

TEACH ALL ELEVEN-YEARS OLDS THE LAW OF EVOLUTION

Over the last 200 years, millions of students and research workers throughout the world have amassed fact-based evidence to explain successfully the process of the evolution of organisms.

Even before the arrival of modern man (or homo sapiens), we now know that over 99% of the species that had ever lived had become extinct. Furthermore, of all the creatures born on a particular day, over 99% would eventually meet their end in the jaws of a predator further up the food chain.

The findings of Wallace and Darwin cast aside at a stroke, the concept of an unchanging world crafted by grand design, and questioned the meaning of such apparent imperfections and “waste” of life. The reasons are now well-proven scientifically, and represent the outcome of genetic variability and mutation interacting with the biological and physical environment.

But there is more to this story, that establishes the evolutionary basis of science, itself. We are here today because, over time, our brains have been honed to manage information systematically, ensure facts are verified and to make deductions that are consistent with our perception of the world about us. If one of your direct ancestors one thousand generations ago had not had these traits, then he or she too might have fatally misinterpreted evidence, and finished up as a meal. If this happened before they reproduced, their characteristics, simply, would have been removed from the gene pool, and you would not exist.

It is no coincidence that the successful traits described above are identical to the process of what we now call scientific evaluation. This is to say, our brains have been hard-wired to facilitate this way of thinking. Science is therefore, not a latter-day invention, but is embedded within our genes.

The corollary is that evolution has constrained this framework only to what is necessary for us to live on this planet. We struggle to interpret the unfamiliar through this same framework, and when all else fails, collectively or individually, we “personify the unknown”.

It should not be surprising, therefore, that all the thousands of deities and mythological beings throughout history have had human characteristics, if not in form, then certainly in temperament, in providing someone to rely on throughout life. These have been augmented by mystical powers that intentionally set them apart from the human world, but allow nevertheless some relationship that usually commands either respect or affection. History shows that some inspiring leaders in the past have partially fulfilled this role, blurring the boundary between human and divine.

Science and religion are therefore two contrasting sides of the same coin of evolution, co-existing uneasily as their philosophies interact. There is a truce so long as one does not fundamentally undermine the other. This is an

increasingly uneven match, however, as well-informed and adaptable, scientific thinking contends with the unverifiable, doctrine of religion.

History shows that religions must sometimes partially modify themselves to retain credibility, as in latterly recognising that the Earth orbits the sun, and are often supported by institutional structures that preserve their stability. The architects of the two great unknowns, the beginning and the ultimate fate of the universe, as well as life and death, feature most prominently. The passage from one to the other is guided by rules to appease the deities and to reward individuals, and we should not underestimate the support and ethical and societal framework this provides, in giving a meaning to life, as shown by the durability of religions.

All religions have had their golden ages (and some still do), inspiring beautiful architecture, great literature, deep philosophical thinking, and (in Europe, in particular, in the past) a thirst for scientific knowledge. During the Enlightenment, each new discovery served to reinforce the genius of the celestial watchmaker. It was extraordinary that everything fitted so well, and every creature was so adapted to nature's need.

So it was until that day in the early nineteenth century, when a new thinking dawned; that there was an alternative to this universal design; that this apparent perfection was the result of countless iterations, over millions of years, through the natural variability within and across species. The evidence is now irrefutable. We see it in the past from rocks around us, and in our everyday life with variations in human characteristics at one end of the spectrum, and the rapidly changing structure of the bird-flu virus at the other.

The idea was abhorrent to many at the time, and still is for some. It removes the deterministic nature of our existence. Our destiny is no longer guided by a supreme caring mentor. We are merely players in an eternal, impersonal lottery. This is why the spiritual aspects of life still appeal, in countering a mechanism apparently devoid of meaning, so strong is the wish challenge the incomprehensible.

It now goes further. Open any book on contemporary science, and you will see questions on why the speed of light is as it is, and why other physical constants are as they are. Everything seems just right. A minor change here or there would fundamentally alter the properties of matter, to the extent that planets and life might never have come into being.

There is discussion of innumerable different universes being born through space and time, all with variations in their properties, that set them on a path of merely fleeting existence, or billions of years of evolution, like our own. It sounds so familiar, as history repeats itself after two centuries, leaving us with the thought that we may be ultimately participants in a game of cosmological genetics.

Despite this wide range of views, there is surely scope for some constructive engagement between the two contrasting philosophies. This must be based

on recognising the advances (and limitations) of science, and combining this with the power of spiritual thinking in motivating individuals and society where there is uncertainty. Even in a highly scientific world, there is still room for the goddess *Incognita*.

Whatever the outcome of our evolved, hard-wired brain, however, in addressing the practical problems of the world, there is an overriding conclusion; if something is unverifiable and seems implausible, it probably is.....other than in the powerful imagination of the human mind.

All eleven year-olds should understand this, and be taught this evolutionary basis for both science and religion. They can weigh up this evidence, without the imposition of bias, and reflect on what is relevant for the future.

Above all, we should no longer talk of the theory of evolution, as though it is "just an idea"; so well established is it, that it now warrants the designation of an immutable scientific law, and should be taught as such. It is on this basis that further dialogue should begin. A wider understanding of the scientific basis of our existence will position all of us to address more effectively the major issues facing our planet. In this there is no role for 'creationism' or 'intelligent design', and religious education must recognise the allegorical nature of much of its source material.

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