X8 – EXchanging Worldviews, 8:
EXamining Operations of the Human System

Dear: In previous **X**-chapters, I've tried to show you a little about the goals of the Human System (in **X4**), its interactions with its environment (in **X5**), its organization (in **X6**), and its potentials (in **X7**). In this final chapter dealing with examining general features of the Human System, I want to show you a little about how it operates; viz., a little more about politics (from local to global scale). And since an appropriate summary of how it operates is "not so well as it should" (☹), then in subsequent **X**-chapters, I'll try to show you some ways that its operation might be improved, increasing the probability for more peace and prosperity.

Before trying to show you more about politics, however, perhaps it would be useful if I provided a slightly more complete review and some additional comments on some of the ideas from the previous **X**-chapters about "the scope of the problem". To that end, consider the following list.

- In **X1**, I introduced the idea of "EXchanging Worldviews" – in particular, exchanging from any of the many "supernaturalist" worldviews of various religions to the "naturalist" worldview of scientific humanism.

- In **X2**, I tried to show you some of the many reasons why people are religious. In summary, to me it's so sad to see so many people so desperately, vainly, and egotistically clinging to worldviews concocted, if not by "savages", by those whose understanding of the world was less than what should be learned by all children in modern elementary schools. Why people would still "believe" in such nonsense is apparently determined primarily from their childhood indoctrination or from their deluding themselves into "thinking" (or better, "wishing" = believing) that they'll live forever in some fictitious paradise, if only they'll live their lives as desired by some giant Jabberwock in the sky – as dictated by a bunch of lame-brain and/or conniving clerics, reading from their out-of-date, scientifically ludicrous "holy books".

- Most of **X3** was "just" quotations of two recent survey articles about religion and the brain: one (by Sharon Begley) surveyed recent neurological studies that provide information about what occurs in brains during "mystical experiences"; the other (by Robin Marantz Henig)

reviewed recent studies by evolutionary biologists (and psychologists and sociologists) who have been trying to understand why religions have persisted, in spite of their being "clearly invented balderdash". The answer may be, as Scott Atran said, "The tragedy of human cognition" (that is, the way we think, e.g., trying to identify causes and their agents), but as others have suggested, it may be associated with the survival value of belonging to a (politically) organized group – even when the leaders were a bunch of lame-brain and conniving clerics with crazy worldviews!

- In **X4**, I tried to show you a little more about systems by demonstrating how they can be categorized according to their goals. My goal was to examine goals of the Human System, but the analysis led to the obvious conclusion that, whereas people's goals depend on their worldviews, the Human System doesn't have an obvious prime goal – in turn, because people can't seem to agree on our prime purpose – in turn, because so many people refuse to "get real", choosing instead to live in an imaginary world in which some giant Jabberwock in the sky is in control. In contrast, most humanists would probably agree that humanity's prime goal could be stated in a manner something similar to: *to expand and apply knowledge to solve human problems more intelligently*. Even religious people might accept such a statement, but then they'd insist that the major "problems" are that everyone doesn't agree with their dogma and that "the intelligent solution" is for everyone to become a Christian, Muslim, Mormon, or whatever might be their own, cherished delusion.

- In **X5**, I tried to show you a little about how the Human System interacts with its environment, concluding that our prime *modus operandi* is exploitation of nature. From the analyses shown in **X5**, I hope that you gained more appreciation for the idea that the path that humanity is now on is unsustainable. Stated differently, to avoid environmental and therefore social collapse, then almost certainly, humans must change their operations – and their worldviews. To do that, however, will require changes in how we humans organize, manage, and govern ourselves; i.e., political changes are imperative.

- In **X6**, therefore, I tried to show you some organization principles of the Human System. Although I haven't finished that analysis (I'll address more in this and later **X**-chapters), perhaps I've already shown you enough for you to begin to see "where I'm coming from" with the following incomplete summary: *The Human System is organized (or*

more appropriately, disorganized) by grouping into factions, with each faction vying to survive in a hostile environment and trying to outsmart competing factions – by capturing the benefits of cooperation (in part by punishing cheaters), by utilizing the advances of relatively few innovators, almost invariably by raping their environment, and by trying to gain advantages through manipulating political processes.

- In **X7**, considerations about organizational schemes at the global scale led to my wanting to show you opinions of some other authors about humanity's possible future, specifically: Bostrom's estimate that humans will become extinct (for which he estimates a probability of at least 25%, ☹) and Naff's suggestion that if we do evolve, then our progeny will be essentially gods (☺).

But before commenting more on those possibilities (which I'll do later in this chapter and which will depend on our political "acumen", i.e., "the ability to make good judgments and quick decisions"), let me first add a few additional comments about humanity's goals, since the goal of all politics is to set and then to accomplish goals!

During the past multi-thousands of years, many attempts have been made to describe humanity's prime goal explicitly. I'll list some examples immediately below (in italics) and add a few comments about inadequacies in (or caveats for) each "goal statement".

- *Religious dogma, as given in any of the many "holy books"* [the essence of any of which being that the goal is to serve the religion's god (or gods), of course by providing the religion's clerics with whatever they desire; such nonsense has polluted humanity for at least the past 5,000 years; later in this chapter, I'll provide some estimates for how much longer I think such nonsense, such personal stupidity and clerical cupidity (i.e., "greed for money and possessions" – and power), will persist and how its demise might be hastened]

- *Homer's idea of "peace and plenty" or "peace and prosperity"* [which requires careful evaluations to develop ways to measure both 'peace' and 'plenty' or 'prosperity' and to determine both how much prosperity this poor old world of ours can provide how many people and what kind of prosperity should be sacrificed to attain what kind of peace]

- *Intelligent application of the Utilitarian Principle:*[1] *"the greatest good for the greatest number"* [which requires careful definitions and comparisons of different 'goods' and the need to protect "basic rights" of everyone – rights that surely are to be included as some of the "greatest goods" but which in turn requires careful consideration of associated responsibilities, as I'll try to show you in later chapters, e.g., in **X11**, dealing with "EXpropriating Rights"]

- *Knowledgeable application of Jefferson's concept of "life, liberty, and the pursuit of happiness"* [which requires understanding of both the responsibilities – or constraints – associated with "liberty" and the necessary constraints on our goals, progress toward which provide us "happiness signals", as I've described in earlier chapters]

- *Sensible realization of France's motto "Liberty, Equality, and Fraternity"* [in which 'equality' should be interpreted as "equal opportunity"]

- *Realization of the humanist concept to "expand and exploit knowledge to benefit humanity"* [which requires serious consideration of 'benefit'], and

- *Achievement of the goal of many "modernists", i.e., "to strive to reach one's full potential – to help as many people as possible to reach their full potential – to help still others"* [which, however, begs the questions "their full potential to help others" to do what?].

As I already mentioned, I'd suggest that all such goal statements (save, of course, for silly religious goals) can be collapsed (and their caveats eliminated) into the simple statement of humanity's goal as interpreted by humanists: *to try to solve our problems more intelligently*. Other ways to try to describe humanity's goal might be: *to help humanity not only survive but to thrive – to help intelligence evolve.*

In whatever form the humanist's goal is stated, I wouldn't be surprised if more than half of humanity has already accepted such a goal, although as far as I know, the goal has not yet been given in a concise and easily

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[1] Dear: As I'll show you later, the Utilitarian philosophy, based on the "pleasure principle" of Epicurus (and recall Jefferson's claim: "I am an Epicurean!"), was primarily developed by Jeremy Bentham (1748 – 1832) and John Stuart Mill (1806 –1873).

remembered manner – and my attempts notwithstanding, probably still hasn't! And I should add the obvious statement: to solve our problems more intelligently we must become more competent at predicting unintended consequences (and then advertising and adverting them!); in particular, it's not intelligent to pursue solutions that cause more problems than they solve (☹), e.g., all religious "solutions"!

Furthermore (and importantly) even though all humans (and even all life forms) seem to have the same prime goal (to solve their problems), yet in the past, not only have so many humans mistakenly concluded that their prime problem was to placate their god (or gods) but also, relatively few (if any) worldwide problems have been recognized as a common threat to all humans. Therefore, no particular set of problems has been widely recognized as the prime problem to be solved; consequently, such problems obviously didn't precipitate recognition that humanity has the important goal of solving such worldwide problems. During the past century or so, however, and in part because of advances in communications, most humans have become aware of a huge number of worldwide problems.

