granted. That is an abstract idea, but the way I approach it is driven by a very concrete set of issues. I want to be able to talk to my colleagues about Christianity without them thinking I have temporarily taken leave of my senses. I want a way of conveying why I care about the key issues in a way that lets them say, 'yes, that's interesting'. I want ways of saying what I believe that let them say, 'yes, I can see why you would think that'. I want to be able to point to questions that let them say, 'yes, that is worth doing research on'.

That may sound like an indirect way of saying that I expect Christian thinking to follow textbook rules of scientific thought. That is absolutely not the case. In the first place, most standard descriptions of scientific thought are thoroughly misleading - and that is important. Equally important, I don't think Christianity should be a science, and asking it to meet the standards that are required to be a science would be quite inappropriate. My goal is a cohesive network of understanding, which includes science proper as a part, but which also deals in a well-founded way with issues that science can't resolve.

It is not only my Christian self that feels the need to construct a network of disciplined thought that is

broader than science proper. My academic research deals with parts of human life that science is registering are much more complex and important than used to be assumed. The process has pushed science to re-engage with ideas that it had been content to leave in a religious strand. It is now piecing together a more complex picture of humanity, and particularly human knowledge - of which science itself is part. As a result, even if I were an atheist, I would still feel that I should look closely at Christianity as I tried to form that kind of picture, and learn from it. I also think that the better the picture, the less I would be convinced by the argument for staying atheist - but that is another matter.

So far I have talked globally about science and Christianity, but that is obviously a simplification. The medieval trunk that I have talked about gave rise to a lot of different strands, not just two. Some strands that are called science are absolutely not going to integrate with anything called Christianity, and some strands that are called Christianity are not going to integrate with anything that could sensibly be called science. One of the keys to progress is recognizing which strands have the potential to integrate, and to disentangle them from strands that won't integrate. I will try to do that without needless hacking at strands that I assume will wither anyway.

Exploring the Specifics

What I have said so far is more or less an introductory overview. I want to take it forward in three parts. First, I want to talk a bit more about science, and the strands that will and won't integrate. Then I want to talk about some core ideas that Christianity brings to the task - again, some that will integrate, some that won't. Finally, as I have said, I will talk about some of the developments that are waiting to be carried forward.

I will start, as I said, with science. It seems to me that the strand Christians should come close to is exactly what earns science respect in the everyday world, and what philosophers came back to emphasising in the latter 20th century. On that understanding, science is about searching out a particular and special kind of truth. The truth it searches out consists of descriptions that you can say with high confidence are almost exactly true; and that allow you to construct new descriptions that are also bound to be almost exactly true. It is unfortunate that we don't have a standard name for that kind of knowledge, but the middle ages did - they called it *scientia*, which of course is where the word science came from. People in the tradition I am talking about head for *scientia* like pandas for bamboo shoots - it is what they eat, full stop; no steaks, no hamburgers, no bananas, just bamboo shoots. And if they come to a valley where there are no bamboo shoots to be seen - well, they go somewhere else.

There is a very particular reason why *scientia* works like that. It works by finding matches between two levels of understanding. At one level is a network of ideas about the kinds of system that we know exist and can make things happen. At the other is a network of observations documenting things that do happen. *Scientia* works by recognising that an orderly

body of observations could be produced by a system very like one we know about; then fleshing out the details of a system that would account exactly for the observations. That is what scientific pandas lock onto - situations where a small extension of our ideas about the systems that make things happen might account very accurately for a body of observations. I will come back to that duality later.

I believe that there is a real and immediate prospect of integration with the strand of science that sets itself to searching out scientia - the epistemic pandas, so to speak. However, there are other strands that are a different matter. There are two in particular that I need to mention.

First, there is the strand that believes it has a method that can be applied to any problem, and can be guaranteed to solve it. It is obvious that if there were a method like that, it would supersede Christianity. Whatever the problems are that Christianity deals with, the magic method would deal with them better. 19th century philosophers were excited by the idea that Newton and his successors had found a method like that, and school textbooks still talk as if that were the case. But in reality, the idea is a modern myth.

Anyone who actually works in science knows that some problems open up nicely and others just give you a headache, however hard you try. Good scientists may say they believe in a scientific method, but they behave like pandas - they spot the problems that are ready to open up, and keep well away from problems that aren't. Bad scientists believe the myth, and get us into all sorts of difficulty - but that's another matter.

