

COLLECTED ESSAYS

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Introduction

This book contains a collection of essays, most of which were first published in *Countercurrents* and in Professor Johan Galtung's *Transcend Media Service Weekly Digest* during 2012 and early 2013. The Editor of *Countercurrents*, Mr. Binu Mathew, and the Editor of *TMS Weekly Digest*, Mr. Antonio C.S. Rosa, were kind enough to accept all the articles that I sent to them, and so I wrote more and more.

One exception to this is the first essay, "Against the Institution of War", which was commissioned by Professor David Peat's Pari Center for New Learning, Pari, Italy, and first published in their on-line library. Six essays at the end of the book were first published in *Cadmus* and in *Erudito*, journals of the World Academy of Art and Science. I am extremely grateful to Professors Ivo Slaus and Garry Jacobs for encouraging me to publish in the two journals of the World Academy. "Learning to live in Harmony" was commissioned by Dr. Jan Visser and was first published on the website of his Learning Development Institute. Finally, "The World As It Is and The World As It Could Be" is an illustrated version of a pamphlet published in English and Danish by my close friend Keld Helmer-Petersen and myself.

Some of the essays are excerpted from my books on social issues, while others are responses to current events. All the articles are concerned with trying to find solutions to the serious problems with which the world is faced in the 21st Century.

My aim has been to tell the truth, even when the truth is unpleasant or offensive. I must therefore apologize to readers who may dislike some of the essays. However, I feel that because of the seriousness of our present situation, we ought to look as directly and honestly as possible at the threats we are facing, in order to find ways to save human civilization and the biosphere.

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AGAINST THE INSTITUTION OF WAR

As we start the 21st century and the new millennium, our scientific and technological civilization seems to be entering a period of crisis. Today, for the first time in history, science has given to humans the possibility of a life of comfort, free from hunger and cold, and free from the constant threat of infectious disease. At the same time, science has given us the power to destroy civilization through thermonuclear war, as well as the power to make our planet uninhabitable through pollution and overpopulation. The question of which of these alternatives we choose is a matter of life or death to ourselves and our children.

Science and technology have shown themselves to be double-edged, capable of doing great good or of producing great harm, depending on the way in which we use the enormous power over nature, which science has given to us. For this reason, ethical thought is needed now more than ever before. The wisdom of the world's religions, the traditional wisdom of humankind, can help us as we try to insure that our overwhelming material progress will be beneficial rather than disastrous.

The crisis of civilization, which we face today, has been produced by the rapidity with which science and technology have developed. Our institutions and ideas adjust too slowly to the change. The great challenge which history has given to our generation is the task of building new international political structures, which will be in harmony with modern technology. At the same time, we must develop a new global ethic, which will replace our narrow loyalties by loyalty to humanity as a whole.

In the long run, because of the enormously destructive weapons, which have been produced through the misuse of science, the survival of civilization can only be insured if we are able to abolish the institution of war.

While in earlier epochs it may have been possible to confine the effects of war mainly to combatants, in our own century the victims of war have increasingly been civilians, and especially children. For example, according to Quincy Wright's statistics, the First and Second World Wars together cost the lives of 26 million soldiers, but the toll in civilian lives was much larger: 64 million. Since the Second World War, despite the best efforts of the U.

N., there have been over 150 armed conflicts; and, if civil wars are included, there are on any given day an average of 12 wars somewhere in the world. In the conflicts in Indo-China, the proportion of civilian victims was between 80 percent and 90 percent, while in the Lebanese civil war some sources state that the proportion of civilian casualties was as high as 97 percent.

Civilian casualties often occur through malnutrition and through diseases, which would be preventable in normal circumstances. Because of the social disruption caused by war, normal supplies of food, safe water and medicine are interrupted, so that populations become vulnerable to famine and epidemics. In the event of a catastrophic nuclear war, starvation and disease would add greatly to the loss of life caused by the direct effects of nuclear weapons.

The indirect effects of war are also enormous. Globally, preparations for war interfere seriously with the use of tax money for constructive and peaceful purposes. Today, despite the end of the Cold War, the world spends roughly a trillion (i.e. a million million) US dollars each year on armaments. This enormous flood of money, which is almost too large to imagine, could have been used instead for urgently needed public health measures.

The World Health Organization lacks funds to carry through an anti-malarial program on as large a scale as would be desirable, but the entire program could be financed for less than the world spends on armaments in a single day. Five hours of world arms spending is equivalent to the total cost of the 20-year WHO campaign, which resulted in the eradication of smallpox. For every 100,000 people in the world, there are 556 soldiers, but only 85 doctors. Every soldier costs an average of 20,000 US dollars per year, while the average spent per year on education is only 380 US dollars per school-aged child. With a diversion of funds consumed by three weeks of military spending, the world could create a sanitary water supply for all its people, thus eliminating the cause of almost half of all human illness.

A new and drug-resistant form of tuberculosis has recently become widespread, and is increasing rapidly in the former Soviet Union. In order to combat this new form of tuberculosis, and in order to prevent its spread to Western Europe, WHO needs 450 million US dollars, an amount equivalent to 4 hours of world arms spending. By using this money to combat tuberculosis in the

former Soviet Union, WHO would be making a far greater contribution to global peace and stability than is made by spending the money on armaments.

Today's world is one in which roughly ten million children die each year from diseases related to poverty. Besides this enormous waste of young lives through malnutrition and preventable disease, there is a huge waste of opportunities through inadequate education. The rate of illiteracy in the 25 least developed countries is 80 percent, and the total number of illiterates in the world is estimated to be 800 million. Meanwhile every 60 seconds the world spends roughly 2 million U. S. dollars on armaments.

It is plain that if the almost unbelievable sums now wasted on armaments were used constructively, most of the pressing problems now facing humanity could be solved, but today the world spends more than 20 times as much per year on weapons as it does on development.

Because the world spends a thousand billion dollars each year on armaments, it follows that very many people make their living from war. This is the reason why it is correct to speak of war as a social institution, and also the reason why war persists, although everyone realizes that it is the cause of much of the suffering that inflicts humanity. We know that war is madness, but it persists. We know that it threatens the future survival of our species, but it persists, entrenched in the attitudes of historians, newspaper editors and television producers, entrenched in the methods by which politicians finance their campaigns, and entrenched in the financial power of arms manufacturers, entrenched also in the ponderous and costly hardware of war, the fleets of warships, bombers, tanks, nuclear missiles and so on.

Science cannot claim to be guiltless: In Eisenhower's farewell address, he warned of the increasing power of the industrial-military complex, a threat to democratic society. If he were making the same speech today, he might speak of the industrial-military-scientific complex. Since Hiroshima, we have known that new knowledge is not always good. There is a grave danger that nuclear weapons will soon proliferate to such an extent that they will be available to terrorists and even to the mafia. Chemical and biological weapons also constitute a grave threat. The eradication of smallpox in 1979 was a triumph of medical science combined with international cooperation. How sad it is to think that military laboratories cultivate smallpox and that

the disease may soon be reintroduced as a biological weapon!

The institution of war seems to be linked to a fault in human nature, to our tendency to exhibit altruism towards members of our own group but aggression towards other groups if we perceive them to be threatening our own community. This tendency, which might be called “tribalism”, was perhaps built into human nature by evolution during the long prehistory of our species, when we lived as hunter-gatherers in small genetically homogeneous tribes, competing for territory on the grasslands of Africa. However, in an era of nerve gas and nuclear weapons, the anachronistic behavior pattern of tribal altruism and intertribal aggression now threatens our survival.

Fortunately, our behavior is only partly determined by inherited human nature. It is also, and perhaps to a larger extent, determined by education and environment; and in spite of all the difficulties just mentioned, war has been eliminated locally in several large regions of the world. Taking these regions as models, we can attempt to use the same methods to abolish war globally. For example, war between the Scandinavian nations would be unthinkable today, although the region once was famous for its violence. Scandinavia is especially interesting as a model for what we would like to achieve globally, because it is a region in which it has been possible not only to eradicate war, but also poverty; and at the same time, death from infectious disease has become a rarity in this region.

If we consider the problem of simultaneously eliminating poverty, war and frequent death from infectious disease, we are lead inevitably to the problem of population stabilization. At the time when poverty, disease and war characterized Scandinavia, the average fertility in the region was at least 6 children per woman-life. Equilibrium was maintained at this high rate of fertility, because some of the children died from disease without leaving progeny, and because others died in war. Today, poverty and war are gone from the Nordic countries, and the rate of premature death from infectious disease is very low. The simultaneous elimination of poverty, disease and war would have been impossible in Scandinavia if the rate of fertility had not fallen to the replacement level. There would then have been no alternative except for the population to grow, which it could not have continued to do over many centuries without environmental degradation, bringing with it the recurrence of poverty, disease and war.

In Scandinavia today, democratic government, a high level of education, economic prosperity, public health, high social status for women, legal, economic and educational equality for women, a low birth rate, and friendly cooperation between the nations of the region are mutually linked in loops of cause and effect. By contrast, we can find other regions of the world where low status of women, high birth rates, rapidly increasing population, urban slums, low educational levels, high unemployment levels, poverty, ethnic conflicts and the resurgence of infectious disease are equally linked, but in a vicious circle. The three age-old causes of human suffering, poverty, infectious disease and war are bound together by complex causal relationships involving also the issues of population stabilization and woman's rights. The example of Scandinavia shows us that it is possible to cure all these diseases of society; but to do so we must address all of the problems simultaneously.

Abolition of the institution of war will require the construction of structures of international government and law to replace our present anarchy at the global level. Today's technology has shrunk the distances, which once separated nations; and our present system of absolutely sovereign nation-states has become both obsolete and dangerous.

Professor Elie Kedourie of the University of London has given the following definition of nationalism: "a doctrine invented in Europe at the beginning of the 19th century. It pretends to supply a criterion for the determination of the unit of population proper to enjoy a government exclusively its own, for the legitimate exercise of power in the state, and for the right organization of a society of states. Briefly, the doctrine holds that humanity is naturally divided into nations, that nations are known by certain characteristics which can be ascertained, and that the only legitimate type of government is national self-government."

A basic problem with this doctrine is that throughout most of the world, successive waves of migration, conquest and intermarriage have left such a complicated ethnic mosaic that attempts to base political divisions on ethnic homogeneity often meet with trouble. In Eastern Europe, for example, German-speaking and Slavic-speaking peoples are mixed together so closely that the Pan-German and Pan-Slavic movements inevitably clashed over the question of who should control the regions where the two populations lived

side by side. This clash was one of the main causes of the First World War.

Similarly, when India achieved independence from England, a great problem arose in the regions where Hindus and Moslems lived side by side; and even Gandhi was unable to prevent terrible violence from taking place between the two communities. This problem is still present, and it has been made extremely dangerous by the acquisition of nuclear weapons by India and Pakistan.

More recently, nationalist movements in Asia and Africa have derived their force and popularity from a reaction against the years of European political and economic domination. Thus, at first sight, they seem to deserve our sympathy and support. However, in building states, the new nationalists have often used hate for outsiders as mortar. For example, Israel is held together by hostility towards its Arab neighbors, while the Pan-Arab movement is held together by hostility towards Israel; and in this inflamed political climate of mutual fear and hatred, even clandestine nuclear weapons appear to either side to be justified.

A basic problem rooted in nationalist mythology exists in the concept of sanctions, which treat nations as if they were individuals. We punish nations as a whole by sanctions, even when only the leaders are guilty, even though the burdens of the sanctions often fall most heavily on the weakest and least guilty of the citizens, and even though sanctions often have the effect of uniting the citizens of a country behind the guilty leaders.

It is becoming increasingly clear that the concept of the absolutely sovereign nation-state is an anachronism in a world of thermonuclear weapons, instantaneous communication, and economic interdependence. Probably our best hope for the future lies in developing the United Nations into a World Federation. The strengthened United Nations should have a legislature with the power to make laws which are binding on individuals, and the ability to arrest and try individual political leaders for violations of these laws. The World Federation should also have the military and legal powers necessary to guarantee the human rights of ethnic minorities within nations.

A strengthened UN would need a reliable source of income to make the organization less dependent on wealthy countries, which tend to give support

only to those interventions of which they approve. A promising solution to this problem is the so-called “Tobin tax”, named after the Nobel-laureate economist James Tobin of Yale University. Tobin proposed that international currency exchanges should be taxed at a rate between 0.1 and 0.25 percent. He believed that even this extremely low rate of taxation would have the effect of damping speculative transactions, thus stabilizing the rates of exchange between currencies. When asked what should be done with the proceeds of the tax, Tobin said, almost as an afterthought, “Let the United Nations have it”. The volume of money involved in international currency transactions is so enormous that even the tiny tax proposed by Tobin would provide the World Federation with between 100 billion and 300 billion dollars annually. By strengthening the activities of various UN agencies, such as WHO, UNESCO and FAO, the additional income would add to the prestige of the United Nations and thus make the organization more effective when it is called upon to resolve international political conflicts.

A federation is, by definition, a limited union of states, where the federal government has the power to make laws which are binding on individuals, but where the laws are confined to interstate matters, and where all powers not expressly delegated to the federal government are reserved for the several states. In other words, in a federation, each of the member states runs its own internal affairs according to its own laws and customs; but in certain agreed-on matters, where the interests of the states overlap, authority is specifically delegated to the federal government.

For example, if the nations of the world considered the control of narcotics to be a matter of mutual concern; if they agreed to set up a commission with the power to make laws preventing the growing, refinement and distribution of harmful drugs, and with the power to arrest individuals for violating those laws, then we would have a world federation in the area of narcotics control.

If, in addition, the world community considered terrorism to be a matter of mutual concern; if an international commission were also set up with the power to make global anti-terrorist laws, and to arrest individuals violating those laws, then we would have a world federation with somewhat broader powers. If the community of nations decided to give the federal authority the additional power to make laws defining the rights and obligations of multinational corporations, and the power to arrest individuals violating those laws,



then we would have a world federation with still broader powers; but these powers would still be carefully defined and limited.

In 1998, in Rome, representatives of 120 countries signed a statute establishing a Permanent International Court, with jurisdiction over war crimes and genocide. Four years were to pass before the necessary ratifications were gathered, but by Thursday, April 11, 2002, 66 nations had ratified the Rome agreement, 6 more than the 60 needed to make the court permanent. The jurisdiction of the Permanent International Court is at present limited to a very narrow class crimes. The global community will have a chance to see how the court works in practice, and in the future, the community may decide to broaden its jurisdiction.

In setting up a federation, the member states can decide which powers they wish to delegate to it; and all powers not expressly delegated are retained by the individual states. We are faced with the problem of constructing a new world order which will preserve the advantages of local self-government while granting certain carefully-chosen powers to larger regional or global authorities. Which things should be decided locally, or regionally, and which

globally?

In the future, overpopulation and famine are likely to become increasingly difficult and painful problems in several parts of the world. Since various cultures take widely different attitudes towards birth control and family size, the problem of population stabilization seems to be one which should be solved locally. At the same time, aid for local family planning programs, as well as famine relief, might appropriately come from global agencies, such as WHO and FAO. With respect to large-scale migration, it would be unfair for a country which has successfully stabilized its own population, and which has eliminated poverty within its own borders, to be forced to accept a flood of migrants from regions of high fertility. Therefore the extent of immigration should be among the issues to be decided locally.

Security, and controls on the manufacture and export of armaments will require an effective authority at the global level. It should also be the responsibility of the international community to intervene to prevent gross violations of human rights. Since the end of the Cold War, the United Nations has more and more frequently been called upon to send armed forces to troubled parts of the world. In many instances, these calls for U. N. intervention have been prompted by clear and atrocious violations of human rights, for example by “ethnic cleansing” in Bosnia and by genocide in Rwanda. In the examples just named, the response of the United Nations would have been much more effective, and many lives would have been saved, if the action which was finally taken had come sooner. Long and complex diplomatic negotiations were required to muster the necessary political and physical forces needed for intervention, by which time the original problems had become much more severe. For this reason, it has been suggested that the U. N. Secretary General, the Security Council and the General Assembly ought to have at their disposal a permanent, highly trained and highly mobile emergency force, composed of volunteers from all nations. Such an international police force would be able to act rapidly to prevent gross violations of human rights or other severe breaches of international law.

In evaluating the concept of an international police force directly responsible to the United Nations, it is helpful to examine the way in which police act to enforce laws and to prevent violence and crime at local and national levels. Within a community which is characterized by good government, police

are not highly armed, nor are they very numerous. Law and order are not maintained primarily by the threat of force, but by the opinion of the vast majority of the citizens that the system of laws is both just and necessary. Traffic stops when the signal light is red and moves when it is green whether or not a policeman is present, because everyone understands why such a system is necessary. Nevertheless, although the vast majority of the citizens in a well-governed community support the system of laws and would never wish to break the law, we all know that the real world is not heaven. The total spectrum of human nature includes evil as well as a good. If there were no police at all, and if the criminal minority were completely unchecked, every citizen would be obliged to be armed. No one's life or property would be safe. Robbery, murder and rape would flourish.

Within a society with a democratic and just government, whose powers are derived from the consent of the governed, a small and lightly armed force of police is able to maintain the system of laws. One reason why this is possible has just been mentioned - the force of public opinion. A second reason is that the law acts on individuals. Since obstruction of justice and the murder of policemen both rank as serious crimes, an individual criminal is usually not able to organize massive resistance against police action.

Edith Wynner, one of the pioneers of the World Federalist movement, lists the following characteristics of police power in a well-governed society:

1. "A policeman operates within a framework of organized government having legislative, executive and judicial authority operating on individuals. His actions are guided by a clearly stated criminal code that has the legislative sanction of the community. Should he abuse the authority vested in him, he is subject to discipline and court restraint."
2. "A policeman seeing a fight between two men does not attempt to determine which of them is in the right and then help him beat up the one he considers wrong. His function is to restrain violence by both, to bring them before a judge who has authority to determine the rights of the dispute, and to see that the court's decision is carried out."
3. "In carrying out his duties, the policeman must apprehend the suspected individual without jeopardizing either the property or the lives

of the community where the suspect is to be arrested. And not only is the community safeguarded against destruction of property and loss of life but the rights of the suspect are also carefully protected by an elaborate network of judicial safeguards.”

Edith Wynner also discusses the original union of the thirteen American colonies, which was a confederation, analogous to the present United Nations. This confederation was found to be too weak, and after eleven years it was replaced by a federation, one of whose key powers was the power to make and enforce laws which acted on individuals. George Mason, one of the architects of the federal constitution of the United States, believed that “such a government was necessary as could directly operate on individuals, and would punish those only whose guilt required it”, while James Madison (another drafter of the U. S. federal constitution) remarked that the more he reflected on the use of force, the more he doubted “the practicability, the justice and the efficacy of it when applied to people collectively, and not individually”. Finally, Alexander Hamilton, in his “Federalist Papers”, discussed the confederation with the following words: “To coerce the states is one of the maddest projects that was ever devised... Can any reasonable man be well disposed towards a government, which makes war and carnage the only means of supporting itself - a government that can exist only by the sword? Every such war must involve the innocent with the guilty. This single consideration should be enough to dispose every peaceable citizen against such a government... What is the cure for this great evil? Nothing, but to enable the... laws to operate on individuals, in the same manner as those of states do.”

The United Nations is at present a confederation rather than a federation, and thus it acts by attempting to coerce states, a procedure which Alexander Hamilton characterized as “one of the maddest projects that was ever devised”. Whether this coercion takes the form of economic sanctions, or whether it takes the form of military intervention, the practicability, the justice and the efficacy of the UN’s efforts are hampered because they are applied to people collectively and not individually. It is obvious that the United Nations actions to stop aggression of one state against another in the Korean War and in the Gulf War fail to match the three criteria for police action listed above. What is the cure for this great evil? “Nothing”, Hamilton tells us, “but to enable the laws to act on individuals, in the same

manner as those of states do.”

Historically, confederations have always proved to be too weak; but federations have on the whole been very successful, mainly because a federation has the power to make laws which act on individuals. At the same time, a federation aims at leaving as many powers as possible in the hands of local authorities. Recent examples of federations include the United States of America, the United States of Brazil, the United States of Mexico, the United States of Venezuela, the Argentine Nation, the Commonwealth of Australia, the Dominion of Canada, the Union of South Africa, Switzerland, the Union of Soviet Socialist Republics and the European Federation. Thus we are rich in historical data on the strengths and weaknesses of federations, and we can make use of this data as we attempt to construct good government at the global level.

Looking towards the future, we can perhaps foresee a time when the United Nations will have been converted to a federation and given the power to make international laws which are binding on individuals. Under such circumstances, true international law enforcement will be possible, incorporating all of the needed safeguards for lives and property of the innocent. One can hope for a future world where the institution of war will be abolished, and where public opinion will support international law to such an extent that a new Hitler or a future Melosovic will not be able to organize large-scale resistance to arrest, a world where international law will be seen by all to be just, impartial and necessary, a well-governed global community within which each person will owe his or her ultimate loyalty to humanity as a whole.

Besides a humane, democratic and just framework of international law and governance, we urgently need a new global ethic, - an ethic where loyalty to family, community and nation will be supplemented by a strong sense of the brotherhood of all humans, regardless of race, religion or nationality. Schiller expressed this feeling in his “Ode to Joy”, the text of Beethoven’s Ninth Symphony. Hearing Beethoven’s music and Schiller’s words, most of us experience an emotion of resonance and unity with its message: All humans are brothers and sisters - not just some - all! It is almost a national anthem of humanity. The feelings which the music and words provoke are similar to patriotism, but broader. It is this sense of a universal human family, which we need to cultivate in education, in the mass media, and in religion.

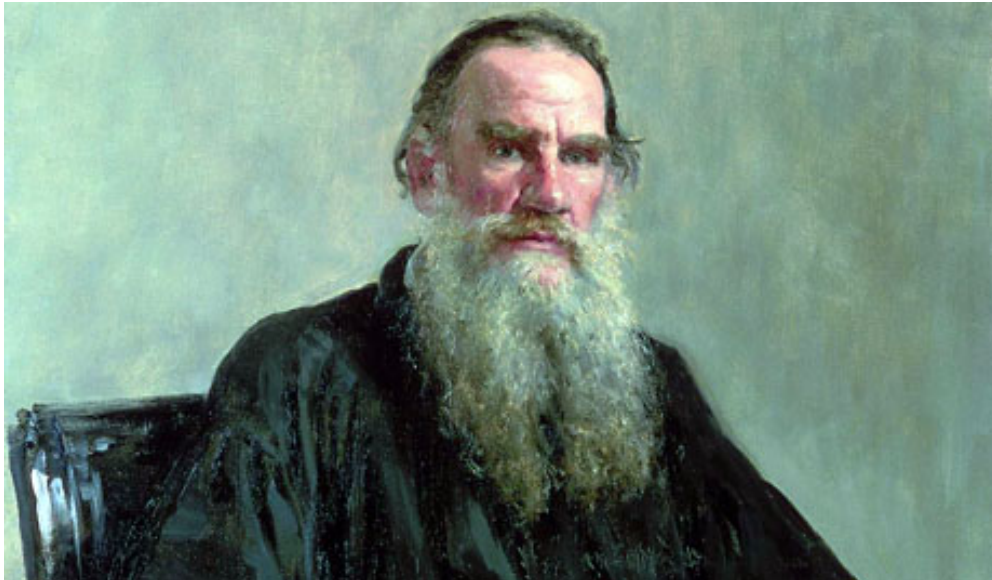
Educational reforms are urgently needed, particularly in the teaching of history. As it is taught today, history is a chronicle of power struggles and war, told from a biased national standpoint. Our own race or religion is superior; our own country is always heroic and in the right.

We urgently need to replace this indoctrination in chauvinism by a reformed view of history, where the slow development of human culture is described, giving adequate credit to all those who have contributed. Our modern civilization is built on the achievements of ancient cultures. China, India, Mesopotamia, ancient Egypt, Greece, the Islamic world, Christian Europe, and Jewish intellectual traditions all have contributed. Potatoes, corn and squash are gifts from the American Indians. Human culture, gradually built up over thousands of years by the patient work of millions of hands and minds, should be presented to students of history as a precious heritage - far too precious to be risked in a thermonuclear war.

In the teaching of science too, reforms are needed. Graduates in science and technology should be conscious of their responsibilities. They must resolve never to use their education in the service of war, or in any way which might be harmful to society or to the environment.

In modern societies, mass media play an extremely important role in determining behavior and attitudes. This role can be a negative one when the media show violence and enemy images, but if used constructively, the mass media can offer a powerful means for creating international understanding. If it is indeed true that tribalism is part of human nature, it is extremely important that the mass media be used to the utmost to overcome the barriers between nations and cultures. Through increased communication, the world's peoples can learn to accept each other as members of a single family.

Finally, let us turn to religion, with its enormous influence on human thought and behavior. Christianity, for example, offers a strongly stated ethic, which, if practiced, would make war impossible. In Mathew, the following passage occurs: "Ye have heard it said: Thou shalt love thy neighbor and hate thy enemy. But I say unto you: Love your enemies, bless them that curse you, do good to them that hate you, and pray for them that spitefully use you and persecute you."



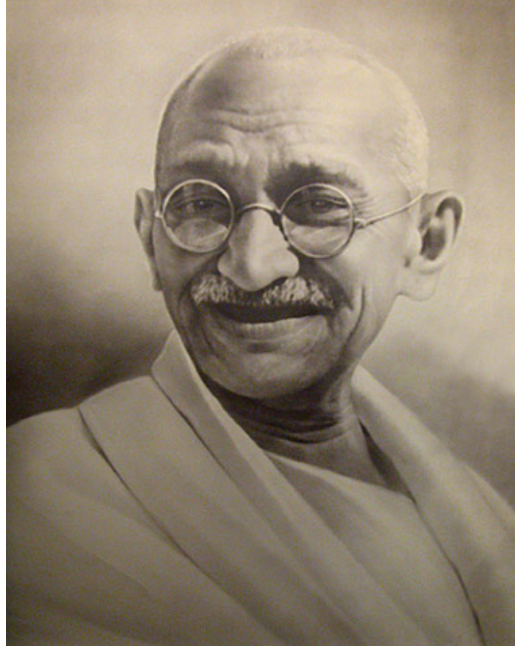
This seemingly impractical advice, that we should love our enemies, is in fact of the greatest practicality, since acts of unilateral kindness and generosity can stop escalatory cycles of revenge and counter-revenge such as those which characterize the present conflict in the Middle East and the recent troubles of Northern Ireland. However, Christian nations, while claiming to adhere to the ethic of love and forgiveness, have adopted a policy of “massive retaliation”, involving systems of thermonuclear missiles whose purpose is to destroy as much as possible of the country at which the retaliation is aimed. It is planned that entire populations shall be killed in a “massive retaliation”, innocent children along with the guilty politicians. The startling contradiction between what the Christian nations profess and what they do was obvious even before the advent of nuclear weapons, at the time when Leo Tolstoy, during his last years, was exchanging letters with a young Indian lawyer in South Africa. In one of his letters to Gandhi, Tolstoy wrote:

“ The whole life of the Christian peoples is a continuous contradiction between that which they profess and the principles on which they order their lives, a contradiction between love accepted as the law of life, and violence, which is recognized and praised, acknowledged even as a necessity ”

“This year, in the spring, at a Scripture examination at a girls’ high school in Moscow, the teacher and the bishop present asked the girls questions on the Commandments, and especially on the sixth. After a correct answer, the bishop generally put another question, whether murder was always in all cases forbidden by God’s law; and the unhappy young ladies were forced by previous instruction to answer ‘Not always’ - that murder was permitted in war and in the execution of criminals. Still, when one of these unfortunate young ladies (what I am telling is not an invention but a fact told to me by an eye witness) after her first answer, was asked the usual question, if killing was always sinful, she, agitated and blushing, decisively answered ‘Always’, and to the usual sophisms of the bishop, she answered with decided conviction that killing was always forbidden in the Old Testament and forbidden by Christ, not only killing but every wrong against a brother. Notwithstanding all his grandeur and arts of speech, the bishop became silent and the girl remained victorious.”

As everyone knows, Gandhi successfully applied the principle of non-violence to the civil rights struggle in South Africa, and later to the political movement, which gave India its freedom and independence. The principle of non-violence was also successfully applied by Martin Luther King, and by Nelson Mandela. It is perhaps worthwhile to consider Gandhi’s comment on the question of whether the end justifies the means: “The means may be likened to a seed”, Gandhi wrote, “and the end to a tree; and there is the same inviolable connection between the means and the end as there is between the seed and the tree.” In other words, a dirty method produces a dirty result; killing produces more killing; hate leads to more hate. Everyone who reads the newspapers knows that this is true. But there are positive feedback loops as well as negative ones. A kind act produces a kind response; a generous gesture is returned; hospitality results in reflected hospitality. Buddhists call this principle of reciprocity “the law of karma”.

The religious leaders of the world have the opportunity to contribute importantly to the solution of the problem of war. They have the opportunity to powerfully support the concept of universal human brotherhood, to build bridges between religious groups, to make intermarriage across ethnic boundaries easier, and to soften the distinctions between communities. If they fail to do this, they will have failed humankind at a time of crisis.



It is useful to consider the analogy between the institution of war and the institution of slavery. We might be tempted to say, "There has always been war, throughout human history; and war will always continue to exist." As an antidote for this kind of pessimism, we can think of slavery, which, like war, has existed throughout most of recorded history. The cultures of ancient Egypt, Greece and Rome were all based on slavery, and, in more recent times, 13 million Africans were captured and forced into a life of slavery in the New World. Slavery was as much an accepted and established institution as war is today. Many people made large profits from slavery, just as arms manufacturers today make enormous profits. Nevertheless, in spite of the weight of vested interests, slavery has now been abolished throughout most of the world.

Today we look with horror at drawings of slave ships, where human beings were packed together like cord-wood; and we are amazed that such cruelty could have been possible. Can we not hope for a time when our descendants, reading descriptions of the wars of the twentieth century, will be equally amazed that such cruelty could have been possible? If we use them constructively, the vast resources now wasted on war can initiate a new era of

happiness and prosperity for the family of man. It is within our power to let this happen. The example of the men and women who worked to rid the world of slavery can give us courage as we strive for a time when war will exist only as a dark memory fading into the past.

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MAHATMA GANDHI, WE NEED YOUR VOICE TODAY!

If humans are ever to achieve a stable global society in the future, they will have to become much more modest in their economic behavior and much more peaceful in their politics. For both modesty and peace, Gandhi is a useful source of ideas. The problems with which he struggled during his lifetime are extremely relevant to us in the 21st Century, when both nuclear and ecological catastrophes threaten the world.

