



Science of Thought Group

This is a philosophical and psychological group. Philosophy is the study of general and fundamental problems, such as those connected with reality, existence, knowledge, values, reason, mind and even language. Our approach considers the only values which are stable and coherent, excluding all nonsense, as what we stand for must be real and proved.

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The True Atheist



Atheists are human beings, and all human beings and groups are susceptible to dogmatic modes of thought. In a highly religious countries where atheists are politically marginalized routinely denigrated, atheism can become a core part of someone's identity. This leads some to respond to challenges to atheism as if they are personal attacks. I have met individual atheists who seem as closed-minded as some fundamentalists. But "fundamentalism" is a more specific and more limited term than "dogmatism." To be a "fundamentalist" one must adhere closely to a set of core principles agreed upon by a community of belief, usually drawn from

scripture—the "fundamentals." The original "fundamentalists" were Christians who came together at the start of the Twentieth Century to assert the "five fundamentals" of Christian belief, hence the name. Atheists—even the most dogmatic—do not have a set of scriptural texts from which to draw such fundamentals. There are no "five fundamentals" of atheism, and any attempt to

create them would end in abject failure as the atheist movement tears them to pieces. This is because atheism itself—the simple disbelief in any gods—implies no particular value-set. Attempts to infuse the atheist movement with a set of common values like “Atheism” demonstrate just how fractious the community is: they provoke huge disagreement, rather than coherence around a central set of doctrines. Renowned personalities in our midst seen by atheist movement outsiders to be “leaders”—are routinely criticized by other atheists. We have no scripture from which to draw fundamentals, so how can we be fundamentalists? Furthermore, the charge of “atheist fundamentalism” is too often used to shut down legitimate criticism of religious belief and practice. Religions hold a privileged social position in the Western world though decreasing, such that critiquing them is often seen as impolite, even if the criticism is gentle. I myself have been charged with “atheist fundamentalism” by affronted religious people, even though I have also been criticized by other atheist authors for being too polite! For some, no criticism of religion is polite enough. The term “atheist fundamentalism” is a useful way to declare those you disagree with to be unreasonable, and to avoid having to consider their position.

Stephen Hawking about Religious Fairy Tales



Stephen Hawking is the former Lucasian Professor of Mathematics at the University of Cambridge and author of *A Brief History of Time* which was an international bestseller. Now the Dennis Stanton Avery and Sally Tsui Wong-Avery Director of Research at the Department of Applied Mathematics and Theoretical Physics and Founder of the Centre for Theoretical Cosmology at Cambridge, his other books for the general reader include *A Briefer History of*

Time, the essay collection *Black Holes and Baby Universe* and *The Universe in a Nutshell*.

In 1963, Hawking contracted motor neurone disease and was given two years to live. Yet he went on to Cambridge to become a brilliant researcher and Professorial Fellow at Gonville and Caius College. From 1979 to 2009 he held the post of Lucasian Professor at Cambridge, the chair held by Isaac Newton in 1663. Professor Hawking has over a dozen honorary degrees and was awarded the CBE in 1982. He is a fellow of the Royal Society and a Member of the US National Academy of Science. Stephen Hawking is regarded as one of the most brilliant theoretical physicists since Einstein

(In an exclusive interview with the Guardian, the cosmologist shares his thoughts on death, M-theory, human purpose and our chance existence)

The belief that heaven or an afterlife awaits us is a "fairy story" for people afraid of death, Stephen Hawking has said. In a dismissal that underlines his firm rejection of religious comforts, Britain's most eminent scientist said there was nothing beyond the moment when the brain flickers for the final time.

Hawking, who was diagnosed with motor neurone disease at the age of 21, shares his thoughts on death, human purpose and our chance existence in an exclusive interview with the Guardian today. The incurable illness was expected to kill Hawking within a few years of its symptoms arising, an outlook that turned the young scientist to Wagner, but ultimately led him to enjoy life more, he has said, despite the cloud hanging over his future. "I have lived with the prospect of an early death for the last forty-nine years. I'm not afraid of death, but I'm in no hurry to die. I have so much I want to do first," he said. "I regard the brain as a computer which will stop working when its components fail. There is no heaven or afterlife for broken down computers; that is a fairy story for people afraid of the dark," he added.

Hawking's latest comments go beyond those laid out in his 2010 book, *The Grand Design*, in which he asserted that there is no need for a creator to explain the existence of the universe. The book provoked a backlash from some religious leaders, including the chief rabbi, Lord Sacks, who accused Hawking of committing an "elementary fallacy" of logic. The 69-year-old physicist fell seriously ill after a lecture tour in the US in 2009 and was taken to Addenbrookes hospital in an episode that sparked grave concerns for his health. He has since returned to his Cambridge department as director of research. The physicist's remarks draw a stark line between the use of God as a metaphor and

the belief in an omniscient creator whose hands guide the workings of the cosmos.

In his bestselling 1988 book, *A Brief History of Time*, Hawking drew on the device so beloved of Einstein, when he described what it would mean for scientists to develop a "theory of everything" – a set of equations that described every particle and force in the entire universe. "It would be the ultimate triumph of human reason – for then we should know the mind of God," he wrote.

The book sold a reported nine million copies and propelled the physicist to instant stardom. His fame has led to guest roles in *The Simpsons*, *Star Trek: The Next Generation* and *Red Dwarf*. One of his greatest achievements in physics is a theory that describes how black holes emit radiation.

In the interview, Hawking rejected the notion of life beyond death and emphasised the need to fulfil our potential on Earth by making good use of our lives. In answer to a question on how we should live, he said, simply: "We should seek the greatest value of our action."

In answering another, he wrote of the beauty of science, such as the exquisite double helix of DNA in biology, or the fundamental equations of physics. Hawking responded to questions posed by the *Guardian* and a reader in advance of a lecture tomorrow at the Google Zeitgeist meeting in London, in which he will address the question: "Why are we here?"

In the talk, he will argue that tiny quantum fluctuations in the very early universe became the seeds from which galaxies, stars, and ultimately human life emerged. "Science predicts that many different kinds of universe will be spontaneously created out of nothing. It is a matter of chance which we are in," he said.

Hawking suggests that with modern space-based instruments, such as the European Space Agency's Planck mission, it may be possible to spot ancient fingerprints in the light left over from the earliest moments of the universe and work out how our own place in space came to be. His talk will focus on M-theory, a broad mathematical framework that encompasses string theory, which is regarded by many physicists as the best hope yet of developing a theory of everything.

M-theory demands a universe with eleven dimensions, including a dimension of time and the three familiar spatial dimensions. The rest are curled up too small for us to see. Evidence in support of M-theory might also come from the Large

Hadron Collider (LHC) at Cern, the European particle physics laboratory near Geneva. One possibility predicted by M-theory is supersymmetry, an idea that says fundamental particles have heavy – and as yet undiscovered – twins, with curious names such as selectrons and squarks.

Confirmation of super-symmetry would be a shot in the arm for M-theory and help physicists explain how each force at work in the universe arose from one super-force at the dawn of time. Another potential discovery at the LHC, that of the elusive Higgs boson, which is thought to give mass to elementary particles, might be less welcome to Hawking, who has a long-standing bet that the long-sought entity will never be found at the laboratory. Hawking will join other speakers at the London event, including the chancellor, George Osborne, and the Nobel prize-winning economist Joseph Stiglitz.

Science, Truth and Beauty: Hawking's answers

What is the value in knowing "Why are we here?"