In turn, most of these worldwide problems are related to the following:

- Explosion of the "population bomb" (e.g., starvation, unemployment, economic insecurity, decrease in "the quality of life", overcrowding, devaluation of life, poverty, disease, despair, drug addition, organized crime, violence, illegal immigration…),

- Rampant consumerism (and associated resource depletion, economic inflation, environmental destruction, species extinction, impaction of globalization on cultural norms – including associated threats to powers held by religious leaders and their reactions, e.g., promoting terrorism),

- Resistance to democratization and expansion of human rights by those profiting from maintaining the *status quo* (e.g., fundamentalist clerics in Islam and Christianity), and

- The explosion of ways to maim and kill massive numbers of people (e.g., with chemical, biological, and nuclear weapons – although most causalities have been caused by "conventional weapons", including automatic rifles, land mines, plastic explosives, and bombs, including "smart bombs").

Further, many environmental damages (such as depletion of stratospheric ozone, species extinction, resource depletion, consequences of global warming) are worldwide problems partly because individual groups can no longer just move on to pristine sites; similar is the case for problems of worldwide poverty, lack of peace and prosperity with justice, dangers (from epidemics such as AIDS and bird flu to wars waged with nuclear and biological weapons), and so on. In most cases, worldwide problems obviously require worldwide involvement to find solutions, a topic that requires examining operation of the Human System at the global scale, which in turn requires examining politics – especially, global-scale politics.

Unfortunately, though, and as I already wrote in **X6** (dealing with organization of the Human System), "the subject of politics is huge. It's so huge that I want to tackle politics just one piece at a time, as I'll be doing in subsequent **X**-chapters." In **X6**, I tried to show you a little about the concept of (political) "factions". Here, let me show you a little about another piece of politics, namely, about different models that have been conceptualized, to try to understand how politics "works" – or "work", because politics is so confusing that it's not even clear if the word 'politics' is singular or plural!

Yet, rather than my subjecting you to my stumbling attempts to describe models of politics (a subject that I've never formally studied), let me quote the analysis by an expert, namely, Peter A. Corning. The following (long) quotation is from the introduction to his article entitled "The Evolution of Politics".[2] In this quotation, I've tried to make the reading a little simpler for you by adding a few notes of explanation (in square brackets) and by eliminating most of Corning's references (replacing them with "…"); unfortunately, the figures in his text are missing from the online version.

2 Defining Politics

[Copied from Peter A. Corning's "The Evolution of Politics"]

2.1 The "Idealist" Model

We begin with the problem of how to define politics, and with the writings of Plato and Aristotle (who in turn may have been inspired by the teachings of Socrates). In his classic dialogue, the *Republic*, Plato proceeded from the core premiss that the

[2] Available at http://www.complexsystems.org/publications/index.html. The article was originally published as a chapter in *Handbook of Evolution,* Vol. I (Franz Wuketits and Christoph Antweiler, eds., Wiley-VCH Verlag GmbH & Co., 2004).

polis (or polity) [from the Greek *politēs* meaning 'citizen', in turn from *polis*, meaning 'city'] is fundamentally an economic association; it is very different in character from an amorphous aggregation of individuals who happen to share a common language, territory, or culture and may, or may not, engage in arms-length exchanges. A polity is characterized by a specialization of roles and a division of labor (or, more precisely, a combination of labor) and, equally important, interdependence with respect to the satisfaction of our various needs and wants. As Plato observed:

> A city – or a state – is a response to human needs. No human being is self-sufficient, and all of us have many wants… Since each person has many wants, many partners and purveyors will be required to furnish them… Owing to this interchange of services, a multitude of persons will gather and dwell together in what we have come to call the city or the state… [So] let us construct a city beginning with its origins, keeping in mind that the origin of every real city is human necessity… [However], we are not all alike. There is a diversity of talents among men; consequently, one man is best suited to one particular occupation and another to another… We can conclude, then, that production in our city will be more abundant and the products more easily produced and of better quality if each does the work nature [and society] has equipped him to do, at the appropriate time, and is not required to spend time on other occupations…[3]

In other words, an organized polity, or state, produces mutually beneficial economic synergies; it is quintessentially a "collective survival enterprise" – a functionally interdependent "superorganism"…

However, this is not the only purpose that the state may serve. Plato went on to argue that it should also strive to attain "the good life" (in both a material and moral sense), though he advanced this objective as a continuing quest, not a ready-mix formula. Moreover, and this was one of Plato's most profound insights, human nature is inherently "at war with itself." There is a double-edge to the human psyche. Our "lower-level" appetites and urges manifestly serve our needs, but they can also become destructive, both to the community and to ourselves. As Aristotle (Plato's

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[3] Actually, Dear, in 1776 in his …*The Wealth of Nations*, Adam Smith wrote something that seems more defensible than the above claim by Plato (see, e.g., http://www.adamsmith.org/smith/won-index.htm). In Chapter II of his *Book One,* Smith wrote: "The difference of natural talents in different men is, in reality, much less than we are aware of; and the very different genius which appears to distinguish men of different professions, when grown up to maturity, is not upon many occasions so much the cause as the effect of the division of labor. The difference between the most dissimilar characters, between a philosopher and a common street porter, for example, seems to arise not so much from nature as from habit, custom, and education. When they came into the world, and for the first six or eight years of their existence, they were perhaps very much alike, and neither their parents nor playfellows could perceive any remarkable difference. About that age, or soon after, they come to be employed in very different occupations. The difference of talents comes then to be taken notice of, and widens by degrees, till at last the vanity of the philosopher [e.g., Plato's!] is willing to acknowledge scarce any resemblance." In Chapter VII of *Book One*, Smith adds that in Ancient Egypt (with which Plato was almost certainly familiar): "every man was bound by a principle of religion to follow the occupation of his father, and was supposed to commit the most horrid sacrilege if he changed it for another".

star student) observed in the *Politics…:* "Man, when perfected, is the best of animals, but, when separated from law and justice, is the worst of all."

Our prodigious appetites must therefore be constrained by the higher-level dictates of "reason", along with our social and ethical impulses, and by the collective actions of the community to protect and preserve itself. To Plato, therefore, ethics and "justice" are not primarily derived from some higher metaphysics. Nor is it reducible to a tug-of-war over our "rights" as individuals. Social justice is concerned with equitable rewards for the proper exercise of our abilities and our calling, and our conduct, in a network of interdependent economic relationships. [Dear: please read that sentence again; I'll be delving into it and other interpretations of "social justice" in the next chapter.]

Aristotle, in the *Politics*, supplemented his mentor's views in some important ways. First, Aristotle emphasized that physical security – both external and internal – is also a fundamental function of the state, one of its principle *raison d'être* (a point Plato also made in a later work, the *Laws*). The collective survival enterprise is not, therefore, exclusively an economic association. Aristotle also stressed that human nature is not an autonomous agency. It entails a set of innate aptitudes that are uniquely fitted for society and that can only be developed in a network of social relationships. Thus, social life involves more than being simply a marketplace for economic transactions. It also involves a life in common; we are all enriched by it. Indeed, a hermit is not only economically deprived; he/she is not fully human and, equally important, has no evolutionary future…

Aristotle also devoted much attention to the fundamental political challenge, well appreciated by Plato, that a society is composed of many different, often competing interests. Indeed, Aristotle seconded Plato's conclusion that the basic, seemingly inescapable cleavage between the few who are rich and the many who are poor is potentially the most dangerous social division of all and the underlying cause of much civil unrest. The key to preserving any political community, therefore, is to strike a balance between the members' conflicting interests. To this end, the law must be "sovereign" and must serve as an impartial arbiter – "reason unaffected by desire." Moreover, there must be moral equality before the law. The law cannot be used as a tool to favor the rich and powerful but must be an instrument for achieving social justice, which he defined as "giving every man his due."

Aristotle also discussed the role of government institutions. Recognizing that Plato's proposal in the *Republic* for rule by specially-trained, benevolent dictators (philosopher kings) was impracticable, if not dangerous, Aristotle proposed that the best alternative was a "mixed state," with elements drawn from a cross-section of the community. (Plato himself conceded the point in his later writings.) The state should strive to achieve social justice, not as an end in itself but as an instrument for preserving, even improving society as a stable, "self-sufficing" community. The objective of the state should be to achieve a "balance" among various interests and factions, and the ultimate measure of its success in doing so is the willing (uncoerced)

consent of the citizenry. Another way of putting it is that politics is ultimately concerned with the overarching interests, problems and needs of the collective survival enterprise – the "public interest."

This paradigm [or "model"], which has often been termed the "idealist" view of politics, has many modern echoes. Political theorist Sheldon Wolin… speaks of activities related to or affecting "the community as a whole." Karl Deutch… calls politics "the dependable coordination of human efforts and expectations for the attainment of the goals of the society." David Easton's… definition, though a bit ambiguous, is probably the most widely employed by contemporary political scientists. He termed politics the processes through which "values are authoritatively allocated for a society." But perhaps the modern apotheosis [viz., "the highest point in the development"] of the idealist stance is Larry Arnhart's normatively laden definition…: "the ultimate aim of politics is to form the character of human beings to promote some conception of the best life." This is so, Arnhart says, because "every political debate depends fundamentally on opinions about what is good and bad, just and unjust." These moral opinions, Arnhart concludes, express "a universal human nature."