Avoiding escalation of conflicts

Today we read almost every day of killings that are part of escalating cycles of revenge and counter-revenge, for example in the Middle East. Gandhi's experiences both in South Africa and in India convinced him that such cycles could only be ended by unilateral acts of kindness and understanding from one of the parties in a conflict. He said, "An eye for an eye makes the whole world blind".

Ends and means

To the insidious argument that "the end justifies the means", Gandhi answered firmly: "they say that 'means are after all means'. I would say that 'means are after all everything'. As the means, so the end. Indeed, the Creator has given us limited power over means, none over end... The means may be likened to a seed, and the end to a tree; and there is the same inviolable connection between the means and the end as there is between the seed and the tree. Means and end are convertible terms in my philosophy of life."

Steps towards a nonviolent world

Gandhi's advocacy of non-violence is closely connected to his attitude towards ends and means. He believed that violent methods for achieving a desired social result would inevitably result in an escalation of violence. The end achieved would always be contaminated by the methods used. He was influenced by Leo Tolstoy with whom he exchanged many letters, and he in turn influenced Martin Luther King and Nelson Mandela.



Figure 1: *Gandhi and his wife Kasturbhai in 1902.*

The power of truth

Gandhi was trained as a lawyer, and when he began to practice in South Africa, in his first case, he was able to solve a conflict by proposing a compromise that satisfied both parties. Of this result he said, “My joy was boundless. I had learnt the true practice of law. I had learnt to find out the better side of human nature and to enter men’s hearts. I realized that the true function of a lawyer was to unite parties riven asunder.” When Gandhi became involved with the struggle for civil rights of the Indian minority in South Africa, his background as a lawyer once more helped him. This time his jury was public opinion in England. When Gandhi lead the struggle for reform, he insisted that the means of protest used by his followers should be non-violent, even though violence was frequently used against them. In this way they won their case in the court of public opinion. Gandhi called this method of protest “satyagraha”, a Sanskrit word meaning “the power of truth”. In today’s struggles for justice and peace, the moral force of truth and nonviolence can win victories in the court of world public opinion.

Harmony between religious groups

Gandhi believed that at their core, all religions are based on the concepts

of truth, love, compassion, nonviolence and the Golden Rule. When asked whether he was a Hindu, Gandhi answered, “Yes I am. I am also a Christian, a Muslim, a Buddhist and a Jew.” When praying at his ashram, Gandhi made a point of including prayers from many religions. One of the most serious problems that he had to face in his efforts to free India from British rule was disunity and distrust, even hate, between the Hindu and Muslim communities. Each community felt that with the British gone, they might face violence and repression from the other. Gandhi made every effort to bridge the differences and to create unity and harmony. His struggles with this problem are highly relevant to us today, when the world is split by religious and ethnic differences.

Solving the problem of unemployment

In discussing the problem of unemployment in India’s villages, Gandhi wrote: “Machinery has its place; it has come to stay. But it must not be allowed to displace necessary human labour. An improved plow is a good thing. But if, by some chance, one man could plow up, by some invention of his, the whole land of India, and control all the agricultural produce, and if the millions had no other occupation, they would starve, and being idle, they would become dunces, as many have already become. There is hourly danger of many being reduced to that unenviable state.” Gandhi frequently worked to substitute social goals for the brutal laws of economic competition. He urged that in order to solve the problem of unemployment in rural India, villagers should stop buying imported cloth from England, and should instead spin and weave their own cloth. His spinning wheel was incorporated into the flag of the Congress Party, and ultimately it became part of the flag of an independent India.

Solidarity with the poor

Today’s world is characterized by intolerable economic inequalities, both between nations and within nations. 18 million of our fellow humans die each year from poverty-related causes. 1.1 billion people live on less than 1 dollar a day, 2.7 billion live on less than 2 dollars. Gandhi’s concern for the poor can serve as an example to us today, as we work to achieve a more equal world. He said, “There is enough for every man’s need, but not for every man’s greed.”



Voluntary reduction of consumption

After Gandhi's death, someone took a photograph of all his worldly possessions. It was a tiny heap, consisting of his glasses, a pair of sandals, a homespun cloth (his only garment) and a watch. That was all. By reducing his own needs and possessions to an absolute minimum, Gandhi had tried to demonstrate that the commonly assumed connection between wealth and merit is false. This is relevant today, in a world where we face a crisis of diminishing resources. Not only fossil fuels, but also metals and arable land per capita will become scarce in the future. This will force a change in lifestyle, particularly in the industrialized countries, away from consumerism and towards simplicity. Gandhi's example can teach us that we must cease to use wealth and "conspicuous consumption" as a measure of merit.

What would Gandhi say today?

What would Gandhi say about the illegal long-distance killing of men, women and children by means of drones?

What would Gandhi say about the threat of an omnicidal nuclear war, a threat that hangs like a dark cloud over the future of life on earth?

What would Gandhi say about wars of aggression aimed at gaining control over oil and other resources?

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What would Gandhi say about the enslavement of the United States Government by Israel?

What would Gandhi say about the threat of an all-destroying Third World War, initiated by a military attack on Iran?

Mahatma Gandhi, Great Soul Gandhi, we need your voice today!

HENRY DAVID THOREAU WE NEED YOUR VOICE TODAY!

In the distant future (and perhaps even in the not-so-distant future) industrial civilization will need to abandon its relentless pursuit of unnecessary material goods and economic growth. Modern society will need to re-establish a balanced and harmonious relationship with nature. In preindustrial societies harmony with nature is usually a part of the cultural tradition. In our own time, the same principle has become central to the ecological counter-culture while the main-stream culture thunders blindly ahead, addicted to wealth, power and growth.

In the 19th century the American writer, Henry David Thoreau (1817-1862), pioneered the concept of a simple life, in harmony with nature. Today, his classic book, *Walden*, has become a symbol for the principles of ecology, simplicity, and respect for nature.

Thoreau was born in Concord Massachusetts, and he attended Harvard from 1833 to 1837. After graduation, he returned home, worked in his familys pencil factory, did odd jobs, and for three years taught in a progressive school founded by himself and his older brother, John. When John died of lockjaw in 1842, Henry David was so saddened that he felt unable to continue the school alone.

Nonviolent civil disobedience

Thoreau refused to pay his poll tax because of his opposition to the Mexican War and to the institution of slavery. Because of his refusal to pay the tax (which was in fact a very small amount) he spent a night in prison. To Thoreaus irritation, his family paid the poll tax for him and he was released. He then wrote down his ideas on the subject in an essay entitled *The Duty of Civil Disobedience*, where he maintains that each person has a duty to follow his own individual conscience even when it conflicts with the orders of his government.

“Under a government that which imprisons any unjustly”, Thoreau wrote, “the true place for a just man is in prison.” *Civil Disobedience* influenced



Tolstoy, Gandhi and Martin Luther King, and it anticipated the Nuremberg Principles.

Harmony with nature

Thoreau became the friend and companion of the transcendentalist writer Ralph Waldo Emerson (1803 1882), who introduced him to a circle of writers and thinkers that included Ellery Channing, Margaret Fuller and Nathaniel Hawthorne.

Nathaniel Hawthorne described Thoreau in the following words: “Mr. Thorow [sic] is a keen and delicate observer of nature, a genuine observer, which, I

suspect, is almost as rare a character as even an original poet; and Nature, in return for his love, seems to adopt him as her especial child, and shows him secrets which few others are allowed to witness. He is familiar with beast, fish, fowl, and reptile, and has strange stories to tell of adventures, and friendly passages with these lower brethren of mortality. Herb and flower, likewise, wherever they grow, whether in garden, or wild wood, are his familiar friends. He is also on intimate terms with the clouds and can tell the portents of storms. It is a characteristic trait, that he has a great regard for the memory of the Indian tribes, whose wild life would have suited him so well; and strange to say, he seldom walks over a plowed field without picking up an arrow-point, a spear-head, or other relic of the red men, as if their spirits willed him to be the inheritor of their simple wealth."

Walden, an experiment in simple living

At Emerson's suggestion, Thoreau opened a journal, in which he recorded his observations concerning nature and his other thoughts. Ultimately the journal contained more than 2 million words. Thoreau drew on his journal when writing his books and essays, and in recent years, many previously unpublished parts of his journal have been printed.

From 1845 until 1847, Thoreau lived in a tiny cabin that he built with his own hands. The cabin was in a second-growth forest beside Walden Pond in Concord, on land that belonged to Emerson. Thoreau regarded his life there as an experiment in simple living. He described his life in the forest and his reasons for being there in his book *Walden*,

"Most of the luxuries", Thoreau wrote, "and many of the so-called comforts of life, are not only not indispensable, but positive hindrances to the elevation of mankind. With respect to luxuries, the wisest have ever lived a more simple and meager life than the poor. The ancient philosophers, Chinese, Hindoo, Persian, and Greek, were a class than which was in a more simple and meager life than the poor. The ancient philosophers, Chinese, Hindoo, Persian, and Greek, were a class than which none has been poorer in outward riches, none so rich in inward."

Elsewhere in *Walden*, Thoreau remarks, "It is never too late to give up your prejudices", and he also says, "Why should we be in such desperate haste

to succeed, and in such desperate enterprises? If a man does not keep pace with his companions, perhaps it is because he hears a different drummer.” Other favorite quotations from Thoreau include “Rather than love, than money, than fame, give me truth”, “Beware of all enterprises that require new clothes”, “Most men lead lives of quiet desperation” and “Men have become tools of their tools.”

Thoreau's closeness to nature can be seen from the following passage, written by his friend Frederick Willis, who visited him at Walden Pond in 1847, together with the Alcott family: “He was talking to Mr. Alcott of the wild flowers in Walden woods when, suddenly stopping, he said: Keep very still and I will show you my family. Stepping quickly outside the cabin door, he gave a low and curious whistle; immediately a woodchuck came running towards him from a nearby burrow. With varying note, yet still low and strange, a pair of gray squirrels were summoned and approached him fearlessly. With still another note several birds, including two crows flew towards him, one of the crows nestling upon his shoulder. I remember that it was the crow resting close to his head that made the most vivid impression on me, knowing how fearful of man this bird is. He fed them all from his hand, taking food from his pocket, and petted them gently before our delighted gaze; and then dismissed them by different whistling, always strange and low and short, each wild thing departing instantly at hearing his special signal.”

Thoreau's views on religion

Towards the end of his life, when he was very ill, someone asked Thoreau whether he had made his peace with God. “We never quarreled”, he answered.

In an essay published by the Atlantic Monthly in 1853, Thoreau described a pine tree in Maine with the words: “It is as immortal as I am, and perchance will go to as high a heaven, there to tower above me still.” However, the editor (James Russell Lowell) considered the sentence to be blasphemous, and removed it from Thoreau's essay before publication.

In one of his essays, Thoreau wrote: “If a man walk in the woods for love of them half of each day, he is in danger of being regarded as a loafer; but if he spends his whole day as a speculator, shearing off those woods and making

the earth bald before her time, he is esteemed an industrious and enterprising citizen.”

What would Thoreau say today?

What would Thoreau say about the 1.7 trillion dollars spent each year on wars while children starve?

What would Thoreau say about the craven failure of the mass media to educate us and to mobilize the public to the action needed to solve the multiple threats to our beautiful world?

What would Thoreau say about a fossil fuel industry that pays advertisers to deny climate change?

What would Thoreau say about nations which quarrel about who is to blame for climate change while each of them pours megatons of greenhouse gases into the atmosphere?

What would Thoreau say about advertisers who convince us that we cannot be happy without more and more material goods?

What would Thoreau say about the illegal long-distance killing of men, women and children by means of drones?

What would Thoreau say about the threat of an omnicidal nuclear war, a threat that hangs like a dark cloud over the future of life on earth?

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Henry David Thoreau, pioneer of nonviolent civil disobedience, pioneer of environmentalism, we need your voice today!

COUNT LEO TOLSTOY

WE NEED YOUR VOICE TODAY!

Leo Tolstoy was born in 1828. While he was still a child, his parents died, and he became Count Tolstoy, with responsibility for the family estate at Yasnaya Polyana. As a young man, he was attracted to the gay and worldly social life of Moscow, but his diary during this period shows remorse over his pursuit of sensual pleasures. Disgusted with himself, he entered the army, and during idle periods he began his career as a writer. While still a soldier, he published a beautiful nostalgic work entitled “Childhood” as well as a number of skillful stories describing army life.

Schools and textbooks for peasants

At the age of 28, Tolstoy left the army and spent a brief period as a literary idol in St. Petersburg. He then became concerned about lack of education among Russian peasants, and he traveled widely in Europe, studying educational theory and methods. Returning to Yasnaya Polyana, he established schools for the peasants, published an educational magazine and compiled a number of textbooks whose simplicity and attractiveness anticipated modern teaching methods.

Tolstoy’s great novels

Tolstoy married in 1862 at the age of 34. His wife, Sonya Bers, shared his wide intellectual interests, and they had a happy family life with thirteen children¹. During this period, Tolstoy managed his estate with much success, and he produced his great literary masterpieces “War and Peace” and “Anna Karenina”. He modeled the characters in “War and Peace” after members of his own family. For example, Tolstoy’s famous heroine, Natasha, is modeled after his sister-in-law, Tanya Bers. Pierre in “War and Peace” and Levin in “Anna Karenina” reflect Tolstoy’s own efforts to understand the meaning of life, his concern with the misery of the Russian peasants, and his ultimate conclusion that true happiness and peace of mind can only be found in a simple life devoted to the service of others.

Search for life's meaning

By the time Tolstoy had finished “Anna Karenina”, he had become very dissatisfied with the life that he was leading. Despite having achieved in great measure all of the goals for which humans usually strive, he felt that his existence lacked meaning; and in 1879 he even contemplated suicide. He looked for life's purpose by systematically studying the writings of scientists and philosophers, but he could not find an answer there that satisfied him.

Finally Tolstoy found inspiration in the humble and devout lives of the peasants. He decided that the teachings of Jesus, as recorded in the New Testament, could provide the answer for which he was searching. Tolstoy published an account of his spiritual crisis in a book entitled “A Confession”, in which he says:

“I searched for enlightenment everywhere in the hard-won accumulated knowledge of mankind. I searched passionately and long, not in a lazy way, but with my whole soul, day and night. I searched like a drowning man looking for safety - and found nothing.”

“I searched all the sciences, and not only did I find nothing, but I also came to the conclusion that everyone who, like myself, had searched in the sciences for life's meaning had also found nothing.”

“I then diligently studied the teachings of Buddhism and Islam in the holy books of those religions; but most of all I studied Christianity as I met it in the holy Scriptures and in the living Christians around me...”

Love for the poor

“I began to approach the believers among the poor, simple ignorant people: pilgrims, monks and peasants... The whole life of Christians of our own circle seemed to be a contradiction of their faith. By contrast, the whole life of Christians of the peasant class was an affirmation of the view of life which their religious faith gave to them. I looked more and more deeply into the faith of these people, and the more deep my insight became, the more I became convinced that they had a genuine belief, that their faith was essential to them, and that it was their faith alone which gave their life a meaning and

made it possible for them to live... I developed a love for these simple people.”

Moved by the misery of the urban poor whom he encountered in the slums of Moscow, Tolstoy wrote: “Between us, the rich and the poor, there is a wall of false education, and before we can help the poor, we must first tear down that wall. I was forced to the conclusion that our own wealth is the true cause of the misery of the poor.”

What Then Must We Do?

Tolstoy's book, “What Then Must We Do?”, tells of his experiences in the slums and analyses the causes of poverty. Tolstoy felt that the professed Christian belief of the Czarist state was a thin cosmetic layer covering a structure that was fundamentally built on violence. Violence was used to maintain a huge gap between the rich and the poor, and violence was used in international relations. Tolstoy felt especially keenly the contradiction between Christianity and war. In a small book entitled “The Kingdom of God is Within Us” he wrote:

The contradiction between Christianity and war

“All other contradictions are insignificant compared with the contradiction which now faces humankind in international relations. and which cries out for a solution, since it brings the very existence of civilization into danger. This is the contradiction between the Christian conscience and war.”

“All of the Christian peoples of the world, who all follow one and the same spiritual life, so that any good and fruitful thought which is put forward in any corner of the world is immediately communicated to all of Christendom, where it arouses feelings of pride and happiness in us regardless of our nationality; we who simply love the thinkers, humanitarians, and poets of other countries; we who not only admire their achievements, but also feel delight in meeting them and greet them with friendly smiles; we will all be forced by the state to participate in a murderous war against these same people, a war which if it does not break out today will do so tomorrow.”

“...The sharpest of all contradictions can be seen between the governments professed faith in the Christian law of the brotherhood of all humankind, and

the military laws of the state, which force each young man to prepare himself for enmity and murder, so that each must be simultaneously a Christian and a gladiator.”

Banned and excommunicated

Tolstoy's writings on Christianity and on social questions were banned by the public censor, and he was excommunicated from the Russian Orthodox Church. However, his universally recognized stature as one of the world's greatest writers was undiminished, and his beliefs attracted many followers, both inside and outside of Russia.

Tolstoy and Gandhi

In 1894, the young Indian lawyer, Mohandas K. Gandhi, (who was then working for the civil rights of Indians in South Africa), read Tolstoy's books on Christianity and was greatly influenced by them. Gandhi wrote a review of “The Kingdom of God is Within Us”, and in 1909 he sent Tolstoy an account of the activities of the civil rights movement in South Africa. He received a reply in which Tolstoy said:

“...The longer I live, and especially now, when I vividly feel the nearness of death, the more I want to tell others what I feel so particularly clearly and what to my mind is of great importance, namely that which is called passive resistance, but which is in reality nothing else but the teaching of love, uncorrupted by false interpretations. That love, i.e. the striving for the union of human souls and the activity derived from that striving, is the highest and only law of human life, and in the depth of his soul every human being knows this (as we most clearly see in children); he knows this until he is entangled in the false teachings of the world. This law was proclaimed by all, by the Indian as by the Chinese, Hebrew, Greek and Roman sages of the world. I think that this law was most clearly expressed by Christ, who plainly said that in this alone is all the law and the prophets...”

“...The peoples of the Christian world have solemnly accepted this law, while at the same time they have permitted violence and built their lives on violence; and that is why the whole life of the Christian peoples is a continuous contradiction between what they profess, and the principles on which they

order their lives - a contradiction between love accepted as the law of life, and violence which is recognized and praised, acknowledged even as a necessity in different phases of life, such as the power of rulers, courts, and armies...”

Nonviolent resistance to governmental violence

Tolstoy believed that violence can never under any circumstances be justified, and that therefore an individual's resistance to governmental violence must be passive and non-violent. He also believed that each individual ought to reduce his needs to a minimum in order to avoid exploiting the labor of others.

Tolstoy gave up meat, alcohol, tobacco, and hunting. He began to clean his own room, wore simple peasant clothes, worked in the fields, and made his own boots. He participated in famine relief, and he would have liked to give away all of his great wealth to feed the poor, but bowing to the protests of his family, he gave his wealth to them instead. Because he had been unable to convert his family to his beliefs, Tolstoy left home secretly on a November night in 1910, accompanied, like King Lear, by his youngest daughter. He died of pneumonia a few days later at a remote railway junction.

What would Tolstoy say today?

What would Tolstoy say about the 1,700,000,000,000.00 dollars which the world spends each year on armaments while 11 million children die each year from poverty and starvation?

What would Tolstoy say about the illegal war that ruined Iraq, smashing its infrastructure, killing a million innocent people and forcing two million to flee as refugees?

What would Tolstoy say about oil and petrodollars as motives for war?

What would Tolstoy say about the militarization of space?

What would Tolstoy say about the craven failure of the mass media to educate us and to mobilize the public to the action needed to solve the multiple threats to our beautiful world?

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What would Tolstoy say about the fact that the United States Government has become a slave of Israel?

What would Tolstoy say about the threat of an all-destroying Third World War, initiated by a military attack on Iran?

Count Leo Tolstoy, great author and humanist, pioneer of nonviolent resistance, we need your voice today!

MARTIN LUTHER KING, WE NEED YOUR VOICE TODAY!

The son of a southern Baptist minister, Martin Luther King, Jr received his Ph.D. in theology from Boston University in 1955. During his studies, he had admired Thoreaus essay "On the Duty of Civil Disobedience," and he had also been greatly moved by the life and teachings of Mahatma Gandhi.

King applies the teachings of Thoreau and Gandhi to the Civil Rights movement

Martin Luther King Jr. had been pastor of the Dexter Avenue Baptist Church in Montgomery Alabama for only a year when he was chosen to lead a boycott protesting segregation in the Montgomery buses. Suddenly thrust into this situation of intense conflict, he remembered both the Christian principle of loving ones enemies and Gandhi's methods of non-violent protest. In his first speech as President of the Montgomery Improvement Association (a speech which the rapid pace of events had forced him to prepare in only twenty minutes, five of which he spent in prayer), he said:

"Our method will be that of persuasion, not coercion. We will only say to people, 'Let your conscience be your guide'. Our actions must be guided by the deepest principles of our Christian faith. Love must be our regulating ideal. Once again we must hear the words of Jesus echoing across the centuries: 'Love your enemies, bless them that curse you, and pray for them that despitefully use you.' If we fail to do this, our protest will end up as a meaningless drama on the stage of history, and its memory will be shrouded by the ugly garments of shame. In spite of the mistreatment that we have confronted, we must not become bitter and end up by hating our white brothers. As Booker T. Washington said, 'Let no man pull you down so low as to make you hate him.'"

"If you will protest courageously, and yet with dignity and Christian love, when the history books are written in future generations, the historians will have to pause and say, 'There lived a great people, a black people, who injected new meaning and dignity into the veins of civilization.' This is our

challenge and our overwhelming responsibility.”

Victory in the court of public opinion

This speech, which Dr. King made in December 1955, set the tone of the black civil rights movement. Although the protesters against racism were often faced with brutality and violence; although many of them, including Dr. King were unjustly jailed; although the homes of the leaders were bombed; although they constantly received telephone calls threatening their lives; although many civil rights workers were severely beaten, and several of them killed, they never resorted to violence in their protests against racial discrimination. Because of this adherence to Christian ethics, public opinion shifted to the side of the civil rights movement, and the United States Supreme Court ruled bus segregation to be unconstitutional.

Welcomed to India by Nehru

In 1959, while recovering from an almost-fatal stabbing, Martin Luther King Jr. visited India at the invitation of Prime Minister Jawaharlal Nehru. Dr. King and his wife Coretta were warmly welcomed by Nehru, who changed his schedule in order to meet them. They had an opportunity to visit a religious community or “ashram” that Gandhi had founded, and they discussed non-violence with many of Gandhis disciples.

King is awarded the Nobel Peace Prize

In 1964, the change in public opinion produced by the non-violent black civil rights movement resulted in the passage of the civil rights act. In the same year, Dr. King was awarded the Nobel Peace Prize. He accepted it, not as an individual, but on behalf of all civil rights workers; and he immediately gave all the prize money to the movement.

Opposition to the Viet Nam War

In 1967, a year before his assassination, Dr. King forcefully condemned the Viet Nam war in an address at a massive peace rally in New York City. He felt that opposition to war followed naturally from his advocacy of non-violence. Speaking against the Viet Nam War, Dr. King said: “We have



corrupted their women and children and killed their men. They move sadly and apathetically as we herd them off the land of their fathers into concentration camps where minimal social needs are rarely met. They know they must move on or be destroyed by our bombs ... primarily women and children and the aged watch as we poison their water, as we kill a million acres of their crops. They must weep as the bulldozers roar through their areas preparing to destroy the precious trees. They wander into the hospitals. So far we may have killed a million of them, [in Vietnam by 1967] mostly children. They wander into the towns and see thousands of the children, homeless, without clothes, running in packs on the streets like animals. They see the children degraded by our soldiers as they beg for food. They see the children selling their sisters to our soldiers, soliciting for their mothers."

Opposition to nuclear weapons

In his book, "Strength to Love", Dr. King wrote, "Wisdom born of experience should tell us that war is obsolete. There may have been a time when war served a negative good by preventing the spread of an evil force, but the power of modern weapons eliminates even the possibility that war may serve as a negative good. If we assume that life is worth living, and that man has a right to survival, then we must find an alternative to war ... I am convinced that the Church cannot be silent while mankind faces the threat of nuclear annihilation. If the church is true to her mission, she must call for an end to the nuclear arms race."

Assassination

On April 4, 1968, Dr. King was shot and killed. A number of people, including members of his own family, believe that he was killed because of his opposition to the Viet Nam War. This conclusion is supported by the result of a 1999 trial initiated by members of the King family. Summing up the arguments to the jury, the family's lawyer said "We are dealing in conspiracy with agents of the City of Memphis and the governments of the State of Tennessee and the United States of America. We ask that you find that a conspiracy existed." After two and a half hour's deliberation, the jury found that Lloyd Jowers and "others, including governmental agencies, were parties to this conspiracy". The verdict of the jury remains judicially valid today, and it has never been overturned in a court of law, although massive

efforts have been made to discredit it.

Redemptive love

Concerning the Christian principle of loving ones enemies, Dr. King wrote: “Why should we love our enemies? Returning hate for hate multiplies hate, adding deeper darkness to a night already devoid of stars. Darkness cannot drive out darkness; only light can do that. Hate cannot drive out hate. Only love can do that ... Love is the only force capable of transforming an enemy into a friend. We never get rid of an enemy by meeting hate with hate; we get rid of an enemy by getting rid of enmity... It is this attitude that made it possible for Lincoln to speak a kind word about the South during the Civil War, when feeling was most bitter. Asked by a shocked bystander how he could do this, Lincoln said, ‘Madam, do I not destroy my enemies when I make them my friends?’ This is the power of redemptive love.”

To a large extent, the black civil rights movement of the 50s and 60s succeeded in ending legalized racial discrimination in America. If the methods used had been violent, the movement could easily have degenerated into a nightmare of interracial hatred; but by remembering the Christian message, “Love your enemy; do good to them that spitefully use you”, Martin Luther King Jr. raised the ethical level of the civil rights movement; and the final result was harmony and understanding between the black and white communities. Later the nonviolent methods of Gandhi and King were successfully applied to the South African struggle against Apartheid by Nelson Mandela and his followers.

What would Martin Luther King say today?

What would Dr. King say about the illegal detention of prisoners at Guantanamo?

What would Dr. King say about governments that use torture?

What would Dr. King say about the worldwide Gulag of prisons for “extraordinary rendition”?

What would Dr. King say about wholesale wiretapping under the Patriot

Act?

What would Dr. King say about indefinite detention without trial under the National Defense Authorization Act?

What would Dr. King say about the imprisonment of whistle-blowers while war criminals go free?

What would Dr. King say about the 1,700,000,000,000.00 dollars which the world spends each year on armaments while 11 million children die each year from poverty and starvation?

What would Dr. King say about the illegal war that ruined Iraq, smashing its infrastructure, killing a million innocent people and forcing two million to flee as refugees?

What would Dr. King say about oil and petrodollars as motives for war?

What would Dr. King say about the militarization of space?

What would Dr. King say about perpetual war under the guise of a “war on terror”?

What would Dr. King say about the craven failure of the mass media to educate us and to mobilize the public to the action needed to solve the multiple threats to our beautiful world?

What would Dr. King say about a fossil fuel industry that pays advertisers to deny climate change?

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Dr. Martin Luther King Jr., great orator, champion of justice and equality, fearless opponent of war, we need your voice today!

VALUES FOR THE FUTURE

“Most of the luxuries, and many of the so-called comforts of life, are not only not indispensable, but positive hindrances to the elevation of mankind.” (Henry David Thoreau, 1817-1862)

“There is enough for every man’s need, but not for every man’s greed.” (Mahatma Gandhi, 1869-1948)

In today’s world, we are pressing against the absolute limits of the earth’s carrying capacity, and further growth carries with it the danger of future collapse. In the long run, neither the growth of industry nor that of population is sustainable; and we have now reached or exceeded the sustainable limits.

The size of the human economy is, of course, the product of two factors: the total number of humans, and the consumption per capita. Let us first consider the problem of reducing the per-capita consumption in the industrialized countries. The whole structure of western society seems designed to push its citizens in the opposite direction, towards ever-increasing levels of consumption. The mass media hold before us continually the ideal of a personal utopia, filled with material goods.

Every young man in a modern industrial society feels that he is a failure unless he fights his way to the “top”; and in recent years, women too have been drawn into the competition. Of course, not everyone can reach the top; there would not be room for everyone; but society urges us all to try, and we feel a sense of failure if we do not reach the goal. Thus, modern life has become a competition of all against all for power and possessions.

When possessions are used for the purpose of social competition, demand has no natural upper limit; it is then limited only by the size of the human ego, which, as we know, is boundless. This would be all to the good if unlimited industrial growth were desirable; but today, when further industrial growth implies future collapse, western society urgently needs to find new values to replace our worship of power, our restless chase after excitement, and our admiration of excessive consumption.

The values which we need, both to protect nature from civilization and to protect civilization from itself, are perhaps not new. Perhaps it would be more correct to say that we need to rediscover ethical values which were once a part of human culture, but which were lost in the process of industrialization, when technology allowed us to break traditional environmental constraints.

Our ancestors were hunter-gatherers, living in close contact with nature, and respecting the laws and limitations of nature. There are many hunter-gatherer societies existing today, from whose values and outlook we could learn much. Similarly, we could learn from stable traditional agricultural societies which have reached equilibrium with their environment. In such societies one can usually find, expressed as a strong ethical principle, the rule that the land must not be degraded, but must be left fertile for the use of future generations.

It would be wise for the industrialized countries to learn from the values of the older, traditional cultures, but what usually happens is the reverse: The unsustainable, power-worshipping, consumption-oriented values of western society are so strongly propagandized by television, films and advertising that they sweep aside the wisdom of older societies. Today, the whole world seems to be adopting values, fashions, and standards of behavior presented by the mass media of western society. This is unfortunate, since besides showing us unsustainable levels of affluence and economic waste, the western mass media depict values and behavior patterns that are hardly worthy of imitation. Let us hope that in the future, industrial society will put aside its arrogance, and listen to the quiet voice of wisdom from societies that are in closer contact with nature.

What about the problem of population stabilization? Again it is a question of values. It is now recognized that one of the most important ways to slow the global population explosion is to give women better education and equal rights. This is not only desirable for increased human happiness, and for the sake of the uniquely life-oriented point of view that women can give us, but in addition, improved education and status for women have shown themselves to be closely connected with lowered birth rates.