The universe is governed by science. But science tells us that we can't solve the equations, directly in the abstract. We need to use the effective theory of Darwinian natural selection of those societies most likely to survive. We assign them higher value.

You've said there is no reason to invoke God to light the blue touch paper. Is our existence all down to luck?

Science predicts that many different kinds of universe will be spontaneously created out of nothing. It is a matter of chance which we are in.

So here we are. What should we do?

We should seek the greatest value of our action.

You had a health scare and spent time in hospital in 2009. What, if anything, do you fear about death?

I have lived with the prospect of an early death for the last 49 years. I'm not afraid of death, but I'm in no hurry to die. I have so much I want to do first. I regard the brain as a computer which will stop working when its components fail. There is no heaven or afterlife for broken down computers; that is a fairy story for people afraid of the dark.

What are the things you find most beautiful in science?

Science is beautiful when it makes simple explanations of phenomena or connections between different observations. Examples include the double helix in biology, and the fundamental equations of physics."

The End of Religions

(Not from Stephen Hawking)

I - Modern era: separation of religion from government

In the modern era, the separation of religion from government has been a doctrine often repeated and as often ignored, bypassed, honoured in the breach. That separation was in turn a subhead of the distinction between "private" and "public," a dotted line fading fast as governments farm out to private entities a growing proportion of the public business, and private organizations play a more muscled part in making public policy.

Transmodern: "religion" will play a weightier role

In the postmodern era, however it comes to be described, we already use the word "domination" to suggest that the organized functions required for a people to govern themselves go far beyond what "governments" can effectively fund or cause to happen. Within this framework, it now seems overwhelmingly likely that "religion" (defined as "organized spirituality") will play a weightier role in domination as the Islamic State does today -- and indeed, that individual spirituality will be an increasingly important element of leadership in every domain. Christianity decrease and the Islam comes up not peacefully as they claim, but by force, torture, and death. It's all found in their sacred writings.

Understanding the changing dynamics in domination and spirituality

Both concepts, "religion" and "domination," will carry into the 21st Century a great deal of cultural baggage, the heritage of long spiritual traditions and of theory, trial, and error in organizing human beings to work together toward common goals as we see in the Islamic State. It will be important to understand this inherited mix of wisdom and unwisdom, to analyze the changing dynamics of spirituality as they interact with the changing dynamics of domination.

II - Shifting ways of thinking

It may be useful to think of our time as a time of transition, from a *modern* way of thinking, still besieged by the backlash of *premodern* mindsets, toward a worldview that (because not even its advocates know just how to describe it) we will call simply *transmodern*.

The premodern worldview

The premodern worldview is an enchanted vision which evidently was functional in primarily agrarian societies of the past. There is one Truth, given to all people by a higher wisdom ("our God" or plural gods), the source of authority and the foundation of values. Spiritual authority is delegated to religious intermediaries; they, as surrogates for the spiritual authority, are responsible for making the rules of behaviour for individuals and supervising the morality of political authorities. Authority of many kinds is exercised mainly by men, who in turn oversee the functions of women and children and are responsible for their behaviour. The core values of society are stable; the sacredness of tradition is society's unshakable foundation.

The modern view was a healthy reaction

The modern outlook began as a healthy reaction against religious authorities who feared scientific discovery, resented independent thinking, and resisted technological development. Modernity pushed the clerical authorities aside; in the resulting secular societies, it relegated religion to the "private" sphere -- making it harder in "public" affairs to raise questions of meaning, ethics, intuition, or the spirit. If premodern society, asserting a sacred foundation for values, was "enchanted," modern society was "disenchanted." Rational analysis and empirical proof were in the ascendant; truth was what could be discovered, rationalized, and proved by the scientific method. Science was itself sacralised, and religious intermediaries were no longer required as channels to the Truth.

Crisis of the modern view

The pedestal of Reason has in this century been eroded by experience that scientific discovery and technological innovation can lead not only to miracles of change but also to unprecedented dirt, damage, and disease; by repeated demonstrations that rational planning can take us efficiently to where we don't want to be when we get there; by new kinds of science, such as chaos theory, that seem to depend as much on intuition as on reasoning; by testimony of some scientists about how much they don't know and can only guess, or pray to understand; and by the increasingly obvious limitations of the hierarchical,

pyramidal, bureaucratic structures which had earlier seemed the rational way to organize human cooperation.

A transmodern way of thinking is emerging

A transmodern way of thinking is now emerging. It features a creative mix of rational and intuitive brainwork; an enthusiastic embrace of new information technologies; a tolerance at least in our Western countries, even celebration, of diversity; a conviction that protection of the physical environment has to be a central concern for every human being; a dawning realization that scientific discovery and technological innovation have made human beings the dominant actors in their own future evolution; a new openness to spiritual guidance as a basis for "private" behaviour and "public" policy; and a move away from vertical authority systems toward "flatter," more "horizontal" organizations, away from "recommendations-up-orders-down" management and toward more consensual decision-making.

It is important to observe that the very concept of "transmodern" indicates that the best of modernity has to be kept, but that there is an urgent need to go beyond. Modernity has brought us indeed excellent and indispensable progress. It has helped us to *distinguish what was confused*. As Ken Wilber¹ rightly

¹ Wilber was born in 1949 in Oklahoma City. In 1967 he enrolled as a pre-med student at Duke University. He became inspired, like many of his generation, by Eastern literature, particularly the Tao Te Ching. He left Duke and enrolled in the University of Nebraska at Lincoln, but after a few years dropped out of university to devote all his time to studying his own curriculum and writing books. In 1973 Wilber completed his first book, *The Spectrum of Consciousness*, in which he sought to integrate knowledge from disparate fields. After rejections by more than twenty publishers it was finally accepted in 1977 by Quest Books, and he spent a year giving lectures and workshops before going back to writing. He also helped to launch the journal *ReVision* in 1978. In 1982 New Science Library published his anthology *The Holographic Paradigm and other Paradoxes* a collection of essays and interviews, including one by David Bohm. The essays, including one of his own, looked at how holography and the holographic paradigm relate to the fields of consciousness, mysticism and science. In 1983 Wilber married Terry "Treya" Killam who was shortly thereafter diagnosed with breast cancer. From 1984 until 1987, Wilber gave up most of his writing to care for her. Treya died in January 1989; their joint experience was recorded in the 1991 book *Grace and Grit*. Subsequently, Wilber wrote *Sex, Ecology, Spirituality* (SES) (1995), the first volume of his *Kosmos Trilogy*. *A Brief History of Everything* (1996) was the popularised summary of SES in interview format. *The Eye of Spirit* (1997) was a compilation of articles he had written for the journal *ReVision* on the relationship between science and religion. Throughout 1997, he had kept journals of his personal experiences, which were published in 1999 as *One Taste*, a term for unitary consciousness. Over the next two years his publisher, Shambhala Publications, released eight re-edited volumes of his *Collected Works*. In 1999, he finished *Integral Psychology* and wrote *A Theory of Everything* (2000). In *A Theory of Everything* Wilber attempts to bridge business, politics, science and spirituality and

explains, modernity has enabled us to create art, science and morals, in installing the distinction between those disciplines which were interrelated before. This "distinction" has been crucial for the intellectual, artistic and ethical and religious progress of humanity. The problems began when an innovation became an excess: when the *distinction became separation*. It is indeed at this stage that the problems began to arise. Because the separation became exclusion. And as we have so greatly gained in civilization level in shaping a space for ethics, aesthetics and science to be able to develop, we also suffer from those distinctions which have become separations and even exclusion of ethics and religion from science and public life.