2.2 The "Realist" Model

Unfortunately many theorists over the years have disputed the claims of the idealists (also referred to as "holists"). What has been called – at times with a supercilious tone – the "realist" (and sometimes "materialist") view of politics traces its origins back at least to the classical Greeks, including the Sophists, Skeptics, Cynics, and Epicureans… These theorists advanced a radically different, individualist definition of the good life, and of politics. For them, the claims of the community, and the very concept of a "public interest," were rejected as a chimera, and the primacy of individual "self-interest" was posited as the foundation of social life. Justice, according to the character Thrasymachus in Plato's *Republic,* is nothing more than "the interest of the stronger."

Typical of this genre was the Epicurean School, which arose when the Greek city-states were in decline. The Epicureans advocated a thoroughgoing materialism and an individualistic pain-pleasure ethic that long predated the social contract theorists, utilitarians, and other conservative modern thinkers. To the Epicureans, individual self-interest is the driving force in humankind, and the "good life" amounts to nothing more than the satisfaction of our personal appetites and material wants. States are formed primarily to provide security against the depredations of others, and anything beyond this represents, in effect, a set of conditional, contractual arrangements to facilitate our personal self-interests.

In the Epicurean paradigm, moreover, there is no instinctive preference for, or obligation to, society, and justice is solely a matter of expediency. According to the Golden Maxims of Epicurus, the school's founder: "There never was an absolute justice but only a convention made in mutual intercourse, in whatever region, from time to time… Whatever in conventional law is attested to be expedient in the needs

arising out of mutual intercourse is by nature just, whether the same for all or not, and in case any law is made and does not prove suitable to the expediency of mutual intercourse, then this is no longer just… For the time being, it was just, so long as we do not trouble ourselves about empty terms but look broadly at facts…"

The Cynic school was even more hostile to the community and the state. Rejecting all social life, all rules of social intercourse or conventions, even the benefits of learning, the Cynics' attitudes ranged from rugged individualism to utopian anarchism and an idealized communism. The modern libertarian novelist, Ayn Rand (much-admired in conservative circles), provides us with a high-decibel echo of these ancient theorists. In her two best-selling novels, *The Fountainhead* and *Atlas Shrugged*, Rand's protagonists were defiant individualists. "Just as life is an end in itself, so every living human being is an end in himself, not the means to the ends or welfare of others – and, therefore, man must live for his own sake, neither sacrificing himself to others nor sacrificing others to himself…" Rand's political philosophy seems paradoxical: "Civilization is the process of setting man free from men…"

Needless to say, there have been many variations on the realist theme over the past 2000 years. For example, in… Machiavelli's darkly cynical masterpiece, the *Prince,* politics is portrayed as the pursuit of self-interest clothed in altruistic rhetoric ("who gets what, when, how," in the words of the modern political scientist Harold Lasswell), and political power is often an end in itself. In Machiavelli's view, human nature is incurably selfish, aggressive, and acquisitive. Only the raw power of the state can prevent anarchy. (In the cutthroat political environment of 16th century Italy, there was, unfortunately, much truth to this claim…) Indeed, Machiavelli was the very father of the argument that Machiavellian machinations – the use of deception, chicanery, and naked force – were necessary if a ruler hoped to obtain his ends…

Thomas Hobbes, whose outlook was deeply affected by the turmoil of the English civil wars, purveyed an equally dour vision of the political community. If economics is the "dismal science" (in Thomas Carlyle's epithet), Hobbes was the perpetrator of a dismal political science. In the state of nature, Hobbes claimed in the *Leviathan*... humans are totally, relentlessly egoistic. "I put for a general inclination of all mankind, a perpetual and restless desire for power after power, that ceaseth only in death." Since all men are more or less equal in strength and cunning, Hobbes asserted, the state of nature is a "war of every man against every man…" Although peaceful cooperation may also be conducive to our self-preservation, fear of punishment is the only reliable way to curb our egoistic behavior. "Covenants without the sword are but words, and of no strength to secure a man at all…" Therefore, the state is primarily an instrumentality for curbing our natural appetites and assuring mutual self-preservation; it amounts to nothing more than a contingent social contract. Furthermore, only an absolute monarchy (a "leviathan") can be truly effective in preventing anarchy. Hobbes, like the Epicureans, also viewed "justice" as a meaningless term. It amounts to whatever a person can get, and keep, and the good life is merely the sum of our separate self-interests.

The other great English social contract theorist, John Locke, lived in a very different, less turbulent period and pursued a different political agenda. As a self-appointed spokesman for a rising middle class that wanted to curb the power of the monarchy, Locke adopted a sharply contrasting set of assumptions about the state of nature. Whereas Hobbes viewed his fellow men darkly as the slaves of restless, irrational passions, Locke, in his *Two Treatises of Government* (1690), portrayed humankind as fundamentally rational; the state of nature was therefore a condition of peace and mutual aid. Humans are also endowed with certain inherent "natural rights," especially property rights. Hence societies (and governments) exist to preserve and enhance these rights; in effect, a society is a voluntary association for mutual benefit. According to Locke, the state does not exist to serve some vision of what is good for the community as a whole, or some disinterested concept of justice. The state's claims to power are circumscribed by its limited, contractual purpose. If this sounds familiar, it is because the fathers of the American Constitution were greatly influenced by Locke's thinking… As Grady and McGuire point out, modern constitutions are as much concerned with imposing constraints on the exercise of "sovereign power" as with any conception of the "general welfare."

2.3 The Ethological Model

A new chapter in this ancient debate opened with the emergence of the science of ethology in the 1960s. Although the systematic study of animal behavior [viz., 'ethology', from Greek *ēthos* meaning 'nature', 'disposition', and (plural) 'customs'] dates back to Darwin's day – as evidenced in his landmark book on *The Expression of the Emotions in Man and Animals*… as well as the pioneering work of the so-called comparative psychologists during the latter 19th and early 20th Centuries – many social scientists of the 20th Century rejected the evolutionary/biological paradigm as being irrelevant to humankind. Human nature was widely assumed to be a *tabula rasa* ["clean slate"] that was shaped exclusively by cultural influences. In a famous, often-cited passage, the well-known anthropologist of that era, Ashley Montagu… asserted that, except for a fear of falling and of sudden loud noises, human beings have no instincts.

However, support for this ideologically-tainted model began to erode with the publication of various ethologically-grounded books… along with the rise of the biopolitics movement in political science and, somewhat later, the founding of sociobiology and evolutionary psychology. (The origins of ethology predated World War II, but only in the 1960s did its contributions become widely known – and debated.) The new debate over the nature of politics and its role in human evolution was initiated by anthropologists Lionel Tiger and Robin Fox in their provocative popularization, *The Imperial Animal* (1971). What Tiger and Fox did, and with a certain relish, was to equate politics in human societies with dominance competition in the natural world. Thus politics is "a world of winners and losers." The political system, they claimed, is synonymous with a "dominance hierarchy."

At first glance, it may seem that Tiger and Fox were promoting the Machiavellian vision (seconded by such modern-day theorists has Hans Morgenthau) that politics is essentially "a struggle for power." As the character O'Brien put it in George Orwell's masterpiece, the novel *1984*, "power is not a means; it is an end… the object of power is power." Yet Tiger and Fox also recognized that dominance competition in nature also has a purpose. It is related to competition for scarce resources – nest sites, food, and especially obtaining mates. Tiger and Fox concluded that "the political system is the breeding system." Having thus flagrantly caricatured this ancient term, Tiger and Fox were then forced to concede that politics in human societies serves very different purposes. It is more often associated with leadership, the division of labor and cooperative activities of various kinds. It has become dissociated for the most part from breeding functions (with some notable exceptions, like Genghis Khan). Unfortunately, Tiger and Fox did not bring this crucial distinction into focus. In the end, we were left mainly with a loose analogy.

A more coherent case for the proposition that human politics is related to dominance behaviors in other species was developed in a succession of works by the primatologist Frans de Waal, beginning with his *Chimpanzee Politics: Power and Sex Among Apes* (1982)… Drawing on his own extensive research in captive chimpanzees, as well as the many long-term field studies of these animals, de Waal offered a deeper, richer perspective on the issue. The struggle for power and influence is ubiquitous among these animals, he acknowledged. From the animals' motivational perspective, this may well be an end in itself. And, yes, the dominant animals may gain advantages in terms of such things as nesting sites and breeding privileges. But there is much more to dominance behaviors than this. The competition for status very often involves coalitions and alliances; it is often a group process rather than an individualistic, Hobbesian "war". Indeed, there is much evidence that social constraints on dominance behaviors are common, both in these and other social animals; coalitions sometimes form to thwart the actions of a dominant animal. And in bonobos (or pygmy chimpanzees), a loose female hierarchy seems to form the organizational backbone of the group; females often band together to constrain an aggressive male… (Also relevant is the evidence for what Boehm… calls an "egalitarian syndrome" in small-scale human societies, like hunter-gatherers.)