Second, there is the idea that science is a privileged culture, and the fact that someone is a scientist makes him or her a wise person; someone we should listen to on any subject whatever - including morality and religious belief. That is actually a modern variant of an ancient idea, which is that cultivating your rational powers will improve every aspect of your life. It is the idea that Dawkins and people like him trade on. There is no doubt that there is a very vocal group of scientists who are militant atheists, and they portray atheism as the scientific view. Maybe it is the view of their culture; but there is really no obligation on anyone to go along with their culture - any more than there is an obligation to go along with the culture of football stars or city high rollers or any other group that is spectacularly good at a very specific activity.

There are interesting questions to be asked about the ways people have tried to transmute the very specific things that scientific pandas do into something much more all-encompassing - but that is for another day. For today, I will limit myself to saying that I don't think Christians can or should try to work with the strands of science that claim to have an infallible method, or to be a culture everyone should defer to. However, I think there is profound common cause between Christianity and the kind of science that is about finding descriptions that you can say with high confidence are almost exactly true. That leads into the second of my central sections, which is about Christianity.

I have already picked out what I think is a fundamental bond between Christianity and science. Historically, it has been right at the core of Christianity that it wants people to have a right understanding of the Universe we live in, and ourselves, and our relationship to the Universe. Its view of the way that should be done also has profound links to the duality that I described in science - Christianity is a peculiarly empirical religion. I will expand on those connections shortly, but first I need to say where I think the differences lie.

Where Christianity and Science Diverge

Christianity differs from science in that it has to deal with two kinds of issue that are real, and important, but that are manifestly not bamboo shoots. First, Christianity has to offer people the best answers it can to questions that are central to the way they live, even when there is no scientia that does the job - no answer that we can say with high confidence is almost exactly true. Second, Christianity is not just concerned with factual knowledge about the Universe and our place in it. It is concerned with giving people an understanding that is felt as well as known in principle.

It is easy to think, that is a thinly veiled way of saying science deals in fact, religion deals in fudge. But actually, science has been moving into areas that help us to see why that is misreading. Scientific research on knowledge has been gathering momentum over the last half century, and it has become clearer and clearer that only a very confused panda tries to say everyone ought to eat bamboo shoots all the time.

Let me give you an illustration. It is possible that the people you think of as friends mock you behind your back. How do you address that? If you think science is the only model for knowledge, it seems as if you should settle for nothing less than certainty. You should put detectives on them. But of course, we know that's wrong. All that will do is make you miserable and guarantee that you lose any real friends you have. The right thing to do is to accept your knowledge is incomplete, and act on trust. And notice also that what matters isn't a straight factual assessment. It is a complex blend of feeling and understanding that you call trust.

The challenge Christianity takes on includes dealing with that kind of complex blend of feeling and understanding. Of course it takes account of what we do know, but it can't wait until we have cast-iron certainty on all the relevant issues; and it recognises that the end result has to be felt, and not just calculated. Right understanding of the world is a web that includes that kind of ingredient as well as the kind of sharp, factual element that scientific pandas provide. Its elements are to do with feeling as well as fact, and they have to deal somehow with issues that we no chance of resolving with near perfect confidence.

I think that any reasonable person should agree that humanity needs that kind of understanding. I also think any reasonable person would agree that the web should cohere. There should be norms and values that apply over the whole web, as much to parts that are fundamentally religious as to parts that are unmistakably science. As I said back at the start,

what that means to me in practice day by day is that I should be able to talk about Christianity without embarrassment or trimming to my colleagues in their labs. They don't need to agree with me - they often don't agree with me about matters of science either - but they should be able to see why I might say what I do, and why I might think it was interesting. If I can't satisfy that test, then I should be concerned that I have allowed my religious thought to drift off into a separate bubble where normal rules of rationality and evaluation don't apply.

I have said that the issue is a challenge, and that is putting it mildly. Talking to colleagues is hard going because some styles of thought that are deeply ingrained in Christianity are never going to integrate, just as some of the things called science are never going to integrate. I think that if Christians want to reach a new integration, they need the courage to stand back and ask whether they really need to defend intellectual habits that are fundamentally disconnected from the way people think in labs and seminars.