A growing minority...

The transmodern way of thinking is still a minority mindset, but it can no longer be discounted as a neglectable fringe. In the United States, recent survey research suggests that it is gaining ground with astonishing speed. In 1996 *The Integral Culture Survey*, by Paul Ray, counted 24 percent of U.S. adults, or 44 million, as "cultural creatives," who "are coming up with most new ideas in American culture, operating on the leading edge of cultural change." Two-thirds of this large category are women. The cultural creatives are of course a statistical category, not a "group" and certainly not "organized."

Global consciousness change

Duane Elgin's study of *Global Consciousness Change*, also published in 1996, finds five recurring themes as defining "the emerging worldview:" global networks of information technology; global ecological awareness and concern; a shift in social values (toward environmental sustainability, toward greater tolerance for ethnic, racial, and sexual differences); a new interest in and practice of "lay spirituality;" and "shifts in work, diet, consumption patterns, transportation, relationships, or other areas that express a desire to live more sustainably."

show how they integrate with theories of developmental psychology, such as Spiral Dynamics. His novel, *Boomeritis* (2002), attempts to expose what he perceives as the egotism of the Baby Boom Generation. In 1987 Wilber moved to Boulder, Colorado, where he worked on his Kosmos trilogy and oversaw the work of the Integral Institute. Wilber now lives in Denver, Colorado and works with Marc Gafni at the Center for World Spirituality, which he co-founded. Wilber has stated that he has a debilitating illness called RNase Enzyme Deficiency Disease. In 2012 Wilber joined the Advisory Board of International Simultaneous Policy Organization which seeks to end the usual deadlock in tackling global issues through an international simultaneous policy.

World values survey

The most ambitious effort, so far, to measure shifting values worldwide was the 1990-91 *World Values Survey*; it collected and collated a mountain of data from 43 countries containing almost 70 percent of the world's population, "covering the full range of economic and political variation."

Ronald Inglehart, its global coordinator, found what he called a "postmodern shift" well under way in about a dozen countries, all in North America and northern Europe. As summarized by Duane Elgin, people in these countries "are losing confidence in all kinds of hierarchical institutions" and in traditional institutions as well, "placing more emphasis on personal authority or the authority that comes from an inner sense of what is appropriate." They feel materially more secure, so they value "more meaningful work and the quality of the work experience, and tend to rank environmental sustainability over economic growth." Declining participation in organized religion is "linked with a growing interest in discovering personal meaning and purpose in life." In these countries especially, there is "a greater tolerance for ethnic, sexual, and political differences. And new roles for women are emerging "that allow for greater self-realization."

Generalizations such as these cannot draw a neat picture of so complex a moving target as shifting ways of thought by millions of individuals. Anything said in this mode is likely to overstate the shifts where they are most prominent, and understate similar shifts of thinking among smaller proportions of people elsewhere.

Impact of the changes

Some of the "global mind shift" that is obviously going on can be attributed to opportunities stemming from quite recent technological change -- the marriage of computers and electronic telecommunications, the stunning developments in genetics and biotechnology, the new choices opened up by space exploration and the chance to observe our home-planet with a genuinely global perspective.

Tools do not guarantee mind shifting

Tools for thinking and communication don't guarantee mind shifting. The spread of knowledge in our time is quite as much the result of social choices and political leadership -- expressed in the starvation or feeding of quality schooling, vigorous or tepid support for higher education, protections or violations of the freedom to question and explore and invent and create.

... citizens the world over have been slow to change

Many countries' citizens have been slow to change their minds because their leaders fear the consequences of "many flowers blooming" -- as Mao Tse-Tung did, even though he popularized the phrase -- in gardens they wish to control. But it's dangerous not to take full advantage of new learning technologies; the breakdown of Communist regimes in Eastern Europe and the Soviet Union bears witness.

III - Impact on religions and domination

The transmodern mind-shift -- still far from dominant even where it is noticeable -- has important implications for religions and their impact on domination in the early part of the twenty-first century. One of these is that organized religions will be sharing their turf with "unorganized spirituality." Another is that their leadership, traditionally monopolized by men, will be increasingly shared with women. Yet another is that in the emerging worldview, the rigid separation of "us" from those professing other faiths will no longer be saleable doctrine or feasible politics; the *acceptance* of variety, the protection of diversity, and doctrines of tolerance seem more and more essential to security and survival. A fourth result of the transmodern worldview is this: the pervasive and continuing impact of globalization on every human activity is reinforced by the growing acceptance of globalization by those "coming up with new ideas . . . on the leading edge of cultural change."

Unorganized spirituality

Toward the end of our previous century, one of the striking current trends is the large number of people who, professing a belief in God by whatever name, are moving away from the institutions which have traditionally intermediated divine worship and provided blessings on births, deaths, and everything important in between. In so doing, many of these people have by no means abandoned spirituality; they have found outlets for their spirituality in small-group practices that "search for God" in ways that are genuine alternatives to traditional practices in churches, temples, mosques, and synagogues.

Decreasing membership in mainline religions

In the US and Europe (the Western countries), the membership in "mainline" religious denominations is already down by some twenty-five percent and more from earlier peaks. Some of this certainly counts people who drop out of "organized religion" while actively searching, in New Age or other environments, for personal or small-group ways to express their natural

spirituality. There may also be more "shopping around" and switches of allegiance between organized religions than ever before; the growth of Islam in the United States and Europe is one example.

These trends thus do not betoken a veering away from "spirituality." Human beings often seem naturally to reach out for more satisfying belief systems. In the absence of settled certainty, every organized religion is bound to be a "temporary home" to a good many restless spirits in its constituency.

Growth of "unorganized spirituality"

The growth of "unorganized spirituality" certainly complicates the interaction between organized religions and the institutions of domination (governments, but also corporations, associations and the many other elements of "civil society"). Among the people who don't feel the need for spiritual guidance from large established human institutions will be a good many activists on secular issues -- such as human rights, environmental protection, or economic fairness -- who will nevertheless present their case as motivated by spiritual concerns with wide political appeal.

Transmodern: "religion" will play a weightier role

As we move toward the changes implied by the transmodern worldview, it appears that women are often quicker to understand and more open to adaptation than men. That is, for example, the lesson of Paul Ray's finding that two-thirds of the subset of Americans he calls "cultural creatives" are women. Why would this be? And what does it portend for the nature of the coming changes and for the leadership in bringing them about?

Less identified with patriarchal

First, why? One reason that leaps to the eye is that in every modern society women are on the average less identified with or beholden to the patriarchal structures, pyramidal management, and vertical leadership styles characteristic of modern industrial society. Women are also typically more intuitive than men. If moving toward "transmodern" ways of thinking and acting implies a new openness to spiritual guidance, women can be expected to be among the frontrunners. Even in traditional religious institutions, a majority of congregations have been women, and the same seems to be true -- anecdotally but observably -- of communities where "unorganized spirituality" is strong.

Improving their situation without having to dig up the roots

The transmodern mindset gives promise of dialogue that avoids trying to persuade the not-yet-modern first to "modernize" (a goal now freighted with cultural baggage from the industrial era, including vertical authority systems and super-rational thinking). If women in other cultures can see a possibility of improving their personal situation (in terms of subsistence, rights, equality, and love) without having to dig up the roots of their cultural identity, the resulting dialogue might well be more fruitful than if it starts with "modernization" as the first requirement. Within non-Western cultures, there seem to be a growing number of women who are reinterpreting their scriptures (the Koran, the Bible) in post-patriarchal ways -- to produce a softer, more tolerant approach that doesn't threaten the basic faiths themselves. Such a dialogue might best be initiated by Western women accustomed to the uses of indirection in improvising on a general sense of direction.