More important, stable dominance hierarchies in chimpanzees and other social animals also have functional importance for the group – maintaining peace, arbitrating disputes, limiting destructive competition, mobilizing collective action, even defending the group against outside threats. The intense interdependence of social animals like chimpanzees and bonobos also leads to a degree of reciprocity and generosity, such as food sharing. More recent work in chimpanzees, bonobos, orangutans and other socially-organized species also suggests that interpersonal social relationships and interactions can be very complex, and that cultural influences may also play an important part… In fact, there may even be a degree of "democratic" participation in various group decision-making processes… Nor does one size fit all. The dynamics may differ from one group to the next, or even within the same group over time…

De Waal… invoking Aristotle, concluded that chimpanzees are also political animals: "We should consider it an honor to be classed [along with chimpanzees] as political animals," he says. (For the record, this is also consistent with Aristotle's usage, as Arnhart points out. Aristotle applied the term to any socially-organized species that cooperates in jointly pursuing various aspects of the survival enterprise, from honeybees to wild dogs and killer whales. For obvious reasons, Aristotle placed humans at the pinnacle of this category.)

In sum, the ethological model indicates that both the holistic (idealist) model of politics and the egoistic (realist) model have some validity; they are not mutually exclusive. As de Waal… points out, we also need to ask "what's in it for the subordinate?" His answer: "The advantages of group life can be manifold… increased chances to find food, defense against predators, and strength in numbers against competitors… Each member contributes to and benefits from the group, although not necessarily equally or at the same time… Each society is more than the sum of its parts." (In other words, cooperative social groups may produce mutually-beneficial synergies…)

Accordingly, in the modern version of the ethological model, dominance behaviors may take on the functional attributes of leadership, and a dominance hierarchy may provide a framework for organizing various cooperative activities, including a division (combination) of labor… Such organized "political systems" are characterized by overarching collective goals, decision-making, interpersonal communications, social control processes and "feedback". In short, political systems are cybernetic systems.

2.4 The Cybernetic Model

Political scientist Robert Dahl… has written that a definition is in effect "a proposed treaty governing the use of terms." The treaty I have long promoted embraces both idealist and realist models, and much more. It defines politics as being isomorphic [i.e., "the same ('iso') or similar in form and relations"] with social cybernetics. To be specific: *A political system is the cybernetic aspect, or "subsystem", of any socially organized, cooperating group or population. Politics in these terms refers to social processes that involve efforts to create, or to acquire control over, a cybernetic social system, as well as the process of exercising control.* Power, in this definition, is essentially a means, not an end. Moreover, political power can be attained in many different ways, including family inheritance, acquired wealth, seniority, expertise, merit, drawing straws, elections, the use of lethal force, and, yes, the often potent influence of amorous love. (Indeed, Mohandas K. Gandhi – and many others since – have shown that political power can also be exerted by withholding cooperation, or through the use of non-violent "civil disobedience"…)

This definition of politics is not original. The term 'cybernetics' can be traced back to the Greek word *kybernetes,* meaning steersman or helmsman, and it is also the root of such English words as 'governor' and 'government'. In the nineteenth century, the

French scientist André Ampère took to using the term 'cybernetics' as an equivalent for politics… More recently, the term has been employed by [many other political scientists]… The cybernetic model is also widely employed by life scientists, engineers, and physicists, and there are numerous books and several scientific journals devoted to this subject.

The single most important property of a cybernetic system is that it is goal-oriented. Consider this problem: When a rat is taught to obtain a food reward by pressing a lever in response to a light signal, the animal learns both the instrumental lever-pressing behavior and how to vary its behavior patterns in accordance with where it is in the cage when the light signal occurs, so that whatever the animal's starting position, the outcome is always the same.

How is the rat able to vary its behavior in precise, "purposeful" ways so as to produce a constant result? Some Behaviorist psychologists of the 20th Century promoted a mechanistic model in which environmental "cues" were said to be modifying the properties of various stimuli that were acting on the animal, thus modifying the animal's behavior in a deterministic way. But this model is implausible. It requires the modifying cues to work with quantitative precision on the animal's nervous system; these cues are hypothetical and have never been elucidated; and most important, this model cannot deal with novel situations in which the animal has had no opportunity to learn modifying cues. A far more economical explanation is that the animal's behavior is "purposive": the rat varies its behavior in response to immediate environmental feedback in order to achieve an endogenous goal (food), which in this case also involves a learned sub-goal (pressing the lever).

The pioneer systems theorist William T. Powers… has shown that the behavior of a cybernetic system can be described mathematically in terms of its tendency to oppose an environmental disturbance of an internally controlled quantity. The system will operate in such a way that some function of its output quantities will be nearly equal and opposite to some function of a disturbance of any of the environmental variables that affect the controlled quantity, with the result that the controlled quantity will remain nearly at its zero point. [Incidentally, Dear, in chemistry that's known as Le Chatelier's principle (the condition for a system to be in equilibrium), named after the French chemist Le Chatelier (1850–1936).] The classic example is a household thermostat. In this model, "feedback" plays a key role in controlling the behavior of the system. In other words, cybernetic processes are always the result of a system-environment interaction…

Needless to say, more complex cybernetic systems are not limited to maintaining any sort of simple and eternally fixed steady state. In a complex system, overarching goals may be maintained (or attained) by means of an array of hierarchically organized subgoals that may be pursued contemporaneously, cyclically, or seriatim. Furthermore, homeostasis shares the stage with "homeorhesis" (developmental control processes) and even "teleogenesis" (goal-creating processes). But in all cases, cybernetic systems are goal-oriented.

What is the justification for "dehumanizing" politics and converting the multifarious real-world processes to an abstract analytical model? One advantage is that it reduces the many particular cases to an underlying set of generic properties which transcend any particular institutional arrangement, not to mention the motivations and perceptions of the actors who are involved. The cybernetic definition is also functionally-oriented. It is focused on the processes of goal setting, decision making, communications, and control (including the all-important concept of feedback), which are in fact indispensable requisites for all purposeful social organizations. Indeed, cybernetic regulatory processes exist in families, football teams, business firms, and at all levels of government. To quote Dahl again…: "Whether he likes it or not, virtually no one is completely beyond the reach of some kind of political system. A citizen encounters politics in the government of a country, town, school, church, business firm, trade union, club, political party, civic association and a host of other organizations… Politics is one of the unavoidable facts of human existence."

However, in the cybernetic model, relationships of "power, rule, or authority" (Dahl's definition of politics) are not ultimately ends in themselves but the means to various ends (goals). Moreover, these goals can range from very personal and self-interested – in conformity with the realist model – to public goals that are widely, or even universally shared – in accordance with the idealist model. Or, very often, the system may reflect an admixture of personal and public goals… Needless to say, this model also accommodates a range of alternative decision-making processes, from autocratic fiats to head-to-head (zero-sum) competition among various contestants to "negotiated" decisions, democratic "voting" processes or even entirely self-organized voluntary processes…

In the cybernetic paradigm, the struggle for power – or "dominance competition" in the argot [jargon] of ethology – is relevant and may (or may not) affect the Darwinian fitness of the participants, but this aspect is subsidiary to the role of politics *qua* cybernetics in the operation of any social system. Equally important, power struggles are a subsidiary aspect of the explanation for *why* such systems evolve in the first place. Social goals (goals that require the cooperation of two or more actors) and the anticipated or realized functional outcomes are the primary drivers.

Another advantage of this definition is that it enables us to view human politics as one variant among the array of functionally analogous (and sometimes even homologous) cybernetic regulatory processes that are found in all other socially organized species – from bacterial colonies to army ants and wolf packs – and in all known human societies, including by inference our group-living proto-hominid ancestors of more than 5 million years ago… Though there are great differences among these species, and among human societies, in how political/cybernetic processes are organized and maintained, both the similarities and the differences are illuminating. They are variations on a common theme.

> Thus, a cybernetic definition of politics is grounded in a biological – and functional – perspective and is related, ultimately, to the biological problem of survival and reproduction in, and for, organized societies. Politics in these terms can be viewed as an evolved phenomenon that has played a significant functional role in the evolutionary process; political evolution has been inextricably linked to the synergies that have inspired the "progressive" evolution of complex social systems – in nature and human societies alike. Not only is the cybernetic model compatible with both realist and idealist models (and the modern ethological model) but it fully conforms with Aristotle's (and Plato's) enduring vision.