There is a range of difficulties in this area, but I will focus on a format that a very large number of people use without thinking when they present Christianity. In a nutshell, it consists of a list of claims that they assume a Christian absolutely must accept. Various different kinds of claim are involved - A is right, B is wrong; event C sounds impossible, but it happened; event D is completely unprecedented, but it will happen; the significance of event E is F ... and so on. To an outsider, the list looks fairly arbitrary - it is not obvious why people should accept that particular list rather than another. That is underlined by the fact that different Christians have different lists, as this summer at Lambeth showed vividly. Almost none of the claims have anything we would ordinarily recognise as supporting evidence; and for a lot of them it is hard to see how there could be evidence.

It seems to me that if Christians insist on that kind of format, there is no real prospect of integration. It is a format that is quite alien to most serious scientists that I know. So long as Christianity is represented as a list like that, there is no chance of them engaging with it. Understanding exactly why is far from trivial, but I will pick out three kinds of problem. One is lack of structure. In science, you expect to separate a few key ideas from others that support them or depend on them or flesh out the details. Christianity presented in the way I have described just doesn't have that kind of structure. There is a long list of things that people regard as equally and absolutely indispensable. Linked to that, many of the items leave most outsiders mystified; they can't see any reason why anyone should believe that; or if they did believe it, why they should care.

Even worse, the lists tend to be presented in ways that are very hard to square with the claim I regard as central, that Christianity is fundamentally concerned with learning the truth and making it known. If you are interested in learning the truth, do you come in with a list of statements, and say, these are the truth, and it is not up for discussion? Your commitment to truth has to go deeper; it has to be clear that if you

find something you believed wasn't true, you rethink. For all those reasons, it is very hard to see how the kind of system I have sketched can integrate in any interesting way with science. The intellectual standards are just too disparate.

If I thought Christianity had to be understood in the way that I've outlined - unstructured, unconnected and non-negotiable - I wouldn't be here. So obviously, I think there is an alternative. I think we can identify key issues in a way that lets a reasonable person say, yes, that's interesting. I think there are ways of saying what we believe that let any reasonable person say, yes, I can see why you would think that. And I think they point to questions that a reasonable person ought to agree are worth doing research on.

Beginning with Trust

I am fairly sure that there are different possible starting points, but the starting point I want to work with picks up a concept that I have already introduced, which is trust. I am using trust pretty much in an ordinary sense, meaning something like accepting that what seems to be good or benign is actually good or benign, and that you are not at the mercy of threats you have no way of knowing about. It seems to me that Christianity sees trust as the key to right understanding of the reality we live in, and ourselves, and our relationship to reality. Being Christian means making trust the guiding principle in our relationship with our world - trust in the fundamental goodness of the world; and in the significance of our own place in it.

What I said earlier about trusting friends shows something very interesting about that kind of stance. When you think about the way your friends behave behind your back, most people agree that the right choice is to trust them unless you have reason not to. We need trust to live well, and that applies not just to friends, but also to the fundamental character of our world, and to our own nature. Believing that we can't trust undermines and corrodes. Christianity characteristically invites us to put profound trust at the centre of our understanding of reality in general, and assures us that it is well founded. It tells us not to torture ourselves with the nightmare that the Universe is evil or morally empty; not to torture ourselves with the fear that we are an insignificant accident; not to sink into dismissing the experiences that make us think otherwise as a delusion. In all these, Christianity assures us that the right choice is to trust our world and ourselves, just as it is right to trust our friends.

The claim that we should apply that principle on a Universal scale is philosophically both interesting and believable, provided that it is suitably qualified - and I will come to that shortly. Looking at Christianity from that angle gives a way of answering the charge that it is an arbitrary collection of disconnected claims. On the contrary: it is a sophisticated development of one of the main ways that you might logically deal with a world where your information will always be incomplete. That makes it a starting point that scientists have very good reason to engage with, whatever they think about specific points of doctrine.

Putting trust at the centre of Christianity is not playing fast and loose with Christian tradition. The Greek word for trust is *pistis*, and that word is right at the centre of the New Testament. Probably everyone here knows that, but people outside usually don't, because most English versions of the Bible use a different word to translate *pistis*. The word they use is 'faith'. 'Faith' suggests something specifically religious, and almost by definition without any kind of rational justification. But *pistis* in the Greek does not imply something that is either specifically religious, or without rational justification. That is why the standard translation in most contexts is 'trust'. So I see no problem presenting Christianity as a sophisticated development of the position that we should accept trust as the guiding principle in our relationship with our world.