Diversity and tolerance

The emerging transmodern image is a round table, around which people of both genders and all races, cultures and faiths sit to consider how to manage our common planetary home in a way that is responsible not only to its current inhabitants but to their grandchildren's grandchildren as well. There is plenty of room in this pluralistic scene for striving toward an ultimate, universal Truth -- but the search requires tolerance of other peoples' chosen paths to the elusive goal, and of the differing liturgies with which they celebrate the goal and describe their search. And it doesn't require any seeker to concede that any of the other seekers has already found the Holy Grail -- or that the universal/pluralistic search can now be called off.

This image is a far cry from today's reality, either in secular domination with its mostly two-sided processes for resolving conflict, or in the mostly exclusivist politics of organized religions.

Indeed, just when individual human rights have achieved superstar status in political philosophy, just when can-do information technologies promise what the U.N. Charter calls "better standards of life in larger freedom," distortions of cultural difference have scattered big, ugly boulders in the road called Future.

No over enthusiasm

Cultural diversity is not the villain, but "culture" is being used -- as *Kultur* has been used in other times and places -- as a reason for repression, exclusion, or extinction. The trouble lies in over enthusiasm for cultural loyalties, which can

create something akin to a runaway nuclear reaction. Without the moderating influence of other enthusiasms in civil society -- acting like fuel rods in a nuclear reactor -- the explosive potential gets out of hand. What's needed is the counterforce of wider views, global perspectives, and universal ideas. Equality is not the product of similarity; it is the cheerful acknowledgement of difference.

Globalization

The rapid spread of knowledge through global networks has already required business and finance, and the news and entertainment media, to adapt their work ways, their marketing, and their planning to appeal to worldwide audiences. And this is only the front end of a long-range trend; the so-called "global networks" are still far from global in a world where some two-thirds of the people don't yet have a telephone.

New opportunities for the organized Religions

It is not, therefore, surprising to find each of the Great Religions operating in a more and more global context. They proselytize beyond their traditional geographic regions. They become more eclectic as they try to appeal to more and different kinds of people. And, since religious experience depends heavily on how it is expressed and received, they are interpreting or modifying their stories to make them more understandable in more languages.

Moreover, world religions are more and more universally available. Pilgrimages to Mecca or Rome or Jerusalem -- or China or Tibet or India or Sri Lanka -- have been speeded up by jet aircraft; and their virtual equivalents are now coming into homes by television and into personal computers via Internet.

New opportunities for unorganized spirituality

The opportunities are also enhanced for "unorganized spirituality." Teachers, preachers, and therapists representing hundreds of varieties of specialized inspiration are spreading wherever freedom of speech, freedom of communication, and freedom of peaceable assembly are protected.

In other domains the globalization trends illustrate an ambiguity of outcomes: global standards coexist with global diversity. In matters of cuisine, for example, the standardization of healthy hamburgers and tasty fried chicken is spreading in every world city, but no faster than the proliferation of ethnic restaurants in those same cities. The new information technologies helps exclusive faiths to spread beyond traditional jurisdictions; they also may amplify the voices of those reaching for a wholeness that incorporates the religious diversity.

"No one can speak for the world of faiths," says the Episcopal Bishop of San Francisco, William Swing, in his forthcoming book about a United Religions. "But someone must shout to hear an echo. I do believe that an echo will be coming from the indigenous, from women, from spiritual margins, from the restless pious, from children, from refugees of religious intolerance, even at last from religious leaders. . . . I have an utter urgency because of the squandering of the treasure chest of spirituality which religions could offer the world if they could grow beyond mutual hatred to a place of mutual respect."

IV- Synthesis

This paper is prepared in preparation for the Brussels Seminar, May 1998; to draft now a strategy for Europe's approach to "Religion and Domination" would be presumptuous and premature. But some synthesis is in order.

The wall between religions and domination becomes porous

It is clear that the wall between religion and government is so porous as to be an unreliable guide to attitudes and actions. "Domination" describes a scene in which decisions about public policy are formulated and carried out by multiple organizations, "public," "private," and (mostly) mixed. "Religion," organized and unorganized, is therefore likely to play a growing part in the making of public policy and carrying it out.

Important role of religions in the future?

If, in the early part of the next century, world religions come to play the important role that Andre Malraux foresaw and others are forecasting, what kinds of conflicts are most likely to occur? Islamisation has become extremely dangerous today, the more that the EU accepts refugees from Syria and Iraq "en masse."

Conflicts are more likely inside every religion and culture

Based on our analysis, it seems likely that conflicts will not mostly be either (a) because organized religions collide in the historic "clash of civilizations" envisaged in the recent writings of Samuel Huntington, or (b) because politics inside and between nations reverts to another historical precedent, the clash between clerical and secular authority (i.e., between "premodern" and "modern").

Premodern against transmodern

But a third kind of clash, increasingly visible both in internal and international politics in recent years, is now making its way to center stage. It is the split between "fundamentalists" of many varieties who see their traditional scriptures and teachings as so absolute as to divide humankind into irreconcilable believers and infidels, and others who see their ancient traditions or new spiritual insights as raw materials for wider human reconciliation, as the basis for an intensified search for common purpose among people of differing races, creeds, and national origins. In short: the split is between "premodern" and "transmodern."

Who is intolerant?

"Fundamentalists" and fanatics of many faiths -- in Eric Hoffer's language, the "true believers" -- often feel threatened by modern society and modern worldviews. The reverse is equally true. Huston Smith suggests that we are all both absolutist and tolerant -- but about differing beliefs. "Conservatives" often fear the messiness and disintegration that tolerance of pluralism can produce. "Liberals" often do not understand "the wholeness that certainty can bring" to the human psyche; because humans are fallible, some absolutes seem required as the glue that holds communities together.

Active tolerance

The "transmodern" way of thinking outlined in this paper is *actively* tolerant. It acknowledges that it's important for all civilizations to be receptive to that which is alien, whatever form this may take. It is open to the transcendental, while resisting any authoritarian imposition of religious certainty. The Truth is at the centre of things; each person converges toward it with his/her own culture, along his/her own path. Nobody has a monopoly of the Truth any more -- yet it does exist.

Truth telling

To begin a constructive dialogue with societies immersed in cultures different from our own, we might do well to start with a moment of truth-telling, along these lines:

"We, for our part, are products of a secular industrial society. But we realize that we can no longer discuss political futures without also discussing questions of meaning, spirituality, and cultural identity. We are therefore asking you to join us in a serious effort to project mutually advantageous futures for our societies.

In order to do this, we will all have to set aside our superiority complexes, our intolerances whether based on scientific rationalism or on spiritual tradition, and our dreams of having our views prevail in the whole world."

Scientists prove that Religious Books are Man-made

Man is the only being in creation who can have abstract thoughts. Early on he wanted to know about creation and the world, forces of nature, and the higher powers behind the natural phenomena.

He started with nature worship, developed the idea of gods or advanced beings and started their worship. He was always looking for the ultimate force or cause of the world.

Eventually he developed the concept of God. Over a period of time, at different places on earth, man developed various ideas about God which led to development of different religious systems. These different ideas of God and religion and various cultures developed due to geographical isolation of societies in earlier times. As man advanced in mental sphere, he developed higher and more advanced ideas of God, religion, morality, justice, and spiritualism.