In the rest of this article by Corning, he emphasizes the cybernetic analogy, 'cybernetics' being defined as "the science of communications and control systems…" In his analogy of politics within a social system (politics being like the thermostat for the heating system in a house), then the important question (which I'll address in later chapters) is: Who controls the thermostat? Options include: a single person (e.g., in a dictatorship or a monarchy), a small group of people (oligarchy), just the rich people (a plutocracy), technocrats (a technocracy), representatives of the people (a republic), all the people (a democracy), and so on, including nobody (anarchy). But setting that question and those possibilities aside for now, Corning concludes his article as follows.

> …a cybernetic definition of politics is grounded in a biological – and functional – perspective and is related, ultimately, to the biological problem of survival and reproduction in, and for, organized societies. Politics in these terms can be viewed as an evolved phenomenon that has played a significant functional role in the evolutionary process; political evolution has been inextricably linked to the synergies that have inspired the "progressive" evolution of complex social systems – in nature and human societies alike.
>
> Not only is the cybernetic model compatible with both realist and idealist models (and the modern ethological model) but it fully conforms with Aristotle's (and Plato's) enduring vision. By contrast, Plato and Aristotle – notwithstanding the "idealist" label that some opponents have pinned on them – occupied a middle-ground between the extreme individualist and radical collectivist visions of human nature and politics… Plato and Aristotle recognized that an organized society is based on a division (combination) of labor and various forms of collective action to satisfy human needs and wants. It represents a network of cybernetic systems, from families to factories, markets and perhaps multiple layers of government. Aristotle's famous observation, in the *Metaphysics* (Book H, 1045:8-10), says it all: "The whole is something over and above its parts, and not just the sum of them all." To reiterate, a society can be characterized as a "collective survival enterprise" – an interdependent "superorganism" that produces mutually beneficial synergies; it is organized to provide for our basic survival and reproductive needs.

However, Plato and Aristotle were also well aware of the fact that there is an inherent tension between the "public interest" and the sometimes destructive self-interests of various individuals and factions. Societies are not, unfortunately, self-equilibrating. (This is precisely why the concept of social justice played such an important part in their political thought.) Accordingly, there is no "standard model" to which all governments conform. In practice, Plato and Aristotle argued, governments can range from a highly exploitative tyranny to a top-heavy oligarchy, mixed democracy or anarchic mob rule. Needless to say, this profoundly important distinction among different types of government – and their political biases – has been overwhelmingly confirmed in the past 2000 years of political history…

Though politics as we have defined it here often entails the pursuit of narrow self-interests (in accordance with the realist model), it also takes place within a larger context – the purposes and interests of the collective survival enterprise as an interdependent system (in accordance with the idealist model). Both of these classical renderings of politics have merit; they are not, in fact, mutually exclusive. Indeed, there is an inherent interplay, and very often a tension, between them.

The reality of the human condition is that the "superorganism" is the key to our survival and reproduction, as it has been for millions of years. However, this vision of the "public interest" does not negate or ignore our individual self-interests. Rather, it represents an aggregation of those interests into an immensely complex system of synergies based primarily on mutualism and reciprocity. The superorganism serves our self-interests in a multiplicity of ways; it provides both collective goods and corporate goods. And the public interest consists of preserving and enhancing these benefits.

Accordingly, the "state" has evolved as an instrumentality for "self-government" and the pursuit of the public interest – though its overarching purpose is all too often subverted. Plato and Aristotle apprehended the overarching purpose of the collective survival enterprise (and its inherent vulnerability) in their conception of the *polis*, and Aristotle prescribed a "mixed" government under law as our best hope for ensuring that the public interest would be faithfully served. Plato and Aristotle also recognized that a fair-minded form of "justice" is an essential element of the public interest; this is the only way to ensure the long-term stability and "legitimacy" (the willing consent) of the members of the community. Over the past 2000 years we have added very little to this vision that is fundamentally new, though we have made many important improvements in the "machinery" of self-government.

What is sobering, even dismaying, is that we seem forever to be forgetting and then re-learning this ancient lesson. Witness the former British Prime Minister Margaret Thatcher, who famously claimed that "there is no such thing as society." The response to her contemptuous remark is that a society exists when people believe it

> does and act accordingly (or vice versa). Plato and Aristotle, and many others since, have stressed that the political order can be what we make of it. To a significant degree, our actions create self-fulfilling prophecies. If honesty, trust, mutual respect, courtesy and the spirit of compromise are the prevailing norms while deviants are ostracized and penalized, a society and its institutions will likely reflect these values, by and large. Conversely, if the cultural climate encourages deception, vicious partisanship, demonizing opponents, and an uncompromising no-holds-barred attitude toward opposing interests, the social and political environment will more closely fit the paradigms of Machiavelli and Hobbes. In the final analysis, our politics is a matter of choice, not a mindless reflection of human nature. Thus, if we choose to remain captives of destructive racial, religious, cultural or economic class divisions, shame on us.
>
> In any case, the bottom-line conclusion of Plato and Aristotle remains valid today. For better or worse, our evolutionary future is dependent upon the goods and services that are provided (or not) by the collective survival enterprise, along with the decisions and actions that we undertake collectively (or not) in the public interest. For this reason, the continuing quest for social justice, and the good life, remains the central challenge for every organized society, as well as for each one of us. It is a goal worth striving for, because our own survival, and certainly that of our descendants, may very well depend upon it. Nothing less than our evolutionary future is at stake. To paraphrase the American "founding father," Benjamin Franklin, in the long run either we will survive together or go extinct separately.

Well, Dear, I hope that you found the above quotation from Corning interesting and even somewhat reassuring, in that I hope you concluded something similar to: "Yah, politics is pretty much what I expected it was, namely, ways that groups pursue goals."

Alternatively (but equivalently), one can say that politics is the process by which group-decisions are made. If one asks "What decisions?", the answer is "Whatever!" If one asks "What process?", the answer is again "Whatever – from democracy to dictatorship". And if one asks "By whom?", the answer is still: "Whatever (or by whomever), from animals to philosophers!" And of course, a major complication in politics is that there are so many competing goals, including the trio of prime goals being pursued by each member of the group (i.e., survival of themselves, their "families", and their values). Thus, when Einstein said "politics is more difficult than physics", I don't think that he meant that it was conceptually more difficult; instead, not only that politics is a field of so many goals but also that it's so difficult to make any progress toward any of them!

In politics it's also substantially more difficult to perform experiments, and consequently, to establish defensible general principles. Nonetheless, and ever since the Stone Age, humans (similar to other animals) have formed into "political groups" to try to find intelligent, collective, cooperative solutions to their problems, while each individual in the group continued to pursue his or her trio of survival goals. And I should add that by "intelligent solutions", I don't mean "just" the kind of intelligence that can solve math problems, build bridges, explore the structure of matter or the universe, etc., but all types of intelligence: analytic, synthetic, artistic, practical, interpersonal, social, political…

But as I already mentioned, what's new (or at least, greatly amplified) for your generation is that many of humanity's problems have a worldwide (or global) scale. To illustrate, consider the following quotation from a book by John Avery (which I encourage you to read) with the stimulating title *Space-Age Science and **Stone-Age Politics*** [bold-face type added]. Avery starts his book as follows, from which I hope you'll gain some appreciation for the enormous problems now facing humanity – and what practical solutions humans might be able to find, if only appropriate, global-scale management and governance principles can be developed.[4]

The world as it is, and the world as it could be
[Copied from John Avery's *Space-Age Science and Stone-Age Politics*]

> We need to know where we are going before we can take the first step. So let us begin at the end, and only later return to the question of how that end can be achieved.
>
> I would like to invite you to play a game. The rules are as follows: You should imagine the kind of world you would like to have. It must be a world that is possible – something that would work in practice, if we could only achieve it. Then contrast

[4] Dear: You can download this book by "clicking on" its title in Avery's list of publications, given at http://www.fredsakademiet.dk/ordbog/aord/a220.htm. There, you can also find the following information about the author: "John Avery received a B.Sc. in theoretical physics from MIT and an M.Sc. from the University of Chicago. He later studied theoretical chemistry at the University of London, and was awarded a Ph.D. there in 1965. He is now Lektor Emeritus, Associate Professor, at the Department of Chemistry, University of Copenhagen. Fellowships, memberships in societies: Since 1990 he has been the Contact Person in Denmark for Pugwash Conferences on Science and World Affairs; Technical Advisor, World Health Organization, Regional Office for Europe (1988–1997); Chairman of the Danish Peace Academy, April 2004."

that ideal world with the world as it is today. For the moment, don't worry about the question of how to get from here to there.

Some years ago, my friend Keld Helmer-Petersen and I tried this, and came up with the following list, contrasting the world as it is with the world as it could be. Try making your own list. Here is ours:

- In the world as it is, almost a trillion US dollars are spent each year on armaments. In the world as it could be, the enormous sums now wasted on war would be used to combat famine, poverty, illiteracy, and preventable disease.