At least equally important, other key Christian ideas cluster round the idea that this is a Universe where trust is appropriate. Christianity picks out the issues that matter most deeply to the way we feel about the Universe, and tells us over and over that our response to them should be to trust that things are as they need to be for us to live well. It is deeply important to the quality of our lives whether we should trust the intuition that the world is guided by good and wonderful purposes, and neither empty of purpose and value, nor simply an illusion. Christianity invites us to trust that the world is guided by good and wonderful purposes. It is deeply important to the quality of our lives whether we should trust experiences that seem to be a kind of contact with the purpose that shapes the Universe, or dismiss them as a delusion. Christianity invites us to trust that they are valid. It is deeply important to the quality of our lives whether there is an unbridgeable distance between God high and lifted up and humanity below. Christianity invites us to trust that the relationship between us and God is so intimate that it is possible for a single individual to be both God and human; as witness the fact that in one extraordinary life, the barrier between God and humanity was reduced to nothing.

That leads back to another core theme in the New Testament. What do you call the message that we can and should trust our most fundamental intuitions and hopes about our world and ourselves? 'Good news' seems like a thoroughly appropriate phrase - which is, of course exactly what the Christian message was called.

Bringing out that kind of structure lets us respond to the test of coherence that I have talked about - that a reasonable person in the lab next door should be able to see why Christian ideas are interesting, and why you might accept them. I think core ideas in Christianity home in on issues that are basic to the way we feel about our world and our place in it. On any reasonable count, that qualifies as interesting. Similarly, what Christianity says about these issues is that the right choice is to trust things are as we deeply hope they are. A fair-minded person in the lab should be able to see why you might think that. Look at the other side of the coin. Accepting that we should not trust deep-rooted intuitions is a bleak conclusion indeed. It means that human beings are victims of a built-in mismatch between what they are set up to need

and the way things actually are. I do not believe that *scientia* compels us to accept that conclusion - that is an argument I have made elsewhere, and I won't repeat it here. It is a strange mindset that thinks we should believe the worst - believe that humanity has been made fatally out of tune with reality - when the facts do not compel us to believe any such thing. As I say, a reasonable person should be able to see why Christianity might make the choice it does.

That is one level of the argument, but I said earlier that Christianity is a sophisticated development of a position grounded in trust. It is not credible to trust that every garden will always come up roses, and that is not what Christianity advocates. Christianity asks us to trust that God's purpose is still working out when the most admirable human ever born is tortured to death. What it presents is a sophisticated, complex appraisal of the world that sees the thorns clearly, and still ends in trust. That leads into an area that particularly fascinates me. Christianity offers a rich, subtle view of the trust we should put in our own senses and intuitions. It tells us we should trust the feeling that there is a strange kind of contact between us and a much greater power; but it warns us to be very wary of naive intuitions about the way a greater power might manage things. It tells us that we should trust our intuition that the same power can be seen acting in history, but it warns us that we can easily draw the wrong conclusions from history. It tells us that we should trust the feeling that some things are right and some are wrong, but we should be very wary of our intuitions about what to do about it. And so on. I personally think that results in an extraordinarily well-balanced view of the way we can expect things to be - but that is for later.

I hope you will notice that what I have said here is bound up with a point I made earlier about the empirical nature of Christianity. Christianity invites us to look at the evidence in the light of a fundamental trust in the goodness of the Universe and the place of humanity. Trust, and use the evidence to clarify the kind of trust that you ought to place in your own nature, and in the Universe, and in its maker. That is very like what I described earlier as the dual structure of science. You start with powerful ideas, but they have to be matched, constantly and ruthlessly, against observed fact. And of course, that interplay gave the medieval trunk its characteristic shape; and that is where science acquired its dual structure. If you think I am exaggerating, read Aquinas.

That ends the second of my three main sections. It is probably wise to sum up before moving on. I have sketched the kind of picture that I think we might offer reasonable scientists who are not Christian already. I want to tell them that what guides people's lives is a network of ideas and feelings, interconnected and interdependent. Parts of the network are inevitably cloudy and imprecise, parts are quite possibly completely wrong. We may wish it was otherwise, but because we are what we are, that is just the way it is.

