its international responsibilities in Afghanistan. The durability of his government's support for the NATO (U.S.) assault on Afghanistan is typical in its expedient flexibility.

It does not take extraordinary intelligence or superior powers of observation to conclude that Canada and the U.S. are governed largely by a system of false or symbolic democracy where the population is encouraged in the belief that their views matter. There is considerable evidence to suggest that the expressed views of the voting public are of little interest to government elites and their corporate partners. This state of affairs can be changed. Many nations in South America have taken the dramatic step of electing governments that actually respond to voters' expressed desires with some degree of consistency. What a dangerous concept.

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Beliefs for the 21st Century: a Humanist-Evolutionist Creed? *Denys Ford*

ur universe birthed in the Big Bang 12-15 billion years ago and our earth some 4 billion years ago. The multitude of galaxies, each with millions of stars, suggests that many star planets might permit other 'life forms.'

About 3 billion years ago inorganic chemical substances reacted under the influence of heat, irradiation or electrical discharges to produce complicated organic compounds that achieved the capacity for self-reproduction (replication). This took place over millions of years either at surface water or adjacent to volcanic vents on the ocean floor. Organic compounds may have also been derived from meteorites. Replication depended on the properties of nucleic acids, primarily DNA, but also RNA, which form the basis of 'life' on earth. DNA is a billion-long string of four substances, the sequential order of which determines "digital" information for the production of proteins which are the working-components of the cells of all organisms. The specific sequences determining the production of the individual amino acid components of proteins are known as the genetic code which is uniform for all living organisms. In fact, humans share most of their DNA with worms and snails and 99% with the apes. Currently, we cannot precisely define "life" or a "living organism," but the test tube manufacture of a "living entity" is likely to occur soon.

Our living world has evolved through the capability of DNA to replicate, through the occurrence of spontaneous and sporadic changes (mutations) in the sequence of the four building blocks, resulting in altered proteins with different functions, and through the competition for survival which causes improvements to persist and causes the harmful changes to die off.

The incredible diversity of animals and plants in our world, each manifesting unique methods for survival and reproduction, is a consequence of the above evolutionary process. We can be justifiably amazed and delighted by the subtle, sophisticated, ingenious and often beautiful mechanisms that have permitted creatures to persist: the beauty of bird song, peacock's tails, flowers and tropical fish: the marvels of migration in birds, turtles, salmon and butterflies; the incredible specialization of insect life; the sonar acoustics of bats, the vision of eagles, the nose of canines and the speed of cheetahs. Each physical or behavioral characteristic that enabled a creature to survive is a direct consequence of advantageous mutations over the course of millions of generations.

As animals evolved, primitive kill-andreproduce instincts began to be complemented by the emergence of needs for cooperation: wolves, lions and whales hunt in packs; herds of ungulates form protective circles against attack; ground-hogs post sentries; birds such as the crow family travel in gregarious flocks; and elephants have death rituals. With the expansion of the brain in primates and particularly in the great apes, cooperation extended into actual culture. The apes show respect for authority, know self-sacrifice and grief, engage in coordination of activities, the education of their young, and manifest sharing and the beginnings of communication. Their ability to recognize "self", to reason, to plan and to deceive have recently been demonstrated - all of which implies a degree of conscious thought.

The 5 to 6 million years separating the apes from Homo sapiens, representing some 300,000 generations, have permitted evolutionary pressures for survival to increase, progressively, brain size and complexity. The great survival advantage of communication led to the gradual development of language from initial primitive grunts. This allowed the transfer of experience to the next generation. Genetics, since the development of language, has therefore been complemented by this revolutionary new way in which information can be handed on to descendants to develop sophisticated cultures and complicated thought.

Survival in primitive nomadic tribal life demanded cooperation rather than aggressive "me-first" attitudes. Reliability and mutual assistance were required for hunting. The advent of fire and the building of habitations led to social relations. Emotional attachments helped to control sexual drives and weld the tribe together. Integrity, foresight and leadership protected the tribe from the ever-present hazards of living. Over thousands of generations those individuals and tribes that had hereditary tendencies and capabilities for language and cooperation would be favored to survive, permitting the attributes to become further embedded in the tribal genetics and culture. Basic ethics and civilized conduct gradually evolved under the influence of mythology, religion and epic narratives, as definitions of ethical behavior coalesced. Political compromise and friendships proved to be more useful than the sword for survival in a world of neighbors.

As tribes fought against a hostile environment or other tribes, group cohesion was accentuated by distinctions enhancing emotional attachment. Unique dress, emblems and flags, war-chants and characteristic cultural practices would help to rally the troops, to present a united front instead of a rag-tag mob. The belief that you are fighting for a just cause such as the preservation of your territory, your women, or your culture was an added reinforcement. "Right" had to be on your side, and what better support could you have than that of an external power. With a god on your side, enshrined in poetic tribal myths, surely you couldn't fail.

The evolution of beliefs in supernatural beings with supreme powers was therefore a virtually universal survival mechanism, supplemented by humanity's need to explain and find cause, as well as to sublimate fear of the unknown. Over the course of time, both to provide

the comfort of familiarity and also to serve the vested interest of the priesthoods which claim to hold the keys to a promoted afterlife, the concept of an all-powerful outside force inevitably led to institutionalized doctrinaire practices within religions. From beliefs in sun, moon and nature gods, the increasing ability to rationalize led from polytheism to monotheism. It is now realized in neuroscience that religious thoughts and

pious emotions are built into the functional architecture of the temporal lobes of the brain, the origins of which probably date back half a million years or 25,000 generations.