- In the world as it is, population is increasing so fast that it doubles every thirty-nine years. Most of this increase is in the developing countries, and in many of these, the doubling time is less than twenty-five years. Famine is already present, and it threatens to become more severe and widespread in the future. In the world as it could be, population would be stabilized at a level that could be sustained comfortably by the world's food and energy resources. Each country would be responsible for stabilizing its own population, and no country would be allowed to export its problem by sending large numbers of its citizens abroad.

- In the world as it is, the nuclear weapons now stockpiled are sufficient to kill everyone on earth several times over. Nuclear technology is spreading, and many politically unstable countries have recently acquired nuclear weapons or may acquire them soon. Even terrorist groups or organized criminals may acquire such weapons, and there is an increasing danger that they will be used. In the world as it could be, both the manufacture and the possession of nuclear weapons by individual nations would be prohibited. The same would hold for other weapons of mass destruction.

- In the world as it is, 40% of all research funds are used for projects related to armaments. In the world as it could be, research in science and engineering would be redirected towards solving the urgent problems now facing humanity, such as the development of better methods for treating tropical diseases, new energy sources, and new agricultural methods. An expanded UNESCO would replace national military establishments as the patron of science and engineering.

- In the world as it is, gross violations of human rights are common. These include genocide, torture, summary execution, and imprisonment without trial. In the world as it could be, the International Human Rights Commission would have far greater power to protect individuals against violations of human rights.

- In the world as it is, armaments exported from the industrial countries to the Third World amount to a value of roughly 17 billion dollars per year. This trade in arms increases the seriousness and danger of conflicts in the less developed countries, and diverts scarce funds from their urgent needs. In the world as it could be, international trade in arms would be strictly limited by enforceable laws.

- In the world as it is, an estimated 10 million children die each year from starvation or from diseases related to malnutrition. In the world as it could be, the international community would support programs for agricultural development and famine relief on a much larger scale than at present.

- In the world as it is, diarrhea spread by unsafe drinking water kills an estimated 6 million children every year. In the world as it could be, the installation of safe and adequate water systems and proper sanitation in all parts of the world would have a high priority and would be supported by ample international funds.

- In the world as it is, malaria, tuberculosis, AIDS, cholera, schistosomiasis, typhoid fever, typhus, trachoma, sleeping sickness and river blindness cause the illness and death of millions of people each year. For example, it is estimated that 200 million people now suffer from schistosomiasis and that 500 million suffer from trachoma, which often causes blindness. In Africa alone, malaria kills more than a million children every year. In the world as it could be, these preventable diseases would be controlled by a concerted international effort. The World Health Organization would be given sufficient funds to carry out this project.

- In the world as it is, the rate of illiteracy in the 25 least developed countries is 80%. The total number of illiterates in the world is estimated to be 800 million. In the world as it could be, the international community would aim at giving all children at least an elementary education. Laws against child labor would prevent parents from regarding very young children as a source of income, thus removing one of the driving forces behind the population explosion. The money invested in education would pay economic dividends after a few years.

- In the world as it is, there is no generally enforceable system of international law, although the International Criminal Court is a step in the right direction. In the world as it could be, the General Assembly of the United Nations would have the power to make international laws. These laws would be binding for all citizens of the world community, and the United Nations would enforce its laws by arresting or fining individual violators, even if they were heads of states. However, the laws of the United Nations would be restricted to international matters, and each nation would run its own internal affairs according to its own laws.

- In the world as it is, each nation considers itself to be ‘sovereign’. In other words, every country considers that it can do whatever it likes, without regard for the welfare of the world community. This means that at the international level we have anarchy. In the world as it could be, the concept of national sovereignty would be limited by the needs of the world community. Each nation would decide most issues within its own boundaries, but would yield some of its sovereignty in international matters.

- In the world as it is, the system of giving 'one nation one vote' in the United Nations General Assembly means that Monaco, Liechtenstein, Malta, and Andorra have as much voting power as China, India, the United States and Russia combined. For this reason, UN resolutions are often ignored. In the world as it could be, the voting system of the General Assembly would be reformed…

- In the world as it is, the United Nations has no reliable means of raising revenues. In the world as it could be, the United Nations would have the power to tax international business transactions, such as exchange of currencies. Each member state would also pay a yearly contribution, and failure to pay would mean loss of voting rights.

- In the world as it is, young men are forced to join national armies, where they are trained to kill their fellow humans. Often, if they refuse for reasons of conscience, they are thrown into prison. In the world as it could be, national armies would be very much reduced in size. A larger force of volunteers would be maintained by the United Nations to enforce international laws. The United Nations would have a monopoly on heavy armaments, and the manufacture or possession of nuclear weapons would be prohibited.

- In the world as it is, young people are indoctrinated with nationalism. History is taught in such a way that one's own nation is seen as heroic and in the right, while other nations are seen as inferior or as enemies. In the world as it could be, young people would be taught to feel loyalty to humanity as a whole. History would be taught in such a way as to emphasize the contributions that all nations and all races have made to the common cultural heritage of humanity.

- In the world as it is, young people are often faced with the prospect of unemployment. This is true both in the developed countries, where automation and recession produce unemployment, and in the developing countries, where unemployment is produced by overpopulation and by lack of capital. In the world as it could be, the idealism and energy of youth would be fully utilized by the world community to combat illiteracy and disease, and to develop agriculture and industry in the Third World. These projects would be financed by the UN…

- In the world as it is, women form more than half of the population, but they are not proportionately represented in positions of political and economic power or in the arts and sciences. In many societies, women are confined to the traditional roles of childbearing and housekeeping. In the world as it could be, women in all cultures would take their place beside men in positions of importance in government and industry, and in the arts and sciences. The reduced emphasis on childbearing would help to slow the population explosion.

- In the world as it is, pollutants are dumped into our rivers, oceans and atmosphere. Some progress has been made in controlling pollution, but far from enough. In the world as it could be, a stabilized and perhaps reduced population

would put less pressure on the environment. Strict international laws would prohibit the dumping of pollutants into our common rivers, oceans and atmosphere. The production of greenhouse gasses would also be limited by international laws.

- In the world as it is, there are no enforceable laws to prevent threatened species from being hunted to extinction. Many indigenous human cultures are also threatened. In the world as it could be, an enforceable system of international laws would protect threatened species. Indigenous human cultures would also be protected.

- In the world as it is, large areas of tropical rain forest are being destroyed by excessive timber cutting. The cleared land is generally unsuitable for farming. In the world as it could be, it would be recognized that the conversion of carbon dioxide into oxygen by tropical forests is necessary for the earth's climatic stability. Tropical forests would also be highly valued because of their enormous diversity of plant and animal life, and large remaining areas of forest would be protected.

- In the world as it is, terrorists often feel that they can expect protection and help from countries sympathetic with their views. In the world as it could be, a universal convention against terrorism and hijacking would give terrorists no place to hide.

- In the world as it is, opium poppies and other drug-producing plants are grown with little official hindrance in certain parts of Asia, the Middle East, and Latin America. Hard drugs refined from these plants are imported illegally into the developed countries, where they become a major source of high crime rates and human tragedy. In the world as it could be, all nations would work together in a coordinated worldwide program to prevent the growing, refinement, and distribution of harmful drugs.

- In the world as it is, modern communications media, such as television, films and newspapers, have an enormous influence on public opinion. However, this influence is only rarely used to build up international understanding and mutual respect. In the world as it could be, mass communications media would be more fully used to bridge human differences. Emphasis would be shifted from the sensational portrayal of conflicts to programs that widen our range of sympathy and understanding.

- In the world as it is, international understanding is blocked by language barriers. In the world as it could be, an international language would be selected, and every child would be taught it as a second language.

- In the world as it is, power and material goods are valued more highly than they deserve to be. 'Civilized' life often degenerates into a struggle of all against all

> for power and possessions. However, the industrial complex on which the production of goods depends cannot be made to run faster and faster, because we will soon encounter shortages of energy and raw materials. In the world as it could be, nonmaterial human qualities, such as kindness, politeness, and knowledge, and musical, artistic or literary ability would be valued more highly, and people would derive a larger part of their pleasure from conversation, and from the appreciation of unspoiled nature.
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> - In the world as it is, the institution of slavery existed for so many millennia that it seemed to be a permanent part of human society. Slavery has now been abolished in almost every part of the world. However war, an even greater evil than slavery, still exists as an established human institution. In the world as it could be, we would take courage from the abolition of slavery, and we would turn with energy and resolution to the great task of abolishing war.
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> - In the world as it is, people feel anxious about the future, but unable to influence it. They feel that as individuals they have no influence on the large-scale course of events. In the world as it could be, ordinary citizens would realize that collectively they can shape the future. They would join hands and work together for a better world. They would give as much of themselves to peace as peace is worth.
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> As George Bernard Shaw once said, "Most people look at the world as it is and ask 'Why?'. We should look at the world as it could be and ask, 'Why not'?"