Sir Partha Dasgupta of Cambridge University has pointed out that the

changes needed to break the cycle of overpopulation and poverty are all desirable in themselves. Besides education and higher status for women, they include state-provided social security for old people, provision of water supplies near to dwellings, provision of health services to all, abolition of child labor, and general development.

In the world of the future, a future of changed values, women will take their places beside men in positions of responsibility, children will be educated rather than exploited, non-material human qualities, such as kindness, politeness, knowledge and musical and artistic ability will be valued more highly, and people will derive a larger part of their pleasure from conversation and from the appreciation of unspoiled nature. These are the values that we need for the future - a future that belongs not only to ourselves, but to our children and grandchildren.

Suggestions for further reading

1. P. Dasgupta, "Population, Resources and Poverty", *Ambio* 21, 95-101, (1992).
2. L.R. Brown, "Who will feed China?", W.W. Norton, New York, (1995).
3. Luther Standing Bear, "Land of the Spotted Eagle", Houghton Mifflin, (1933)
4. M.K. Gandhi, "My Experiment With Truth", Dover, (1983).

REFORMED TEACHING OF HISTORY

Today the world urgently needs a new global ethic, - an ethic where loyalty to family, community and nation will be supplemented by a strong sense of the brotherhood of all humans, regardless of race, religion or nationality.

Schiller expressed this feeling in his “Ode to Joy”, a part of which is the text of Beethoven’s Ninth Symphony. Hearing Beethoven’s music and Schiller’s words, most of us experience an emotion of resonance and unity with the message: All humans are brothers and sisters - not just some - all! It is almost a national anthem of humanity. The feelings that the music and words provoke are similar to patriotism, but broader. It is this sense of a universal human family that we need to cultivate in education, in the mass media, and in religion.

We already appreciate music, art and literature from the entire world, and scientific achievements are shared by all, regardless of their country of origin. We need to develop this principle of universal humanism so that it will become the cornerstone of a new ethic.

Educational reforms are urgently needed, particularly in the teaching of history. As it is taught today, history is a chronicle of power struggles and war, told from a biased national standpoint. Our own race or religion is superior; our own country is always heroic and in the right.

We urgently need to replace this indoctrination in chauvinism by a reformed view of history, where the slow development of human culture is described, giving adequate credit to all who have contributed. Our modern civilization is built on the achievements of many ancient cultures. China, Japan, India, Mesopotamia, Egypt, Greece, the Islamic world, Christian Europe, and the Jewish intellectual traditions all have contributed. Potatoes, corn, squash, vanilla, chocolate, chili peppers, pineapples, quinine, etc. are gifts from the American Indians. Human culture, gradually built up over thousands of years by the patient work of millions of hands and minds, should be presented as a precious heritage - far too precious to be risked in a thermonuclear war.

The human race has a genius for cooperation. All of the great achievements of modern society are achievements of cooperation. We can fly, but no one

builds an airplane alone. We can cure diseases, but only through the cooperative efforts of researchers, doctors and medicinal firms. We can photograph and understand distant galaxies, but the ability to do so is built on the efforts of many cooperating individuals. The comfort and well-being that we experience depends on far-away friendly hands and minds, since trade is global, and the exchange of ideas is also global.

The heritage of knowledge and culture, on which our complex civilization depends, is a monument to cooperation. Science and technology could not exist without the worldwide sharing of knowledge. Art, literature and music are the common heritage of humanity. We are who we are because of sharing.

All the peoples of the earth have contributed to the great treasure of human culture that we all share: Agriculture was invented independently in the Middle East, in Asia and in the New World, and from these places it spread throughout the earth. The art of writing and the first steps towards mathematics and astronomy had their beginnings in Mesopotamia and Egypt. India and Arabia gave us algebra and chemistry. The art of printing began in Asia, and further developed in Europe. Japanese art influenced European painters such as Degas, Gauguin and Van Gogh.

Today, the sharing of knowledge and culture is symbolized by the Internet, which binds us all together, no matter where we are living. The authors who contribute to Wikipedia do so from an unselfish wish to increase the sum of human knowledge. Their names do not even appear on their articles.

Let us use our almost miraculous modern communications media to bind humanity together. Let us eliminate the insanity and immorality of war from our future, and let us replace it with a more noble goal - the development and sharing of the world's cultural heritage.

TARGETING CIVILIANS

The bombardment of Copenhagen

Between 2 September and 5 September, 1807, the civilian population of Copenhagen was subjected to a bombardment by British military forces, without any declaration of war. The purpose of the bombardment was to induce terror in the population, and to thereby force the surrender of the Danish fleet, which the British feared might otherwise fall into the hands of Napoleon. It was one of the first occasions on which civilians were deliberately targeted in this manner.

Copenhagen was almost undefended, since the Danish army was positioned at the southern boundary of the country, ready to repel a possible attack by Napoleon's army. British troops and artillery were thus easily able to surround the city, while the British fleet occupied the harbor. On the first night of the bombardment, 5000 rounds were fired into the city, on the second night 2000, and on the third night 7000. New incendiary rockets developed by William Congreve were also used. More than 2000 civilians were killed by the bombardment, and about 30 percent of Copenhagen's buildings were destroyed. The bicentenary of this barbaric event might be an appropriate time to think about state-sponsored terror, in which innocent civilians are deliberately targeted.

The erosion of ethical principles during World War II

When Hitler invaded Poland in September, 1939, US President Franklin Delano Roosevelt appealed to Great Britain, France, and Germany to spare innocent civilians from terror bombing. "The ruthless bombing from the air of civilians in unfortified centers of population during the course of the hostilities", Roosevelt said (referring to the use of air bombardment during World War I) "...has sickened the hearts of every civilized man and woman, and has profoundly shocked the conscience of humanity." He urged "every Government which may be engaged in hostilities publicly to affirm its determination that its armed forces shall in no event, and under no circumstances, undertake the bombardment from the air of civilian populations or of unfortified cities."

Two weeks later, British Prime Minister Neville Chamberlain responded to



Roosevelt's appeal with the words: "Whatever the lengths to which others may go, His Majesty's Government will never resort to the deliberate attack on women and children and other civilians for purposes of mere terrorism."

Much was destroyed during World War II, and among the casualties of the war were the ethical principles that Roosevelt and Chamberlain announced at its outset. At the time of Roosevelt and Chamberlain's declarations, terror bombing of civilians had already begun in the Far East. On 22 and 23 September, 1937, Japanese bombers attacked civilian populations in Nanjing and Canton. The attacks provoked widespread protests. The British Under Secretary of State for Foreign Affairs, Lord Cranborne, wrote: "Words cannot express the feelings of profound horror with which the news of these raids has been received by the whole civilized world. They are often directed against places far from the actual area of hostilities. The military objective, where it exists, seems to take a completely second place. The main object seems to be to inspire terror by the indiscriminate slaughter of civilians..."

On the 25th of September, 1939, Hitler's air force began a series of intense attacks on Warsaw. Civilian areas of the city, hospitals marked with the Red Cross symbol, and fleeing refugees all were targeted in a effort to force the surrender of the city through terror. On the 14th of May, 1940, Rotterdam was also devastated. Between the 7th of September 1940 and the 10th of May 1941, the German Luftwaffe carried out massive air attacks on targets in Britain. By May, 1941, 43,000 British civilians were killed and more than

a million houses destroyed.

Although they were not the first to start it, by the end of the war the United States and Great Britain were bombing of civilians on a far greater scale than Japan and Germany had ever done. For example, on July 24-28, 1943, British and American bombers attacked Hamburg with an enormous incendiary raid whose official intention "the total destruction" of the city.

The result was a firestorm that did, if fact, lead to the total destruction of the city. One airman recalled, that "As far as I could see was one mass of fire. 'A sea of flame' has been the description, and that's an understatement. It was so bright that I could read the target maps and adjust the bomb-sight." Another pilot was "...amazed at the awe-inspiring sight of the target area. It seemed as though the whole of Hamburg was on fire from one end to the other and a huge column of smoke was towering well above us - and we were on 20,000 feet! It all seemed almost incredible and, when I realized that I was looking at a city with a population of two millions, or about that, it became almost frightening to think of what must be going on down there in Hamburg."

Below, in the burning city, temperatures reached 1400 degrees Fahrenheit, a temperature at which lead and aluminum have long since liquefied. Powerful winds sucked new air into the firestorm. There were reports of babies being torn by the high winds from their mothers' arms and sucked into the flames. Of the 45,000 people killed, it has been estimated that 50 percent were women and children and many of the men killed were elderly, above military age. For weeks after the raids, survivors were plagued by "...droves of vicious rats, grown strong by feeding on the corpses that were left unburied within the rubble as well as the potatoes and other food supplies lost beneath the broken buildings."

The German cities Kassel, Pforzheim, Mainz, Dresden and Berlin were similarly destroyed, and in Japan, US bombing created firestorms in many cities, for example Tokyo, Kobe and Yokohama. In Tokyo alone, incendiary bombing caused more than 100,000 civilian casualties.



The nuclear arms race

On August 6, 1945, at 8.15 in the morning, a nuclear fission bomb was exploded in the air over the civilian population of Hiroshima in an already virtually defeated Japan. The force of the explosion was equivalent to fifteen thousand tons of TNT. Out of a city of two hundred and fifty thousand, one hundred thousand were killed immediately, and another hundred thousand were hurt. Many of the injured died later from radiation sickness. A few days later, Nagasaki was similarly destroyed.

The tragic destruction of the two Japanese cities was horrible enough in itself, but it also marked the start of a nuclear arms race that continues to cast a very dark shadow over the future of civilization. Not long afterwards, the Soviet Union exploded its own atomic bomb, creating feelings of panic in the United States. President Truman authorized an all-out effort to build superbombs based on thermonuclear reactions, the reactions that heat the sun and stars.

In March, 1954, the US tested a thermonuclear bomb at Bikini Atoll in the Pacific Ocean. It was 1000 times more powerful than the Hiroshima bomb. The Japanese fishing boat, Lucky Dragon, was 135 kilometers from the Bikini explosion, but radioactive fallout from the explosion killed one crew member and made all the others seriously ill. The distance to the Marshall Islands was equally large, but even today, islanders continue to suffer from the effects of fallout from the test, for example frequent birth defects.

Driven by the paranoia of the Cold War, the number of nuclear weapons on both sides reached truly insane heights. At the worst point, there were 50,000 nuclear weapons in the world, with a total explosive power roughly a million times the power of the Hiroshima bomb. This was equivalent to 4 tons of TNT for every person on the planet - enough to destroy human civilization many times over - enough to threaten the existence of all life on earth.

At the end of the Cold War, most people heaved a sigh of relief and pushed the problem of nuclear weapons away from their minds. It was a threat to life too horrible to think about. People felt that they could do nothing in any case, and they hoped that the problem had finally disappeared.

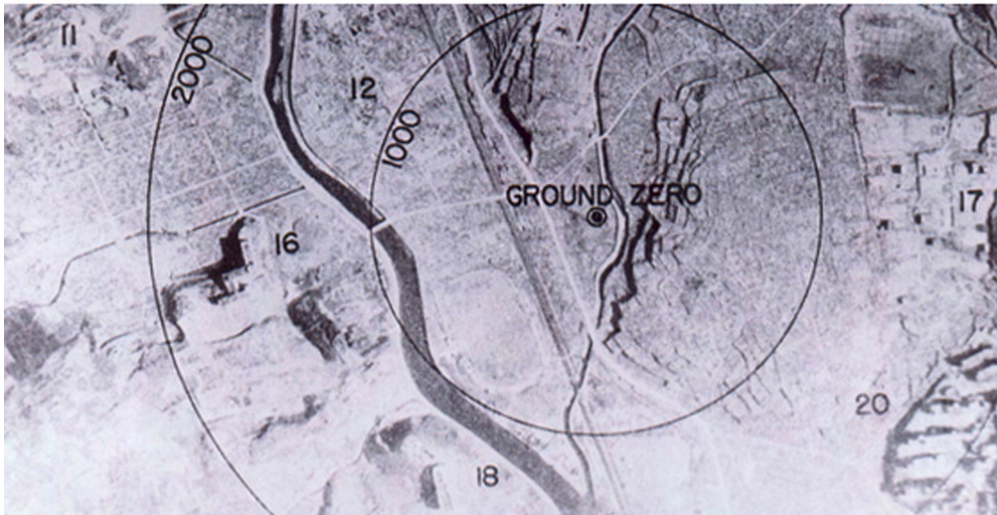
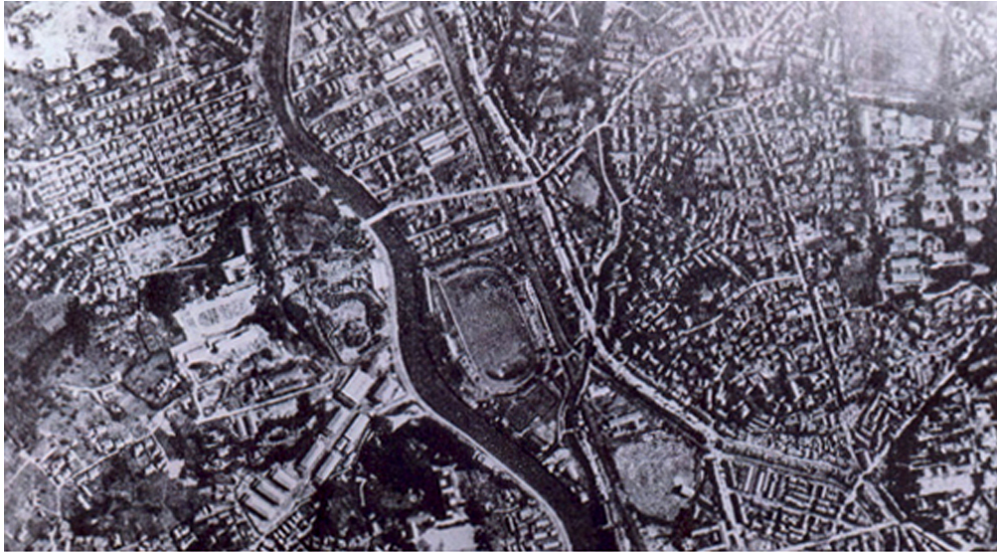




Figure 1: *Birth defects continue to be common on the Marshall Islands half a century after the Bikini tests*

Today, however, many thoughtful people realize that the problem of nuclear weapons has by no means disappeared, and in some ways it is even more serious now than it was during the Cold War. There are still 27,000 nuclear weapons in the world, many of them hydrogen bombs, many on hair-trigger alert, ready to be fired with only a few minutes warning. The world has frequently come extremely close to accidental nuclear war. If nuclear weapons are allowed to exist for a long period of time, the probability for such a catastrophic accident to happen will grow into a certainty.

Current dangers also come from proliferation. Recently, more and more nations have come to possess nuclear weapons, and thus the danger that they will be used increases. For example, if Pakistan's less-than-stable government should fall, its nuclear weapons might find their way into the hands of terrorists, and against terrorism deterrence has no effect.

Thus we live at a special time in history - a time of crisis for civilization. We did not ask to be born at a moment of crisis, but such is our fate. Every person now alive has a special responsibility: We owe it, both to our ancestors and to future generations, to build a stable and cooperative future world. It must be a war-free world, from which nuclear weapons have been completely abolished. No person can achieve these changes alone, but together we can build the world that we desire. This will not happen through inaction, but it can happen through the dedicated work of large numbers of citizens.

Civilians have for too long played the role of passive targets, hostages in the power struggles of politicians. It is time for civil society to make its will felt. If our leaders continue to enthusiastically support the institution of war, if they will not abolish nuclear weapons, then let us have new leaders.

BLOOD FOR OIL

There is a close relationship between petroleum and war. James A. Paul, Executive Director of the Global Policy Forum, has described this relationship very clearly in the following words:

“Modern warfare particularly depends on oil, because virtually all weapons systems rely on oil-based fuel - tanks, trucks, armored vehicles, self-propelled artillery pieces, airplanes, and naval ships. For this reason, the governments and general staffs of powerful nations seek to ensure a steady supply of oil during wartime, to fuel oil-hungry military forces in far-flung operational theaters.”

“Just as governments like the US and UK need oil companies to secure fuel for their global war-making capacity, so the oil companies need their governments to secure control over global oilfields and transportation routes. It is no accident, then, that the worlds largest oil companies are located in the worlds most powerful countries.”

“Almost all of the worlds oil-producing countries have suffered abusive, corrupt and undemocratic governments and an absence of durable development. Indonesia, Saudi Arabia, Libya, Iraq, Iran, Angola, Colombia, Venezuela, Kuwait, Mexico, Algeria - these and many other oil producers have a sad record, which includes dictatorships installed from abroad, bloody coups engineered by foreign intelligence services, militarization of government and intolerant right-wing nationalism.”

Iraq, in particular, has been the scene of a number of wars motivated by the Wests thirst for oil. During World War I, 1914-1918, the British captured the area (then known as Mesopotamia) from the Ottoman Empire after four years of bloody fighting. Although Lord Curzon denied that the British conquest of Mesopotamia was motivated by oil, there is ample evidence that British policy was indeed motivated by a desire for control of the regions petroleum. For example, Curzons Cabinet colleague Sir Maurice Hankey stated in a private letter that oil was “a first-class war aim”. Furthermore, British forces continued to fight after the signing of the Murdos Armistice. In this way, they seized Mosul, the capital of a major oil-producing region, thus frustrating the plans of the French, who had been promised the area

earlier in the secret Sykes-Picot Agreement.

Lord Curzon was well aware of the military importance of oil, and following the end of the First World War he remarked: "The Allied cause has floated to victory on a wave of oil".

During the period between 1918 and 1930, fierce Iraqi resistance to the occupation was crushed by the British, who used poison gas, airplanes, incendiary bombs, and mobile armored cars, together with forces drawn from the Indian Army. Winston Churchill, who was Colonial Secretary at the time, regarded the conflict in Iraq as an important test of modern military-colonial methods.

In 1932, Britain granted nominal independence to Iraq, but kept large military forces in the country and maintained control of it through indirect methods. In 1941, however, it seemed likely that Germany might try to capture the Iraqi oilfields, and therefore the British again seized direct political power in Iraq by means of military force. It was not only Germany that Britain feared, but also US attempts to gain access to Iraqi oil.

The British fear of US interest in Iraqi oil was soon confirmed by events. In 1963 the US secretly backed a military coup in Iraq that brought Saddam Husseins Baath Party to power. In 1979 the western-backed Shah of Iran was overthrown, and the United States regarded the fundamentalist Shiite regime that replaced him as a threat to supplies of oil from Saudi Arabia. Washington saw Saddams Iraq as a bulwark against the militant Shiite extremism of Iran that was threatening oil supplies from pro-American states such as Kuwait and Saudi Arabia.

In 1980, encouraged to do so by the fact that Iran had lost its US backing, Saddam Husseins government attacked Iran. This was the start of a extremely bloody and destructive war that lasted for eight years, inflicting almost a million casualties on the two nations. Iraq used both mustard gas and the nerve gases Tabun and Sarin against Iran, in violation of the Geneva Protocol.

Both the United States and Britain helped Saddam Husseins government to obtain chemical weapons. A chemical plant, called Falluja 2, was built by Britain in 1985, and this plant was used to produce mustard gas and



nerve gas. Also, according to the Riegel Report to the US Senate, May 25, (1994), the Reagan Administration turned a blind eye to the export of chemical weapon precursors to Iraq, as well as anthrax and plague cultures that could be used as the basis for biological weapons. According to the Riegel Report, “records available from the supplier for the period 1985 until the present show that during this time, pathogenic (meaning disease producing) and toxigenic (meaning poisonous), and other biological research materials were exported to Iraq pursuant to application and licensing by the US Department of Commerce.”

In 1984, Donald Rumsfeld, Reagan's newly appointed Middle East Envoy, visited Saddam Hussein to assure him of America's continuing friendship, despite Iraqi use of poison gas. When (in 1988) Hussein went so far as to use poison gas against civilian citizens of his own country in the Kurdish village of Halabja, the United States worked to prevent international condemnation of the act. Indeed US support for Saddam was so unconditional that he obtained the false impression that he had a free hand to do whatever he liked in the region.

On July 25, 1990, US Ambassador April Glaspie met with Saddam Hussein to discuss oil prices and how to improve US-Iraq relations. According to the transcript of the meeting, Ms Glaspie assured Saddam that the US “had no opinion on the Arab-Arab conflicts, like your border disagreement with Kuwait.” She then left on vacation. Mistaking this conversation for a green light, Saddam invaded Kuwait eight days later.

By invading Kuwait, Hussein severely worried western oil companies and governments, since Saudi Arabia might be next in line. As George Bush senior said in 1990, at the time of the Gulf War, “Our jobs, our way of life, our own freedom and the freedom of friendly countries around the world would all suffer if control of the worlds great oil reserves fell into the hands of Saddam Hussein.”

On August 6, 1990, the UN Security Council imposed comprehensive economic sanctions against Iraq with the aim of forcing Iraq to withdraw from Kuwait. Meanwhile, US Secretary of State James A. Baker III used arm-twisting methods in the Security Council to line up votes for UN military action against Iraq. In Bakers own words, he undertook the process of “cajoling, extracting, threatening and occasionally buying votes”.

On November 29, 1990, the Council passed Resolution 678, authorizing the use of “all necessary means” (by implication also military means) to force Iraq to withdraw from Kuwait. There was nothing at all wrong with this, since the Security Council had been set up by the UN Charter to prevent states from invading their neighbors. However, one can ask whether the response to Saddam Husseins invasion of Kuwait would have been so wholehearted if oil had not been involved.

There is much that can be criticized in the way that the Gulf War of 1990-1991 was carried out. Besides military targets, the US and its allies bombed electrical generation facilities with the aim of creating postwar leverage over Iraq. The electrical generating plants would have to be rebuilt with the help of foreign technical assistance, and this help could be traded for postwar compliance. In the meantime, hospitals and water-purification plants were without electricity. Also, during the Gulf War, a large number of projectiles made of depleted uranium were fired by allied planes and tanks. The result was a sharp increase in cancer in Iraq. Finally, both Shiites and Kurds were encouraged by the Allies to rebel against Saddam Husseins government, but were later abandoned by the allies and slaughtered by Saddam.

The most terrible misuse of power, however, was the US and UK insistence the sanctions against Iraq should remain in place after the end of the Gulf War. These two countries used their veto power in the Security Council to prevent the removal of the sanctions. Their motive seems to have been the

hope that the economic and psychological impact would provoke the Iraqi people to revolt against Saddam. However that brutal dictator remained firmly in place, supported by universal fear of his police and by massive propaganda. The effect of the sanctions was to produce more than half a million deaths of children under five years of age, as is documented by UNICEF data. The total number of deaths that the sanctions produced among Iraqi civilians probably exceeded a million, if older children and adults are included.

Ramsey Clark, who studied the effects of the sanctions in Iraq from 1991 onwards, wrote to the Security Council that most of the deaths “are from the effects of malnutrition including marasmas and kwashiorkor, wasting or emaciation which has reached twelve per cent of all children, stunted growth which affects twenty-eight per cent, diarrhea, dehydration from bad water or food, which is ordinarily easily controlled and cured, common communicable diseases preventable by vaccinations, and epidemics from deteriorating sanitary conditions. There are no deaths crueler than these. They are suffering slowly, helplessly, without simple remedial medication, without simple sedation to relieve pain, without mercy.”

On the morning of September 11, 2001, two hijacked airliners were deliberately crashed into New Yorks World Trade Center, causing the collapse of three skyscrapers and the deaths of more than three thousand people. Almost simultaneously, another hijacked airliner was driven into the Pentagon in Washington DC, and a fourth hijacked plane crashed in a field in Pennsylvania. The fourth plane probably was to have made a suicide attack on the White House or the Capitol, but passengers on the airliner became aware what was happening through their mobile telephones, and they overpowered the hijackers.

Blame for the September 11 attacks soon centered on the wealthy Saudi Arabian Islamic extremist, Osama bin Laden, and on his terrorist organization, al-Qaeda. In a later statement acknowledging responsibility for the terrorist attacks, bin Ladin gave as his main reasons firstly the massive US support for Israel, a country that, in his view, was committing atrocities against the Palestinians, and secondly the presence of US troops in Saudi Arabia.

Like Saddam Hussein, Osama bin Ladin was an ex-protegé of the CIA, by whom he had previously been armed, trained, and supported. The history of

bin Ladins relationship with the CIA began in 1979, when the CIA, acting through Pakistans Inter-Services Intelligence Agency, began to train and arm the Mujaheddin, an international force of Islamic fundamentalists who were encouraged to attack Afghanistans secular socialist government.

US National Security Advisor Zbigniew Bryzinski anticipated that the Soviets would respond by sending troops to protect the socialist government of Afghanistan, and he believed that the resulting war would be the Soviet Unions version of Viet Nam: It would be a war that would fatally weaken the Soviet Union. Thus he saw the war that he was provoking in Afghanistan as an important step in the liberation of Eastern Europe. “What is most important in the history of the world?”, Polish-born Bryzinski asked in a 1998 interview, “The Taliban, or the collapse of the Soviet empire? Some stirred-up Muslims, or the liberation of central Europe...?” It was, in fact, these same “stirred-up Muslims” who guided two hijacked aircraft into the Twin Towers on September 11, 2001.

During the spring of 2003, our television and newspapers presented us with the spectacle of an attack by two technologically superior powers on a much less industrialized nation, a nation with an ancient and beautiful culture. The ensuing war was one-sided. Missiles guided by laser beams and signals from space satellites were more than a match for less sophisticated weapons. Speeches were made to justify the attack. It was said to be needed because of weapons of mass destruction (some countries are allowed to have them, others not). It was said to be necessary to get rid of a cruel dictator (whom the attacking powers had previously supported and armed). But the suspicion remained that the attack was resource-motivated. It was about oil.

Looking at the present and threatened conflicts in the Middle East against the background of this history, must we not ask: To what extent are they too about oil?

BACK TO CHILD LABOR AND SLAVERY?

Until the start of the Industrial Revolution in the 18th and 19th centuries, human society maintained a more or less sustainable relationship with nature. However, with the beginning of the industrial era, traditional ways of life, containing both ethical and environmental elements, were replaced by the money-centered, growth-oriented life of today, from which these vital elements are missing.

According to Adam Smith (1723-1790), self-interest (even greed) is a sufficient guide to human economic actions. The passage of time has shown that Smith was right in many respects. The free market, which he advocated, has turned out to be the optimum prescription for economic growth. However, history has also shown that there is something horribly wrong or incomplete about the idea that individual self-interest alone, uninfluenced by ethical and ecological considerations, and totally free from governmental intervention, can be the main motivating force of a happy and just society. There has also proved to be something terribly wrong with the concept of unlimited economic growth.

In the early 19th century, industrial society began to be governed by new rules: Traditions were forgotten and replaced by purely economic laws. Labor was viewed as a commodity, like coal or grain, and wages were paid according to the laws of supply and demand, without regard for the needs of the workers. Wages fell to starvation levels, hours of work increased, and working conditions deteriorated.

John Fielden's book, "The Curse of the Factory System" was written in 1836, and it describes the condition of young children working in the cotton mills. "The small nimble fingers of children being by far the most in request, the custom instantly sprang up of procuring 'apprentices' from the different parish workhouses of London, Birmingham and elsewhere... Overseers were appointed to see to the works, whose interest it was to work the children to the utmost, because their pay was in proportion to the quantity of work that they could exact."



“Cruelty was, of course, the consequence; and there is abundant evidence on record to show that in many of the manufacturing districts, the most heart-rending cruelties were practiced on the unoffending and friendless creatures... that they were flogged, fettered and tortured in the most exquisite refinements of cruelty, that they were in many cases starved to the bone while flogged to their work, and that they were even in some instances driven to commit suicide... The profits of manufacture were enormous, but this only whetted the appetite that it should have satisfied.”

With the gradual acceptance of birth control in England, the growth of trade unions, the passage of laws against child labor and finally minimum wage laws, conditions of workers gradually improved, and the benefits of industrialization began to spread to the whole of society. Among the changes which were needed to insure that the effects of technical progress became beneficial rather than harmful, the most important were the abolition of child labor, the development of unions, the minimum wage law, and the introduction of birth control.

One of the important influences for reform was the Fabian Society, founded in London in 1884. The group advocated gradual rather than revolution-

ary reform (and took its name from Quintus Fabius Maximus, the Roman general who defeated Hannibal's Carthaginian army by using harassment and attrition rather than head-on battles). The Fabian Society came to include a number of famous people, including Sydney and Beatrice Webb, George Bernard Shaw, H.G. Wells, Annie Besant, Leonard Woolf, Emaline Pankhurst, Bertrand Russell, John Maynard Keynes, Harold Laski, Ramsay MacDonald, Clement Attlee, Tony Benn and Harold Wilson. Jawaharlal Nehru, India's first Prime Minister, was greatly influenced by Fabian economic ideas.

The group was instrumental in founding the British Labour Party (1900), the London School of Economics and the New Statesman. In 1906, Fabians lobbied for a minimum wage law, and in 1911 they lobbied for the establishment of a National Health Service.

The reform movement's efforts, especially those of the Fabians, overcame the worst horrors of early 19th century industrialism, but today their hard-won achievements are being undermined and lost because of uncritical and unregulated globalization. Today, a factory owner or CEO, anxious to avoid high labor costs, and anxious to violate environmental regulations merely moves his factory to a country where laws against child labor and rape of the environment do not exist or are poorly enforced. In fact, he must do so or be fired, since the only thing that matters to the stockholders is the bottom line. One might say (as someone has done), that Adam Smith's invisible hand is at the throat of the world's peoples and at the throat of the global environment.

The movement of a factory from Europe or North America to a country with poorly enforced laws against environmental destruction, child labor and slavery puts workers into unfair competition. Unless they are willing to accept revival of the unspeakable conditions of the early Industrial Revolution, they are unable to compete.

Today, child labor accounts for 22 percent of the workforce in Asia, 32 percent in Africa, and 17 percent in Latin America. Large-scale slavery also exists today, although there are formal laws against it in every country. There are more slaves now than ever before. Their number is estimated to be between 12 million and 27 million. Besides outright slaves, who are bought and sold for as little as 100 dollars, there many millions of workers whose lack of op-



Figure 1: *Beatrice Webb (1858-1943). Together with her husband Sidney Webb, Graham Wallace and George Bernard Shaw, she founded the London School of Economics using money left to the Fabian Society by Henry Hutchinson. The Fabians also founded the British Labour Party, and they lobbied for a minimum wage law and National Health Service.*

tions and dreadful working conditions must be described as slavlike.