Ten thousand years ago, when agriculture superseded hunting and gathering, the egalitarian lifestyle essential to the survival of the nomadic extended family was replaced by the brutish dictates for the conquest and defense of land, and the employment of slave labor, both demanded by the growth of agriculture and trade. In their wake, cities grew and tribes became nation-states that went to war for supremacy and rule. Today we are attempting to reign in these destructive forces and create a global community of men and women by means of still imperfect organizations such as the United Nations, the European Union and other international associations promoting civilized behavior. It should not come as a surprise that the result is in the balance – a precarious balance, in view of nuclear armaments, global warming, terrorism from religious fundamentalism and overpopulation – as humans are only a million years or so removed from a jungle mentality. The view of our planet from space has, however, crucially changed our perception of human relationships and has indelibly pictured all of us as travelling in the same boat, a boat that will not necessarily always float.

Good people do not need laws to tell them to act responsibly, while bad people will find a way around the laws.

Plato

The principles of rational thought, scientific inquiry and concepts of ethical behavior first achieved discussion in Greece some 3000 years ago and their evolution has been fluctuating since, with conflicting views from the teachings of a legion of thinkers. In the Western World, Old and New Testament injunctions such as "Do unto others as ye would they should do unto you", and "Love thy neighbor as thyself" have contributed

to a larger social ethic. Similarly, followers of the Muslim, Hindu or Buddhist faiths can look upon their own religious traditions as promoting ethical conduct in such statements as the following:

-From the Quran, CE 625: "They feed the poor, the orphan and the captive for the love of Allah. Be benevolent, surely Allah loves the benevolent. Everyone has a goal which dominates him: do you then, vie with one another in good works." (2nd ed. Muhammad Zafrulla, Curzon Press 1975)

-From Mahatma Gandhi, 1945: "In the eyes of religion all men are equal."

-From The Dalai Lama, 1989 Nobel Peace Laureate: "Compassion, loving kindness, altruism and a sense of brother-and sisterhood are the keys to human development" (*The World of Tibetan Buddhism*)

Two of religion's perennial debates

have been the questions of "free will", and the relationship between spirituality and a deity. The former has usually been presented as either motivated by god or a predetermined, rigid genetics, reducing humans to programmed mental robots. In fact, the billions of neural circuits within the evolved brain, making current supercomputers appear childishly unsophisticated, enable every decision to be the product of multiple neural connections. Thus any action involves immediate and simultaneous interactive communication between a multiplicity of centers governing sensory input, past experience, rational thought, basic instincts, concepts of time, emotional memories and indeed many more influences. The outcome is far from being simple predetermination. Moreover, the presumed rigidity of genetic control is modified by the fact that the turning on and off of genes can be regulated by events during life. Thus, current understanding concludes that about 50% of behavior arises from genetics and 50% from environmental experience. Spirituality would seem to be a neuro-psychiatric response to awe, appreciation, excitement, and wonder on exposure to exceptional emotional arousal.

Our understanding of the world and life is unfinished business and many unknowns persist. What happened before the Big Bang, the limits of the universe, the understanding of consciousness, questions about an ultimate cause or purpose of the nature of "ultimate reality", or a possible mathematical equation to explain everything, may be unanswerable for the foreseeable future. Appreciating the evolution of life and human cultures on earth can, however, make sense of, and give purpose to, our lives. Our basic survival instincts have been progressively diluted in the past quarter of a million years by the survival advantages of cooperative activities leading to ethical behavior. This has been achieved by the development of an unbelievably complex brain and language, leading to the revolutionary new capability for the transference of experience, culture and knowledge to offspring.

The 21st century demands that Homo sapiens understand that we are all on the same spaceship whose journey is uncertain. A satisfactory outcome for this spaceship will be, ultimately, determined by the sum total and overall success of humanity's commitment to "love thy neighbor". Antagonistic fundamentalist religious doctrines undermine cooperation and cultural insight, which are needed for our future. Modern ethical problems, such as the consequences of new reproductive, life-preserving and genetic technologies, require rational and compassionate solutions rather than didactic religious responses. The current explosion of knowledge of brain function should inhibit dogmas about a god-given "personality".

Starvation or rampant AIDS in Africa, autocratic regimes ignoring human rights in Asia, South America or the Middle East, and the selfish demand for oil and energy in the Western World are the concern of each of us and have bearing on generational survival. Whether we like it or not, we are our brother's keeper, despite the fact that our first thought in any situation is one of personal or family survival at all costs, derived from our genetically determined basic preservation instincts.

The fact that we are survivors, however, does not stop us from appreciating works of art, nature's beauty and human love, whatever the source of these transcendent joys. Personal goals of promoting neighborly behavior, concern for others, the expansion of civilized culture, and the upgrading of our Earth World can be more satisfying individually, and more rewarding to humanity, than rigidly following faith-based dogmas. Humans are travelling together through this mysterious universe, and our religion needs to be the commitment to improve the journeys of all of us and our descendants.

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