Of course the tough question is not "Why not?" but "How?" As Avery states:

> Next comes the hard part: How do we go from here to there? That will be the subject of the remainder of this book.

Similarly, Dear, the subject of the remainder of these **X**-chapters will be to suggest ways that humans might get "from here to there." In these chapters, however, I don't plan to try to suggest solutions to all the world's problems – because I've got problems enough trying to complete my answer to a question from a certain troublesome four-year-old! Thus, as I might have mentioned once or twice before, a certain skunk grandchild asked me why I didn't believe in God; the part of my response that I want to emphasize in the remaining **X**-chapters (as a part of my response that "Belief in god is bad science and even worse policy") is that belief in god has made it (and continues to make it) much more difficult to find intelligent solutions to the many real problems facing humanity.

Further, by proposing to restrict myself (in the main) to problems caused by religions, I claim that I won't be restricting myself very much: although it would be difficult to be precise, I'd guess that at least half of the world's major problems are derived from religious ignorance. For instance, think of the problems caused by overpopulation, in turn cause by stupid birth-control policies promoted in Catholicism, Islam, and Mormonism; think of the animosity between different groups (including wars) promoted, especially, in Christianity and Islam; think of the consequences of so many people (in Hinduism, Christianity, Islam, and Mormonism) "thinking" that they have another life to live after they die – so then, they don't need to worry about their short existence on Earth, including their rape of the environment; think of the treatment of women in those same religions; think of the consequences of those same stupid religions not educating their children to think critically; and so on, on and on. As a single example in contrasts, your clerics tell you that adultery or homosexuality or masturbation or… are "abominations before the Lord" and if practiced, will preclude your being permitted to enter paradise when you're dead; in contrast, scientists tell you that releasing CFCs into the atmosphere will deplete the stratospheric ozone layer, damaging all life on Earth.

In his 2007 book, *god is not great – How Religion Poisons Everything*, Christopher Hitchens summarized the situation well (p. 56):

> Violent, irrational, intolerant, allied to racism and tribalism and bigotry, invested in ignorance and hostile to free inquiry, contemptuous of women and coercive toward children: organized religion ought to have a great deal on its conscience. There is one more charge to be added to the bill of indictment. With a necessary part of its collective mind, religion looks forward to the destruction of the world. By this I do not mean it "looks forward" in the purely eschatological sense of anticipating the end. I mean, rather, that it openly or covertly wishes that end to occur.

Such "end-time" stupidity is rampant in Christianity, Islam, and Mormonism. For example, Dear, you've been indoctrinated in Mormonism, which "the LDS Church" officially calls "The Church of Jesus Christ of Latter-Day Saints." Have you stopped to think about what's meant by "Latter Days"?!

And actually, there may be some (unwitting) sense in the term "Latter Days", since as I showed you in the previous chapter, humans face the not incidental problem that our species may be headed for extinction – possibly caused by our own stupidity! To date, life has managed to evolve on this

planet without much thought about the matter. Thus, Nature managed (by herself!) to turn a tiny molecule able to replicate itself (from material available in some organic goo) into a bunch of older blobs that can, for example, sit in front of their computers and bang out books for younger blobs! In all of this evolution, the prime goal was never more than just to continue – to survive. Those blobs that didn't, didn't! And if we could be objective about the matter, maybe we can see ourselves as just one more of Nature's experiments: Nature has now completed experiments with some number of billions of species and found that some number of millions were successful survivors. She now seems to be testing the hypothesis: "A more intelligent species has a better chance of surviving." Maybe.

Let me try to put a few numbers on related probabilities and associated time scales. For example, based on the global models that I outlined in **X5** and my own "guesstimate" of their reliability, I expect that there's about a 50% chance that the world's economy will suffer an enormous collapse during this century (maybe in about 50 years) – but that humans will "crawl out on the other side of the collapse" (in another century or so), a little wiser (at least it can be hoped) and with perhaps one third-or-so of the current population. In the "large scale of things", therefore, such a collapse will have been little more than a "blip" in humanity's record – but maybe it'll be a sufficiently stimulating blip so that the survivors will be smarter!

As for the probability that during the next few centuries humanity will become extinct (e.g., for any of the many reasons given in the paper by Bostrom that I quoted in **X7**), my "guesstimate" is that the chances are less than 10% – provided that humans "stay on their toes"! That is, I expect that there's better than a 90% chance that humanity will continue, albeit not without suffering some major setbacks. In contrast, recall Bostrom's estimate (without suggesting when extinction might occur): "My subjective opinion is that setting this probability lower than 25% would be misguided, and the best estimate may be considerably higher."

Otherwise (save for the occasional major economic collapse and assuming that humanity doesn't become extinct), I expect "the human system" will just slowly evolve, slowly gaining more knowledge, slowly solving our many problems, slowly becoming more intelligent. In particular, in the relatively short time period of 10 to 100 generations (i.e., ~200 – 2,000 years!), I expect that this (cultural) evolution will lead to the purging of all

supernatural silliness, after which time the remaining small minorities of religious people will receive the psychiatric help they need.

I expect that the organized ignorance known as organized religion will disappear, because such has been the "trajectory" that humanity has been on during the past ~10,000 years. That is, most people have now "killed off" all gods but one. Which reminds me of what Lemuel K. Washburn wrote in his 1911 book *Is The Bible Worth Reading and Other Essays* (copied here from Aiken's collection of quotations):

> Where are the sons of gods that loved the daughters of men?
> Where are the nymphs, the goddesses of the winds and waters?
> Where are the gnomes that lived inside the earth?
> Where are the goblins that used to play tricks on mortals?
> Where are the fairies that could blight or bless the human heart?
> Where are the ghosts that haunted this globe?
> Where are the witches that flew in and out of the homes of men?
> Where is the devil that once roamed over the earth?
> Where are they? Gone with the ignorance that believed in them.

As Stephen Roberts said to a theist: "When you understand why you dismiss all the other possible gods, you will understand why I dismiss yours." If I were pushed to quantify my assessment, my "guesstimate" would be that there's a ~80% probability that collective delusions about the existence of the one remaining god will just slowly disappear.

But I admit that, on the one hand, I may be too optimistic. Maybe "fundamentalists" such as this country's "Christian Right" (or better "Christian Reich", or better yet, "Christian Wrong"!) will be successful in their desire to establish a theocracy in this country and then will be able to extinguish the lights of knowledge throughout the world for another thousand-or-more years. Maybe the equally crazy Muslim fundamentalists (or "Islamists") will win in their campaign of terror, forcing everyone to bow and scrape to their imagined Allah five times a day. Maybe the probability is as high as 10% that such fools will plunge the world into another "Dark Age". But I doubt it. Assuming that we don't become extinct, I expect that there's a ~90% probability that we'll be able to boot the one remaining god off this planet.

I boosted my estimate (from ~80% to ~90%) that humanity will purge itself of all religions (assuming that humans don't become extinct, first), because

my suggestion that (with ~80% probability) religion will just slowly be extinguished may be too pessimistic. Thus, with systems as complicated as this Human System, predictions are difficult – if not impossible. As I mentioned in an earlier chapter, the inability to predict outcomes for nonlinear systems is known as the "butterfly effect", which (as you can find on the internet) was discovered and named by the MIT meteorologist Edward Lorenz: in his attempts to make long-range weather predictions, he found that no matter how small was the uncertainty in initial weather conditions (e.g., winds caused by a butterfly flapping its wings!), then as the computations were executed, the uncertainties grew so large that, after less than a week's simulation time, the model's predictions were useless; thus, the frequently repeated statement that a butterfly in Brazil (or grasshopper in the Sahara) can cause a hurricane. Such extreme sensitivity to initial conditions is characteristic of all nonlinear systems, such as humanity.

Humanity is certainly subjected to a huge number of butterflies – and grasshoppers. For example, if we receive a message from any extraterrestrials (ETs) – or better, a visitor! – then I'd expect that in very short order, all religions and all gods would just vanish in an extraterrestrial "Poof!" Less fanciful, if physicists can convincingly demonstrate how this universe was created (e.g., develop predictions and tests of speculations from "String Theory"), then once school children learn about the experimental results, I'd expect that religions would relatively quickly disappear in a few generations – provided that the information has worldwide distribution, e.g., courtesy the wonderful internet. Or maybe there will be collaboration between a tremendous author, a brilliant director, and superb actors leading to a movie that would quickly move humanity toward sanity.