I want to tell them that Christianity invites people to ground that network of understanding in trust - trust

in the goodness of the Universe, and the significance of humanity, and the validity of experiences that are a widespread feature of human life. It also points us to evidence that we should use to clarify the kind of trust that we should have - evidence from the nature of the creation, and within that from the history of an extraordinary culture, and within that from the life of an absolutely extraordinary man. It seems to me that anyone who stops and thinks ought to acknowledge that that is an eminently reasonable kind of position - and it is extremely hard to think of a better one.

In that picture scientia - the special, sharp knowledge that defines what most people understand as science - corresponds to a few distinctively solid fragments of the network. The further we can extend those fragments, the better. I don't think for a moment that the whole network we need to live will ever be solid scientia, but I welcome any extension of the network that is on offer. And the kind of Christianity that I have sketched points to some very definite areas where humanity would benefit if we could extend scientia. That leads me to the last part of the talk. I want to point to some of the areas where it seems to me that scientia could work together with the kind of Christianity that I have sketched.

The Science of Knowledge

The natural starting point is one I have talked about a lot, and it has a huge influence on my personal stance, because it is where I work. It is the science of knowledge. The public knows very little about it, but there have been huge developments in our understanding of knowledge over the past fifty years. The driving force has been trying to build machines - computers and robots - that match some of the abilities that humans take for granted. It has become painfully clear that traditional thinking about knowledge illustrates the old saying that 'fish will be the last to discover water'. Everyday human understanding deals with deep problems so effortlessly that we never notice they are there, and traditional discussions of knowledge skate over them - often because they are preoccupied with scientia. But if you try to build a machine that deals with the same problems, you realize in short order that the problems of getting much less elevated knowledge are really difficult, and we barely know where to start.

Christianity has a deep interest in encouraging science to pursue questions about what is involved in understanding your world so that you can operate in it practically, day to day. It also has a lot to offer, because it has several millennia of sophisticated ideas on the subject behind it. I have talked a lot about the idea of a broad network of understanding, which includes scientia as a part, and trying to articulate the standards that should govern that kind of network. Understanding that kind of network is something I think matters deeply to humanity. One of the key points is one that I have argued in another talk. Both scientific and religious experts do great damage by pretending to know more than we do, instead of being open that we all see through a glass darkly. The general public is grievously misled by the simplistic accounts of knowledge that reinforce that confusion - such as the images of science that I described and

rejected earlier. Both as a scientist and as a Christian, I think we have a deep moral duty to develop better accounts and to make them widely known.

Within that broad area, one of the key issues is one I have also referred to, and that is feeling. Of course human understanding of the world depends partly on explicit rational processes. But those processes are built on top of, and supported by, systems that seem to be very different. The simplest way to describe them is that their work is felt, not articulated. The importance of these feeling-related systems has become clearer and clearer. We know that if the systems are impaired, it is a serious handicap. There are lots of examples - psychopaths; people with autism; some kinds of brain damage. That is because the feeling systems serve functions that pure reason doesn't. They deal with value, and other people's feelings; and they connect knowledge and action. As we have started to understand what they do, research in computing has tried to model them so that machines have at least some of the abilities that they give us - which is a field I have been closely involved in.

Christianity should be very interested indeed in understanding these feeling-related systems. It has insights to offer, and it has motives to encourage the work. I have already mentioned one of the key connections. Christianity is deeply concerned with trust, which involves a blend of feeling and explicit knowledge. It should welcome and encourage research that recognises the central place trust deserves in our thinking about human life. Linked to that, Christianity has a rich store of ideas about the difference that trust can make to life, and it should be eager to draw them to the attention of scientists working in the area. I think, as a Christian, that science will confirm that a wide range of benefits flows from living in informed trust. I will come back to that shortly.