The CEO's of Wall Street call for less government, more deregulation and more globalization. They are delighted that the work of the reform movement is being undone in the name of "freedom". But is this really what is needed? Perhaps we need instead to reform our economic system to give it both a social conscience and an ecological conscience. Perhaps some of the things that the world produces and consumes today are not really necessary.

Governments already accept their responsibility for education. Perhaps in the future they will also accept the responsibility for insuring that their citizens can make a smooth transition from education to secure jobs. The free market alone cannot do this the powers of government are needed. Let us restore democracy! Let us have governments that work for the welfare of all their citizens, rather than for the enormous enrichment of the few!

Suggestions for further reading

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5. John A. Hobson, "John Ruskin, Social Reformer", (1898).
6. E. Pease, "A History of the Fabian Society", Dutton, New York, (1916).
7. W. Bowdin, "Industrial Society in England Towards the End of the Eighteenth Century", MacMillan, New York, (1925).
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HUMAN RIGHTS

On December 10, 1948, the General Assembly of the United Nations adopted a Universal Declaration of Human Rights. 48 nations voted for adoption, while 8 nations abstained from voting. Not a single state voted against the Declaration. In addition, the General Assembly decided to continue work on the problem of implementing human rights. The preamble of the Declaration stated that it was intended “as a common standard of achievement for all peoples and nations, to the end that every individual and every organ of society, keeping this Declaration constantly in mind, shall strive by teaching and education to promote respect for these rights and freedoms.”

Articles 1 and 2 of the Declaration state that “all human beings are born free and equal in dignity and in rights”, and that everyone is entitled to the rights and freedoms mentioned in the Declaration without distinctions of any kind. Neither race color, sex, language, religion, political or other opinion, national or social origin, property or social origin must make a difference.

The Declaration states that everyone has a right to life, liberty and security of person and property. Slavery and the slave trade are prohibited, as well as torture and cruel, inhuman or degrading punishments. All people must be equal before the law, and no person must be subject to arbitrary arrest, detention or exile. In criminal proceedings an accused person must be presumed innocent until proven guilty by an impartial public hearing where all necessary provisions have been made for the defense of the accused.

No one shall be subjected to interference with his privacy, family, home or correspondence. Attacks on an individuals honor are also forbidden. Everyone has the right of freedom of movement and residence within the borders of a state, the right to leave any country, including his own, as well as the right to return to his own country. Every person has the right to a nationality and cannot be arbitrarily deprived of his or her nationality.

All people of full age have a right to marry and to establish a family. Men and women have equal rights within a marriage and at its dissolution, if this takes place. Marriage must require the full consent of both parties.

The Declaration also guarantees freedom of religion, of conscience, and of opinion and expression, as well as freedom of peaceful assembly and association. Everyone is entitled to participate in his or her own government, either directly or through democratically chosen representatives. Governments must be based on the will of the people, expressed in periodic and genuine elections with universal and equal suffrage. Voting must be secret.

Everyone has the right to the economic, social and cultural conditions needed for dignity and free development of personality. The right to work is affirmed. The job shall be of a persons own choosing, with favorable conditions of work, and remuneration consistent with human dignity, supplemented if necessary with social support. All workers have the right to form and to join trade unions.

Article 25 of the Declaration states that everyone has the right to an adequate standard of living, including food, clothing, housing and medical care, together with social services. All people have the right to security in the event of unemployment, sickness, disability, widowhood or old age. Expectant mothers are promised special care and assistance, and children, whether born in or out of wedlock, shall enjoy the same social protection. Everyone has the right to education, which shall be free in the elementary stages. Higher education shall be accessible to all on the basis of merit. Education must be directed towards the full development of the human personality and to strengthening respect for human rights and fundamental freedoms. Education must promote understanding, tolerance, and friendship among all nations, racial and religious groups, and it must further the activities of the United Nations for the maintenance of peace.

A supplementary document, the Convention on the Rights of the Child, was adopted by the United Nations General Assembly on the 12th of December, 1989. Furthermore, in July 2010, the General Assembly passed a resolution affirming that everyone has the right to clean drinking water and proper sanitation.

Many provisions of the Universal Declaration of Human Rights, for example Article 25, might be accused of being wishful thinking. In fact, Jean Kirkpatrick, former US Ambassador to the UN, called the Declaration “a letter to Santa Claus”. Nevertheless, like the Millennium Development Goals, the

Universal Declaration of Human Rights has great value in defining the norms towards which the world ought to be striving.

It is easy to find many examples of gross violations of basic human rights that have taken place in recent years. Apart from human rights violations connected with interventions of powerful industrial states in the internal affairs of third world countries, there are many cases where governmental forces in the less developed countries have violated the human rights of their own citizens. Often minority groups have been killed or driven off their land by those who coveted the land, as was the case in Guatemala in 1979, when 1.5 million poor Indian farmers were forced to abandon their villages and farms and to flee to the mountains of Mexico in order to escape murderous attacks by government soldiers. The blockade of Gaza and the use of drones to kill individuals illegally must also be regarded as gross human rights violations, and there are many recent examples of genocide.

Wars in general, and in particular, the use of nuclear weapons, must be regarded as gross violations of human rights. The most basic human right is the right to life; but this is right routinely violated in wars. Most of the victims of recent wars have been civilians, very often children and women. The use of nuclear weapons must be regarded as a form of genocide, since they kill people indiscriminately, babies, children, young adults in their prime, and old people, without any regard for guilt or innocence.

Furthermore, recent research shows that a war fought with nuclear weapons would be an ecological disaster. Smoke from burning cities would rise to the stratosphere, where it would spread globally and remain for a period of 10 years, blocking sunlight, destroying the the ozone layer, and blocking the hydrological cycle. An all-out war with thermonuclear weapons would essentially destroy all agriculture for such a long period that most humans would die from starvation. The damage to the biosphere would also be enormous. We may ask: by what right do the nuclear nations threaten the world with a disaster of these proportions? Would not a war fought with nuclear weapons be the greatest imaginable violation of human rights? We should remember that both war in general and the use of nuclear weapons in particular violate democratic principles: The vast majority of ordinary citizens prefer peace to war, and the vast majority also long for a world without nuclear weapons.

It is plain that if the almost unbelievable sums now wasted on armaments were used constructively, most of the pressing problems facing the world today could be solved; but today the world spends more than 20 times as much on armaments as it does on development.

Today's world is one in which roughly 10 million children die every year from diseases related to poverty. Besides this enormous waste of young lives through malnutrition and preventable disease, there is a huge waste of opportunities through inadequate education. The rate of illiteracy in the 25 least developed countries is 80 percent, and the total number of illiterates in the world is estimated to be 800 million. Meanwhile every 60 seconds the world spends roughly 3 million dollars on armaments. The millions who are starving have a right to food. The millions of illiterates have a right to education. By preferring armaments to development, we deny them these rights.

It is time for civil society to make its voice heard. Politicians are easily influenced by lobbies and by money, but in the last analysis they have to listen to the voice of the people. We have seen this recently in Tunisia, Egypt, Libya, Bahrain and Yemen. We should try to learn from the courage of the people of these countries who have defied guns and tanks to demand their human rights. No single person can achieve the changes that we need, but together we can do it: together we can build the world that we choose.

No one living today asked to be born in a time of crisis, but the global crisis of the 21st century has given each of us an enormous responsibility: We cannot merely leave things up to the politicians, as we have been doing. The future is in our own hands: the hands of the people, the hands of civil society. This is not a time for building private utopias or cultivating our own gardens. Today everyone has two jobs: Of course we have to earn a living, but in addition, all of us have the duty to work actively, to the best of our abilities, to save humanity's future and the biosphere.

USING MATERIAL GOODS FOR SOCIAL COMPETITION

There is something ethically wrong with using material goods for the purpose of social competition at a time when excessive consumption is destroying our planet. Also, in our century, the world's resources are nearing exhaustion, and roughly 40,000 children die every day from starvation or from poverty-related diseases.. The whole structure of western society seems designed to push its citizens towards ever-increasing levels of consumption. The mass media hold before us continually the ideal of a personal utopia filled with material goods. Every young man in a modern industrial society feels that he is a failure unless he fights his way to the "top"; and in recent years, women too have been drawn into this competition.

Of course not everyone can reach the top; there would not be room for everyone; but society urges all us to try, and we feel a sense of failure if we do not reach the goal. Thus, modern life has become a struggle of all against all for power and possessions.

One of the central problems in reducing consumption is that in our present economic and social theory, consumption has no upper bound; there is no definition of what is enough; there is no concept of a state where all of the real needs of a person have been satisfied. In our growth-oriented present-day economics, it is assumed that, no matter how much a person earns, he or she is always driven by a desire for more.

The phrase "conspicuous consumption" was invented by the Norwegian-American economist Thorstein Veblen (1857-1929) in order to describe the way in which our society uses economic waste as a symbol of social status. In "The Theory of the Leisure Class", first published in 1899, Veblen pointed out that it wrong to believe that human economic behavior is rational, or that it can be understood in terms of classical economic theory. To understand it, Veblen maintained, one might better make use of insights gained from anthropology, psychology, sociology, and history.

The sensation caused by the publication of Veblens book, and the fact that his phrase, "conspicuous consumption", has become part of our language,

indicate that his theory did not completely miss its mark. In fact, modern advertisers seem to be following Veblens advice: Realizing that much of the output of our economy will be used for the purpose of establishing the social status of consumers, advertising agencies hire psychologists to appeal to the consumers longing for a higher social position.

When possessions are used for the purpose of social competition, demand has no natural upper limit; it is then limited only by the size of the human ego, which, as we know, is boundless. This would be all to the good if unlimited economic growth were desirable. But today, when further industrial growth implies future collapse, western society urgently needs to find new values to replace our worship of power, our restless chase after excitement, and our admiration of excessive consumption. Some voices from the past can help us to find the values that we need as we try to change to a more modest and sustainable way of living. Let us listen to the voice of Mahatma Gandhi: "There is enough for every man's need", he said, "but not for every man's greed". Gandhi deliberately adopted very simple clothing, and he reduced his possessions to an absolute minimum, in order to demonstrate that there is no link between material possessions and personal merit.

The voice of Henry David Thoreau is also a useful and wise one. "Most of the luxuries", Thoreau wrote, "and many of the so-called comforts of life, are not only not indispensable, but positive hindrances to the elevation of mankind. With respect to luxuries, the wisest have ever lived a more simple and meager life than the poor. The ancient philosophers, Chinese, Hindoo, Persian, and Greek, were a class than which none has been poorer in outward riches, none so rich in inward."

MAKING A GAME OF KILLING

The mass media are an important part of our educational system. Perhaps it is time to look more closely at the values that they are transmitting. In particular, we should perhaps look at computer games designed for young boys. They often give the strongest imaginable support to a culture of violence.

For example, a game entitled “Full Spectrum Warrior” was recently reviewed in a Danish newspaper. According to the reviewer, “...An almost perfect combination of graphics, sound, band design, and gameplay makes it seem exactly like the film *Black Hawk Down* - with the player as the main character. This is not just a coincidence, because the game is based on an army training program... Full Spectrum Warrior is an extremely intense experience, and despite the advanced possibilities, the controls are simple enough so that young children can play it... The player is completely drawn into the screen, and remains there until the end of the mission.” The reviewer gave the game six stars (the maximum).

Another genre of computer games has to do with building empires, ignoring the fact that imperialism is morally indefensible. For example, “Forge of Empires” is a browser-based strategy game. It is described as follows: “The game offers a single-player campaign for players to explore and conquer several provinces, gaining resources and new technology as they progress.” Conquering countries for the sake of gaining their resources is an all-too-familiar feature of the modern world. In the game “Forge of Empires”, our young people are indoctrinated with the ethos of resource wars.

During his trial, the Norwegian mass-murderer Anders Behring Breivik described how he trained for his attack on young people on the Island of Utya using the computer game “Call of Duty: Modern Warfare”. The court also heard how he took what he called a “sabbatical” for a year between the summers of 2006 and 2007. During this year, he played a game called “World of Warcraft” full-time, in the bedroom of his mother’s Oslo flat, spending up to 16 hours a day using the game to distance himself from the human and moral significance of killing.

Is this not similar to the frame of mind of drone operators, sitting in comfort in their Nevada bunkers, distanced from the reality of killing? They are



playing a computer game that kills targeted individuals and their families, in remote countries, by remote control. There is no need to look into the eyes of the victims. They are just abstract symbols in a computer game.

Suggestions for further reading

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CONSTRUCTION VERSUS DESTRUCTION

It is often said that ethical principles cannot be derived from science, that they must come from somewhere else. Nevertheless, when nature is viewed through the eyes of modern science, we obtain some insights which seem almost ethical in character. Biology at the molecular level has shown us the complexity and beauty of even the most humble living organisms, and the interrelatedness of all life on earth. Looking through the eyes of contemporary biochemistry, we can see that even the single cell of an amoeba is a structure of miraculous complexity and precision, worthy of our respect and wonder.

Knowledge of the second law of thermodynamics, the statistical law favoring disorder over order, reminds us that life is always balanced like a tight-rope walker over an abyss of chaos and destruction. Living organisms distill their order and complexity from the flood of thermodynamic information which reaches the earth from the sun. In this way, they create local order; but life remains a fugitive from the second law of thermodynamics. Disorder, chaos, and destruction remain statistically favored over order, construction, and complexity.

It is easier to burn down a house than to build one, easier to kill a human than to raise and educate one, easier to force a species into extinction than to replace it once it is gone, easier to burn the Great Library of Alexandria than to accumulate the knowledge that once filled it, and easier to destroy a civilization in a thermonuclear war than to rebuild it from the radioactive ashes. Knowing this, we can form an almost ethical insight: To be on the side of order, construction, and complexity, is to be on the side of life. To be on the side of destruction, disorder, chaos and war is to be against life, a traitor to life, an ally of death. Knowing the precariousness of life, knowing the statistical laws that favor disorder and chaos, we should resolve to be loyal to the principle of long continued construction upon which life depends.

War is based on destruction, destruction of living persons, destruction of homes, destruction of infrastructure, and destruction of the biosphere. If we are on the side of life, if we are not traitors to life and allies of death, we must oppose the institution of war. We must oppose the military-industrial



complex. We must oppose the mass media when they whip up war-fever. We must oppose politicians who vote for obscenely enormous military budgets at a time of financial crisis. We must oppose the planned illegal and insane Israeli attack of Iran, which threatens to lead to a world-destroying conflict. We must oppose these things by working with dedication, as though our lives depended on it. In fact, they do.

THE NUREMBERG PRINCIPLES AND INDIVIDUAL RESPONSIBILITY

At the end of the Second World War, when the full extent of the atrocities that had been committed by the Nazis became known, it was decided to prosecute Nazi leaders for crimes against peace, war crimes, and crimes against humanity (such as extermination camps). There was disagreement about how such trials should be held, but after some debate between the Allied countries, it was agreed that 24 Nazi officials and military leaders would be tried by an International Tribunal in Nuremberg, Germany, a former center of Nazi politics. There were originally 24 defendants, but two of them committed suicide. One was presumed dead but was nevertheless tried in absentia. Of the twenty-one remaining defendants, eleven were given the death penalty, eight were sentenced to long prison terms, and three were acquitted. Similar trials also took place in Japan.

In 1946 the United Nations General Assembly unanimously affirmed “the principles of international law recognized by the Charter of the Nuremberg Tribunal and the judgment of the Tribunal”. The General Assembly also established an International Law Commission to formalize the Nuremberg Principles, and the result was the following list. The reader is invited to compare the crimes listed under Principle VI with events that have been occurring for a number of years in the Middle East and in other parts of the world.

- Principle I: Any person who commits an act which constitutes a crime under international law is responsible, and therefore liable to punishment.
- Principle II: The fact that internal law does not impose a penalty for an act which constitutes a crime under international law does not relieve the person who committed the act from responsibility under international law.
- Principle III: The fact that the person who committed an act which constitutes a crime under international law acted as Head of State or

responsible government official does not relieve him from responsibility under international law.

- Principle IV: The fact that a person acted pursuant to order of his Government or of a superior does not relieve him of responsibility under international law, provided that a moral choice was in fact possible for him.
- Principle V: Any person charged with a crime under international law has the right to a fair trial on the facts and law.
- Principle VI: The crimes hereinafter set out are punishable as crimes under international law: a. Crimes against peace: (i) Planning, preparation, initiation or waging of war of aggression or a war in violation of international treaties, agreements or assurances; (ii) Participation in a common plan or conspiracy for the accomplishment of any of the acts mentioned under (i). b. War crimes: Violations of the laws or customs of war which include, but are not limited to, murder, ill-treatment of prisoners of war or persons on the seas, killing of hostages, plunder of public or private property, wanton destruction of cities, towns or villages, or devastation not justified by military necessity. c. Crimes against humanity: Atrocities and offenses, including but not limited to, murder, extermination, deportation, imprisonment, torture, rape, or other inhumane acts committed against any civilian population, or persecutions on political, racial or religious grounds, whether or not in violation of the laws of the country where perpetrated.
- Principle VII: Complicity in the commission of a crime against peace, a war crime, or a crime against humanity as set forth in Principle VI is a crime under international law.

The Nuremberg Principles are being used today as the basis for the International Criminal Courts trials of individuals accused of genocide and war crimes in the former Yugoslavia and elsewhere.

The Principles throw an interesting light onto the status of soldiers. According to the Nuremberg Principles, it is not only the right, but also the duty of individuals to make moral and legal judgments concerning wars in which they are asked to fight. If a soldier participates in an illegal war (and all

wars, apart from actions of the UN Security Council, are now illegal) then the soldier is liable to prosecution for violating international law. The fact that he or she was acting under orders is not an excuse. The training of soldiers is designed to remove the burdens of moral and legal responsibility from a soldier's individual shoulders; but the Nuremberg Principles put these burdens squarely back where they belong - on the shoulders of the individual.

Although only 24 Nazi leaders were held responsible for their crimes at the Nuremberg Trials, Principles IV and VII make it clear that a much larger number of people could have been tried, since "complicity in the commission of a crime against peace, a war crime, or a crime against humanity... is a crime under international law. In other words, all adult citizens are breaking international law if they are complicit in the crimes committed by their governments.

All of us are responsible for what our governments do! I personally would like to extend the principle of individual responsibility still further: - I think that all of us are responsible for working actively, with all our strength, to solve the serious problems that are facing the world today, whether the problems are related to the abolition of war, to the prevention of poverty, the prevention of famine, or to saving the biosphere.

BENEFITS OF EQUALITY

“No man is an island, entire of itself; every man is a piece of the continent, a part of the main. If a clod be washed away by the sea, Europe is the less, as well as if a promontory were, as well as if a manor of thy friends or thine own were...” (John Donne, 1572-1631)

The Industrial Revolution opened up an enormous gap in military strength between the industrialized nations and the rest of the world. Taking advantage of their superior weaponry, Europe, the United States and Japan rapidly carved up the remainder of the world into colonies, which acted as sources of raw materials and food, and as markets for manufactured goods. Between 1800 and 1914, the percentage of the earth under the domination of colonial powers increased to 85 percent, if former colonies are included.

The English economist and Fabian, John Atkinson Hobson (1858-1940), offered a famous explanation of the colonial era in his book “Imperialism: A Study” (1902). According to Hobson, the basic problem that led to colonial expansion was an excessively unequal distribution of incomes in the industrialized countries. The result of this unequal distribution was that neither the rich nor the poor could buy back the total output of their society. The incomes of the poor were insufficient, and rich were too few in number. The rich had finite needs, and tended to reinvest their money. As Hobson pointed out, reinvestment in new factories only made the situation worse by increasing output.

Hobson had been sent as a reporter by the Manchester Guardian to cover the Second Boer War. His experiences had convinced him that colonial wars have an economic motive. Such wars are fought, he believed, to facilitate investment of the excess money of the rich in African or Asian plantations and mines, and to make possible the overseas sale of excess manufactured goods. Hobson believed imperialism to be immoral, since it entails suffering both among colonial peoples and among the poor of the industrial nations. The cure that he recommended was a more equal distribution of incomes in the manufacturing countries.

Interestingly, TED Talks (ideas worth spreading) was recently under fire from many progressive groups for censoring a short talk by the adventure capi-

talist, Nick Handauer, entitled “Income Inequality”. In this talk, Handauer says exactly the same thing as John Hobson, but he applies the ideas, not to colonialism, but to current unemployment in the United States. Handauer says that the rich are unable to consume the products of society because they are too few in number. To make an economy work, demand must be increased, and for this to happen, the distribution of incomes must become much more equal than it is today in the United States.

TED has now posted Hanauer’s talk, and the interested reader can find another wonderful TED talk dealing with the same issues from the standpoint of health and social problems. In a splendid lecture entitled “How economic inequality harms societies”, Richard Wilkinson demonstrates that there is almost no correlation between gross national product and a number of indicators of the quality of life, such as physical health, mental health, drug abuse, education, imprisonment, obesity, social mobility, trust, violence, teenage pregnancies and child well-being. On the other hand he offers comprehensive statistical evidence that these indicators are strongly correlated with the degree of inequality within countries, the outcomes being uniformly much better in nations where income is more equally distributed.

Warren Buffet famously remarked, “There’s class warfare, all right. But it’s my class, the rich class, that’s making war, and we’re winning.” However, the evidence presented by Hobson, Hanauer and Wilkinson shows conclusively that no one wins in a society where inequality is too great, and everyone wins when incomes are more evenly distributed.

Suggestions for further reading

1. John A. Hobson, “Imperialism; A Study”, (1902)
2. Richard G. Wilkinson and Kate Pickett, “The Spirit Level: Why More Equal Societies Almost Always Do Better”, Alan Lane, (2009).
3. Nick Hanauer, “Income Inequality”, Ted Talks, (2012).
4. Richard G. Wilkinson, “How economic inequality harms societies”, Ted Talks, (2012).



Figure 1: *A late 19th century French cartoon showing England, Germany, Russia, France and Japan slicing up the pie of China.*



Figure 2: A cartoon showing Cecil Rhodes' colonial ambitions for Africa. The thread in his hands represents a proposed Cape-Town-to-Cairo telegraph line. He wanted to "paint the map British red", and declared, "If I could, I would annex other planets."

ADVERSE EFFECTS OF GLOBALIZATION

Today, economic globalization aims at increased trade throughout the world. At first sight, this might seem to be a benefit. However, laws preventing the exploitation of labor are not universal. The same unspeakable conditions experienced by workers in factories and mines during the early phases of the Industrial Revolution in Europe can be found today among factory workers in Indonesia or children weaving oriental carpets in Pakistan; and it is estimated that in India alone there are 80,000,000 child laborers.

In many developing countries today, industrialization involves slave-like working conditions. Meanwhile, in the industrialized countries, workers may lose their jobs because they cannot compete with underpaid labor in the Third World. Large multinational corporations are tending to move their operations to regions where salaries and living standards are very low. For free trade to be truly beneficial to all the peoples of the world, universal laws must be established to regulate business and industry globally, and to ensure that multinationals act in a way that is both socially and ecologically responsible.

Adam Smith's followers advocated complete freedom from governmental restraint, but the history of the Industrial Revolution demonstrates the need for regulatory social legislation. The historical perspective makes it clear that laws establishing minimum wage levels and laws prohibiting child labor are needed to avoid horrors such as those described by John Fielden in "The Curse of the Factory System". Today, birth control is also necessary on a global scale, just as it once was needed in England, to raise workers above the starvation level. Finally, unions must be permitted everywhere in the world. If trade is globalized, the hard-won reforms achieved by Charles Knowlton, Annie Besant the Fabians and others must also be globalized.

The story of globalization has until now been a story of escape from regulatory legislation. For example, many Danish farmers have moved their operations to Poland or to the Baltic nations in order to escape from Denmark's strict environmental regulations. Another example is escape from taxation: One might think that taxation of foreign resource-extracting firms



Figure 1: *London during the industrial revolution*

would provide developing countries with large incomes. However, there is at present no international law governing multinational tax arrangements. These are usually agreed to on a bilateral basis, and the industrialized countries have stronger bargaining powers in arranging the bilateral agreements. As a result, such agreements are usually very unfair, and multinationals escape all but the mildest taxation.

We can also consider the “non-discrimination” principle adopted by GATT (the General Agreement on Tariffs and Trade). This principle states that participating countries “cannot discriminate between like products on the basis of the method of production”. This single principle allows multinational commerce to escape from all the humanitarian and environmental reforms that have been achieved since the start of the Industrial Revolution. No matter if the method of production involves destruction of a tropical rain forest, no matter if forced labor was used, we are not allowed to discriminate “on the basis of the method of production”.

The present situation is that agriculture, trade and industry have become

global, but the world still lacks adequate institutions at the global level to watch over what is happening and to insure respect for human needs and respect for the natural environment.

Today's global economic interdependence, instantaneous worldwide communication, and the need for peaceful resolution of international conflicts all call for strong governmental institutions at the global level, but the United Nations today lacks many things that would be necessary if it is to perform such a role: It lacks a legislature with the power to make laws binding on individuals and corporations. It lacks mechanisms for enforcing such laws. And it lacks a large and dependable source of income.

It would be logical to improve the United Nations by giving it the things just mentioned, and by giving it at the same time the task of regulating multinational corporations to ensure that they act in a socially and ecologically responsible manner. It would also be logical to entitle the UN to a fee for acting as a referee in relationships between multinationals and the developing countries. These reforms must come someday because of the logic of our present situation. I hope that they will come soon.

Suggestions for further reading

1. John Fielden, "The Curse of the Factory System", (1836).
2. Charles Knowlton, "The Fruits of Philosophy", (1832).
3. John A. Hobson, "John Ruskin, Social Reformer", (1898).
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OPTIMUM POPULATION IN THE FUTURE

What is the optimum population of the world? It is certainly not the maximum number that can be squeezed onto the globe by eradicating every species of plant and animal that cannot be eaten. The optimum global population is one that can be supported in comfort, equality and dignity, and with respect for the environment.

In 1848 (when there were just over one billion people in the world), John Stuart Mill described the optimal global population in the following words: “The density of population necessary to enable mankind to obtain, in the greatest degree, all the advantages of cooperation and social intercourse, has, in the most populous countries, been attained. A population may be too crowded, although all be amply supplied with food and raiment.”

“... Nor is there much satisfaction in contemplating the world with nothing left to the spontaneous activity of nature; with every rood of land brought into cultivation, which is capable of growing food for human beings; every flowery waste or natural pasture plowed up, all quadrupeds or birds which are not domesticated for man’s use exterminated as his rivals for food, every hedgerow or superfluous tree rooted out, and scarcely a place left where a wild shrub or flower could grow without being eradicated as a weed in the name of improved agriculture. If the earth must lose that great portion of its pleasantness which it owes to things that the unlimited increase of wealth and population would extirpate from it, for the mere purpose of enabling it to support a larger, but not better or happier population, I sincerely hope, for the sake of posterity, that they will be content to be stationary, long before necessity compels them to it.”

Has the number of humans in the world already exceeded the earth’s sustainable limits? Will the global population of humans crash catastrophically after having exceeded the carrying capacity of the environment? There is certainly a danger that this will happen, a danger that the 21st century will bring very large scale famines to vulnerable parts of the world, because modern energy intensive agriculture will be dealt a severe blow by prohibitively

high petroleum prices, and because climate change will reduce the worlds agricultural output. When the major glaciers in the Himalayas have melted, they will no longer be able to give India and China summer water supplies; rising oceans will drown much agricultural land; and aridity will reduce the output of many regions that now produce much of the worlds grain. Falling water tables in overdrawn aquifers, and loss of topsoil will add to the problem. We should be aware of the threat of a serious global food crisis in the 21st century if we are to have a chance of avoiding it.

As we strive to achieve peace throughout the world, and to eliminate the suffering caused by poverty, hunger and preventable disease, we should remember that all these goals will be more attainable with a global population of moderate size.

RECIPROCITY AND KARMA

The principle of reciprocity is an ancient one in human history, and it is thus embedded in our emotions. It is an important part of human nature. Reciprocity is the basis of non-market economies, and also the basis of social interactions between family members, friends and colleagues. In hunter-gatherer societies, it is customary to share food among all the members of the group. “Today I receive food from you, and tomorrow you will receive food from me.” Similarly, among friends in modern society, no payment is made for hospitality, but it is expected that sooner or later the hospitality will be returned.

According to Wikipedia “Reciprocity in Social Psychology refers to responding to a positive action with another positive action, rewarding kind actions. As a social construct, reciprocity means that in response to friendly actions, people are frequently much nicer and much more cooperative than predicted by the self-interest model; conversely, in response to hostile actions they are frequently much more nasty and even brutal.” As Wikipedia points out, reciprocity can also be negative, as in the case of escalatory cycles of revenge and counter-revenge.

The Buddhist concept of karma has great value in human relations. The word “karma” means simply “action”. In Buddhism, one believes that actions return to the actor. Good actions will be returned, and bad actions will also be returned. This is obviously true in social relationships. If we behave with kindness and generosity to our neighbors, they will return our kindness. Conversely, a harmful act may lead to vicious circles of revenge and counter revenge, such as those we see today in the Middle East and elsewhere. These vicious circles can only be broken by returning good for evil.