Who knows what butterfly or grasshopper might set off the hurricane that will demolish all the defunct science known as religion. It can be argued (and in fact has been argued) that the reason why Europe is ahead of America in purging itself of all religions is because of an amazing butterfly: the wit of Voltaire (1694–1778). His wit penetrated all levels of European society: carriage drivers would repeat his assessment "The first priest was the first rogue who met the first fool" and similar workers would repeat his condemnation "A cleric is one who feels himself called upon to live without working at the expense of the rascals who work to live."

For all I know, a competent comedian may soon appear (say a cross between a Voltaire and a Bill Cosby!) who can lead the world to laugh all gods out of existence! Now there's a happy thought. As H.L. Mencken wrote:

> The liberation of the human mind has never been furthered by dunderheads [such as a certain grandfather!]; it has been furthered by gay fellows who heaved dead cats into sanctuaries and then went roistering down the highways of the world, proving to all men that doubt, after all, was safe – that the god in the sanctuary was finite in his power and hence a fraud. One horse-laugh is worth ten thousand syllogisms. It is not only more effective; it is also vastly more intelligent.

Yet, in spite of such optimism, happy thoughts, and visions of stimulating butterflies, I'm sorry to suggest that the most likely course (with ~80% probability) is "the long haul" – and I admit that within this ~80%, there's a ~20% probability that the outcome will not be humanism but some "ism" as stupid as theism (such as imperialism, nazism, communism, or some-as-yet-unidentified "stupidism").[5]

I should also emphasize that by "the long haul", I'm referring to the relatively slow cultural evolution, not the much slower biological evolution. There is, of course, a huge amount of data supporting the conclusion that *biological evolution* is astoundingly slow. Biologically, modern humans are essentially the same as our ancestors who lived ~100,000 years ago – although we're probably taller and fatter! Therefore, almost certainly, there won't be major biological changes in humans during the next 10 to 100 generations. But humans constitute a species not just because of our bodies but also because of our minds – and compared with our biological evolution, our *cultural evolution* has been and continues to be amazingly rapid.

Thus, ever since humans learned to use language, ever since we found ways to communicate with more than grunts and gestures, our cultural evolution (and, sometimes, our regression) has been largely under our control. We wouldn't be what we are without speaking, writing, and "googling"! It was human intelligence that tamed fire, made clothing and shelters, farmed, made wheels, and so on – and it was human ignorance that created gods, slavery, racism, and so on. As the Buddha said, ~2,500 years ago: "With our thoughts we make the world." Or as the 20th Century American

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[5] Dear: capitalism is not one of these "sutpidism" because, as Thomas Sowell said: "Capitalism… is closer to being the opposite of an 'ism,' because it's simply the freedom of ordinary people to make whatever economic transactions they can mutually agree to." Unrestrained capitalism (or corporatism), however, can lead and has led to monopolies and Nazism.

anthropologist Margaret Mead said: "Never doubt that a small group of thoughtful, committed [people] can change the world; indeed, it is the only thing that ever has."

Many examples could be given, but maybe the best examples are from modern science and the many fields in which it's applied (mechanics, medicine, meteorology,…). The goal of pure and applied scientists is to develop and apply knowledge to benefit humanity, by helping to solve our many problems more intelligently. And of course I grant the critics that some steps have been backward (e.g., *via* pollution and new ways to kill people), but in the main, scientific progress during the past few centuries has been absolutely astounding (in communications, travel, comfort, health…). Thus, if you ask teenagers in Tel Aviv, Tehran, Tokyo, or Toledo to describe recent "progress", and I'll bet that the vast majority would mention various applications of science.

In fact, during the past few centuries (a duration too short to measure on a time scale used to measure biological evolution), the pace of cultural evolution in "Western" nations has been so rapid that keeping abreast with it (or even comprehending it) is sometimes quite difficult. For example, certain grandchildren have difficulty comprehending that when I was a kid, our family had no telephone, no TV, no car, and there was no United Nations, no space flight, no personal computers, and no internet. But maybe they'll be more understanding when their own grandchildren have difficulty comprehending no constraints on consumption or on family size, no prohibition on depiction of violence or indoctrination of children in religious ignorance, no…

There is, moreover, an absolutely wonderful set of ethics associated with modern science and its applied fields. Thus, I can think of no better example in which "equal opportunity" is the norm, where race and gender are irrelevant, where honesty is paramount, where the search for truth is all consuming, where intelligence, creativity, and perseverance are prized – and believe it or not, where kindness is king. In support of that last claim, I could tell you stories about some of my "heroes": the kind Nobel-Prize winner from India, Chandrasekhar, who helped me; the kind Jewish American scientist who helped me correct one of the errors in my Ph.D. thesis (whose name I'll skip); and many more men and women from throughout the world (in Canada, England, Russia, Sweden, Germany, France, Italy, Israel, Indonesia, and Japan) whose kindness and competence I

fondly remember. And let me add that I did what I could so that other scientists (e.g., from Brazil, China, Iraq, and South Korea) might remember me similarly. What glory it would be if all humanity behaved similarly: no national boundaries, no government, no hidden agendas, no prime goal other than to help solve humanity's problems intelligently!

And yes, again I would agree with the critics that there have been and maybe even still are some "bad actors": some scientists (pure and applied) who lie, cheat, steal and perpetuate fraud, and the prime goal of some is their own aggrandizement. But my experience was that such "bad actors" sum to a small minority. In contrast, in religion and politics, such "bad actors" are commonly in the majority! As a terribly unfortunate result, religious and political ignorance and power mongering still rule both this country and the world. I'll show you some specific examples in subsequent chapters, but in the remainder of this chapter, I want to comment on just the relatively slow cultural evolution that I expect will occur, ridding humanity of all gods.

I expect that the evolution will be slow – painfully slow – not only because it's so difficult to purge people of childhood indoctrinations but also because the gap between the two sides (anti-theists *vs.* theists, or humanists *vs.* religious, or naturalists *vs.* supernaturalists, or "Brights" *vs*. "believers") is so wide, so deep, so fundamental, so threatening, so dangerous, and so rancorous (in part because of the river of blood that has flown and continues to flow between the two) that it seems almost impossible ever to span the gap with a "peace bridge". Thus, anti-theists will continue to refuse to yield their intellects to the imaginary gods of the theists; humanists will never desert humanity to serve the imaginary gods of the religious; naturalists will never accept the data-less speculations of the supernaturalists; Brights will always continue to repudiate the ideas of the believers so long as their "faith" rests only on schizophrenics' dreams and visions and tricks of conniving con-artist clerics; we'll never abandon our hope to help humans have a better life here on Earth, while they'll never abandon their fanciful opportunities for their own eternal life in an imagined paradise. And if you didn't already know on which side of the gap your grandfather stands, then the previous long sentence should reveal it!

Another reason why I expect that ridding humanity of religious ignorance will be so slow is because what the con-artist clerics hawk is so much more appealing than what scientific humanists have to offer! Clerics offer to "light the way to truth"; we admit that they're stumbling in the dark,

learning by trial and error, and that in the real world, "truth" can be approached only asymptotically. Clerics don't require their followers to think; we require that people think for themselves. Clerics provide "moral absolutes"; if we recognize any moral absolutes, perhaps the only one is that all of us should use our brains as best we can. Clerics give their followers a clear purpose; we suggest possible alternatives. Clerics promise eternal bliss; we promise perpetual struggle. And to become religious, all a person need do is believe – whereas to become a scientific humanist is to be continuously confounded by doubt. As Bruce Calvert said, "Believing is easier than thinking; hence, so many more believers than thinkers."

And actually, there's more. To introduce it, let me say that the two most courageous people by whom I've had the good fortune to be influenced are my wife and our daughter. Both have been through what, in a better world, no one should have to go through, and yet, each met those problems, and overcame them, with amazing courage. Cowards would have cringed to their gods; cowards would have escaped from their troubles by drifting into their religious dream worlds; cowards would have convinced themselves that their difficulties were part of some grand scheme in which they were "being tested". My wife and daughter, in contrast, courageously overcame their trials by facing reality and relying on themselves – as Zen masters do.

But I admit that the clerics deserve credit for concocting such a "cop out"! For those too frightened to face reality, it's obviously great to escape into make-believe. Yet, although I see the attraction of relying on such a crutch (convincing oneself that reality isn't real, whereas make believe is!), I admire the courage of my wife and daughter who struggled forward on their own, without the help of the clerics' crutch. Sir John Buchan (1875-1940, Scottish author and Governor General of Canada) summarized it well: "An atheist is a [person] who has no <u>invisible</u> means of support."

In any event, in the remainder of these **X**-chapters, I'll try to show you at least a few ideas about how we might be able to get from where we are to more peace and prosperity throughout the world – without any invisible means of support. The essence of my message will be: more people need to "Get real!" For example, Dear, if you "think" that your health can be maintained if you don't get more exercise, then…!