In case you thought I had forgotten, another concept involving feeling is even more central to Christianity. It is love. In our society, the word 'love' tends to conjure up images of fluttering eyes and pink mist. Modern research gives Christians a far better way to express what they mean by love. Love is a prime example of the powerful feeling-related systems that I have been describing. It shapes key judgments about value, and the way we deal with other people's feelings; and it ensures that thought flows into action. In the context of modern theory, the idea that our lives should be controlled by love is anything but sentimental waffle. It is a powerful idea that love is the right orientation towards the agency that gave the world its shape and direction. Incidentally, Paul sounds astonishingly like a modern psychologist when he contrasts love with law, which is purely rational, and therefore doesn't have the same power to energise and integrate. Christianity should be eager to help develop the science that clarifies what it means to let an emotion like love orchestrate the way you perceive and evaluate and decide and act, and what its consequences are. It should also be eager to carry the ideas out into the street, and blow away the misrepresentations that prevent people from understanding what a powerful principle it is that you should base your life on loving God.

Analysing Complex Systems

The second big area that I want to highlight is very closely linked, though you might not think it. It is the analysis of complex systems that change over time. Systems like that are the basis of technologies that are becoming quite standard - for instance, the systems that can recognise handwriting in smart phones, or that recognise speech in dictation programs and some automatic answering services. Systems for recognizing speech or handwriting illustrate something very characteristic about complex systems. The way they start out means that they gravitate towards particular kinds of end point, as if they were drawn towards goals that are implicit in their makeup. For instance, to produce a system for recognizing handwriting, you start with a system that is relatively unstructured and has simple rules for adjusting itself. Then you expose it to lots of examples of handwritten letters, and rely on the adjustment rules to nudge it bit by bit until reaches a stable state. If the initial system has been set up in the right way, the end state will be one where you can input a pattern, and it will usually output the right name. A lot of interesting technology and mathematics goes into choosing an initial configuration that will settle into the kind of system you want.

The principles underlying that kind of settling are very widespread. They are linked to the way crystals form and metals cool and pebbles roll down hills and soap forms elegant films - and, of course, to evolution. The way our Universe is set up means that not all states are equal - some are comparatively likely to arise, and persist; while others only happen in transitions between these privileged states.

Science is slowly - very slowly - coming to terms with the way complex systems structure themselves and gravitate towards privileged states. I think developing that kind of analysis is crucial to understanding the kind of trust that we ought to place in the Universe. For instance, it looks as if there are social structures that the Universe will not tolerate in the long term. It does not matter what we think - they will break down, as the Universe makes the transition to something more capable of persisting. The same is true of ecologies, and relationships between humans and ecologies. It is also the same of individual humans. Like it or not, some ways of living can be sustained; others lead to disintegration.

People with backgrounds in philosophy may think that this all sounds suspiciously Aristotelian. Indeed it is. Aristotle thought that natural things had goals. We know that on a small scale, that principle is wrong. Molecules move because they are pulled or pushed, nor because they want to. But things are different on a larger scale. It is not just individual animals and plants that behave as if they knew where they were going. Directedness is a very regular outcome of combining the particular small things that you get in our Universe. Understanding that is crucial to breaking the death-grip that some bleak pictures of the Universe have on contemporary thinking. The Universe is not emptiness laced with bouncing billiard balls. Fundamental particles are made so that they come together to make purposeful structures - up to and including billiard players.

I wish that science would move faster in these areas. People in the street have dreadfully misleading ideas about the way the world works. At one end is the bleak picture of a Universe devoid of meaning and purpose that I have just mentioned. At the other, people think they can dictate a pattern and make the world conform. Not so. The world is full of systems that have their own deep-rooted directions, and human beings have no option but to work with them. And, as I have said, that is also one of the key grounds for trust. It does not take personal intervention by God to make a great range of things work out better than we imagine possible. The Universe itself is constantly drawing things in the direction that it favours. By and large, that direction seems to me good - and that leads to my next point.

Christianity and Moral Intuitions

Christianity is inseparably bound up with moral intuitions - the sense that this is good, and to be sought after or protected; and that is bad, and to be avoided or opposed. The trust we ought to put in those intuitions is a major issue. It is one that science has a great deal to say about.

If the Universe had no direction, it would be difficult to see how our moral intuitions could be anything but arbitrary. Given that the Universe does have directions, it is difficult to see how our moral intuitions can be separate from the directions embedded in the fabric of the Universe. We should expect organism to see things as good if they align with the directions inherent in the Universe, and bad if they oppose them. To put it another way, if that is what moral intuitions are, they are ways of expressing affinity with the world we live in.