So, "Just think for one second, if 'God' or a 'messenger of God' had written that particular religious book/bible, how come the writings only occur within a very limited period in human history? Also, consider the fact, that a human writing on a piece of paper, or a few pieces of paper, is not the word of 'God'. If they were really written by a universal God or entity, the books would not be limited to some pre-medieval costume drama but would encompass all universality, history, the future and science. Language is something created by man, not an all-seeing, all encompassing entity. God would presumably be universal and timeless as well as all-knowing, as is the universe, therefore these man-written books and scriptures, are just that, man-written linguistically created nonsense used to control men and women thousands of years ago. Why would 'God' write anything anyway? One must consider the fact that, even now, there are religious zealots and ordinary people still entrenched in a control belief system that is so far removed from reality that it borders on madness. There is no rational or scientific way that organised religions can have a modicum of truth or factual reality because of the very reason that these books are entombed in the time that they were written. These books should therefore simply be viewed as limited parables and historical fiction, as well as a lesson in how millions of people can be so easily controlled."

The research paper also came to the conclusion that reward/punishment religions, as control systems, were losing their grip on most of the population of the world and only a few die-hard fanatics and delusional maniacs were carrying on with the flame of idiocy.

“The game is up for all religions, how long can this sham carry on, with their ridiculous outdated ceremonies? The priests are deceivers, and they need to come up with some pretty radical solutions to their thousand year old magic trick. People aren’t as dumb or easily swayed as they used to be thousands of years ago, they actually have reasoning powers and can see through the utter nonsense of organised control systems like religion.”

The problem for the world’s political leaders, is that slowly, humans who were controlled for so many years by fictitious writings, may suddenly lose their controlled ‘faith’. This could be quite dangerous, because it would mean that these people would suddenly wake up and realise that they have been fooled for so long by being communally hypnotised.

“We must ensure that the people who have been fooled for so long by fictitious belief systems utilised to control humans do not get too angry when they realise that what they believe in is nonsense written by humans utilising human created language. This could be dangerous for society, so we must either let them carry on believing their fiction or try to somehow support them when they realise the truth,”

Many people think that the knowledge of God flows from God down to us through some religion or messenger whether Buddha, Krishna, Abraham, Moses, Jesus, Mohammad etc., or subjective experiences by the mystics. However, if this is true, then it fails to account for how we can recognize a religion as being from God in the first place. It fails for being able to decide who is a messenger of God in the first place. And it also fails to account for how we can determine which experiences are genuinely experiences of God and not just our own minds. If we are supposed to choose a religion based on how well it reflects God's will, then we must have some sense of what God's will is in the first place. Yet, if we learn what God wants from religion, how can we decide which religion is from God? It's like trying to decide whether a certain handwriting belongs to a certain person before knowing what that person's handwriting even looks like.

If choosing a religion is an arbitrary process that does not depend on our choosing a good religion, then the only possible standard for choosing between religions is one that man makes up. If it does depend on our choosing a good

religion, then once again man must have some sense of what is good and what is bad prior to choosing his religion. In this case, again it is not what God wants that matters, but what the dictates of man's morality tells him to choose.

So ultimately humanity must be the final judge as to what religion he chooses and by what standard he chooses. To say that humanity must abide by God's standard when choosing a religion is to put the theological cart before the horse, since it presupposes that we already know what God's standard looks like, which is the very thing we would want to figure out!

Morality is a collective social construct, but it surely does not 'come from' religion. For if it did, then to say 'my religion is good,' would be merely tautological, since any religion would itself be (by definition) the source of good for its followers and would thus set the standard of right and wrong. If this is the way we're going to speak, then no two religions can be compared, since for the followers of extremist Islam (for example) their religion defines what is good for them if the Sharia is observed. If this is the case, then it means that they have been completely indoctrinated and convinced not to question what they have been told. Indoctrination is an arbitrary process, since any religion at all can be good by definition. It is when we all work with a common standard of good and evil that it becomes meaningful to speak of one religion being better than another. But then if we already have this common standard of right and wrong, why do we need religion? The answer is obvious to me: we don't.

With some modification, the question posed by Socrates in the Euthyphro is something like this: Is a religion good because it comes from God (in which case it's important to follow the 'right religion')? Or does God give us a religion because it is good (in which case all that matters is being good)? If it is the former, then we have no method to decide what religion to follow. If it is the latter, then we don't actually need religion, per se, so long as we recognize what is good about any one religion. In either case, God must be judged by man, not the other way around. For there can be no imperative for us to obey an unjust tyrant, no matter what claim he has on our creation or however powerful he is. Might simply does not make right, and a God that does not pass our standards of morality does not warrant obedience.

All religions are misleading! Religion is man-made not God-made!

Why people blame God for their problems. Mankind is evil and selfish and you know what God just left them to their own evilness. Good luck humanity. You want to follow Christ as He tells you, not to be a mere human, then do so. Maybe, you will be better off. The problem is religion, that's why Atheism

teaches against it. Religion is man-made not God or Allah made. If you know God you would hate religion and its denominations Just as Christ did. Christ is misrepresented all over the world by people. People and their twisted minds screwed God over. I was a Christian for too long but I don't follow any man even today, bishops, priests, preachers, imams, gurus or prophets.

The God-Spot in the Human Brain

Scientists, philosophers and atheists have long argued that God and religion or spirituality are constructs of the human mind, although that opinion generally has not been a popular one among the religions. After centuries of bloody holy wars and fierce theological dispute, the controversy of the Creator's existence has taken a strange new turn: humanity may finally have uncovered tangible evidence that the phenomenon of religious faith is all in our heads.

We all know by now or should know, that a group of neuroscientists at the University of California at San Diego has identified a region of the human brain that appears to be linked to thoughts of spiritual matters and prayer. Their findings tentatively suggest that we as a species are genetically programmed to believe in God.

The researchers came upon these cerebral revelations in the course of studying the brain patterns of certain people with epilepsy. Epileptics who suffer a particular type of seizure are often intensely religious, and are known to report an unusual number of spiritually-oriented visions and obsessions. Measurements of electrical activity in the brains of test subjects indicated a specific neural centre in the temporal lobe that flared up at times when the subjects thought about God. This same area was also a common focal point overloaded with electrical discharges during their epileptic seizures.

Could this heretofore unidentified part of the brain -- nicknamed the "God module" -- actually be some sort of physiological seat of religious and superstitious beliefs? The scientists who discovered it believe it might be. They have performed a further study comparing epileptic subjects with different groups of non-epileptics -- a random group of average people, as well as individuals who characterized themselves as extremely religious. The electrical brain activity of the subjects was recorded while they were shown a series of words, and the God module zones of the epileptics and the religious group exhibited similar responses to words involving God and faith. No word yet on whether the brains of atheists and agnostics might flatline the monitors, but the parallel results among the strong believers are considered impressive.

"There may be dedicated neural machinery in the temporal lobes concerned with religion," the research team announced at a conference for the Society for Neuroscience. "This may have evolved to impose order and stability on society."

Anthropologists and Darwinian theorists have frequently speculated that religion may have developed as a self-policing mechanism as cooperation with others became useful. With their intelligence and skills at making weapons, there was little to stop early humans from slaughtering each other like wild maniacs, until they began to fear unseen beings even bigger and badder than themselves. This sort of adaptation has always been considered a purely psychological function, but now we have the first evidence that the religious instinct may be physically hard-wired right into our noggins.