However the concept of karma has a broader and more abstract validity beyond the direct return of actions to the actor. When we perform a good action, we increase the total amount of good karma in the world. If all people similarly behave well, the the world as a whole will become more pleasant and more safe. Human nature seems to have a built-in recognition of this fact, and we are rewarded by inner happiness when we perform good and kind actions. In his wonderful book, “Ancient Wisdom, Modern World”, the Dalai Lama says that good actions lead to happiness and bad actions to un-

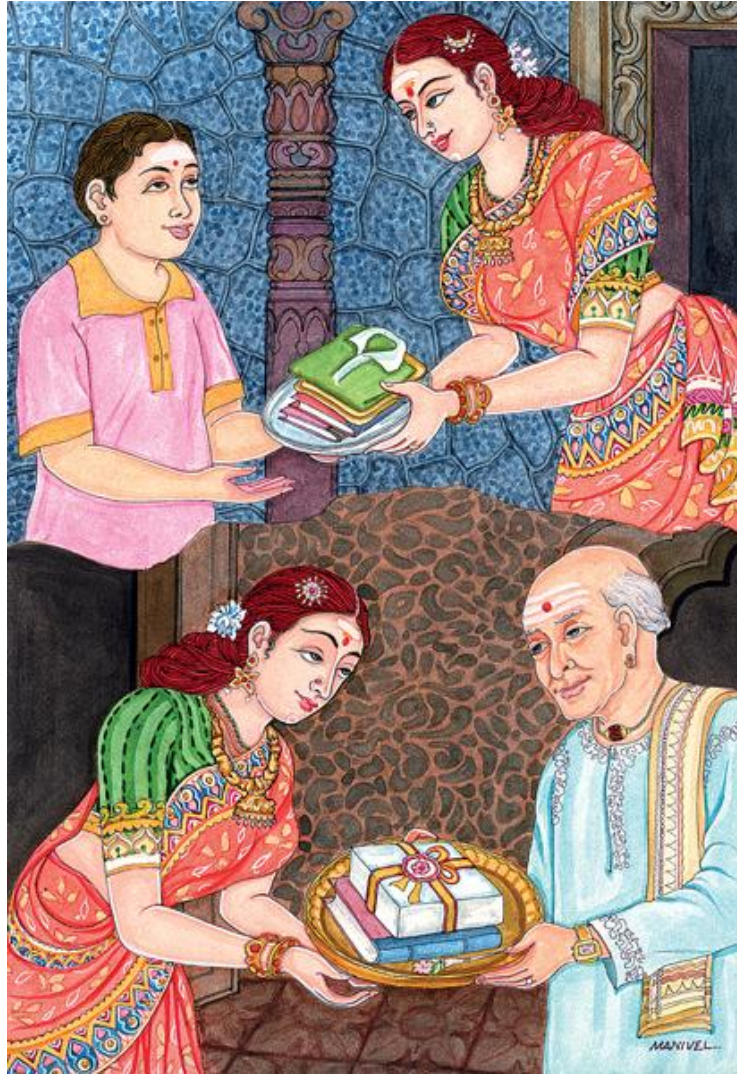


Figure 1: *This painting illustrates the concept of karma. A lady gives books and clothing to a poor student. Later she receives a gift from a neighbor. There may sometimes be a direct causal connection between such events, but often they are connected only by the fact that each act of kindness makes the world a better place. (Himalayan Academy Publications, Kapaa, Kauai, Hawaii.)*

happiness even if our neighbors do not return these actions. Inner peace, he tells us, is incompatible with bad karma and can be achieved only through good karma, i.e. good actions.

In Buddhist philosophy, the concept of Karma, action and reaction, also extends to our relationship with nature. Both Hindu and Buddhist traditions emphasize the unity of all life on earth. Hindus regard killing an animal as a sin, and many try to avoid accidentally stepping on insects as they walk.

The Hindu and Buddhist picture of the relatedness of all life on earth has been confirmed by modern biological science. We now know that all living organisms have the same fundamental biochemistry, based on DNA, RNA, proteins and polysaccharides, and we know that our own human genomes are more similar to than different from the genomes of our close relations in the animal world.

The peoples of the industrialized nations urgently need to acquire a non-anthropocentric element in their ethics, similar to reverence for all life found in the Hindu and Buddhist traditions, as well as in the teachings of Saint Francis of Assisi and Albert Schweitzer. We need to learn to value other species for their own sakes, and not because we expect to use them for our own economic goals.

Today a few societies still follow a way of life similar to that of our hunter-gatherer ancestors. Anthropologists are able to obtain a vivid picture of the past by studying these societies. Often the religious ethics of the hunter-gatherers emphasizes the importance of harmony with nature. For example, respect for nature appears in the tribal traditions of Native Americans. The attitude towards nature of the Sioux can be seen from the following quotations from "Land of the Spotted Eagle" by the Lakota (Western Sioux) chief, Standing Bear (ca. 1834-1908):

"The Lakota was a true lover of Nature. He loved the earth and all things of the earth... From Waken Tanka (the Great Spirit) there came a great unifying life force that flowered in and through all things, the flowers of the plains, blowing winds, rocks, trees, birds, animals, and was the same force that had been breathed into the first man. Thus all things were kindred and were brought together by the same Great Mystery."

“Kinship with all creatures of the earth, sky, and water was a real and active principle. For the animal and bird world there existed a brotherly feeling that kept the Lakota safe among them. And so close did some of the Lakota come to their feathered and furred friends that in true brotherhood they spoke a common tongue.”

“The animal had rights, the right of mans protection, the right to live, the right to multiply, the right to freedom, and the right to mans indebtedness, and in recognition of these rights the Lakota never enslaved the animal, and spared all life that was not needed for food and clothing.”

“This concept of life was humanizing and gave to the Lakota an abiding love. It filled his being with the joy and mystery of things; it gave him reverence for all life; it made a place for all things in the scheme of existence with equal importance to all. The Lakota could despise no creature, for all were one blood, made by the same hand, and filled with the essence of the Great Mystery.”

A similar attitude towards nature can be found in traditional Inuit cultures, and in some parts of Africa, a man who plans to cut down a tree offers a prayer of apology, telling the tree why necessity has forced him to harm it. This preindustrial attitude is something from which the industrialized North could learn. In industrial societies, land “belongs” to some one has the “right” to ruin the land or to kill the communities of creatures living on it if this happens to give some economic advantage, in much the same way that a Roman slaveowner was thought to have the “right” to kill his slaves. Preindustrial societies have a much less rapacious and much more custodial attitude towards the land and towards its non-human inhabitants.

We have received many gifts from modern technology, but if we are to build a happy, sustainable and war-free world we must combine our new scientific techniques with humanity’s ancient wisdom.

LIMITS TO GROWTH AND FRACTIONAL RESERVE BANKING

Economists (with a few notable exceptions) have long behaved as though growth were synonymous with economic health. If the gross national product of a country increases steadily by 4% per year, most economists express approval and say that the economy is healthy. If the economy could be made to grow still faster (they maintain), it would be still more healthy. If the growth rate should fall, economic illness would be diagnosed. However, it is obvious that on a finite Earth, neither population growth nor economic growth can continue indefinitely.

A “healthy” economic growth rate of 4% per year corresponds to an increase by a factor of 50 in a century, by a factor of 2500 in two centuries, and by a factor of 125,000 in three centuries. No one can maintain that this type of growth is sustainable except by refusing to look more than a short distance into the future.

Of course, it is necessary to distinguish between industrial growth, and growth of culture and knowledge, which can and should continue to grow. Qualitative improvements in human society are possible and desirable, but resource-using and pollution-producing industrial growth is reaching its limits, both because of ecological constraints and because of the exhaustion of petroleum, natural gas and other non-renewable resources, such as metals.

Today, as economic growth falters, the defects and injustices of our banking system have come sharply into focus, and light has also been thrown onto the much-too-cozy relationship between banking and government. The collapse of banks during the subprime mortgage crisis of 2008 and their subsequent bailout by means of the taxpayer’s money can give us an insight into both phenomena - the faults of our banking system and its infiltration into the halls of government. The same can be said of the present national debt crisis in the Euro zone and elsewhere.

One feature of banking that cries out for reform is “fractional reserve banking”, i.e. the practice whereby private banks keep only a tiny fraction of the

money entrusted to them by their depositors, and lend out all the remaining amount. By doing so, the banks are in effect coining their own money and putting it into circulation, a prerogative that ought to be reserved for governments. Under the system of fractional reserve banking, profits from any expansion of the money supply go to private banks rather than being used by the government to provide social services. This is basically fraudulent and unjust; the banks are in effect issuing their own counterfeit money.

When the economy contracts instead of expanding, the effect of fractional reserve banking is still worse. In that case the depositors ask the banks for their money, which it is their right to do. But the banks do not have the money - they have lent it out, and thus they fail. However, the bankers have insured themselves against this eventuality by buying the votes of government officials. Thus the banks are bailed out and the taxpayers are left with the bill, as in the recent example in which the US Federal Reserve secretly gave 7.7 trillion of the taxpayers' dollars to bail out various banks.

We live in special times: Like a speeding bus headed for a brick wall, the earth's rapidly-growing population of humans and its rapidly-growing economic activity are headed for a collision with a very solid barrier - the carrying capacity of the global environment. As in the case of the bus and the wall, the correct response to the situation is to apply the brakes in good time, but fear prevents us from doing this. What will happen if we slow down very suddenly?

The memory of the great depression of 1929 makes us fear the consequences of an economic slowdown, especially since unemployment is already a serious problem. Although the history of the 1929 depression is frightening, it may nevertheless be useful to look at the measures which were used then to bring the global economy back to its feet. A similar level of governmental responsibility may help us during the next few decades to avoid some of the more painful consequences of the necessary transition from the economics of growth to the economics of equilibrium.

In much the same way that Keynes urged Roosevelt to use governmental fiscal and financial policy to achieve social goals, we can now urge our governments to use their control of taxation to promote sustainability. For example, a slight increase in the taxes on fossil fuels could make a number of

renewable energy technologies economically competitive; and higher taxes on motor fuels would be especially useful in promoting the necessary transition from private automobiles to bicycles and public transport.

The economic recession that began with the US subprime mortgage crisis of 2008 can be seen as an opportunity. It is thought to be temporary, but it is a valuable warning of irreversible long-term changes that will come later, when the absolute limits of industrial growth are reached. Already today we are faced with the problems of preventing unemployment and simultaneously building the infrastructure of an ecologically sustainable society. What is needed today is not the deregulation called for by the 1 percent. Instead we need truly democratic governments that accept their social and ecological responsibilities. One of the most important responsibilities of reformed governments and reformed economics must be to ensure full employment.

The Worldwatch Institute, Washington D.C., lists the following steps as necessary for the transition to sustainability: 1) Stabilizing population; 2) Shifting to renewable energy; 3) Increasing energy efficiency; 4) Recycling resources; 5) Reforestation and 6) Soil Conservation. All of these steps are labor-intensive; and thus, wholehearted governmental commitment to the transition to sustainability can help to solve the problem of unemployment.

We are approaching the moment in history where industrial growth will no longer be possible. If no changes have been made in our economic system when this happens, we will be faced with massive unemployment. Three changes are needed to prevent this:

1. Labor must be moved to tasks related to ecological sustainability. These include development of renewable energy, reforestation, soil and water conservation, replacement of private transportation by public transport, and agricultural development. Health and family planning services must also be made available to all.
2. Opportunities for employment must be shared among those in need of work, even if this means reducing the number of hours that each person works each week and simultaneously reducing the use of luxury goods, unnecessary travel, and all forms of conspicuous consumption. It will

be necessary for governments to introduce laws reducing the length of the working week, thus ensuring that opportunities for employment are shared equally.

3. The world's fractional reserve banking system urgently needs to be reformed. An index system could be introduced to regulate the amount of money in circulation in such a way as to stabilize the average price of a list of necessary household items, such as flour, milk and eggs. National banks would either print more money or else re-absorb it according to the value of the index.

To carry out these reforms will require the dedicated and courageous efforts of civil society - the 99 percent. If we leave things in the hands of the politicians, bankers and corporations, we will continue on the road to ruin, following in the footsteps of Greece. Perhaps we should remember the words that Shelly wrote in response to the Peterloo Massacre:

*Rise like lions after slumbers
In unvanquishable numbers!
Shake your chains to Earth like dew,
Which in sleep had fallen on you!
You are many; they are few.*

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ATTACKS ON IRAN

PAST AND PRESENT

Iran has an ancient and beautiful civilization, which dates back to 7,000 BC, when the city of Susa was founded. Some of the earliest writing that we know of, dating from approximately 3,000 BC, was used by the Elamite civilization near to Susa. Today's Iranians are highly intelligent and cultured, and famous for their hospitality, generosity and kindness to strangers. Over the centuries, Iranians have made many contributions to science, art and literature, and for hundreds of years they have not attacked any of their neighbors. Nevertheless, for the last 90 years, they have been the victims of foreign attacks and interventions, most of which have been closely related to Iran's oil and gas resources. The first of these took place in the period 1921-1925, when a British-sponsored coup overthrew the Qajar dynasty and replaced it by Reza Shah.

Reza Shah (1878-1944) started his career as Reza Khan, an army officer. Because of his high intelligence he quickly rose to become commander of the Tabriz Brigade of the Persian Cossacks. In 1921, General Edmond Ironside, who commanded a British force of 6,000 men fighting against the Bolsheviks in northern Persia, masterminded a coup (financed by Britain) in which Reza Khan led 15,000 Cossacks towards the capital. He overthrew the government, and became minister of war. The British government backed this coup because it believed that a strong leader was needed in Iran to resist the Bolsheviks. In 1923, Reza Khan overthrew the Qajar Dynasty, and in 1925 he was crowned as Reza Shah, adopting the name Pahlavi.

Reza Shah believed that he had a mission to modernize Iran, in much the same way that Kamil Ata Turk had modernized Turkey. During his 16 years of rule in Iran, many roads were built, the Trans-Iranian Railway was constructed, many Iranians were sent to study in the West, the University of Tehran was opened, and the first steps towards industrialization were taken. However, Reza Shah's methods were sometimes very harsh.

In 1941, while Germany invaded Russia, Iran remained neutral, perhaps leaning a little towards the side of Germany. However, Reza Shah was sufficiently critical of Hitler to offer safety in Iran to refugees from the Nazis. Fearing



Figure 1: *Reza Shah (1878-1944)*

that the Germans would gain control of the Abadan oil fields, and wishing to use the Trans-Iranian Railway to bring supplies to Russia, Britain invaded Iran from the south on August 25, 1941. Simultaneously, a Russian force invaded the country from the north. Reza Shah appealed to Roosevelt for help, citing Iran's neutrality, but to no avail. On September 17, 1941, he was forced into exile, and replaced by his son, Crown Prince Mohammed Reza Pahlavi. Both Britain and Russia promised to withdraw from Iran as soon as the war was over. During the remainder of World War II, although the new Shah was nominally the ruler of Iran, the country was governed by the allied occupation forces.

Reza Shah, had a strong sense of mission, and felt that it was his duty to modernize Iran. He passed on this sense of mission to his son, the young Shah Mohammed Reza Pahlavi. The painful problem of poverty was everywhere apparent, and both Reza Shah and his son saw modernization of Iran as the only way to end poverty.

In 1951, Mohammad Mosaddegh became Prime Minister of Iran through democratic elections. He was from a highly-placed family and could trace his ancestry back to the shahs of the Qajar dynasty. Among the many reforms made by Mosaddegh was the nationalization of the Anglo-Iranian Oil Company's possessions in Iran. Because of this, the AIOC (which later became British Petroleum), persuaded the British government to sponsor a secret coup that would overthrow Mosaddegh. The British asked US President Eisenhower and the CIA to join M16 in carrying out the coup, claiming that Mosaddegh represented a communist threat (a ludicrous argument, considering Mosaddegh's aristocratic background). Eisenhower agreed to help Britain in carrying out the coup, and it took place in 1953. The Shah thus obtained complete power over Iran.

The goal of modernizing Iran and ending poverty was adopted as an almost-sacred mission by the young Shah, Mohammed Reza Pahlavi, and it was the motive behind his White Revolution in 1963, when much of the land belonging to the feudal landowners and the crown was distributed to landless villagers. However, the White Revolution angered both the traditional landowning class and the clergy, and it created fierce opposition. In dealing with this opposition, the Shahs methods were very harsh, just as his fathers had been. Because of alienation produced by his harsh methods, and because

of the growing power of his opponents, Shah Mohammed Reza Pahlavi was overthrown in the Iranian Revolution of 1979. The revolution of 1979 was to some extent caused by the British-American coup of 1953.

One can also say that the westernization, at which both Shah Reza and his son aimed, produced an anti-western reaction among the conservative elements of Iranian society. Iran was “falling between two stools”, on the one hand western culture and on the other hand the country’s traditional culture. It seemed to be halfway between, belonging to neither. Finally in 1979 the Islamic clergy triumphed and Iran chose tradition.

Meanwhile, in 1963, the US had secretly backed a military coup in Iraq that brought Saddam Husseins Baath Party to power. In 1979, when the western-backed Shah of Iran was overthrown, the United States regarded the fundamentalist Shiite regime that replaced him as a threat to supplies of oil from Saudi Arabia. Washington saw Saddams Iraq as a bulwark against the Shiite government of Iran that was thought to be threatening oil supplies from pro-American states such as Kuwait and Saudi Arabia.

In 1980, encouraged to do so by the fact that Iran had lost its US backing, Saddam Husseins government attacked Iran. This was the start of an extremely bloody and destructive war that lasted for eight years, inflicting almost a million casualties on the two nations. Iraq used both mustard gas and the nerve gases Tabun and Sarin against Iran, in violation of the Geneva Protocol. Both the United States and Britain helped Saddam Husseins government to obtain chemical weapons.

The present attacks on Iran by Israel and the United States, both actual and threatened, have some similarity to the war against Iraq, which was launched by the United States in 2003. In 2003, the attack was nominally motivated by the threat that nuclear weapons would be developed, but the real motive had more to do with a desire to control and exploit the petroleum resources of Iraq, and with Israel’s extreme nervousness at having a powerful and somewhat hostile neighbor. Similarly, hegemony over the huge oil and gas reserves of Iran can be seen as one the main reasons why the United States is presently demonizing Iran, and this is combined with Israel’s almost paranoid fear of a large and powerful Iran. Looking back on the “successful” 1953 coup against Mosaddegh, Israel and the United States perhaps feel that

sanctions, threats, murders and other pressures can cause a regime change that will bring a more compliant government to power in Iran - a government that will accept US hegemony. But aggressive rhetoric, threats and provocations can escalate into full-scale war.

I do not wish to say that Iran's present government is without serious faults. However, any use of violence against Iran would be both insane and criminal. Why insane? Because the present economy of the US and the world cannot support another large-scale conflict; because the Middle East is already a deeply troubled region; and because it is impossible to predict the extent of a war which, if once started, might develop into World War III, given the fact that Iran is closely allied with both Russia and China. Why criminal? Because such violence would violate both the UN Charter and the Nuremberg Principles. There is no hope at all for the future unless we work for a peaceful world, governed by international law, rather than a fearful world where brutal power holds sway.

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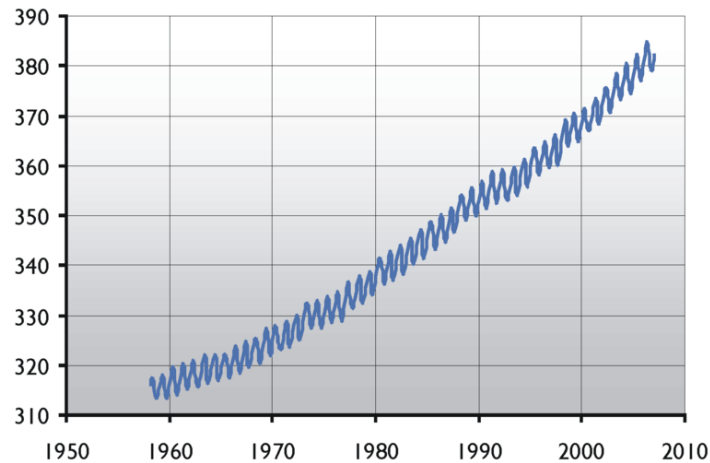
LIMITS TO GROWTH AND CLIMATE CHANGE

Classical economists like Smith and Ricardo pictured the world as largely empty of human activities. According to the “empty-world” picture of economics, the limiting factors in the production of food and goods are shortages of capital and labor. The land, forests, fossil fuels, minerals, oceans filled with fish, and other natural resources upon which human labor and capital operate, are assumed to be present in such large quantities that they are not limiting factors. In this picture, there is no naturally-determined upper limit to the total size of the human economy. It can continue to grow as long as new capital is accumulated, as long as new labor is provided by population growth, and as long as new technology replaces labor by automation.

Biology, on the other hand, presents us with a very different picture. Biologists remind us that if any species, including our own, makes demands on its environment which exceed the environment’s carrying capacity, the result is a catastrophic collapse both of the environment and of the population which it supports. Only demands which are within the carrying capacity are sustainable. For example, there is a limit to regenerative powers of a forest. It is possible to continue to cut trees in excess of this limit, but only at the cost of a loss of forest size, and ultimately the collapse and degradation of the forest. Similarly, cattle populations may for some time exceed the carrying capacity of grasslands, but the ultimate penalty for overgrazing will be degradation or desertification of the land. Thus, in biology, the concept of the carrying capacity of an environment is extremely important; but in economic theory this concept has not yet been given the weight that it deserves.

There is much evidence to indicate that the total size of the human economy is rapidly approaching the absolute limits imposed by the carrying capacity of the global environment. For example, biologists estimate that between 10,000 and 50,000 species are being driven into extinction each year as the earth’s rainforests are destroyed.

The burning of fossil fuels and the burning of tropical rain forests have released so much carbon dioxide that the atmospheric concentration of this greenhouse gas has increased from a preindustrial value of 260 ppm to its

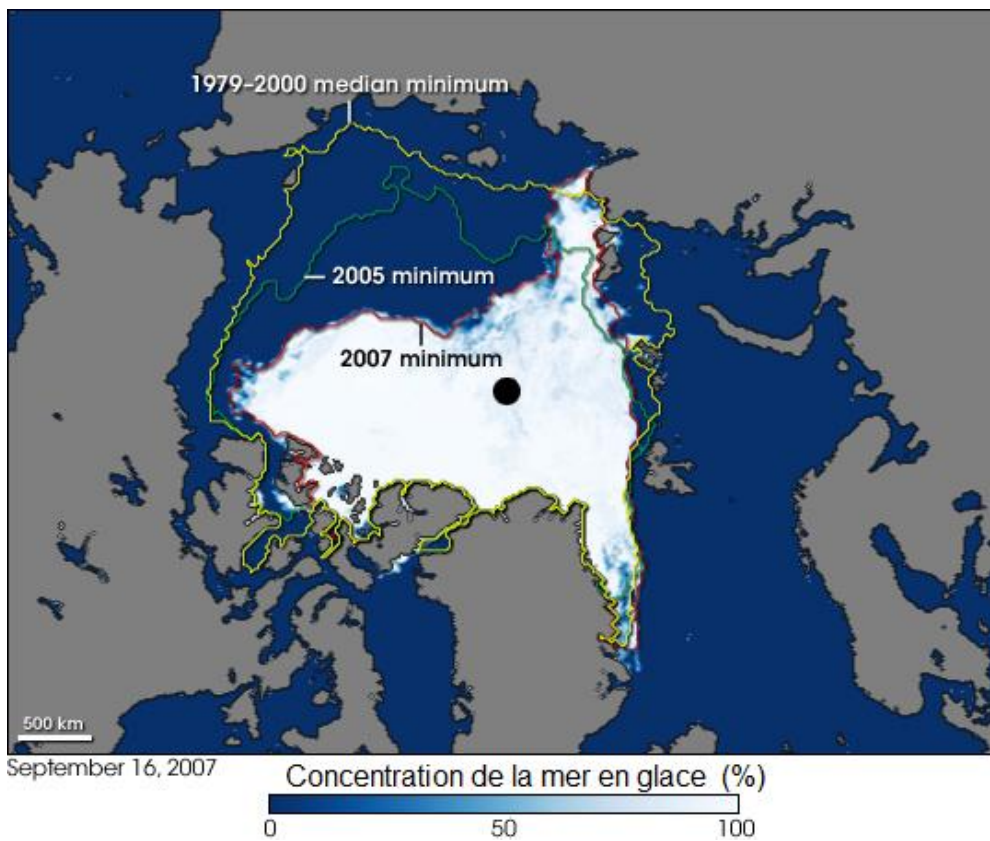
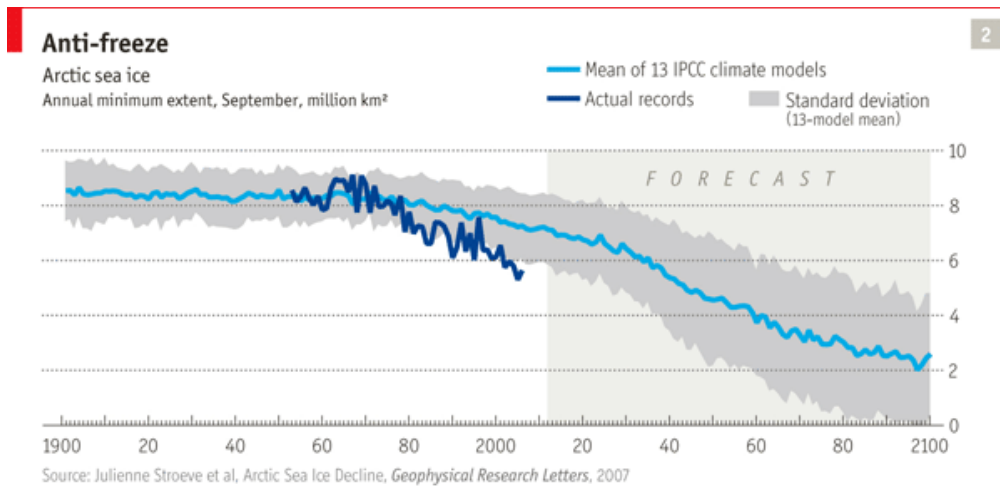


present value: 400 ppm. Most scientists agree that unless steps are taken to halt the burning of rain forests and to reduce the use of fossil fuels, the earth's temperature will steadily rise during the coming centuries. This gradual long-term climate change will threaten future agricultural output by changing patterns of rainfall. Furthermore, the total melting of the Arctic and Antarctic icecaps, combined with the thermal expansion of the oceans, threatens to produce a sea level rise of up to 12 meters. Although these are slow, long-term effects, we owe it to future generations to take steps now to halt global warming.

The dogma of growth

According to Adam Smith, the free market is the dynamo of economic growth. The true entrepreneur does not indulge in luxuries for himself and his family, but reinvests his profits, with the result that his business or factory grows larger, producing still more profits, which he again reinvests, and so on. This is indeed the formula for exponential economic growth.

Economists (with a few notable exceptions such as Aurelio Pecci and Herman Daly) have long behaved as though growth were synonymous with economic health. If the gross national product of a country increases steadily by 4 percent per year, most economists express approval and say that the economy is healthy. If the economy could be made to grow still faster (they maintain),



it would be still more healthy. If the growth rate should fall, economic illness would be diagnosed.

However, it is obvious that on a finite Earth, neither population growth nor resource-using and pollution-generating economic growth can continue indefinitely. A “healthy” economic growth rate of 4 percent per year corresponds to an increase by a factor of 50 in a century. (The reader is invited to calculate the factor of increase in five centuries. The answer is 312,500,000!) No one can maintain that this type of growth is sustainable except by refusing to look more than a short distance into the future. Sooner or later (perhaps surprisingly soon) an entirely new form of economics will be needed - not the empty-world economics of Adam Smith, but what might be called “full-world economics”, or “steady-state economics”.

Although indefinitely continued industrial growth on a finite earth is a logical impossibility, growth is nevertheless the most sacred dogma of both economists and politicians, perhaps because of our fractional reserve banking system, which collapses unless there is growth. Anyone who challenges this dogma is treated as a heretic. For example, Professor Tim Jackson recently wrote an excellent book, “Prosperity Without Growth: Economics for a Finite Planet”, which challenged the concept of unlimited growth. He suffered for his heresy, although he was not actually burned at the stake: The Sustainable Development Commission (of which Jackson was the Economics Commissioner) was abolished by the British government.

If the world continues on the path of unlimited industrial growth, any chance of preventing catastrophic climate change will be lost.

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THE FUTURE OF INTERNATIONAL LAW

“With law shall the land be built up, but with lawlessness laid waste.” Njals Saga, (Iceland, ca. 1280 A.D.)

It is becoming increasingly clear that the concept of the absolutely sovereign nation-state is a dangerous anachronism in a world of thermonuclear weapons, instantaneous communication, and economic interdependence. Probably our best hope for the future lies in developing the United Nations into a World Federation. The strengthened United Nations should have a legislature with the power to make laws that are binding on individuals, and the ability to arrest and try individual political leaders for violations of these laws. The world federation should also have the military and legal powers necessary to guarantee the human rights of ethnic minorities within nations.

The Charter should not be thought of as cast in concrete for all time. It needs instead to grow with the requirements of our increasingly interdependent global society. We should remember that the Charter was drafted and signed before the first nuclear bomb was dropped on Hiroshima; and it also could not anticipate the extraordinary development of international trade and communication which characterizes the world today.

Among the weaknesses of the present U.N. Charter is the fact that it does not give the United Nations the power to make laws which are binding on individuals. At present, in international law, we treat nations as though they were persons: We punish entire nations by sanctions when the law is broken, even when only the leaders are guilty, even though the burdens of the sanctions fall most heavily on the poorest and least guilty of the citizens, and even though sanctions often have the effect of uniting the citizens of a country behind the guilty leaders. To be effective, the United Nations needs a legislature with the power to make laws which are binding on individuals, and the power to to arrest individual political leaders for flagrant violations of international law.

Another weakness of the present United Nations Charter is the principle of “one nation one vote” in the General Assembly. This principle seems to establish equality between nations, but in fact it is very unfair: For example it gives a citizen of China or India less than a thousandth the voting power of a citizen of Malta or Iceland. A reform of the voting system is clearly needed.

The present United Nations Charter contains guarantees of human rights, but there is no effective mechanism for enforcing these guarantees. In fact there is a conflict between the parts of the Charter protecting human rights and the concept of absolute national sovereignty. Recent history has given us many examples of atrocities committed against ethnic minorities by leaders of nation-states, who claim that sovereignty gives them the right to run their internal affairs as they wish, free from outside interference.

One feels that it ought to be the responsibility of the international community to prevent gross violations of human rights, such as genocide. If this is in conflict with the notion of absolute national sovereignty, then sovereignty must yield. In fact, the concept of the absolutely sovereign nation-state as the the supreme political entity is already being eroded by the overriding need for international law. Recently, for example, the Parliament of Great Britain, one of the oldest national parliaments, acknowledged that laws made by the European Union take precedence over English common law.

Today the development of technology has made global communication almost instantaneous. We sit in our living rooms and watch, via satellite, events taking place on the opposite side of the globe. Likewise the growth of world trade has brought distant countries into close economic contact with each other. Financial tremors in Tokyo can shake New York.

The impact of contemporary science and technology on transportation and communication has effectively abolished distance in relations between nations. This close contact and interdependence will increasingly require effective international law to prevent conflicts. However, the need for international law must be balanced against the desirability of local self-government. Like biological diversity, the cultural diversity of humankind is a treasure to be carefully guarded. A balance or compromise between these two desirable goals could be achieved by granting only a few carefully chosen powers to a strengthened United Nations with sovereignty over all other issues retained



by the member states.