There is already research on some of the ways that moral intuitions might be grounded in the objective world - such as research on the evolutionary basis of altruism. I was involved a while ago in a related area, which is response to landscapes. Again, I think Christians should be keen to see that kind of research developed and understood; it helps to silence the deadly whisper that tells people our moral feelings have no more grounding in reality than a preference for beige shoes. By the way, one of the problems with attempts to insulate Christianity is that they suggest morality has no connection with the solid, everyday world. That is not actually what people mean by morality, and when we offer people so-called moralities that have no grounding in the real world, the hidden message is that they should give up on what they mean by the word: it is a delusion. Giving that kind of message doesn't protect Christianity: on the contrary, it does the sceptics' work for them.

Research on morality has another level. There is a pragmatic tradition of psychology which has shown that various aspects of religion have practical benefits - for life expectancy, wellbeing, social order, and so on. That links to a key point in the argument I made earlier. I said over and over that Christian trust is deeply important to the quality of our lives. That can and should be demonstrated - which is something Christianity has always been clear about. I think Christians should be eager to see systematic

research help with the task. I also think they should have reservations about the research as it is currently conducted, and should help to reshape it. With due respect, increased life expectancy was not a major motive for Jesus, Stephen, Peter, Paul, James, and so on. What set their lives apart was richness, not length; and of course, enriching other lives. I wish Christians would settle to offer pragmatic research some more appropriate ways to measure the benefits that Christian life brings. I also wish that they would settle to identify better ways of recognizing Christian life. The commonest measure is Church attendance, and sadly, it is not a measure that I find totally convincing.

Describing Emotional Life

That leads me to a final area, which is close to my heart. I have been working for several years now on the description of emotional life. People tend to assume it is just a matter of applying the obvious emotion words, but of course it is nothing of the sort. The obvious words correspond to striking peaks that serve as landmarks in the landscape of emotion. Most of emotional life happens in the ground between the peaks, and it involves all sorts of interactions other areas of mental life, not to mention external people and situations and tasks. I believe that experience should be translated to the description of spiritual life. It seems obvious to me that is at least equally complicated. But I do not see why we should not make progress. There have actually been interesting steps in that direction - I think of William James a century ago, who put together a genuinely interesting 'composite photograph' of the saintly life. We have techniques that James didn't, and there are many respects in which we could do better. I find it quite sad that we haven't.

I said at the beginning that I wanted to lay before you pieces that are crying out to be put together. There are so many others that I would like to mention, and it would be very easy to go on for several hours more, But that would stretch the patience even of this audience. So let me try to draw the threads together as best I can.

Moving Forward

My kind of Christianity is about allowing people to form a right understanding of their world and their place in it. What I have called scientia is part of a right understanding, but not the whole of it. There are ways of extending scientia that can help to consolidate parts of our understanding that are constantly threatened by destructive simplifications, and I think Christians should be eager to contribute to the consolidation. And where scientia does not resolve the issues of choice or feeling that we have to deal with - which is most of everyday existence - Christians can and should direct people towards an understanding grounded in sophisticated trust. I think that is both reasonable and consistent with the core values of Christianity through the centuries.

I feel that if the right mind took hold of these pieces, our understanding of the world could be reintegrated in a way that enriched humanity, and spared countless people needless distress. Alas, I know the task is too big for me. But I can lay out the pieces I see, and ask: please, will somebody competent pick these up? If you have the ability to do the task, please do. And if you know someone who might have the ability, please pass on my efforts. They might just help to seed a good solution. That would make me very happy.

About the Author

Dr Roddy Cowie is professor of Psychology at Queen's University of Belfast. His research studies matches and mismatches between 'rational reconstructions' of cognition, particularly computational modeling, and subjective aspects of human experience. His early work studied visual phenomena, including impossible objects, misperception of motion and reading errors. A related phenomenon, speechreading, led to research on acquired deafness, particularly the subjective experience it leads to, its effects on speech production, and the way those effects are perceived. In the last decade he has focused on emotion and computing, and several of his papers and collections are landmarks in the area. His research in the area has been supported by a series of EC funded projects, including Oresteia, ERMIS, SEMAINE, and SSPnet. He co-ordinated the HUMAINE network of excellence (2004-07), and is president of the HUMAINE Association, the main international organisation for affective computing.



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