# Editorial

# The Shape of Science

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The study of the natural world, or more simply put, science, is unequivocally based on experiment and observation. The founding of science in the ancient world was synonym to reason and logic over myths and superstitions. The ancient Egyptians were the first to develop astronomy and mathematics, while the Egyptian Edwin Smith papyrus is one of the earliest medical texts on the anatomy of the human brain (Allen *et al.* 2005). Greek physician Hippocrates, the so-called "father of medicine", is perhaps so well remembered due to his perseverance to separate science from religion, teaching that diseases have natural causes instead of being acts of gods (Hippocrates, *On the Sacred Disease*).

By 500 BC, Pythagoras had introduced the idea of mathematical proof. Aristotle, through empiricism, developed the concept of the scientific method (Aristotle, *Organon*). Anaximander was the first to speculate on the origin of life, declaring that life came into being by a process of "spontaneous generation" and that when marine creatures "matured" they moved to dry land to become land animals (Aetius 5.19.4). Later on, the roman poet and philosopher Lucretius wrote that species were formed by chance combinations of heterogeneous elements. Some organisms with favourable characteristics survived, whereas other "monstrous" organisms that were an easy prey were brought to extinction (Lucretius, *On the Nature of Things* 5.5).

Today, we have gone as far as splitting the atom and sequencing the human genome. Minor discoveries, as well as major breakthroughs, piled up one after another have led to a great understanding of the cosmos. So, after all this extraordinary flow of knowledge why do we still intermingle science with religion and why do we look into religion for answers that science could give us? Undoubtedly, there is a sociopolitical side in the science-vs-religion conflict, but perhaps science also has to look back in itself.

Criticism is an indispensable principle in science, upon which all progress is based; a principle that should not be "forgotten" when criticizing science itself. From the very beginning, science has encountered its own problems, perils and drawbacks. These are as important today as ever before.

Modern-day scientists compete for a limited number of governmental, non-profit or private funds. Competition has always played its part in academia, in issues ranging from scientists' respectability and objectivity to ranking and financial success. But nowadays, extreme competition for external funding is corrupting academia. Universities are constantly increasing the number of doctorates being awarded and trying to improve their 'productivity indexes' in an accounting-style mentality while attempting to secure better funding.

It is within this environment that tensions have arisen within the scientific community. Research grants are now exclusively awarded according to the number and quality of a scientist's publications, which in turn, are quantified by rather crude metrics, including the impact factor one. But the system is flawed at an even deeper level; one that goes into the very nature of scientific progress. It is the process of peer-reviewing that, while important for maintaining the quality of published research is, in the interim, secretive, biased and unjust. It is this process that defines what methods are more prestigious than others and what ideas are more easily accepted.

Another issue is the manipulation of science, whether governmental, industrial, or religious. Let us not forget that there have been many occasions in the past when the church or totalitarian regimes impeded scientific progress or used research as a tool for propaganda. Nowadays, the state and industry are the largest providers of research funding and that gives them the power to interfere and guide research where they deem most appropriate or profitable. Research orientation

should reflect the desires of the society it is performed within and strive towards the common good but we all know that nowadays research can very easily be disorientated and alienated from its public.

We consider ourselves to be part of the scientific community of our times and responsible for the quality of work that we do. Still, sometimes we have to sit back and question ourselves: What is the most important attribute a scientist should nowadays have? Is it information, objectivity, integrity and impartiality or just the ability to skilfully manipulate the scientific society?

**References**

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