The International Criminal Court

In 1998, in Rome, representatives of 120 countries signed a statute establishing a International Criminal Court, with jurisdiction over the crime of genocide, crimes against humanity, war crimes, and the crime of aggression. Four years were to pass before the necessary ratifications were gathered, but by Thursday, April 11, 2002, 66 nations had ratified the Rome agreement, 6 more than the 60 needed to make the court permanent.

It would be impossible to overstate the importance of the International Criminal Court. At last international law acting on individuals has become a reality! The only effective and just way that international laws can act is to make individuals responsible and punishable, since (in the words of Alexander Hamilton), “To coerce states is one of the maddest projects ever devised.” In an increasingly interdependent world, international law has become a ne-

cessity. We cannot have peace and justice without it. But the coercion of states is neither just nor feasible, and therefore international laws must act on individuals.

The jurisdiction of the ICC is at present limited to a very narrow class of crimes. In fact, the ICC does not at present act on the crime of aggression, although this crime is listed in the Rome Statute, and although there are plans for its future inclusion in the ICC's activities. The global community will have a chance to see how the Court works in practice, and in the future the community will undoubtedly decide to broaden the ICC's range of jurisdiction.

Only 7 nations voted against the Rome Statute of the International Criminal Court in 1998: China, Iraq, Libya, Yemen, Qatar, Israel and the United States. Despite the negative US vote in 1998, President Clinton signed the Rome Statute on December 31, 2000. However, two years later, the George W. Bush Administration withdrew the US signature and began a comprehensive campaign to undermine the ICC. On August 3, 2002, Bush signed into law the American Servicemembers Protection Act, which featured a prohibition on US cooperation with the ICC; an "invasion of the Hague" provision, authorizing the President to use military force to free US personnel detained by the ICC; punishment of States that join the ICC; and finally, a prohibition of US participation in peacekeeping activities unless immunity from the ICC is guaranteed for US personnel. Finally, the Bush Administration tried to negotiate a large number of bilateral treaties in which other nations would promise never to hand over US citizens to the International Criminal Court.

The motives behind this campaign against the ICC are easy to understand. If one wants to maintain an empire, war is a necessity. How else can a powerful nation exert its power? On the other hand, the Nuremberg Principles, the Universal Declaration of Human Rights, the ICC and the United Nations Charter are all aimed at making war illegal and impossible. Especially the Nuremberg Principles and the International Criminal Court aim at placing the responsibility for crimes against peace on individuals. The individual political leader is now responsible. The individual soldier is responsible.

Despite the faults that we can notice in the present operation of the International Criminal Court; despite the fact that the Court is sometimes unable

to enforce its rulings; despite the opposition from powerful countries; despite the fact that Court sometimes neglects glaring crimes against humanity or war crimes committed by powerful countries; nevertheless, the ICC is there; it is functioning; we can work with it; we can improve it and ultimately expand its range of jurisdiction. The ICC gives us hope for a peaceful global future, where government under law will replace tyranny by brutal and rapacious military power.

Our interdependent world needs international law. We must have law for peace, for “with law shall the land be built up, but with lawlessness, laid waste”.

ONE STEP BACKWARD TAKEN

“I felt my standpoint shaken in the universal crisis, but with one step backward taken, I saved myself from going” (Robert Frost, 1874-1963)

Look up Robert Frost’s poems on the Internet. You will enjoy them. In many of his poems, Frost seems to be describing a concrete scene or experience, but at the end, the reader realizes that he has been aiming at something larger: He wants to tell us a universal truth about the human experience. This is also true of his poem “One step Backward Taken”. Here he tells us that we can often save ourselves by taking a step backwards, by looking carefully at what has been happening and by avoiding going over the edge.

If we take Frost’s backward step, and look at what has been happening since the start of the Industrial Revolution, we realize that many of the enormous changes that industrialism produced have been good. But other changes have been disastrous, for example colonialism, the destruction of the global environment, the dominance of unregulated financial institutions, the power of the military-industrial complex, and the undermining of democratic institutions. Can we not save ourselves by taking a backward step from these catastrophic developments?

Right now, there is a particular precipice towards which humanity seems to be rushing - the threat of a third world war triggered by an Israeli attack on Iran. We read that the government of Israel, under Benjamin Netanyahu, is planning a unilateral military attack on Iran, and that it will take place in the autumn, at the height of the US presidential election.

We read that Obama says on behalf of the United States, that if Israel is attacked by Iran, “all options are on the table”, diplospeak for US military involvement in the war. (But if Iran is attacked by Israel, how can Iran fail to respond?) We read that Russia is preparing for the threatened war by massing its troops and supplies in Armenia, and that China too may be drawn into the conflict. The Middle East is already a deeply troubled region, in which the United States and Israel can hardly be said to be universally popular. If Israel attacks Iran and the US becomes involved, what will be the response of the Islamic world, especially Pakistan, a country that possesses

nuclear weapons?

A new war in the Middle East, a war whose epicenter would be the Strait of Hormuz, would lead to an unprecedented increase in the price of oil. The world is already experiencing a serious financial crisis, and if the price of oil were to go through the roof, economies throughout the world would spiral down in a way that would make Black Thursday, 1929, look like a kindergarten picnic. Remember also that the US is already many trillions of dollars in debt because of its present wars.

It is doubtful whether Israel, a country with 300 nuclear weapons, would benefit in any way by attacking Iran on the pretext that Iran might soon be in a position to produce two or three bombs of its own. Iran has denied that it wants to produce such weapons, but an attack by Israel might push the Iranian government into militarization of its civilian nuclear power program. And why does the US government act like a slave of Israel (as it has been doing for many years)? It is not at all in America's interest to become involved in a war with Iran, a war might escalate in a completely unforeseeable way.

Let us take a step backward and save ourselves from going over this precipice.

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FACING A SET OF LINKED PROBLEMS

Today, a number of serious and interconnected problems are facing human civilization and the biosphere. Because they are linked, we need to look at all of these problems together, and to find holistic solutions.

First and foremost is the threat of nuclear war: Despite the end of the Cold War, the threat of a nuclear catastrophe remains severe. During the Cold War, the number and power of nuclear weapons reached insane heights - 50,000 nuclear weapons with a total explosive power equivalent to roughly a million Hiroshima bombs. Today the total number of these weapons has been cut approximately in half, but there are still enough to destroy human civilization many times over. The tragedies of Fukushima and Chernobyl remind us that a nuclear war would spread dangerous radioactive contamination throughout the world. Furthermore, recent research by atmospheric scientists shows that even a small nuclear war would have a disastrous effect on global agriculture. Thus a nuclear war would be a global ecological catastrophe, killing enormous numbers of people indiscriminately, throughout the world, also in neutral countries.

The threat of accidental nuclear war remains severe, since many nuclear missiles are on hair-trigger alert, ready to be fired within minutes of a warning being received. If it is continued over a long period of time, the probability of a fatal accident occurring will grow to a near certainty. Meanwhile, the number of nations possessing nuclear weapons is growing, and there is a danger that if an unstable government is overthrown (for example, Pakistan's), the country's nuclear weapons will fall into the hands of subnational groups. Against nuclear terrorism there is no effective defense.

At the present moment we are faced with a very specific danger - the threat that Israel may bomb Iran, perhaps as early as the autumn of 2012. Such an attack would lead to a widespread war in the Middle East and elsewhere, with unforeseeable consequences. There are several ways in which the conflict could escalate into a nuclear war, particularly if the United States, Pakistan, Russia and China become involved. This is a great danger, and active steps

must be taken to avert it.

The driving force behind the danger of nuclear war is the global military-industrial complex. In 2011, world military budgets reached a total of 1.7 trillion dollars (i.e. 1.7 million million dollars). This amount of money is almost too large to be imagined. The fact that it is being spent means that many people are making a living from the institution of war. Wealthy and powerful lobbies from the military-industrial complex are able to influence mass media and governments. Thus the institution of war persists, although we know very well that it is a threat to civilization and that it responsible for much of the suffering that humans experience.

Besides striving for a world free of war and free of nuclear weapons, we must also be aware that the global environment is being destroyed by excessive consumption in the industrialized countries, combined with rapid population growth in developing nations.

It seems likely that the limits for resource-using and waste-producing industrial growth will be reached within a few decades. The first signs of our approach to these limits can already be seen today in the 2008 subprime mortgage crisis and the present Eurozone national debt crisis. (Culture, of course, can and should continue to grow.) We face a difficult period of transition from an economy that depends on growth for its health to a new economic system: steady-state economics.

We should also be aware that the fossil fuel era is ending. By 2050, oil and natural gas will be prohibitively expensive. They will no longer be used as fuels, but will be reserved as feedstocks for chemical synthesis. Within a hundred years, the same will be true of coal. Furthermore, because of the dangers of climate change, human society would be well advised to abandon fossil fuel use long before stocks are exhausted.

It is predicted that by 2050, the world's population of humans will reach 9 billion. This is just the moment when the oil and natural gas, on which modern energy-intensive agriculture depend, will become so expensive that they will no longer be used as fuels. Climate change may also contribute to a global food crisis. Melting of Himalayan glaciers threatens the summer water supplies of both India and China. Rising sea levels threaten to inun-

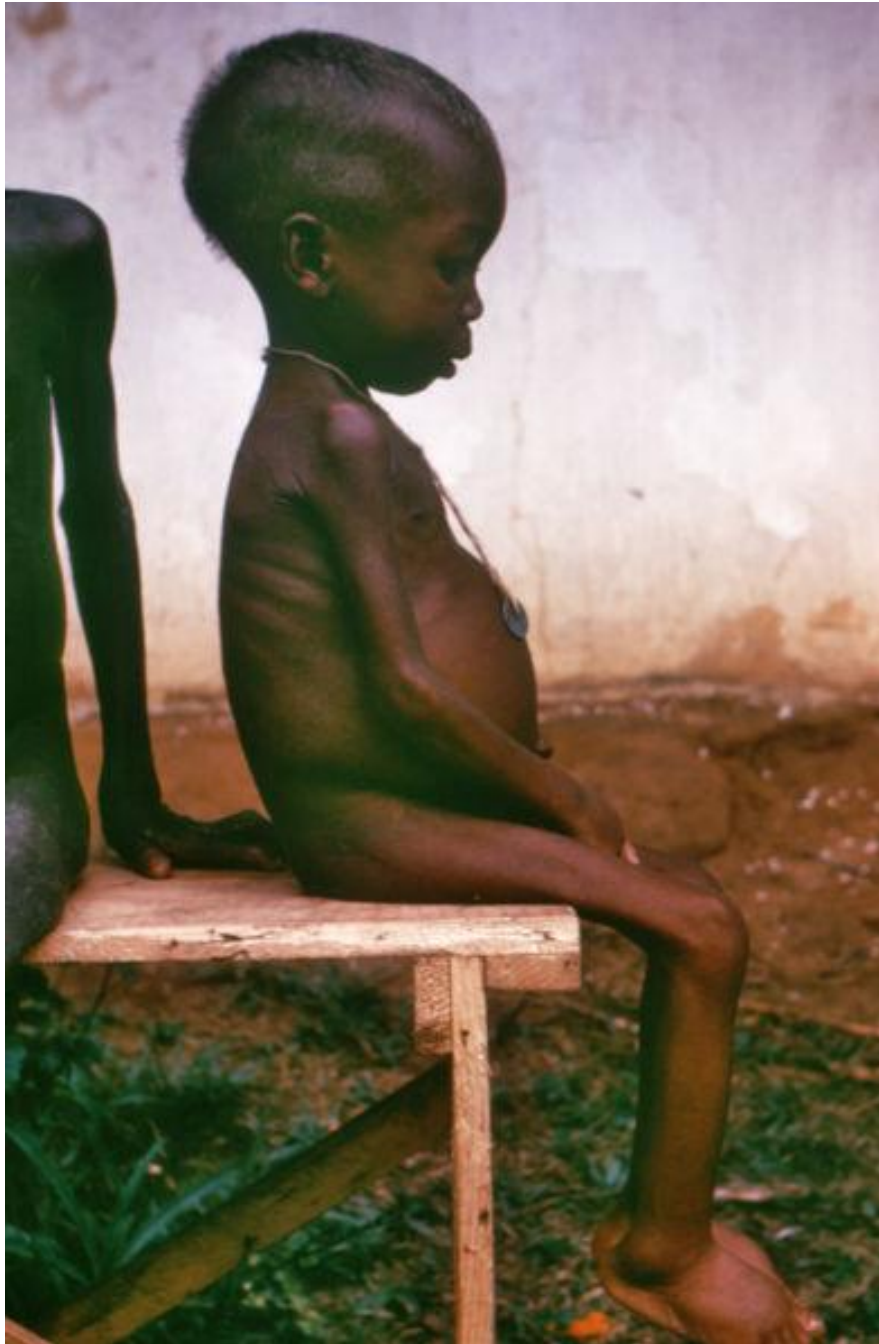


Figure 1: *Because of the threat of widespread famine, it is vital that all countries should complete the demographic transition as quickly as possible.*

date low-lying agricultural land, and aridity produced by climate change may reduce grain harvests. Furthermore, aquifers throughout the world are being overdrawn, and water tables are falling. Topsoil is also being lost. These elements combine to produce a threat of widespread famine by the middle of the 21st century, especially in countries where many people already are undernourished.

We must face these problems with solidarity. We can no longer accept the intolerable degree of inequality that presently exists. Today 2.7 billion people live on less than 2 dollars a day - 1.1 billion on less than 1 dollar per day. 18 million of our fellow humans die each year from poverty-related causes. In 2006, 1.1 billion people lacked safe drinking water, and waterborne diseases killed an estimated 1.8 million people. A small fraction of the money that is wasted (or worse than wasted) on the institution of war could solve these problems. Also, if we are to eliminate war, we must strengthen the United Nations, and this will be easier in a more equal world. Thus the problem of war and the problem of economic inequality are linked.

We live at a critical time for human civilization - a time of crisis. Each of us must accept his or her individual responsibility for solving the problems that are facing the world today. We cannot leave this to the politicians. That is what we have been doing until now, and the results have been disastrous. Many politicians depend for election funds on wealthy corporations that make their money from war or from the destruction of the global environment. Thus, we cannot trust them to think of the long-term future. Nor can we trust the mass media to give us adequate public discussion of the challenges that we are facing. We have a responsibility towards future generations to take matters into our own hands - to join hands and make our own alternative media - to work actively for better government and for a better society.

By working together, we can choose a future of changed values, where women will take their places beside men in positions of responsibility, where children will be educated rather than exploited. We can choose a future where material goods will no longer be used for the purpose of social competition - a future where non-material human qualities, such as kindness, politeness, knowledge and musical and artistic ability will be valued more highly - a future where people will respect and love the natural world, and will real-

ize how closely their lives are connected with nature. No single person can achieve these goals, but together we can do it.

We, the people of the world, not only have the facts on our side - we also have numbers on our side. The vast majority of the world's peoples long for peace. The vast majority long for abolition of nuclear weapons, and for a world of kindness and cooperation - a world of respect for the environment.

Together, we have the power to choose a future where international anarchy, chronic war and institutionalized injustice will be replaced by democratic and humane global governance - a future where the mindless immorality of war will be replaced by cooperation.

The human race has a genius for cooperation. All of the great achievements of modern society are achievements of cooperation. We can fly, but no one builds an airplane alone. We can cure diseases, but only through the cooperative efforts of researchers, doctors and medicinal firms. We can photograph and understand distant galaxies, but the ability to do so is built on the efforts of many cooperating individuals. The comfort and well-being that we experience depends on far-away friendly hands and minds, since trade is global, and the exchange of ideas is also global.

The heritage of knowledge and culture, on which our complex civilization depends, is a monument to cooperation. Science and technology could not exist without the worldwide sharing of knowledge. Art, literature and music are the common heritage of humanity. Let us eliminate the immorality of war from our future, and let us replace it with a more noble goal - the development and sharing of the world's cultural heritage.

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THE TITANIC AS AN ALAGORY

*“Oh the ship set out from England, and they were not far from shore.
When the rich refused to associate with the poor,
So they put them down below, where they’d be the first to go,
It was sad when that great ship went down.”* (folksong)

On April 15, 1912, almost exactly 100 years ago, the RMS Titanic sank on her maiden voyage, after colliding with an iceberg in the North Atlantic. She carried 2,223 passagers, among whom were some of the wealthiest people in the world, accommodated in unbelievable luxury in the upper parts of the ship. Available for the pleasure of the first class passengers were a gymnasium, swimming pool, libraries, luxurious restaurants and opulent cabins. Meanwhile, below, crammed on the lower decks below the water line, were about a thousand emigrants from England, Ireland and Scandinavia, seeking a new life in North America. The Titanic carried only lifeboats enough for 1178 people, but the ship had so many advanced safety features that it was thought to be unsinkable.

Why does the story of the Titanic fascinate us? Why was an enormously expensive film made about it? Why has a cruise ship recently retraced the Titanic’s route? I think that the reason for our fascination with the story of the Titanic is that it serves as a symbol for the present state of modern society. We are all in the great modern ship together. On top are the enormously rich, enjoying a life of unprecedented luxury, below the poor. But rich and poor alike are in the same boat, headed for disaster - surrounded by the miracles of our technology, but headed for a disastrous collision with environmental forces, the forces of nature that we have neglected in our pride and arrogance.

The ancient Greeks were very conscious of the sin of pride - “hubris”, and it played a large role in their religion and literature. What the Greeks meant can be seen by looking in Wikipedia where the following words appear:

“Hubris means extreme pride or arrogance. Hubris often indicates a loss of contact with reality, and an overestimation of one’s own competence or capabilities, especially when the person exhibiting it is in a position of power....



The word is also used to describe actions of those who challenged the gods or their laws, especially in Greek tragedy, resulting in the protagonist's fall."

"...loss of contact with reality, and overestimation of one's own competence or capabilities, especially when the person exhibiting it is in a position of power..." Can we recognize this today? I think that we can.

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NOBODY HAD THE SLIGHTEST IDEA OF WHAT IT WOULD BE LIKE

None of the people who started the First World War had the slightest idea what it would be like. The armies of Europe were dominated by the old feudal landowning class, whose warlike traditions were rooted in the Middle Ages. The counts and barons who still ruled Europes diplomatic and military establishments knew how to drink champagne, dance elegantly, ride horses, and seduce women. They pranced off to war in high spirits, the gold on their colorful uniforms glittering in the sunshine, full of expectations of romantic cavalry charges, kisses stolen from pretty girls in captured villages, decorations, glory and promotion, like characters in “The Chocolate Soldier” or “Die Fledermaus”. The romantic dreams of glory of every small boy who ever played with toy soldiers were about to become a thrilling reality!

But the war, when it came, was not like that. Technology had taken over. The railroads, the telegraph, high explosives and the machine gun had changed everything. The opposing armies, called up by means of the telegraph and massed by means of the railroads, were the largest ever assembled up to that time in the history of the world. In France alone, between August 2 and August 18, 1914, the railway system transported 3,781,000 people under military orders. Across Europe, the railways hurled more than six million highly armed men into collision with each other. Nothing on that scale had ever happened before, and no one had any idea of what it would be like.

At first the Schlieffen Plan, conceived decades earlier, seemed to be working perfectly. When Kaiser Wilhelm had sent his troops into battle, he had told them: “You will be home before the leaves are off the trees,” and at first it seemed that his prediction would be fulfilled. However, the machine gun had changed the character of war. Attacking infantry could be cut down in heaps by defending machine gunners. The war came to a stalemate, since defense had an advantage over attack.

On the western front, the opposing armies dug lines of trenches stretching from the Atlantic to the Swiss border. The two lines of trenches were separated by a tangled mass of barbed wire. Periodically the generals on one side or the other would order their armies to break through the opposing line. They would bring forward several thousand artillery pieces, fire a million or so high explosive shells to cut the barbed wire and to kill as many as possible of the defenders, and then order their men to attack.

The soldiers had to climb out of the trenches and struggle forward into the smoke. There was nothing else for them to do. If they disobeyed orders, they would be court-martialed and shot as deserters. They were driven forward and slaughtered in futile attacks, none of which gained anything. Their leaders had failed them. Civilization had failed them. There was nothing for them to do but to die, to be driven forward into the poison gas and barbed wire and to be scythed down by machine gun fire, for nothing, for the ambition, vanity and stupidity of their rulers.

At the battle of Verdun, 700,000 young men were butchered in this way, and at the battle of Somme, 1,100,000 young lives were wasted. For millions of Europe's young men, the trail led only to death in the mud and smoke; and for millions of mothers and sweethearts waiting at home, dreams of the future were shattered by a telegram announcing the death of the boy for whom they were waiting.

When the war ended four years later, ten million young men had been killed and twenty million wounded, of whom six million were crippled for life. The war had cost 350,000,000,000 1919 dollars. This was a calculable cost; but the cost in human suffering and brutalization of values was incalculable. It hardly mattered whose fault the catastrophe had been. Perhaps the Austrian government had been more to blame than any other. But blame for the war certainly did not rest with the Austrian people nor with the young Austrians who had been forced to fight. However, the tragedy of the First World War was that it created long-lasting hatred between the nations involved, and in this way it led, only twenty years later, to an even more catastrophic global war.

In the Second World War, the number of soldiers killed was roughly the same as in World War I, but the numbers of civilian deaths was much larger. In

the USSR alone, about 20 million people are thought to have been killed, directly or indirectly, by World War II, and of these only 7.5 million were battle deaths. Many of the USSR's civilian deaths were caused by starvation, disease or exposure. Civilian populations also suffered greatly in the devastating bombings of cities such as London, Coventry, Rotterdam, Warsaw, Dresden, Cologne, Berlin, Tokyo, Hiroshima and Nagasaki. In World War II, the total number of deaths, civilian and military, is estimated to have been between 62 and 78 million.

Do Benjamin Netanyahu and Ehud Barak, who are contemplating starting what might develop into World War III, have any imaginative concept of what it would be like? Netanyahu has told the Israeli people that only 500 of their citizens would be killed, and that the conflict would be over in a month. One is reminded of the Austrian leaders in 1914, who started a what they thought would be a small action to punish the Serbian nationalists for their Pan-Slavic ambitions. When the result was a world-destroying war, they said "That is not what we intended." Of course it is not what they intended, but nobody can control the escalation of conflicts. The astonishing unrealism of the Netanyahu-Barak statements also reminds one of Kaiser Wilhelm's monumentally unrealistic words to his departing troops: "You will be home before the leaves are off the trees."

The planned attack on Iran would not only violate international law, but would also violate common sense and the wishes of the people of Israel. The probable result would be a massive Iranian missile attack on Tel Aviv, and Iran would probably also close the Straits of Hormuz. If the United States responded by bombing Iranian targets, Iran would probably use missiles to sink one or more of the US ships in the Persian Gulf. One can easily imagine other steps in the escalation of the conflict: a revolution in Pakistan; the entry of nuclear-armed Pakistan into the war on the side of Iran; a preemptive nuclear strike by Israel against Pakistan's nuclear weapons; and Chinese-Russian support of Iran. In the tense atmosphere of such a war, the danger of a major nuclear exchange, due to accident or miscalculation, would be very great.

Today, because the technology of killing has continued to develop, the danger of a catastrophic war with hydrogen bombs hangs like a dark cloud over the future of human civilization. The total explosive power of today's weapons

is equivalent to roughly half a million Hiroshima bombs. To multiply the tragedy of Hiroshima and Nagasaki by a factor of half a million changes the danger qualitatively. What is threatened today is the complete breakdown of human society.

There are 20,000 nuclear weapons in the world today, about 4,000 of them on hair-trigger alert. The phrase “hair trigger alert” means that the person in charge has only 15 minutes to decide whether the warning from the radar system was true or false, and to decide whether or not to launch a counterattack. The danger of accidental nuclear war continues to be high. Technical failures and human failures have many times brought the world close to a catastrophic nuclear war. Those who know the system of “deterrence” best describe it as “an accident waiting to happen”.

No one can win a nuclear war, just as no one can win a natural catastrophe like an earthquake or a tsunami. The effects of a nuclear war would be global, and all the nations of the world would suffer - also neutral nations.

Recent studies by atmospheric scientists have shown that the smoke from burning cities produced by even a limited nuclear war would have a devastating effect on global agriculture. The studies show that the smoke would rise to the stratosphere, where it would spread globally and remain for a decade, blocking sunlight, blocking the hydrological cycle and destroying the ozone layer. Because of the devastating effect on global agriculture, darkness from even a small nuclear war could result in an estimated billion deaths from famine. This number corresponds to the fact that today, a billion people are chronically undernourished. If global agriculture were sufficiently damaged by a nuclear war, these vulnerable people might not survive. A large-scale nuclear war would be an even greater global catastrophe, completely destroying all agriculture for a period of ten years.

The tragedies of Chernobyl and Fukushima remind us that a nuclear war would make large areas of the world permanently uninhabitable because of long-lasting radioactive contamination

The First World War was a colossal mistake. Today, the world stands on the threshold of an equally enormous disaster. Must we again be led into a world-destroying war by a few blind individuals who do not have the slightest



idea of what such a war would be like?

IRAN AND THE NUCLEAR NONPROLIFERATION TREATY

In the 1960's, negotiations were started between countries that possessed nuclear weapons, and others that did not possess them, to establish a treaty that would prevent the spread of these highly dangerous weapons, but which would at the same time encourage cooperation in the peaceful uses of nuclear energy. The resulting treaty has the formal title Treaty on the Non-Proliferation of Nuclear Weapons (abbreviated as the NPT). The treaty also aimed at achieving general and complete disarmament. It was opened for signature in 1968, and it entered into force on the 11th of May, 1970.

190 parties have joined the NPT, and more countries have ratified it than any other arms limitation agreement, an indication of the Treaty's great importance. Four countries outside the NPT have nuclear weapons: India, Pakistan, North Korea and Israel. North Korea had originally joined the NPT, but it withdrew in 2003.

The NPT has three main parts or "pillars", 1) non-proliferation, 2) disarmament, and 3) the right to peaceful use of nuclear technology. The central bargain of the Treaty is that "the NPT non-nuclear weapon states agree never to acquire nuclear weapons and the NPT nuclear weapon states agree to share the benefits of peaceful use of nuclear technology and to pursue nuclear disarmament aimed at the ultimate elimination of their nuclear arsenals".

Articles I and II of the NPT forbid states that have nuclear weapons to help other nations to acquire them. These Articles were violated, for example, by France, which helped Israel to acquire nuclear weapons, and by China, which helped Pakistan to do the same. They are also violated by the "nuclear sharing" agreements, through which US tactical nuclear weapons will be transferred to several countries in Europe in a crisis situation. It is sometimes argued that in the event of a crisis, the NPT would no longer be valid, but there is nothing in the NPT itself that indicates that it would not hold in all situations.

The most blatantly violated provision of the NPT is Article VI. It requires the member states to pursue “negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament”, and negotiations towards a “Treaty on general and complete disarmament”. In other words, the states that possess nuclear weapons agreed to get rid of them. However, during the 42 years that have passed since the NPT went into force, the nuclear weapon states have shown absolutely no sign of complying with Article VI. There is a danger that the NPT will break down entirely because of the majority of countries in the world are so dissatisfied with this long-continued non-compliance.

Looking at the NPT with the benefit of hindsight, we can see the third “pillar”, the “right to peaceful use of nuclear technology” as a fatal flaw of the treaty. In practice, it has meant encouragement of nuclear power generation, with all the many dangers that go with it.

The dangers of nuclear power generation are exemplified by the Chernobyl and Fukushima disasters, in which the explosion of reactors spread long-lasting radioactive contamination not only to the areas immediately surrounding them, but also to distant countries.

The use nuclear reactors always entails a danger of proliferation of nuclear weapons. Weapons-usable plutonium can be obtained from spent fuel rods by ordinary chemical means. The enrichment of uranium is also linked to reactor use. Many reactors of modern design make use of low enriched uranium as a fuel. Nations operating such a reactor may claim that they need a program for uranium enrichment in order to produce fuel rods. However, by operating their ultracentrifuge a little longer, they can easily produce highly enriched (weapons-usable) uranium.

The difficulty of distinguishing between a civilian nuclear power generation program and a military nuclear program is illustrated by the case of Iran. In discussing Iran, it should be mentioned that Iran is fully in compliance with the NPT. It is very strange to see states that are long-time blatant violators of the NPT threaten Iran because of a nuclear program that fully complies with the Treaty.

I believe that civilian nuclear power generation is always a mistake because

Figure 31. Radiation Hotspots Resulting From the Chornobyl' Nuclear Power Plant Accident

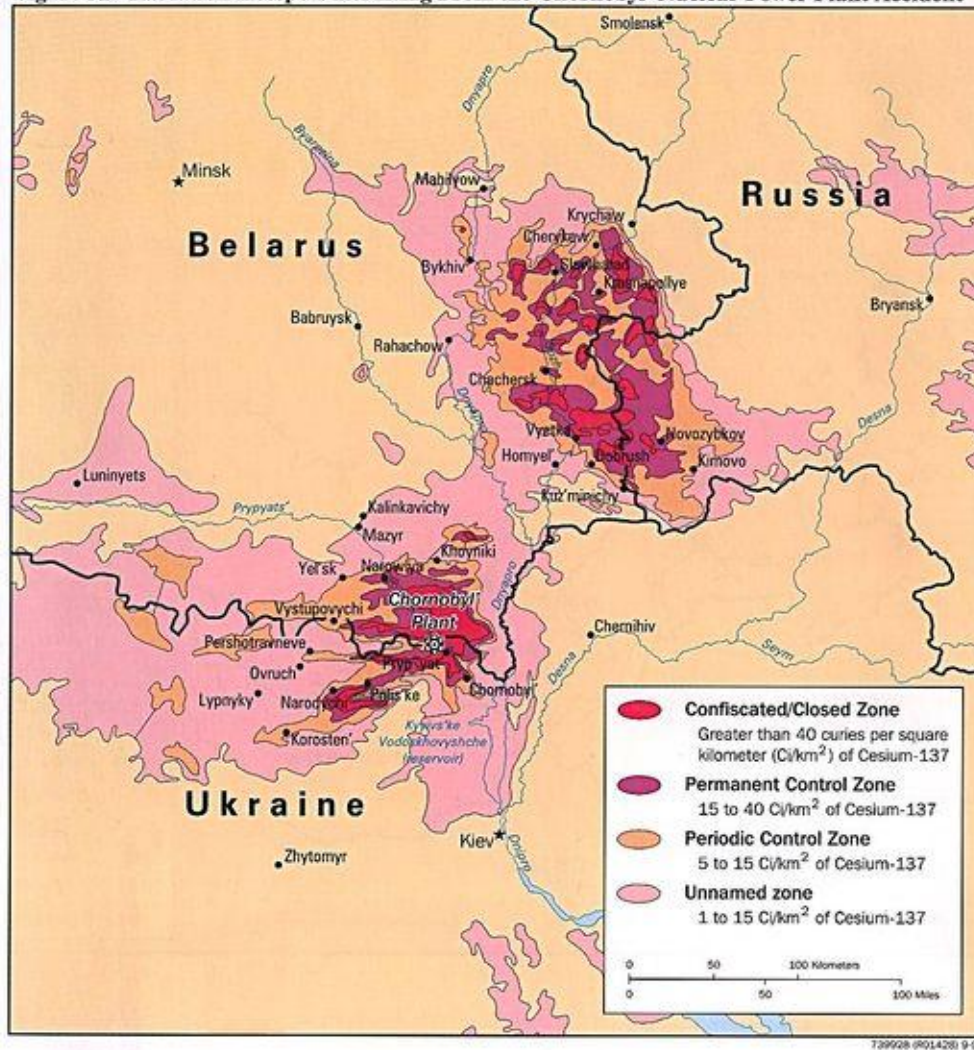


Figure 1: The Chernobyl disaster made an area almost half the size of Italy permanently uninhabitable through long-lasting radioactive contamination





Figure 2: *A murdered Iranian scientist*

of the many dangers that it entails, and because of the problem of disposing of nuclear waste. However, a military attack on Iran would be both criminal and insane. Why criminal? Because such an attack would also violate the UN Charter and the Nuremberg Principles. Why insane? Because it would initiate a conflict that might escalate uncontrollably into World War III.

