

# Can we be sure about anything? Questions of truth in Science and Christianity

*Abstracts for the 2001 CiS London Conference*

## A Christian Basis for Scientific Reasoning

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*Abstract of a presentation to the 2001 Christians in Science Annual Meeting.*

1) We have become inured to the idea of conflict between science and Christianity. At best the two keep their distance, and are judged to be 'complementary' or as dealing with different kinds of questions.

2) Yet modern science was founded on theology - and, in particular, the idea of God as law-giver, guaranteeing an ordered and regular world. This gives a focus for human reason, and as God is the source of that reason, this suggests that we may be able to find reality intelligible. This makes science possible - it has to assume the existence of an objective world, that it has an inherently rational structure, and that such a structure is, at least in part, accessible to human rationality. A favourite seventeenth century slogan in Cambridge just before the time of Newton was that reason is the 'candle of the Lord'. This gives a theological underpinning to the idea of reason, while warning us that it may only give us a flickering and partial knowledge, not the bright certainty of a world illuminated by a searchlight.

3) Two of the main competitors nowadays for a Christian view of the world are materialism and relativism. (For an attack on both, see my new book *Philosophy Matters*, Blackwell 2001).

4) Materialism -or 'physicalism' or 'naturalism'- takes it for granted that science can explain everything. It assumes that the world is merely what is accessible to humans, and our sense-experience (cf. logical positivism). It cannot explain the functioning of reason (appeals to evolution, itself a scientific theory, are circular.) It cannot legitimate science, but takes it at face value. According to materialism, science cannot be rationally grounded in anything.

5) Relativism also can provide no basis for science. It changes the subject from reality to varying beliefs about it. It celebrates plurality and difference. Yet relativism takes social reality -the fact of different beliefs- for granted. At one level at least it has to assume objective reality, and thus is internally inconsistent.

6) Science cannot avoid metaphysics if it is to defend itself from attack - and metaphysics leads inevitably to theology.

# The view from the lab bench

**Denis R. Alexander**

*Abstract of a presentation to the 2001 Christians in Science Annual Meeting.*

Reliable scientific knowledge is based on the intrinsic coherence of the properties of matter coupled to the ability of human reason to investigate and describe them using models and theories. For Christians it is the work of God in creation that undergirds the properties of matter as well as human rationality. Within the theistic framework, all scientific descriptions are accounts, however inadequate and incomplete, of God's creative actions.

Assuming such a theistic framework for science, the question still remains as to how scientists in practice can construct a body of reliable knowledge that can attract universal assent. To achieve this aim, the scientific community has in place a highly structured set of assumptions and practices. Intriguingly, the view from the lab bench about how scientific theories should be justified shares much in common with the stance taken by the Christian community as it justifies its beliefs, a fact no doubt explained by the long history of fruitful interactions between the two enterprises. These shared approaches in the quest for reliable knowledge include the following:

1. Empiricism. Most branches of science depend heavily on the design of experiments and the collection of data. Theories are viewed as more reliable as the data stack up that support them and likewise decline in favour with the accumulation of refuting counter-evidence. The experimental approach is heavily dependent on reliable witnesses telling the truth about their results. Fraud fatally undermines the scientific enterprise. Christians share the empirical attitudes of scientists towards the justification of their beliefs.
2. A communal approach. Research is typically carried out in teams. Publication depends on peer-review. Scientific knowledge is public. No single individual is allowed to be the sole arbiter of truth. The Christian faith also is a community enterprise, and the community acts to guard Biblical truth and exert peer-pressure when individuals veer off on tangents.
3. The search for coherence. Both the scientific and Christian enterprises represent the search for coherence, albeit at different levels of generality.
4. Objectivity. Although complete objectivity is impossible in practice, a high degree of objectivity in assessing data can be promoted through the processes of communal assessment and peer-review.
5. Refutation. The ability, or inability, in both principle and practice, to obtain refuting data, plays a key role in the acceptance of scientific theories and has application also in the assessment of Christian beliefs.
6. Prediction. Many scientific theories are deemed more reliable according to their ability to predict outcomes that are subsequently confirmed by data.

## Bibliography

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# BSE, MMR and GM: who's telling the truth?

**Derek Burke**

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We, who are working scientists like to believe that uncertainties in science are resolved primarily by the accumulation of ever-clearer evidence. However, others maintain that such resolution is achieved through a social process, and not by inexorable logic, driven by a set of crucial experiments. So the scientific process, they maintain, is partially subjective and irrational, with empirical evidence playing, at best, a subordinate role. This is a real threat to science but also to the Christian faith, for how can we argue for the 'truth' of Christianity if we don't even agree on what counts as 'truth'? So how can we tell what is 'true'?

Earlier papers have been concerned with this threat, but I want to talk about a different threat to science. This threat comes from a change in the attitude of society to science; best summed up in the stark opening words of a recent House of Lords report called 'Science and Society:

"Society's relationship with science is in a critical phase. Science today is exciting, and full of opportunities. Yet public confidence .... has been rocked by BSE and many people are uneasy about the rapid advance of areas such as biotechnology and IT

Let's start with BSE. What went wrong? Why did this happen? Lord Phillips, who chaired the BSE inquiry, recently said: "Perhaps the most important single lesson we learned is of the importance of the open communication of information to the public. In the months after BSE was first identified, there was an embargo on the disclosure of any information about this new disease." So who was telling the truth? The damage this episode has done to trust in the scientific integrity of government scientists and politicians will take years to put right. What about the MMR vaccine, effective against measles, mumps and rubella? It has been claimed that children developed autistic disorders because they had been given the vaccine, despite apparently safe use for 30 years. There is another issue here. How do you ever prove that the people who say that the vaccine is unsafe are wrong? They might be right! Who is telling the truth here?

What about GM foods? What are we to make of the claims that GM foods caused cancer in rats, when there is no evidence that any food derived from genetically modified organisms is unsafe? Who is telling the truth here? And how can we find out? I suggest there are three sorts of reaction to such events. The first come from those who see science as socially constructed, and lacking objective 'truth'. They believe that natural systems are more than the sum of the parts, that reductionism does not see the whole picture and fails as a political or social tool of analysis. For these people the 'natural' has a very special meaning.

There is a second, held by Richard Dawkins and others, who argues that science is value-free, that it is the only way to get at 'truth', and what we discover in science displaces other human ideas, including those of religion. This view is common, but it may be counter-productive; for it is not just Christians that find this bare reductionist world both uninviting and threatening.

There is a third, Christian, position; for we worship not the creation but the Creator. We do not fear the discoveries of science for what we discover is God's handiwork in the first place. Philosophically we are critical realists; with a firm theological basis for regarding the world as 'real', but aware too that our fumbling attempts to understand it are error prone, and that we work by a series of approximations, some of which are conditioned by the society we live in. But in the end, we find a coherent, intellectually satisfying position that reflects the glory of God.