Which brings us to the most intriguing conundrum posed by the discovery of the God Spot. It's a double-edged sword shoved right through the heart of the science vs. religion debate, bearing either good news or bad news for the faithful masses depending on how you answer the chicken-or-the-egg question: does it mean that God created our brains, or that our brains created God?

"These studies do not in any way negate the validity of religious experience or God," the God module's discoverers took care to note, plainly anticipating a reception of fire and brimstone from certain quarters. "They merely provide an explanation in terms of brain regions that may be involved."

No matter how inconclusive or sketchy they label their findings as being, these scientists will inevitably be denounced as heathenistic blasphemers doing the work of Satan. Yet at the very same time, other equally devout worshipers will praise this discovery as a beautiful and wondrous epiphany that spells out God's great plan.

So what will it be? A sacred temple in the temporal lobes, or an incidental conflagration of the synapses? The Kingdom of Heaven confined to the insides of our skulls, or "I think of God, therefore He is"? Touched in the head by an angel, or brainwashed into belief by biology?

Believe what you want, but either way, I think those who draw any serious mechanistic or teleological conclusions from this research ought to have their heads examined, as well.

However, others have thought deeper about religion, that is a conclusion that far outstrips the evidence — a scientific leap of faith, if you will.

"They have isolated one small aspect of religious experience and they are identifying that with the whole of religion," says John Haught, professor of theology at Georgetown University.

Religion "is not all meditative bliss. It also involves moments when you feel abandoned by God," says Haught. "It involves commitments and suffering and struggle.... Religion is visiting widows and orphans; it is symbolism and myth and story and much richer things."

Michael A. Persinger² says he is less concerned with trying to prove or disprove the existence of God than with understanding and documenting the experience. However, in his view, "if we have to draw conclusions now, based upon the data, the answer would be more on the fact that there is no deity."

He is clear about an underlying motivation of his work — a fear that unscrupulous people might use techniques to provoke a spiritual experience to control people.

But Persinger also acknowledges a more positive possibility: "If you look at the spontaneous cases of people who have God experiences and conversions, their health improves," he says. "So if we can understand the patterns of activity that generate this experience, we may also be able to understand how to have the brain — and hence the body — cure itself."

The God Helmet Theory

The **God Helmet** is a popular name given to a laboratory apparatus originally called the "Koren Helmet", after Stanley Koren of Laurentian University's Neuroscience Department, who built it according to specifications provided by Dr. M.A. Persinger, it's director.

Used as a research tool to investigate the brain's role in religious and mystic experiences, the Koren Helmet has been given the name God Helmet. A few Journalists gave it this name when they learned that some people had visions of God while participating in Koren Helmet experiments. The name has stuck.

The **Koren Helmet** applies complex (having an irregular shape) magnetic

² **Michael A. Persinger** (born June 26, 1945) is a cognitive neuroscience researcher and university professor with over 200 peer-reviewed publications. He has worked at Laurentian University in Sudbury, Ontario, since 1971. He is primarily notable for his experimental work in the field of neurotheology, work which has been increasingly criticized in recent years.

signals to the head of the person who is wearing it. The fields don't work by inducing current in the brain. They have patterns that bear information, and magnetic fields that appear around electrical activity in the brain pick it up.

It's a field-to-field interaction, and not **current induction**. The fields pass into the brain, unaffected by the scalp or skull, because there is no such thing as a magnetic insulator. Nothing can block a magnetic field. Some psychologists, not understanding this, have mistakenly claimed that the fields used in the **God Helmet** aren't strong enough to reach the brain. Magnetic fields pass "through all head structures with no attenuation and can stimulate the brain without discomfort". The mechanism where low-intensity magnetic fields influence the brain has been known for years.

An independent God Helmet study found that its effects *are not* from suggestibility, and that they do indeed have an influence on the brain. The subjects (in this recent and independent study) who received the magnetic fields spoke about their experiences in different ways than those who received no fields. The apparatus used in this new study was not identical to the Koren Helmet, but it still produced measurable effects in spite of its limitations. (Research Publication) Further replication is found in a recent experiment where researchers were able to artificially induce the sense of a presence using robotic stimulation, and concluded that this sensation is the result of activity in specific brain areas, and not actual ghosts, just as Persinger concluded from his experiments. There are a few points of agreement, in spite of their very different research methods.

The **Koren Helmet** is connected to a PC computer through a 'black box' that cycles the signals through four coils on each side of the head, above over the place where the temporal lobes of the brain meet the parietal lobes. This is the area of the brain many researchers feel is the source of spiritual and religious experiences. This illustration shows how the signal shifts from one coil to the next. This is a side view. There is also another set of coils working on the other side. The two coils at the top are no longer used.

The sessions are done in an Acoustic Chamber - a completely silent room. A large part of the temporal lobes ongoing activity is dedicated to monitoring ambient sound. The temporal lobes are the source of religious and mystic experiences, so that silence helps a great deal in creating them in the lab. The same chamber also has a layer of electromagnetic insulation, so that the ambient energy emitted from lab equipment, cell phone towers, and computer monitors is screened out. Because magnetic fields can still pass through this screen (a

Faraday Cage), the God Helmet research has included some interesting discoveries about the earth's magnetic field.

That's the important thing about the God Helmet. Even if only a few people saw God because of it, it creates a host of new questions - questions theology has never had to face before. The experiences of those who have come face-to-face with God might just be an example of a very rare brain activity. If they actually met the true God, then why did they do so in this experimental setting, but not at other times? Can one control God by controlling someone's brain?

The implications for theology are obvious. Perhaps God exists, but has been waiting until humanity developed enough to find him in the brain before he would appear under any circumstances humans could control. Perhaps God exists only in our brains. Perhaps he exists, and chose to bless one percent of Dr. Persinger's research subjects with visions of him, because these people were beloved to him.

Perhaps he exists, but he appears to those with the right neural history in moments when the right pattern of brain activity is present, and not according to what he sees in their hearts. There is much more to the God Helmet than just the Koren Helmet alone. There is also a computer program called complex, authored by Stanley Koren, which allows the computer to create the signals. These signals are derived from EEG traces that appear in certain parts of the brain. Just as the brain responds to chemicals with specific shapes, it also responds to magnetic signals with certain shapes. Because these signals are complex, irregular things, it takes a special computer program to produce them.

A third component is the acoustic - completely silent - chamber where the sessions take place. The last component is the 'black box' which converts output from the computer into input for the Koren Helmet. This box (not shown) is a specialized DAC (digital-to-analog converter). It's the core of the technology. The rest of the components of the God Helmet are quite common.

Another part of the experiment is that the subjects are told they're going to participate in a relaxation experiment. This makes them expect to relax, but without telling them what's going to happen. The God Helmet doesn't work as well when the subjects are tense. The DAC produces the signals that are fed to the magnetic coils (called "solenoids" in the scientific papers). First, one signal is fed to the right side of the brain, and then another signal is fed to both sides. When the signals are changed halfway through the experimental session, the corresponding shift in brain activity can create a religious experience.

The God Helmet is a misleading name. It gives the impression that it can produce the experience of God on demand. In fact, only one percent of the subjects had the experience. In contrast to the one percent who saw God, eighty percent of the subjects felt a presence of some kind, but did not call it God. Of course, there were probably some subjects who experienced an appearance of God, but were shy about saying they had seen God in a laboratory. That kind of thing is not only intensely personal, but can also get you ridiculed.