DANGERS OF NUCLEAR POWER GENERATION

The dangers of nuclear power generation are exemplified by the Chernobyl disaster: On the 26th of April, 1986, during the small hours of the morning, the staff of the Chernobyl nuclear reactor in Ukraine turned off several safety systems in order to perform a test. The result was a core meltdown in Reactor 4, causing a chemical explosion that blew off the reactor's 1,000-ton steel and concrete lid. 190 tons of highly radioactive uranium and graphite were hurled into the atmosphere. The resulting radioactive fallout was 200 times greater than that caused by the nuclear bombs that destroyed Hiroshima and Nagasaki. The radioactive cloud spread over Belarus, Ukraine, Russia, Finland, Sweden and Eastern Europe, exposing the populations of these regions to levels of radiation 100 times the normal background. Ultimately, the radioactive cloud reached as far as Greenland and parts of Asia.

The exact number of casualties resulting from the Chernobyl meltdown is a matter of controversy, but according to a United Nations report, as many as 9 million people have been adversely affected by the disaster. Since 1986, the rate of thyroid cancer in affected areas has increased ten-fold. An area of 155,000 square kilometers (almost half the size of Italy) in Belarus, Ukraine and Russia is still severely contaminated. Even as far away as Wales, hundreds of farms are still under restrictions because of sheep eating radioactive grass.

Public opinion turned against nuclear power generation as a result of the Chernobyl disaster. Had the disaster taken place in Western Europe or North America, its effect on public opinion would have been still greater. Nevertheless, because of the current energy crisis, and because of the widespread (but false) belief that nuclear power generation is an answer to global warming, a number of people are arguing that nuclear energy should be given a second chance. The counter-argument is that a large increase in the share of nuclear power in the total spectrum of energy production would have little effect on climate change but it would involve unacceptable dangers, not only dangers of accidents and dangers associated with radioactive waste disposal, but above all, dangers of proliferation of nuclear weapons.

If many nations throughout the world decide to build power-generating reactors, the number of countries possessing nuclear weapons will increase dramatically because it is almost impossible to distinguish between civilian and military nuclear programs. By reprocessing spent nuclear fuel rods, using ordinary chemical means, a nation with a power reactor can obtain a weapons-usable isotope of plutonium. Even when such reprocessing is performed under international control, the uncertainty as to the amount of plutonium obtained is large enough so that the operation might superficially seem to conform to regulations while still supplying enough plutonium to make many bombs.

The enrichment of uranium is also linked to reactor use. Many reactors of modern design make use of low enriched uranium as a fuel. Nations operating such a reactor may claim that they need a program for uranium enrichment in order to produce fuel rods. However, by operating their ultracentrifuge a little longer, they can easily produce highly enriched (weapons-usable) uranium.

The widely held belief that global warming can be avoided by switching to nuclear power is false. In a carefully documented book "Nuclear Power is Not the Answer to Global Warming or Anything Else", the Australian physician Helen Caldicott points out that if a detailed accounting of CO₂ emissions is made during all the phases of nuclear power generation, including both construction and decommissioning of the plant, together with mining, transportation and refinement of the uranium ore, the CO₂ emissions are seen to be comparable with those produced by a coal-fired power plant. Known reserves of uranium are only sufficient to meet the worlds total energy demand for two years (see reference 2).

It is sometimes argued that a larger amount of electricity could be obtained from the same amount of uranium through the use of fast breeder reactors. But fast breeder reactors are prohibitively dangerous from the standpoint of nuclear proliferation because both the highly enriched uranium from the fuel rods and the plutonium from the envelope are directly weapons-usable. It would be impossible, from the standpoint of equity, to maintain that some nations have the right to use fast breeder reactors, while others do not. If all nations used fast breeder reactors, the number of nuclear weapons states would increase drastically. In conclusion, we can list the following arguments against building new nuclear power stations:

1. The danger of accidents, as exemplified by Chernobyl, Fukushima, Three Mile Island and Windscale.
2. The danger of proliferation of nuclear weapons. All of the new nuclear weapons states obtained their weapons under the guise of nuclear power generation. The difficulty of distinguishing between civilian and military nuclear programs is exemplified by the situation in Iran.
3. The problem of disposing of nuclear waste has not been satisfactorily solved.
4. At best, nuclear power generation can supply only a small fraction of the world's energy needs, and because of limited stocks of uranium and thorium, it can only do so for a short time.
5. If a careful accounting is made, the CO₂ emitted by constructing nuclear power plants, running them, mining and refining the uranium, and decommissioning the plants is comparable to that emitted by coal-fired plants.
6. In the countries where it is presently used, nuclear power generation is heavily subsidized, and if it were not for these subsidies, it would not be able to compete with wind energy or solar energy. It is vital that subsidies be shifted from nuclear power to the development of various forms of renewable energy.

Thus, while our thoughts are constantly with the victims of Chernobyl and Fukushima, we may hope that some good will come from these terrible catastrophes. Let us hope that countries with plans to build new nuclear power plants will think again about the dangers.

Suggestions for further reading

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IRAN: AUTOMATIC ESCALATION TO WORLD WAR III?

A few days ago Brigadier General Amir Ali Hajizadeh , who is in charge of the Revolutionary Guards missile systems told Iran's Arabic-language television network that should Israel and Iran engage militarily, "nothing is predictable... and it will turn into World War III".

He added that Iran would deem any Israeli strike to be conducted with US authorization, so "whether the Zionist regime attacks with or without US knowledge, then we will definitely attack US bases in Bahrain, Qatar and Afghanistan."

The first point to notice is that an attack on Iran by Israel would be both criminal and insane. It would be criminal because it would be a violation of the United Nations Charter and the Nuremberg Principles. It would be insane because it would initiate a conflict that might escalate in an unpredictable way. Such a conflict might easily be the start of a Third World War.

But what General Hajizadeh proposes in his statement is perhaps even more criminal and even more insane.

Let us suppose that Netanyahu's and his government carry through their irresponsible plan of attacking Iran. If Iran then responds by attacking US bases in Bahrain, Qatar and Afghanistan, then the escalation of the conflict would be absolutely automatic. US leaders would then have no choice. They would be forced to respond by attacking Iran, despite the danger that Russia, China and Pakistan would be drawn into the conflict on the side of Iran.

One is reminded of the start of World War I, when a small conflict started by Austria to punish the Serbian Panslavic Movement escalated into a global disaster which still casts a shadow over the world almost a century later. The difference between 1914 and 2012 is that today we possess all-destroying thermonuclear weapons. A new world war could lead to the destruction of human civilization and much of the biosphere.

Netanyahu is unquestionably a madman. Must we allow the actions of one insane person to start a conflict that could lead to the deaths of ourselves and our children?

PERPETUAL WAR AGAINST TERRORISM?

Because the world spends roughly a trillion dollars each year on armaments, it follows that very many people make their living from war. This is the reason why it is correct to speak of war as a social, political and economic institution, and also one of the main reasons why war persists, although everyone realizes that it is the cause of much of the suffering of humanity.

In his farewell address, US President Dwight D. Eisenhower warned his nation against the excessive power that had been acquired during World War II by the military-industrial complex: “We have been compelled to create an armaments industry of vast proportions,” Eisenhower said, “...Now this conjunction of an immense military establishment and a large arms industry is new in American experience. The total influence - economic, political, even spiritual - is felt in every city, every state house, every office in the federal government. ... We must not fail to comprehend its grave implications. Our toil, resources and livelihood are all involved; so is the very structure of our society. ... We must stand guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists and will persist. We must never let the weight of this combination endanger our democratic processes. We should take nothing for granted.”

Eisenhower's words echoed those of another US President, George Washington, who warned against “overgrown Military Establishments which, under any form of government, are inauspicious to liberty, and which are regarded as particularly hostile to Republican Liberty.”

The military-industrial complex needs enemies. Without them it would wither. Thus at the end of the Second World War, this vast power complex was faced with a crisis, but it was saved by the discovery of a new enemy: communism. However, at the end of the Cold War there was another terrible crisis for the military establishment, the arms manufacturers and their supporters in research, government and the mass media. People spoke of the “peace dividend”, i.e., constructive use of the trillion dollars

that the world wastes each year on armaments. However, just in time, the military-industrial complex was saved from the nightmare of the “peace dividend” by the September 11 attacks on New York and Washington.

No matter that the attacks were crimes committed by individuals rather than acts of war, crimes against which police action rather than military action would have been appropriate. The Bush Administration (and CNN, Fox, etc.) quickly proclaimed that a state of war existed, and that the rules of war were in effect. The Cold War was replaced with the “War on Terrorism”.

To a large extent, this over-reaction to the events of 9/11/2001 can be interpreted in terms of the needs of the military-industrial complex against which Eisenhower had warned. Without a state of war and without enemies, this vast conglomerate of organizations and pressure groups would have languished.

If the aim of the “War on Terror” had been to rid the world of the threat of terrorism, acts like illegal assassination using drones would have been counterproductive, since they create many more terrorists than they destroy. But since the real aim is to produce a state of perpetual war, thus increasing the profits of the military-industrial complex, such methods are the best imaginable. Urinating on Afghan corpses or burning the Koran or murderous night-time raids on civilian homes also help to promote the real goal: perpetual war.

Even the events that initiated the “War on Terror”, seem to have been made worse than they otherwise might have been, in order to give a better excuse for invading Iraq, attacking Afghanistan, and attacking civil liberties. There is evidence that a number of highly placed officials in the US government knew as early as April 2001 that the World Trade Center might soon be attacked. The testimony given by CIA insider Susan Lindauer is very explicit about this point. There is also evidence that charges of thermite were placed on the steel structures of several buildings, to melt the steel and thus ensure collapse. Molten steel and traces of thermite were found in the ruins before these were sealed off from public scrutiny by the FBI.

The collapse of Building 7 (which was not hit by any aircraft) is particularly suspicious. Larry Silverstein, the leaseholder of the World Trade Center, said

shortly afterwards in a PBS interview: “I remember getting a call from the fire department commander telling me that they were not sure that they would be able to contain the fire...” (and he said that) “I think that the smartest thing to do is to pull it.” The phrase “pull it” is one used to speak of controlled demolition, and the subsequent free-falling collapse of Building 7 had all the earmarks of this process.

For those who belong to the military-industrial complex, perpetual war is a blessing, but for the majority of the people of the world it is a curse. Since we who oppose war are the vast majority, can we not make our wills felt?

POVERTY AND WAR

There are several relationships between intolerable economic inequality and war. Today 2.7 billion people live on less than 2 dollars a day - 1.1 billion on less than 1 dollar per day. 18 million of our fellow humans die each year from poverty-related causes. In 2006, 1.1 billion people lacked safe drinking water, and waterborne diseases killed an estimated 1.8 million people. The developing countries are also the scene of a resurgence of other infectious diseases, such as malaria, drug-resistant tuberculosis and HIV/AIDS.

Meanwhile, in 2011, world military budgets reached 1,700,000,000,000 dollars (i.e. 1.7 million million dollars). This amount of money is almost too large to be imagined. The fact that it is being spent means that many people are making a living from the institution of war. Wealthy and powerful lobbies from the military-industrial complex are able to influence mass media and governments. Thus the institution of war persists, although we know very well that it is a threat to civilization and that it responsible for much of the suffering that humans experience.

Today's military spending of almost two trillion US dollars per year would be more than enough to finance safe drinking water for the entire world, and to bring primary health care and family planning advice to all. If used constructively, the money now wasted (or worse than wasted) on the institution of war could also help the world to make the transition from fossil fuel use to renewable energy systems.

Military might is used by powerful industrialized nations to maintain economic hegemony over less developed countries. This is true today, even though the colonial era is supposed to be over (as has been amply documented by Professor Michael Klare in his books on "Resource Wars").

The way in which the industrialized countries maintain their control over less developed nations can be illustrated by the "resource curse", i.e. the fact that resource-rich developing countries are no better off economically than those that lack resources, but are cursed with corrupt and undemocratic governments. This is because foreign corporations extracting local resources under unfair agreements exist in a symbiotic relationship with corrupt local officials.

One might think that taxation of foreign resource-extracting firms would provide developing countries with large incomes. However, there is at present no international law governing multinational tax arrangements. These are usually agreed to on a bilateral basis, and the industrialized countries have stronger bargaining powers in arranging the bilateral agreements.

Another important poverty-generating factor in the developing countries is war - often civil war. The five permanent members of the U.N. Security Council are, ironically, the five largest exporters of small arms. Small arms have a long life. The weapons poured into Africa by both sides during the Cold War are still there, and they contribute to political chaos and civil wars that block development and cause enormous human suffering.

The United Nations website on Peace and Security through Disarmament states that “Small arms and light weapons destabilize regions; spark, fuel and prolong conflicts; obstruct relief programmes; undermine peace initiatives; exacerbate human rights abuses; hamper development; and foster a ‘culture of violence’.”

An estimated 639 million small arms and light weapons are in circulation worldwide, one for every ten people. Approximately 300,000 people are killed every year by these weapons, many of them women and children.

There is also another, less obvious, link between intolerable economic inequality and war: Abolition of the institution of war will require the replacement of “might makes right” by the rule of international law. It will require development of effective global governance. But reform and strengthening of the United Nations is blocked by wealthy countries because they are afraid of losing their privileged positions. If global economic inequality were less enormous, the problem of unifying the world would be simplified.

Let us work to break the links between poverty and war! To do that, we must work for laws that will restrict the international sale of small arms; we must work for a fair relationship between developing countries and multinational corporations; and above all, we must question the need for colossal military budgets. By following this path we can free the world from the intolerable suffering caused by poverty and from the equally intolerable suffering caused

by war.

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COLLECTIVE PUNISHMENT AND THE BLOCKADE OF GAZA

On Wednesday, November 14, 2012, Ahmed Jabari, leader of the military wing of Hamas, was assassinated by a targeted Israeli missile. Hours earlier, Jabas had received a draft of a permanent peace agreement with Israel. The assassination of Jabari must have been carefully planned in order for his whereabouts to have been known so accurately. The probable motive for the killing was to provoke the response that did indeed follow: the firing of Hamas rockets towards Israel. Benjamin Netanyahu's government responded to the rockets with a massive attack on civilian targets in Gaza, a response that also seems to have been carefully planned in advance, the timing being motivated by the nearness of elections in Israel.

Under the Fourth Geneva Convention, collective punishment is war crime. Article 33 states that "No protected person may be punished for an offense that he or she did not personally commit." Articles 47-78 also impose substantial obligations on occupying powers, with numerous provisions for the general welfare of the inhabitants of an occupied territory.

Thus Israel violated the Geneva Conventions by its collective punishment of the civilian population of Gaza in retaliation for the largely ineffective Hamas rocket attack which the Jabari assassination provoked.

The larger issue, however, is the urgent need for lifting of Israel's brutal blockade of Gaza, which has created what Noam Chomsky calls the "the world's largest open-air prison".

Francis A. Boyle, Professor of International Law at the University of Illinois, states that "What we're seeing in Gaza now, is pretty much slow-motion genocide against the 1.5 million people who live in Gaza... If you read the 1948 Genocide Convention, it clearly says that one instance of genocide is the deliberate infliction of conditions of life calculated to bring about the physical destruction of a people in whole or in part... And that's exactly what has been done since the imposition of the blockade by Israel. "

Because of its unconditional military, financial and media backing of Israel, the United States government shares the blame for allowing Israel to create an Apartheid state even more gruesome than the one that the world unanimously condemned when it existed in South Africa.

ECONOMIC PREDICTIONS FOR 2013

New year speeches, such as the ones made by the Danish Prime Minister, Helle Thorning-Schmidt or Germany's Chancellor, Angela Merkel, acknowledged that the world is experiencing an economic crisis. According to these speeches and others made by politicians as the old year turned to a new one, 2012 was a year of crisis, but hopefully 2013 will be better. Hopefully economic growth will return in 2013.

What was lacking in the new year speeches, and also lacking in the entire spectrum of the mass media, is a truthful analysis of what has caused the economic crisis and how to deal with it. Politicians, economists and the media say "hopefully growth will return in 2013". No one dares to say that the world is nearing the time when economic growth will have to end, because limitless growth on a finite planet is a logical impossibility, and because the limitless growth of both population and limitless growth of industry industry are destroying the planet.

Why is economic growth so sacred that it is forever exalted, in defiance of logic? Perhaps the answer can be found in the world's banking system, which is built on the practice of fractional reserve lending. When you or I deposit money in a bank, the bank keeps only a fraction of this deposit. The rest is lent out. By this practice, the banks are coining their own money.

Apart from the fact that the right to coin money ought to be reserved to governments so that benefits from expansion of the money supply can be used for social services, the practice of fractional reserve banking is dangerous because it only works in a growing economy. If an economy contracts, and depositors ask for their money, banks collapse because they do not have it. They have lent it out. This is the situation that we are facing today.

What happens when the world reaches the limit, beyond which economic growth is no longer possible? (Perhaps we have already reached this limit.) Can we devise a system that works, even without economic growth? This is the challenge and opportunity that faces us today. We need an entirely new economic system.

Whether we call it Equilibrium Economics, Ecological Economics or Steady-State Economics, the new system will represent a complete break with the past, and it will require a new system of values. It will need both a social conscience and an ecological conscience.

Instead of being driven entirely by the profit motive, the new economic system will aim for full employment for everyone who wants a job. This employment must be in activities that will not harm the global environment. The shift from fossil fuels to renewable energy represents one such employment opportunity. Others can be found in reforestation, soil conservation, agricultural research, recycling of resources, increasing energy efficiency, and in creative artistic and scientific work. Strong governmental involvement in these activities will be needed.

Since the time of Adam Smith, self-interest has been the mainspring of human economic activity. What is required today is a change of values, so that instead of being motivated by selfishness, people throughout the world will work for the common good.

DESTROYING THE WORLD FOR PROFIT

Does it make sense to destroy the world for the sake of profit or personal advantage? This is exactly what our governments and business leaders are doing today. This is what very many ordinary people are doing. But does it make sense?

Does it make sense to saw off the branch on which you are sitting? Does it make sense to jockey for a place at the Captain's table on board an iceberg-struck Titanic?

Whoever contributes to the destruction of the world has to live in the world that they have destroyed. Perhaps a short-term advantage can be gained; perhaps a small private Utopia can be created by acts that harm the general future; but all individual fates will sink like stones in a deep sea, if society as a whole sinks. There will be no protection for anyone, if the world as a whole goes to pieces.

Our economic system is built on the premise that individuals act out of self-interest, and as things are today, they do so with a vengeance. There is no place in the system for thoughts about the environment and the long-term future. All that matters is the bottom line. The machine moves on relentlessly, exhausting non-renewable resources, turning fertile land into deserts, driving animal species into extinction, felling the last of the world's tropical rainforests, pumping greenhouse gasses into the atmosphere, and sponsoring TV programs that deny the reality of climate change, or other programs that extol the concept of never-ending industrial growth.

At the moment, there is a particular plan that has a good chance of completely destroying the world. The government of Israel, lead by Benjamin Netanyahu and Ehud Barak, seems to be planning to attack Iran militarily, despite opposition from the people of Israel. If this unilateral attack takes place (violating international law) it will lead to a general war in the Middle East. Although the consequences of such a war are unpredictable, it might escalate into a nuclear war, since the United States would probably support Israel, while Pakistan, Russia and China might enter the war on the side of Iran. At the very least, such a war would lead to an great increase in the

price of oil, and thus to a general collapse of the world's financial system, which is already in deep trouble.

It is certainly not in Israel's interest to attack Iran. As it is now, Iran seems not to have weaponized its nuclear program, but an attack by Israel might provoke it to do so. Furthermore, the damage done by a general war in the Middle East would make life in the future problematic for all the peoples of the region, including citizens of Israel.

Should a general war in the Middle East escalate into a nuclear war, it would be an ecological catastrophe that would affect all the peoples of the world. Recent studies have shown that in a nuclear war, the smoke from firestorms in burning cities would rise to the stratosphere where it would remain for a decade, spreading throughout the world, blocking sunlight, blocking the hydrological cycle and destroying the ozone layer. The effect on global agriculture would be devastating, and the billion people who are chronically undernourished today would be at risk. Furthermore, the tragedies of Chernobyl and Fukushima remind us that a nuclear war would make large areas of the world permanently uninhabitable because of radioactive contamination.

Our incredibly beautiful world is our common heritage; we must cherish and protect it. It is the only place where we can live, and no amount of profit or personal advantage can make the risk of damaging the earth worthwhile.

THE PROTECTION RACKET

“Naturally, the common people dont want war, neither in Russia nor in England, nor for that matter in Germany. That is understood. But, after all, it is the leaders of the country that determine the policy, and it is always a simple matter to drag the people along, whether it is a democracy or a fascist dictatorship... All you have to do is to tell them that they are being attacked, and denounce the peacemakers for lack of patriotism and exposing the country to danger. It works the same in any country.” Herman Goering, interviewed in Spandau Prison

“The whole aim of practical politics is to keep the populace alarmed (and hence clamorous to be led to safety) by menacing it with an endless series of hobgoblins, all of them imaginary.” H.L. Mencken

Owners of night-clubs in modern cities are sometimes visited by gangsters who offer them “protection”, and demand a fee for this service. The owners usually pay up. They know what will happen if they don’t.

One is reminded of the feudal system of the Middle Ages, in which industrious peasants paid for “protection” with a large fraction of their produce. Their gangster-like protectors, the knights and barons, did no useful work. All they did was to fight with each other.

How much is it exactly that we pay today for “protection”? The total world military budgets cost us 1.7 trillion dollars each year, an amount of money almost too large to be imagined. What do we get for this? We do not get anything useful. We get war, a universal source of poverty, destruction of infrastructure, and human suffering.

The people of the world do not want war. Even Hermann Goering knew this. The military-industrial complexes throughout the world want war; they live on it; without it they would wither. Governments make war, contrary to the will of their peoples, because they are controlled by a great river of money from the world’s military-industrial complexes. This huge torrent of money drives the war machine, the devil’s dynamo, the protection racket ; making slaves of our politicians.

Today the latest means of “alarming the populace” (in Mencken’s words) is “terrorism”. We have to be “protected from terrorism”. This goal has the highest priority, although the total number of people killed by terrorist actions is vanishingly small when compared to the number of children who die of starvation each year, and even vanishingly small compared to the number of people killed in traffic accidents. Nevertheless, we are constantly reminded of terrorism by checks at airports, whose main purpose is undoubtedly to make us conscious of the danger of terrorism.

But must we really be driven like sheep by false threats? Can we not see through the protection racket and free ourselves from it?

SANCTIONS AS COLLECTIVE PUNISHMENT

Under the Fourth Geneva Convention, collective punishment is war crime. Article 33 states that “No protected person may be punished for an offense that he or she did not personally commit.”

At present, we treat nations as though they were persons: We punish entire nations by sanctions, even when only the leaders are guilty, even though the burdens of the sanctions fall most heavily on the poorest and least guilty of the citizens, and even though sanctions often have the effect of uniting the citizens of a country behind the guilty leaders. Should we not regard sanctions as collective punishment? If we do so, then sanctions are a war crime, under the Fourth Geneva Convention.

There is much that can be criticized in the way that the Gulf War of 1990-1991 was carried out. Besides military targets, the US and its allies bombed electrical generation facilities with the aim of creating postwar leverage over Iraq. The electrical generating plants would have to be rebuilt with the help of foreign technical assistance, and this help could be traded for postwar compliance. In the meantime, hospitals and water-purification plants were without electricity. Also, during the Gulf War, a large number of projectiles made of depleted uranium were fired by allied planes and tanks. The result was a sharp increase in cancer in Iraq. Finally, both Shiites and Kurds were encouraged by the Allies to rebel against Saddam Husseins government, but were later abandoned by the allies and slaughtered by Saddam.

The most terrible misuse of power, however, was the US and UK insistence the sanctions against Iraq should remain in place after the end of the Gulf War. These two countries used their veto power in the Security Council to prevent the removal of the sanctions. Their motive seems to have been the hope that the economic and psychological impact would provoke the Iraqi people to revolt against Saddam. However that brutal dictator remained firmly in place, supported by universal fear of his police and by massive propaganda. The effect of the sanctions was to produce more than half a million deaths of children under five years of age, as is documented by UNICEF data.

The total number of deaths that the sanctions produced among Iraqi civilians probably exceeded a million, if older children and adults are included.

Ramsey Clark, who studied the effects of the sanctions in Iraq from 1991 onwards, wrote to the Security Council that most of the deaths “are from the effects of malnutrition including marasmas and kwashiorkor, wasting or emaciation which has reached twelve per cent of all children, stunted growth which affects twenty-eight per cent, diarrhea, dehydration from bad water or food, which is ordinarily easily controlled and cured, common communicable diseases preventable by vaccinations, and epidemics from deteriorating sanitary conditions. There are no deaths crueller than these. They are suffering slowly, helplessly, without simple remedial medication, without simple sedation to relieve pain, without mercy.”

The sanctions that are currently being imposed on Iran are also an example of collective punishment. They are damaging the health of ordinary Iranian citizens, who can in no way be blamed for the policies of their government. According to Wikipedia: “Pharmaceuticals and medical equipment do not fall under the international sanctions, but the country is facing shortages of drugs for the treatment of 30 illnesses, including cancer, heart and breathing problems, thalassemia and multiple sclerosis, because Iran is not allowed to use International payment systems.... In addition, there are 40,000 hemophiliacs who can’t get anti-clotting medicines... An estimated 23,000 Iranians with HIV/Aids have had their access to the drugs they need to keep alive severely restricted.”

In addition to the fact that sanctions are a form of collective punishment, and thus a war crime under the Fourth Geneva Convention, we should also remember that Iran is completely within its rights under international law and under the NPT.

THE MAYAN APOCALYPSE AND GELL-MANN'S CURVE

In 2012, the shortest day of the year, December 21, coincided with the end of the Mayan calander, and the media had a pleasant time discussing the end of the world. When the day passed without a mishap, everyone heaved a sigh of relief because doomsday predictions had been proved wrong. "Now we are in the clear!"

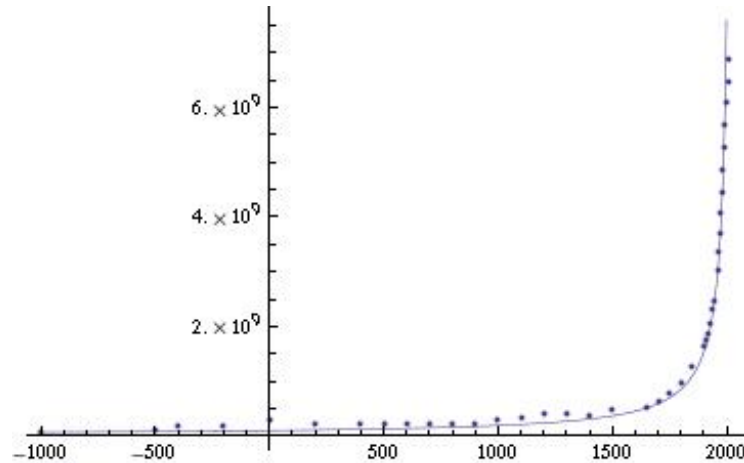
With this as background, it might be appropriate to consider an observation made by the theoretical physicist Murry Gell-Mann. As he pointed out, a simple mathematical curve which closely approximates the global population of humans over a period of several thousand years is a hyperbola of the form: $P=C/(2025-t)$. The population is equal to a constant divided by the factor $(2025-t)$. Here P is the population and t is the year.

How are we to explain the fact that the population curve is not an exponential? We can turn to Malthus for an answer: According to his model, population does not increase exponentially, except under special circumstances, when the food supply is so ample that the increase of population is entirely unchecked.

Malthus gives us a model of culturally-driven population growth. He tells us that population increase tends to press against the limits of the food supply, and since these limits are culturally determined, population density is also culturally-determined.

Hunter-gatherer societies need large tracts of land for their support; and in such societies, the population density is necessarily low. Pastoral methods of food production can support populations of a higher density. Finally, extremely high densities of population can be supported by modern agriculture. Thus, the hyperbolic curve, $P=C/(2025-t)$, where C is a constant, should be seen as describing the rapidly-accelerating growth of human culture, this being understood to include methods of food production.

If we look at the curve, $P=C/(2025-t)$, it is obvious that human culture has reached a period of crisis. The curve predicts that the worlds population



will rise to infinity in the year 2025, which of course is impossible. Somehow the actual trajectory of global population as a function of time must deviate from the hyperbolic curve, and in fact, the trajectory has already begun to fall away from the hyperbola.

Because of the great amount of human suffering which may be involved, and the potentially catastrophic damage to the earth's environment, the question of how the actual trajectory of human population will come to deviate from the hyperbola is a matter of enormous importance. Will population overshoot the sustainable limit, and crash? Or will it gradually approach a maximum? In the case of the second alternative, will the checks which slow population growth be later marriage and family planning? Or will the grim Malthusian forces, famine, disease and war, act to hold the number of humans within the carrying capacity of their environment?

