

3c: The Golden Age of Islam

Lesson 2: Student Resource Sheet 2b

An interview with Khalil Chamcham: a transcript



What is your name and where are you from?

Khalil CHAMCHAM: I am from Morocco

What do you do? What are your qualifications, as well as previous jobs or areas of research?

I am currently doing part-time research in Astrophysics and part time research in Theology. I work on cosmology, the formation and evolution of galaxies, as well as on the process of star formation. I also study the question of time and the origin of the universe as well as the relationship between modern science and Islam.

I hold a DPhil in Astrophysics from the University of Sussex and a French Doctorate in Nuclear Physics. Prior to these degrees, I graduated in Mathematics and Physics.

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How did you get involved in working in astrophysics?

As a teenager I was fascinated by the idea of the existence of a microscopic world and this is why I studied Nuclear Physics and Quantum Mechanics. Later on I moved from Nuclear Physics to Astrophysics because I realised that a lot of my work could be applied to understanding the nature of stars. On the other hand, I realised that if I wanted to understand the origin of chemical elements like carbon, oxygen and iron, I needed to study their place of origin - the stars.

All these questions are related to the origin of the universe and its evolution. But while studying them, my brain keeps on asking questions like 'Why is this happening?' 'Who made it happen?' 'We know only a little about what is going on in the Universe, is there a Being who knows everything?'



How would you define science?

This is not an easy question to answer. If I try, I would say that science is a rational way of explaining nature and phenomena, but I would define science by its method. Science has a well defined method of investigation, a scientist or a group of scientists proceeding as follows: 1) observe or suspect something 2) ask questions, 3) make assumptions, 4) write a mathematical model on the light of these assumptions in order to provide an explanation or make a prediction, 5) develop experiments or a computing programme to test these assumptions, 6) give explanations in the light of the data of these experiments and mathematical modelling and finally, 7) the proof is given by the possibility to repeat the experiment and reproduce the same data, within an acceptable margin of error or uncertainty. This is what I mean by a rational way of explaining phenomena.

One reason why it is difficult to define something like science is that its borders are permanently moving. Also, it is an *open* system of thought, unlike religion or magic which can be closed systems of thought with everything well explained in advance, or not explained at all.

I illustrate the difficulty of defining what science is with the following example: child asks "Mum, where does the rain come from?" This child is asking a scientific question, but at the same time, he/she is asking a metaphysical question, a theological question and an existential question. All the answers to this question are valid but only if they are complementary and if one answer does not dismiss the others. We call this an interdisciplinary approach because we need the help of Physics, Chemistry, and even Biochemistry and Astronomy to explain where the rain comes from and why it rains. And in order to satisfy the child we also need to understand psychology, questions of origin and God.

A well-educated adult, aware of all these aspects of knowledge can give a simple answer, but an adult with a very limited knowledge will be irritated by the question and may even be cross with the child for having asked the question. A strict religious person may say that it rains because of the will of God, full stop. From all this it can be seen that scientific awareness is very important for our social, spiritual and material well-being but it is not enough in itself.



Does your faith enhance your study/exploration of science or not?

For me doing science is caring for the future of our society. What we are doing with our life and to each other is our own responsibility not the responsibility of God. This is explicitly stated in the Qur'an and I am happy with it. Although I said that science is based on rationality, I find, paradoxically, that the reason I do science is not rational. In other words our motivation for developing science is not subject to the scientific method. I am doing science because I feel a joy in understanding what I believe is the 'Work of God'. I feel happy being engaged in what makes us human beings with a culture, a sense of aesthetic and a quest for the unknown.

I feel privileged to be a scientist able to understand and explain things and at the same time to be a man of faith able to create bonds with other human beings (and with animals) and aware that there is a 'Universal Witness' who judges us and all we do. My belief in God is all about justice, fairness, order and being a fair witness. A scientist is a fair witness. A person of faith with ethical values is a fair witness.

I learned these values from the Qur'an and the moral values that are the foundation of Islam. I do not agree with any person or doctrine that is trying to divert me or other people from these universal human values which are based on scientific investigation, the need for justice and fairness in my daily life and the sense of community with my Christian, Jewish, Hindu and Atheist neighbours. What we all respect and care about is the life and dignity of the other whether the 'other' is human or animal.