If you saw god, would you tell your story, just as it happened, if you thought you weren't going to be taken seriously? A lot of people assume that, just because someone wears a lab coat, they won't believe such a vision can happen, or that they'll think it's a sign of mental illness. Nothing could be further from the truth in this laboratory, but how would these subjects know that? They had been told they would be participating in an experiment to study relaxation response, and the experimenters were very careful not to encourage glamorous reports.

The Koren Helmet has also produced visions of demonic beings, out-of-body experiences, visions of other realities, and a range of other paranormal experiences. It could have been named after any of them, but journalists prefer more sensational names, and you can't get more sensational than God.

One question that comes up often about the Koren Helmet is whether it's possible to obtain one. The Koren Helmet is found only in the laboratory where it was made, and is not available to the public. However, a PC version of the **God Helmet**, The Shiva Neural Stimulation System, does exist.

The Koren Helmet has more coils than are actually used in experiments. The two on the top are no longer in use, and the one in the centre - between the four over each temporal lobe - is also no longer used. They are still on the helmet, but they no longer output anything.

Conclusion from the Atheist Point-of-view

One of the first questions Atheists are asked by true believers and doubters alike is, "If you don't believe in God, there's nothing to prevent you from committing crimes, is there? Without the fear of hell-fire and eternal damnation, you can do anything you like, can't you?"

It is hard to believe that even intelligent and educated people could hold such an opinion, but they do! It seems never to have occurred to them that the Greeks and Romans, whose gods and goddesses were something less than paragons of

virtue, nevertheless led lives not obviously worse than those of the long list of fundamental Evangelicals around the world! Moreover, pagans such as Aristotle and Marcus Aurelius - although their systems are not suitable for us today - managed to produce ethical treatises of great sophistication, a sophistication rarely if ever equalled by Christian moralists.

The answer to the questions posed above is, of course, "Absolutely not!" The behaviour of Atheists is subject to the same rules of sociology, psychology, and neurophysiology that govern the behaviour of all members of our species, religionists included. Moreover, despite protestations to the contrary, we may assert as a general rule that when religionists practice ethical behaviour, it isn't really due to their fear of hell-fire and damnation, nor is it due to their hopes of heaven. Ethical behaviour - regardless of who the practitioner may be - results always from the same causes and is regulated by the same forces, and has nothing to do with the presence or absence of religious belief. The nature of these causes and forces is the subject of this essay.

As human beings, we are social animals. Our sociality is the result of evolution, not choice. Natural selection has equipped us with nervous systems which are peculiarly sensitive to the emotional status of our fellows. Among our kind, emotions are contagious, and it is only the rare psychopathic mutants among us who can be happy in the midst of a sad society. It is in our nature to be happy in the midst of happiness, sad in the midst of sadness. It is in our nature, fortunately, to seek happiness for our fellows at the same time as we seek it for ourselves. Our happiness is greater when it is shared.

Nature also has provided us with nervous systems which are, to a considerable degree, imprintable. To be sure, this phenomenon is not as pronounced or as ineluctable as it is, say, in geese - where a newly hatched gosling can be "imprinted" to a toy train and will follow it to exhaustion, as if it were its mother. Nevertheless, some degree of imprinting is exhibited by humans. The human nervous system appears to retain its capacity for imprinting well into old age, and it is highly likely that the phenomenon known as "love-at-first-sight" is a form of imprinting. Imprinting is a form of attachment behavior, and it helps us to form strong interpersonal bonds. It is a major force which helps us to break through the ego barrier to create "significant others" whom we can love as much as ourselves. These two characteristics of our nervous system - emotional suggestibility and attachment imprint ability - although they are the foundation of all altruistic behaviour and art, are thoroughly compatible with the selfishness characteristic of all behaviours created by the process of natural selection. That is to say, to a large extent behaviours which satisfy ourselves will be found, simultaneously, to satisfy our fellows, and vice-versa.

This should not surprise us when we consider that among the societies of our nearest primate cousins, the great apes, social behaviour is not chaotic, even if gorillas do lack the Ten Commandments! The young chimpanzee does not need an oracle to tell it to honour its mother and to refrain from killing its brothers and sisters. Of course, family squabbles and even murder have been observed in ape societies, but such behaviours are exceptions, not the norm. So too it is in human societies, everywhere and at all times.

The African apes - whose genes are ninety-eight to ninety-nine percent identical to ours - go about their lives as social animals, cooperating in the living of life, entirely without the benefit of clergy and without the commandments of Exodus, Leviticus, or Deuteronomy. It is further cheering to learn that socio-biologists have even observed altruistic behaviour among troops of baboons. More than once, in troops attacked by leopards, aged, post reproduction-age males have been observed to linger at the rear of the escaping troop and to engage the leopard in what often amounts to a suicidal fight. As the old male delays the leopard's pursuit by sacrificing his very life, the females and young escape and live to fulfill their several destinies. The heroism which we see acted out, from time to time, by our fellow men and women, is far older than their religions. Long before the gods were created by the fear-filled minds of our less courageous ancestors, heroism and acts of self-sacrificing love existed. They did not require a supernatural excuse then, nor do they require one now.

Given the general fact, then, that evolution has equipped us with nervous systems biased in favour of social, rather than antisocial, behaviours, is it not true, nevertheless, that antisocial behaviour does exist, and it exists in amounts greater than a reasonable ethicist would find tolerable? Alas, this is true. But it is true largely because we live in worlds far more complex than the Paleolithic world in which our nervous systems originated. To understand the ethical significance of this fact, we must digress a bit and review the evolutionary history of human behaviour.

Today, heredity can control our behaviour in only the most general of ways, it cannot dictate precise behaviours appropriate for infinitely varied circumstances. In our world, heredity needs help.

In the world of a fruit fly, by contrast, the problems to be solved are few in number and highly predictable in nature. Consequently, a fruit fly's brain is largely "hard-wired" by heredity. That is to say, most behaviours result from environmental activation of nerve circuits which are formed automatically by the time of emergence of the adult fly. This is an extreme example of what is called instinctual behaviour. Each behaviour is coded for by a gene or genes

which predispose the nervous system to develop certain types of circuits and not others, and where it is all but impossible to act contrary to the genetically predetermined script.

The world of a mammal - say a fox - is much more complex and unpredictable than that of the fruit fly. Consequently, the fox is born with only a portion of its neuronal circuitry hard-wired. Many of its neurons remain "plastic" throughout life. That is, they may or may not hook up with each other in functional circuits, depending upon environmental circumstances. Learned behaviour is behaviour which results from activation of these environmentally conditioned circuits. Learning allows the individual mammal to learn - by trial and error - greater numbers of adaptive behaviours than could be transmitted by heredity. A fox would be wall-to-wall genes if all its behaviours were specified genetically.

With the evolution of humans, however, environmental complexity increased out of all proportion to the genetic and neuronal changes distinguishing us from our simian ancestors. This partly was due to the fact that our species evolved in a geologic period of great climatic flux - the Ice Ages - and partly was due to the fact that our behaviours themselves began to change our environment. The changed environment in turn created new problems to be solved. Their solutions further changed the environment, and so on. Thus, the discovery of fire led to the burning of trees and forests, which led to destruction of local water supplies and watersheds, which led to the development of architecture with which to build aqueducts, which led to laws concerning water-rights, which led to international strife, and on and on.

Given such complexity, even the ability to learn new behaviours is, by itself, inadequate. If trial and error were the only means, most people would die of old age before they would succeed in rediscovering fire or reinventing the wheel. As a substitute for instinct and to increase the efficiency of learning, mankind developed culture. The ability to teach - as well as to learn - evolved, and trial-and-error learning became a method of last resort.

By transmission of culture - passing on the sum total of the learned behaviours common to a population - we can do what Darwinian genetic selection would not allow: we can inherit acquired characteristics. The wheel once having been invented, its manufacture and use can be passed down through the generations. Culture can adapt to change much faster than genes can, and this provides for finely tuned responses to environmental disturbances and upheavals. By means of cultural transmission, those behaviours which have proven useful in the past can be taught quickly to the young, so that adaptation to life - say on the Greenland ice cap - can be assured.

Even so, cultural transmission tends to be rigid: it took over one hundred thousand years to advance to chipping both sides of the hand-axe! Cultural mutations, like genetic mutations, tend more often than not to be harmful, and both are resisted - the former by cultural conservatism, the latter by natural selection. But changes do creep in faster than the rate of genetic change, and cultures slowly evolve. Even that cultural dinosaur known as the Catholic Church - despite its claim to be the unchanging repository of truth and "correct" behaviour - has changed greatly since its beginning.

Incidentally, it is at this hand-axe stage of behavioural evolution at which most of the religions of today are still stuck. Our inflexible, absolutist moral codes also are fixated at this stage. The Ten Commandments are the moral counterpart of the "here's-how-you-rub-the-sticks-together" phase of technological evolution. If the only type of fire you want is one to heat your cave and cook your clams, the stick-rubbing method suffices. But if you want a fire to propel your jet-plane, some changes have to be made.

So, too, with the transmission of moral behaviour. If we are to live lives which are as complex socially as jet-planes are complex technologically, we need something more than the Ten Commandments. We cannot base our moral code upon arbitrary and capricious fiats reported to us by persons claiming to be privy to the intentions of the denizens of Sinai or Olympus. Our ethics can be based neither upon fictions concerning the nature of humankind nor upon fake reports concerning the desires of the deities. Our ethics must be firmly planted in the soil of scientific self-knowledge. They must be improvable and adaptable.

Where then, and with what, shall we begin?

Plato showed long ago, in his dialogue Euthyphro, that we cannot depend upon the moral fiats of a deity. Plato asked if the commandments of a god were "good" simply because a god had commanded them or because the god recognized what was good and commanded the action accordingly. If something is good simply because a god has commanded it, anything could be considered good. There would be no way of predicting what in particular the god might desire next, and it would be entirely meaningless to assert that "God is good." Bashing babies with rocks would be just as likely to be "good" as would the principle "Love your enemies." (It would appear that the "goodness" of the god of the Old Testament is entirely of this sort.)

On the other hand, if a god's commandments are based on a knowledge of the inherent goodness of an act, we are faced with the realization that there is a standard of goodness independent of the god and we must admit that he cannot

be the source of morality. In our quest for the good, we can bypass the god and go to his source!

Given, then, that gods a priori cannot be the source of ethical principles, we must seek such principles in the world in which we have evolved. We must find the sublime in the mundane. What precept might we adopt?

The principle of "enlightened self-interest" is an excellent first approximation to an ethical principle which is both consistent with what we know of human nature and is relevant to the problems of life in a complex society. Let us examine this principle.

First we must distinguish between "enlightened" and "unenlightened" self-interest. Let's take an extreme example for illustration. Suppose you lived a totally selfish life of immediate gratification of every desire. Suppose that whenever someone else had something you wanted, you took it for yourself.

It wouldn't be long at all before everyone would be up in arms against you, and you would have to spend all your waking hours fending off reprisals. Depending upon how outrageous your activity had been, you might very well lose your life in an orgy of neighbourly revenge. The life of total but unenlightened self-interest might be exciting and pleasant as long as it lasts - but it is not likely to last long.

The person who practices "enlightened" self-interest, by contrast, is the person whose behavioural strategy simultaneously maximizes both the intensity and duration of personal gratification. An enlightened strategy will be one which, when practiced over a long span of time, will generate ever greater amounts and varieties of pleasures and satisfactions.

How is this to be done?

It is obvious that more is to be gained by cooperating with others than by acts of isolated egoism. One man with a rock cannot kill a buffalo for dinner. But a group of men or women, with lots of rocks, can drive the beast off a cliff and - even after dividing the meat up among them - will still have more to eat than they would have had without cooperation.

But cooperation is a two-way street. If you cooperate with several others to kill buffaloes, and each time they drive you away from the kill and eat it themselves, you will quickly take your services elsewhere, and you will leave the ingrates to stumble along without the Paleolithic equivalent of a fourth-for-bridge. Cooperation implies reciprocity.

Justice has its roots in the problem of determining fairness and reciprocity in cooperation. If I cooperate with you in tilling your field of corn, how much of the corn is due me at harvest time? When there is justice, cooperation operates at maximal efficiency, and the fruits of cooperation become ever more desirable. Thus, enlightened self-interest entails a desire for justice. With justice and with cooperation, we can have symphonies. Without it, we haven't even a song.

Let us bring this essay back to the point of our departure. Because we have the nervous systems of social animals, we are generally happier in the company of our fellow creatures than alone. Because we are emotionally suggestible, as we practice enlightened self-interest we usually will be wise to choose behaviours which will make others happy and willing to cooperate and accept us - for their happiness will reflect back upon us and intensify our own happiness. On the other hand, actions which harm others and make them unhappy - even if they do not trigger overt retaliation which decreases our happiness - will create an emotional milieu which, because of our suggestibility, will make us less happy.

Because our nervous systems are imprintable, we are able not only to fall in love at first sight, we are able to love objects and ideals as well as people, and we are able to love with variable intensities. Like the gosling attracted to the toy train, we are pulled forward by the desire for love. Unlike the gosling's "love," however, our love is to a considerable extent shapeable by experience and is capable of being educated. A major aim of enlightened self-interest, surely, is to give and receive love, both sexual and nonsexual. As a general - though not absolute - rule, we must choose those behaviours which will be likely to bring us love and acceptance, and we must eschew those behaviours which will not.

Another aim of enlightened self-interest is to seek beauty in all its forms, to preserve and prolong its resonance between the world outside and that within. Beauty and love are but different facets of the same jewel: love is beautiful, and we love beauty.

The experience of love and beauty, however, is a passive function of the mind. How much greater is the joy which comes from creating beauty. How delicious it is to exercise actively our creative powers to engender that which can be loved. Paints and pianos are not necessarily prerequisites for the exercise of creativity: Whenever we transform the raw materials of existence in such a way that we leave them better than they were when we found them, we have been creative.

The task of moral education, then, is not to inculcate by rote great lists of do's and don'ts, but rather to help people to predict the consequences of actions being considered. What are the long-term as well as immediate rewards and draw-

backs of the acts? Will an act increase or decrease one's chances of experiencing the hedonic triad of love, beauty, and creativity?

Thus it happens, when the Atheist approaches the problem of finding natural grounds for human morals and establishing a non-superstitious basis for behavior, that it appears as though nature has already solved the problem to a great extent. Indeed, it appears as though the problem of establishing a natural, humanistic basis for ethical behaviour is not much of a problem at all. It is in our natures to desire love, to seek beauty, and to thrill at the act of creation. The labyrinthine complexity we see when we examine traditional moral codes does not arise of necessity: it is largely the result of vain attempts to accommodate human needs and nature to the whimsical totems and taboos of the demons and deities who emerged with us from our cave-dwellings at the end of the Paleolithic Era - and have haunted our houses ever since.

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