Does the Qur'an say anything about science, and how a Muslim man or woman should view it or act towards it?

In the Qur'an it is said that God will never show himself to any human being, not even to the prophet Muhammad himself. However what is said is that we see signs of God and signs of his Work (i.e. A'ya or the plural A'yat) and more precisely these signs can be seen only by men and women of knowledge. Only

those who engage in scientific investigation and wander around the earth to discover other civilisations, other lands and different creatures can see, understand and value what God has created. Ignorance is the most repelling thing to God. And in the Qur'an it is said that only men and women of knowledge can fear God. So faith in Islam is closely linked to science and knowledge. Islam contributed to scientific development and human progress centuries ago when Muslims put into practice this golden equation: however, Muslims moved off the track of human progress when they stopped scientific investigation (i.e. Ijtihad) and locked themselves within their limited religious rituals.

The lesson one can learn from the example of Islam is that the science and religion together in a unified vision of life can secure human progress and civilisation whereas the practice of religion alone might be the cause of decadence and the decline of human civilisation. In the same way, the practice of science alone and a strict materialistic view of life may cause destruction of the environment and human civilisation as well. God gave us an infinite will to investigate and discover: if we do not use this will properly we are, in effect, working against the will of God and against our own will.



How would a Muslim scientist decide whether certain types of scientific research (in human embryology for instance) were morally acceptable or not?

I don't think the judgement of an honest Muslim should come from a pre-established conception that this is right and that is forbidden. Scientific research in general should be carried out within the limits of ethical values. So, for example, this view would have

said no to the Nazi scientific programme which promoted cutting edge science but

was based on deeply unethical values. The Qur'an itself does not set limits to scientific investigation: it does not upset God that we are planning travels to the other edge of the universe or discovering how an embryo develops - instead this pleases him because this is how we experience awe and feel his Majesty. However, *how* we did it and what we are going to do with what we have discovered *is* of concern to God: are we going to apply our genetic findings to produce an army of slaves and cheap labour? Did we kill to learn something about the foetus or did we impregnate an animal with a human foetus to understand something about genes? Are we using our scientific findings to prove that God does not exist?

A Muslim scientist should base his/her judgement on human and universal values and not solely on what concerns the integrity of his/her faith. They should, for instance, respect human life and dignity, from the time that life emerges in a womb; prevent suffering and humiliation of humans and animals during experiments; make sure that the applications of their findings are not going to harm the environment or cause any damage to others. At all levels of our life and in particular when we are carrying out research we are required to put into practice ethical values that strengthen human dignity and respect for life: we can find these values in the Torah and the Bible and the Qur'an.



Are there areas of scientific advancement with which Muslims would not be happy? Can science ever be a bad thing?

Let me use one example: Islam prohibits alcohol yet it is thanks to Muslim scientists that pure alcohol was discovered at all. Muslims are still not allowed to drink alcohol but no one on earth can deny the medical benefits of pure alcohol. In my opinion, if scientific research proves that a discovery is a solution to cure some threatening disease, Muslims should reform their views if the object of the discovery was declared forbidden (Haram) centuries ago. Priority should be given to human well-being. Islam is very open to amendments and this is the golden teaching of the *Hadith* (the direct teaching of the Prophet Muhammad and, after the Qur'an, the most important collection of writings for Muslims).

These questions are not addressed to Islam as a faith but to Muslims as interpreters of Islam. Do they live their faith with enough confidence and understanding to be able to move along the stream of science without being shaken or are they using their faith to avoid the efforts and perseverance required by scientific research and the challenges of science?

Nothing in the Qur'an says that the fields of investigation should be limited. In fact, the opposite is true! Whoever says that science (or a speciality within science) sits uncomfortably with modern Islam is asking for the return of the dark ages and the pre-Islamic age of Jahilya (Savagery and Ignorance) against which Islam first established itself. Islam came into being as a response to the polytheism, ignorance and immoral practices of the Arab tribes and their neighbours, not as a way of responding against science or the other 'People of the Book' (i.e. Christians and the People of Israel).

Khalil Chamcham
Oxford, January 2005