We can anticipate that as the earth's human population approaches 10 billion, severe famines will occur in many developing countries. The beginnings of this tragedy can already be seen. It is estimated that roughly 40,000 children now die every day from starvation, or from a combination of disease and malnutrition.

An analysis of the global ratio of population to cropland shows that we have probably already exceeded the sustainable limit of population through our dependence on petroleum: Between 1950 and 1982, the use of cheap syn-

thetic fertilizers increased by a factor of 8. Much of our present agricultural output depends on their use, but their production is expensive in terms of energy. Furthermore, petroleum-derived synthetic fibers have reduced the amount of cropland needed for growing natural fibers, and petroleum-driven tractors have replaced draft animals which required cropland for pasturage.

As population increases, the cropland per person will continue to fall, and we will be forced to make still heavier use of fertilizers to increase output per hectare. Also marginal land will be used in agriculture, with the probable result that much land will be degraded through erosion and salination.

Climate change will reduce agricultural output. The Hubbert peaks for oil and natural gas will occur within one or two decades, and the fossil fuel era will be over by the end of 21st century. Thus there is a danger that just as global population reaches the unprecedented level of 10 billion or more, the agricultural base for supporting it may suddenly collapse. Ecological catastrophe, possibly compounded by war and other disorders, could produce famine and death on a scale unprecedented in history, a disaster of unimaginable proportions, involving billions rather than millions of people.

What would Malthus tell us if he were alive today? Certainly he would say that we have reached a period of human history where it is vital to stabilize the world's population if catastrophic environmental degradation and famine are to be avoided. He would applaud efforts to reduce suffering by eliminating poverty, widespread disease, and war; but he would point out that, since it is necessary to stop the rapid increase of human numbers, it follows that whenever the positive checks to population growth are removed, it is absolutely necessary to replace them by preventive checks. If he were alive today, Malthus would probably agree that family planning is the most humane of the preventive checks.

In Malthus "Essay on the Principle of Population", population pressure appears as one of the main causes of war. Thus, his Essay contains another important message for our own times: If he were alive today, Malthus would also say that there is a close link between the two most urgent tasks which history has given to the 21st century: stabilization of the global population, and abolition of the institution of war.

RESTORING DEMOCRACY IN THE UNITED STATES

The Occupy Wall Street movement's slogan, "We are the 99 percent", points to the fact that a very small power elite, perhaps only 1 percent of the population, has a hugely disproportionate amount of economic and political power in the United States. In this sense, the United States is no longer a democracy, since neither the economic system nor the government serve the will and needs of the people. They serve instead the interests of the wealthy and powerful 1 percent, who control not only the mass media and the financial system, but also the politicians of both major parties. The situation in many other countries is very similar.

But as Occupy Wall Street tells us, this need not be so. After all we, the ordinary people, who long for reform, are an overwhelming majority. We are the 99 percent, and if we choose to exert ourselves, we have the power to change the system. The problem is that, having voted, we tend to lapse into several years of political inactivity, convinced that we are powerless. But nothing could be more false than our sense of powerlessness, and nothing could be more dangerous to true democracy. Voting is only a small part of our duty. We must also maintain constant political activity to ensure that those whom we have placed in office actually serve the will and the needs of the people. This means creating our own media, if the mass media are slaves to the power elite. It means constant activity, meetings, demonstrations, exhibitions, videos produced for U-tube, and whatever other means we can invent to constantly hold before the public and the government a vision of what is right.

When President Obama was elected for a second term, the majority of the world's peoples heaved a huge sigh of relief. Disaster had been avoided. But the newly re-elected President is faced with a House of Representatives controlled by the Republicans, and with a Senate which hardly differs from the House on most issues. Both the House and the Senate are powerfully influenced by lobbies, representing, for example, the interests of Wall Street, the fossil fuel industry and the military-industrial complex. Therefore they take no action to regulate the banks, or to cut grossly bloated military budgets, or

to address the vital issue of climate change. Instead they plan to cut social services for a population that already is in great distress.

The American people must make sure that this does not happen. They must hold President Obama to the idealistic promises of his 2008 campaign, and prevent him from compromising with the enemies of reform. If we live in other countries where democracy is in danger, we too must recognize our responsibilities making sure that our governments follow the paths of peace, social justice and environmental responsibility.

To President Obama himself, we should say: “Be bold. Do not compromise. Use your great gifts of oratory to proclaim what you think is right. We, the people, will actively support you!”

JUST STAYING ALIVE

It is clear that the 21st century will be a period of crisis for civilization. With the world's human population growing at the rate of 200,000 people each day, or 80,000,000 people each year, our environment is under great stress.

Global warming is proceeding at a much faster rate than was predicted by the International Panel on Climate Change. For example, polar ice is disappearing at a rate which is far faster than was predicted by IPCC models. There is a threat that increasing temperatures will release vast quantities of the potent greenhouse gas methane into the atmosphere from melting permafrost and from enormous deposits of methane clathrates on the ocean floors. Other feedback loops may be introduced as drying of the Amazon basin and Australia's interior makes these and other regions vulnerable to forest fires ignited by lightning flashes.

Before many decades have passed, climate change will produce aridity in many regions that today are the breadbaskets of the world. The drought experienced in the US Southwest last summer is likely to be followed by other droughts of increasing severity. Meanwhile, aquifers in many parts of the world are being overdrawn, and water tables are falling. Furthermore, melting of glaciers in the Himalayas and the Andes threatens to deprive China, India and parts of South America of river water during the summer months. In addition, rising sea levels produced by melting polar ice will drown many fertile rice-producing regions of Southeast Asia.

Besides being hit by water shortages, global agriculture will suffer a heavy blow as petroleum and natural gas become prohibitively expensive. Modern high-yield agriculture is heavily dependent on fossil fuels. In fact, Giampietro and Pimental have shown that the US food system presently uses 10 fossil fuel calories for each food calorie produced. Thus, there is a danger that just as the global population reaches an unprecedented level of 9 billion people, the agricultural base for supporting it will collapse.

We can expect the present economic crisis to deepen. Further industrial growth will soon become impossible, both because of the exhaustion of the world's natural resources, and because the carrying capacity of the environ-

ment has been exceeded. Meanwhile, our financial system is organized in such a way that it depends on growth for its health. This can be seen especially in our fractional reserve banking system, which works reasonably well when the economy is growing, but fails dramatically when the economy stops growing or contracts.

Finally, a dark cloud hangs over the future of life on earth because of the threat of nuclear war, which would be the ultimate ecological catastrophe.

No one living today asked to be born at a time of crisis. But here we are together, living against our will at a time when the world is hanging by a thread, looking at a future that is frighteningly uncertain. What are we to do? Public action is needed, but the establishment-controlled mass media seem to do everything within their power to prevent us from acting (not to mention advertising agencies, which urge us to forget about the larger world and to concentrate on our own appetites). Anesthetized by sports events, soap operas, programs on cooking and heavily censored news, we slump in our TV chairs, passive, isolated, disempowered and stupefied. The future of the world hangs in the balance, the fates of children and grandchildren hang in the balance, but the television viewer feels no impulse to change the world or to save it.

Also, as economic problems deepen, people tend to concentrate on their own concerns. They excuse their neglect of the larger world's fate by saying, "I use all my energy just staying alive". But what if the individual fate is lost in the general fate? What will happen to our own small private utopias if society as a whole collapses?

Although the mass media have failed entirely in their responsibility to educate us and to mobilize us to action, we have a duty to do all that we can to prevent the multiple but interlinked catastrophes that are threatening our beautiful world. We owe it to future generations to give an all-out effort to saving the planet. Even failure must not discourage us. The stakes are so high that we must keep trying to do whatever we can, in spite of one failure or a dozen, in spite of repeated failures that make us feel as though we are swimming in sand.

Of course we have our ordinary work, that we need to do to stay alive. But

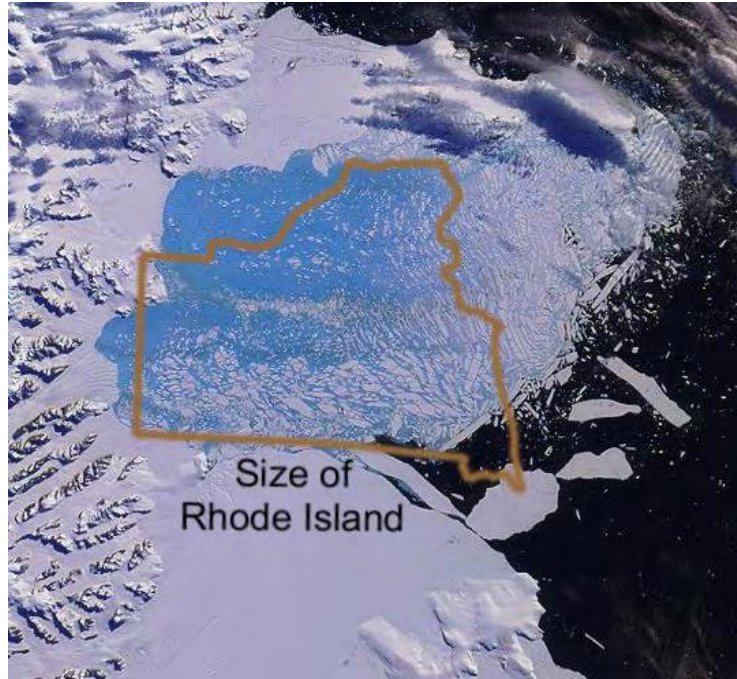


Figure 1: *The collapsing Larsen-B iceshelf in Antarctica is similar in size to the US state of Rhode Island*

staying alive in the long run, and giving our children and grandchildren a world in which they will have a reasonable chance of staying alive, means that we have two jobs: our ordinary work, and the job of actively confronting the multiple challenges that we face in the 21st century. No single person can achieve the needed reforms, but together we can do it. In the last analysis, who has power if not the people?

DO THE PEOPLE HAVE A RIGHT TO KNOW WHAT THEIR GOVERNMENTS ARE DOING?

“Every government degenerates when trusted to the rulers of the people alone. The people themselves, therefore, are its only safe depositories.” Thomas Jefferson, (1743-1826)

“The jaws of power are always open to devour, and her arm is always stretched out, if possible, to destroy the freedom of thinking, speaking, and writing.” John Adams, (1735-1826)

According to the Nuremberg Principles, the citizens of a country have a responsibility for the crimes that their governments commit. But to prevent these crimes, the people need to have some knowledge of what is going on. Indeed, democracy cannot function at all without this knowledge.

What are we to think when governments make every effort to keep their actions secret from their own citizens? We can only conclude that although they may call themselves democracies, such governments are in fact oligarchies or dictatorships.

At the end of World War I, it was realized that secret treaties had been responsible for its outbreak, and an effort was made to ensure that diplomacy would be more open in the future. Needless to say, these efforts did not succeed, and diplomacy has remained a realm of secrecy.

Many governments have agencies for performing undercover operations (usually very dirty ones). We can think, for example of the KGB, the CIA, M5, or Mossad. How can countries that have such agencies claim to be democracies, when the voters have no knowledge of or influence over the acts that are committed by the secret agencies of their governments?

Nuclear weapons were developed in secret. It is doubtful whether the people of the United States would have approved of the development of such antihuman weapons, or their use against an already-defeated Japan, if they

had known that these things were going to happen. The true motive for the nuclear bombings was also kept secret. In the words of General Groves, speaking confidentially to colleagues at Los Alamos, the real motive was “to control the Soviet Union”.

The true circumstances surrounding the start of the Vietnam war would never have been known if Daniel Ellsberg had not leaked the Pentagon Papers. Ellsberg thought that once the American public realized that their country’s entry into the war was based on a lie, the war would end. It did not end immediately, but undoubtedly Ellsberg’s action contributed to the end of the war.

We do not know what will happen to Julian Assange. If his captors send him to the US, and if he is executed there for the crime of publishing leaked documents (a crime that he shares with the New York Times), he will not be the first martyr to the truth. The ageing Galileo was threatened with torture and forced to recant his heresy that the earth moves around the sun. Galileo spent the remainder of his days in house arrest. Giordano Bruno was less lucky. He was burned at the stake for maintaining that the universe is larger than it was then believed to be. If Julian Assange becomes a martyr to the truth like Galileo or Bruno, his name will be honored by generations in the future, and the shame of his captors will be remembered too.

A THREATENED GLOBAL CATASTROPHE

Possibly as early as this autumn, Israel may start a large-scale war in the Middle East and elsewhere by bombing Iran. The consequences are unforeseeable, but there are several ways in which the conflict could escalate into a nuclear war, particularly if the US supports the Israeli attack, and if Pakistan, Russia and China become involved.

Why is the threat especially worrying? Because of the massive buildup of US naval forces in the Persian Gulf. Because of Netanyahu's government's stated intention to attack Iran, despite opposition from the people of Israel. Because of President Obama's declarations of unconditional support for Israel; and because Pakistan, a nuclear power, would probably enter the war on the side of Iran.

Most probably, a military attack on Iran by Israel would provoke an Iranian missile attack on Tel Aviv, and Iran might also close the Strait of Hormuz. The probable response of the US would be to bomb Iranian targets, such as shore installations on the Persian Gulf. That might well provoke Iran to sink one or more US ships by means of rockets, and if that should happen, the US public would demand massive retaliation against Iran.

Meanwhile, in Pakistan, the unpopularity of the US-Israel alliance, as well as the memory of numerous atrocities, might lead to the overthrow of Pakistan's less-than-stable government. Israel's response might be a preemptive nuclear attack on Pakistan's nuclear installations. One reads that Russia has already prepared for the conflict by massing troops and armaments in Armenia, and China may also be drawn into the conflict.

In this tense situation, there would be a danger that a much larger nuclear exchange could occur because of a systems failure or because of an error of judgement by a military or political leader. A thermonuclear war would be the ultimate environmental disaster.

Recent research has shown that thick clouds of smoke from firestorms in burning cities would rise to the stratosphere, where they would spread globally and remain for a decade, blocking the hydrological cycle, and destroying the ozone layer. A decade of greatly lowered temperatures would also follow. Global agriculture would be destroyed. Human, plant and animal populations would perish.

We must also consider the very long-lasting effects of radioactive contamination. One can gain a small idea of what it would be like by thinking of the radioactive contamination that has made large areas near to Chernobyl and Fukushima permanently uninhabitable, or the testing of hydrogen bombs in the Pacific in the 1950's, which continues to cause leukemia and birth defects in the Marshall Islands more than half a century later. In the event of a thermonuclear war, the contamination would be enormously greater.

We have to remember that the total explosive power of the nuclear weapons in the world today is 500,000 times as great as the power of the bombs that destroyed Hiroshima and Nagasaki. What is threatened today is the complete breakdown of human civilization and the destruction of much of the biosphere.

The common human culture that we all share is a treasure to be carefully protected and handed down to our children and grandchildren. The beautiful earth, with its enormous richness of plant and animal life, is also a treasure, almost beyond our power to measure or express. What enormous arrogance and blasphemy it is for our leaders to think of risking these in a thermonuclear war!

CANCER THREAT FROM RADIOACTIVE LEAKS AT HANFORD, USA

On August 9, 1945, a nuclear bomb was dropped on the Japanese city of Nagasaki. Within a radius of one mile, destruction was total. People were vaporized so that the only shadows on concrete pavements were left to show where they had been. Many people outside the radius of total destruction were trapped in their collapsed houses, and were burned alive by the fire that followed. By the end of 1945, an estimated 80,000 men, women, young children, babies and old people had died as a result of the bombing. As the years passed more people continued to die from radiation sickness.

Plutonium for the bomb that destroyed Nagasaki had been made at an enormous nuclear reactor station located at Hanford in the state of Washington. During the Cold War, the reactors at Hanford produced enough weapons-usable plutonium for 60,000 nuclear weapons. The continued existence of plutonium and highly-enriched uranium-235 in the stockpiles of nuclear weapons states hangs like a dark cloud over the future of humanity. A full scale thermonuclear war would be the ultimate ecological catastrophe, threatening to make the world permanently uninhabitable.

Besides playing a large role in the tragedy of Nagasaki, the reactor complex at Hanford has damaged the health of many thousands of Americans. The prospects for the future are even worse. Many millions of gallons of radioactive waste are held in Hanford's aging storage tanks, the majority of which have exceeded their planned lifetimes. The following quotations are taken from a Wikipedia article on Hanford, especially the section devoted to ecological concerns:

“A huge volume of water from the Columbia River was required to dissipate the heat produced by Hanford's nuclear reactors. From 1944 to 1971, pump systems drew cooling water from the river and, after treating this water for use by the reactors, returned it to the river. Before being released back into the river, the used water was held in large tanks known as retention basins

for up to six hours. Longer-lived isotopes were not affected by this retention, and several tetrabecquerels entered the river every day. These releases were kept secret by the federal government. Radiation was later measured downstream as far west as the Washington and Oregon coasts.”

“The plutonium separation process also resulted in the release of radioactive isotopes into the air, which were carried by the wind throughout southeastern Washington and into parts of Idaho, Montana, Oregon and British Columbia. Downwinders were exposed to radionuclides, particularly iodine-131... These radionuclides filtered into the food chain via contaminated fields where dairy cows grazed; hazardous fallout was ingested by communities who consumed the radioactive food and drank the milk. Most of these airborne releases were a part of Hanford’s routine operations, while a few of the larger releases occurred in isolated incidents.”

“In response to an article in the Spokane Spokesman Review in September 1985, the Department of Energy announced its intent to declassify environmental records and in February, 1986 released to the public 19,000 pages of previously unavailable historical documents about Hanford’s operations. The Washington State Department of Health collaborated with the citizen-led Hanford Health Information Network (HHIN) to publicize data about the health effects of Hanford’s operations. HHIN reports concluded that residents who lived downwind from Hanford or who used the Columbia River downstream were exposed to elevated doses of radiation that placed them at increased risk for various cancers and other diseases.”

“The most significant challenge at Hanford is stabilizing the 53 million U.S. Gallons (204,000 m³) of high-level radioactive waste stored in 177 underground tanks. About a third of these tanks have leaked waste into the soil and groundwater. As of 2008, most of the liquid waste has been transferred to more secure double-shelled tanks; however, 2.8 million U.S. Gallons (10,600 m³) of liquid waste, together with 27 million U.S. gallons (100,000 m³) of salt cake and sludge, remains in the single-shelled tanks. That waste was originally scheduled to be removed by 2018. The revised deadline is 2040. Nearby aquifers contain an estimated 270 billion U.S. Gallons (1 billion m³) of contaminated groundwater as a result of the leaks. As of 2008, 1 million U.S. Gallons (4,000 m³) of highly radioactive waste is traveling through the groundwater toward the Columbia River.”

The documents made public in 1986 revealed that radiation was intentionally and secretly released by the plant and that people living near to it acted as unknowing guinea pigs in experiments testing radiation dangers. Thousands of people who live in the vicinity of the Hanford Site have suffered an array of health problems including thyroid cancers, autoimmune diseases and reproductive disorders that they feel are the direct result of these releases and experiments.

In thinking about the dangers posed by leakage of radioactive waste, we should remember that many of the dangerous radioisotopes involved have half-lives of hundreds of thousands of years. Thus, it is not sufficient to seal them into containers that will last for a century or even a millennium. We must find containers that will last for a hundred thousand years or more, longer than any human structure has ever lasted. This logic has lead Finland to deposit its radioactive waste in a complex of underground tunnels carved out of solid rock. But looking ahead for a hundred thousand years involves other problems: If humans survive for that long, what language will they speak? Certainly not the languages of today. How can we warn them that the complex of tunnels containing radioactive waste is a death trap? The reader is urged to see a film exploring these problems, "Into Eternity", by the young Danish film-maker Michael Madsen. Here is the link: <http://dotsub.com/view/8e40ebda-5966-4212-9b96-6abbce3c6577>.

We have already gone a long way towards turning our beautiful planet earth into a nuclear wasteland. In the future, let us be more careful, as guardians of a precious heritage, the natural world and the lives of all future generations.

A GOLDEN AGE?

The 21st century will be a time of crisis for human civilization. We are facing an environmental megacatastrophe, financial meltdown, and the threat of nuclear war. Politicians seem unable or unwilling to address these problems, because they are influenced by powerful lobbies. It is up to individual citizens to force their governments to take action, and if they will not do so, to work for a change of governments.

One of the greatest problems in mobilizing individuals to become active problem-solvers is that the problems are not so apparent today as they will become in the future. Our present era has the appearance of a golden age. All curves are moving upward: population, gross national products, fossil fuel use, the rate of scientific and technological discovery, industrialization of the developing countries, and so on. All are growing.

Never before in history have there been so many people; never before has there been so much collective and individual wealth; never before has there been so much knowledge; never before so many inventions. Although there are pockets of misery, most ordinary people in China and India are experiencing levels of well-being that they never had before. Smart phones and Ipads are commonplace in Mongolia and Kenya. Motor traffic fills all twelve lanes of highways in Manila. The Internet makes the knowledge and culture of the entire world instantly available to all of its citizens. Science and technology are triumphant. It is indeed a golden age.

But although we are experiencing a golden age, the fact that we have reached a peak implies that ahead of us lies a period of decline, a period of scarcity, a period of economic trauma, and a period of ecological catastrophe. The severity of the decline, and of the scarcity, trauma and ecological catastrophe depends on the actions of ordinary people living today. But how can we mobilize ordinary citizens to the action that will be needed to save civilization and the biosphere when they are lulled into inaction, both by the stupefying trivia of the mass media and by the pleasures of their daily lives?

According to the Hubert Peak Model, the time-dependence of the production and use of any non-renewable resource follows a bell-shaped curve. When the resource is approximately half exhausted, production and consumption



Figure 1: Motor traffic in Manila

reach a maximum. Thereafter they gradually decline. As the decline continues, the resource does not disappear entirely, but its price increases, partly because of increased costs of extraction, and partly because the demand for the resource exceeds the supply.

This model of the time-dependence of use of a non-renewable resource was introduced in 1956 by the geophysicist and oil expert M.K. Hubert, who predicted that the production and consumption of conventional oil in the 49 contiguous states of the US would follow such a curve, and that the peak would occur in the early 1970's. Although this prediction was met with skepticism, it proved to be surprisingly accurate. In many other cases since that time, the Hubert Peak Model has been vindicated by accurate predictions.

When it is applied to the global production and consumption of conventional oil and natural gas, the Hubert Peak Model predicts that a peak for oil will occur within a few years, and that a peak for natural gas will follow by 2020 or 2030. Supplies of coal are much larger. Burned at the present rate, they would last roughly a thousand years. Burned at a rate that would be needed to compensate for the end of oil and natural gas, coal would last only until the end of the 21st century. But to avoid disastrous climate change, we need to leave the world's reserves of coal in the ground, rather than burning them. Thus the fossil fuel era is ending, and its end will have an enormous impact on human society.

When plotted together on a time-scale of several thousand years, the global population of humans and the use of fossil fuels show a dramatic and worrying behavior: The world's human population remained at a very low level for millennia, at the level of only a few millions. But driven by the inventions of the industrial and scientific revolutions, population has shot upward, and is now increasing by roughly a billion every 11 years.

When plotted on the same graph, fossil fuel use shows a remarkable spikelike behavior. Starting almost at zero a few hundred years ago, it rises to a sharp peak today, and in the future it will fall to almost nothing again, all within the space of a few hundred years. When plotted together, the spikelike graph of fossil fuel use, and the dramatic upsurge in global population are seen to be simultaneous. This raises the worrying question of whether the explosion of global population has been caused by fossil fuel use, and whether there

will be a population crash when these fuels are exhausted.

Petroleum and natural gas, upon which modern agriculture depends, will become prohibitively expensive in 2040 or so, just when the global population of humans reaches the unprecedented level of 9 billion. Modern agriculture, the basis of our enormous population, will be dealt a severe blow by the end of the fossil fuel era. At the same time, melting of glaciers in the Himalayas will deprive both China and India of their summer water supplies. Rising sea levels will drown many productive rice-growing regions in Southeast Asia. Aridity produced by global warming will reduce the output of grain in many areas that are now important producers of wheat, maize and soy beans. Thus, added to the threat of nuclear war, is the threat of global famine on a scale never before experienced, involving billions rather than millions of people.

We need to act today to save the future. We need to stabilize global population today; we need to achieve world peace today; we need to abolish nuclear weapons today; we need to drastically reduce the emission of greenhouse gasses today; we need to make the transition to renewable energy today; we need to stop overfishing today; we need agricultural research today; we need to save the rainforests today; we need to conserve topsoil today. But today is so comfortable, today is the golden age of humankind. Yes it is, it certainly is, but we must act today. Tomorrow will be too late.

THE TRAINING OF SOLDIERS

Within individual countries, murder is rightly considered to be the worst of crimes. But the institution of war tries to convince us that if a soldier murders someone from another country, whom the politicians have designated as an “enemy”, it is no longer a crime, no longer a violation of the common bonds of humanity. It is “heroic”.

In their hearts, soldiers know that this is nonsense. Murder is always murder. The men, women and children who are supposed to be the “enemy”, are just ordinary people, with whom the soldier really has no quarrel. Therefore when the training of soldiers wears off a little, so that they realize what they have done, they have to see themselves as murderers, and many commit suicide.

A recent article in the journal “Epidemiology” pointed out a startling statistic: for every American soldier killed in combat this year, 25 will commit suicide. The article also quotes the Department of Veterans Affairs, which says that 18 veterans commit suicide every day.

Obviously, the training of soldiers must overwrite fundamental ethical principles. This training must make a soldier abandon his or her individual conscience and sense of responsibility. It must turn the soldier from a compassionate human being into an automaton, a killing machine. How is this accomplished? Through erosion of the soldier’s self-respect. Through the endless repetition of senseless rituals where obedience is paramount and from which rational thought and conscience are banished.

In his book on fanaticism, *The True Believer* (1951), the American author Eric Hoffer gives the following description of the factors promoting self-sacrifice:

“To ripen a person for self-sacrifice, he must be stripped of his individual identity. He must cease to be George, Hans, Ivan or Tado - a human atom with an existence bounded by birth and death. The most drastic way to achieve this end is by the complete assimilation of the individual into a collective body. The fully assimilated individual does not see himself and others

as human beings. When asked who he is, his automatic response is that he is a German, a Russian, a Japanese, a Christian, a Muslim, a member of a certain tribe or family. He has no purpose, worth or destiny apart from his collective body, and as long as that body lives, he cannot really die. ...”

“The effacement of individual separateness must be thorough. In every act, however trivial, the individual must, by some ritual, associate himself with the congregation, the tribe, the party, etcetera. His joys and sorrows, his pride and confidence must spring from the fortunes and capacities of the group, rather than from his individual prospects or abilities. Above all, he must never feel alone. Though stranded on a desert island, he must feel that he is under the eyes of the group. To be cast out from the group must be equivalent to being cut off from life.”

“This is undoubtedly a primitive state of being, and its most perfect examples are found among primitive tribes. Mass movements strive to approximate this primitive perfection, and we are not imagining things when the anti-individualist bias of contemporary mass movements strikes us as being a throwback to the primitive.”

The conditioning of a soldier in a modern army follows the pattern described in Eric Hoffer's book. The soldier's training aims at abolishing his sense of individual separateness, individual responsibility, and moral judgment. It is filled with rituals, such as saluting, by which the soldier identifies with his tribe-like army group. His uniform also helps to strip him of his individual identity and to assimilate him into the group. The result of this psychological conditioning is that the soldier's mind reverts to a primitive state. He surrenders his moral responsibility, and when the politicians tell him to kill, he kills.

Suggestions for further reading

1. Matt Wood, “Crunching the Numbers on the Rate of Suicide Among Veterans”, *Epidemiology*, April 27, (2012).
2. Eric Hoffer, “The True Believer”, Harper and Row, (1951).

TRIBALISM

AND AGREED-UPON LIES

“History is a set of lies agreed upon”, Napoleon Bonaparte, quoting Fontanelle

“The human mind was not designed by evolutionary forces for finding truth. It was designed for finding advantage” Albert Szent-Györgyi

It seems to be a part of human nature to behave with great kindness towards members of our own group. By contrast we often exhibit terrible aggression towards other groups that are perceived to be competing with or threatening our own. This profile of intra-tribal altruism and inter-tribal aggression is easy to understand if we remember that our remote ancestors belonged to small, genetically homogeneous tribes, competing for territory on the grasslands of Africa. Because all the members of a particular primitive tribe had closely similar genes through intermarriage, the tribe as a whole was the unit upon which evolutionary forces acted. The tribe as a whole either survived or perished, and those groups with the strongest “team spirit” survived best.

Later in history, the invention of agriculture made it possible for humans to live in larger groups, and ethical rules were invented to overwrite raw human nature so that genetically inhomogeneous cities, nations and even empires could exist with social cohesion and without internal strife.

Because of ethics, cooperation became possible over larger and larger areas. Human culture was able to blossom, and the vast accumulation of knowledge upon which modern civilization depends began to accumulate. Nevertheless, narrow tribalism remains today in the form of religious bigotry and fanatical nationalism. We urgently need a global ethic, which will unite all humans.

Members of tribelike groups throughout history have marked their identity by adhering to irrational systems of belief. Like the ritual scarification which is sometimes used by primitive tribes as a mark of identity, irrational systems of belief are also a mark of tribal identity. We parade these beliefs to demonstrate that we belong to a special group and that we are proud of it. The more irrational the belief is, the better it serves this purpose. When

you and I tell each other that we believe the same nonsense, a bond is forged between us. The worse the nonsense is, the stronger the bond.

Sometimes motives of advantage are mixed in. As the Nobel Laureate biochemist Albert Szent-Györgyi observed, evolution designed the human mind, not for finding truth, but for finding advantage. Within the Orwellian framework of many modern nations, it is extremely disadvantageous to hold the wrong opinions. The wiretappers know what you are thinking.

Also, people often believe what will make them happy. How else can we explain the denial of climate change in the face of massive evidence to the contrary?

But truth has the great virtue that it allows us to accurately predict the future. If we ignore truth because it is unfashionable, or painful, or heretical, the future will catch us unprepared.

THE ARMED FORCES SPECIAL POWERS ACT IN NORTHEAST INDIA

In 1958 the government of India passed the Armed Forces Special Powers Act (AFSPA). It is still in place, and is being applied in the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Jammu and Kashmir.

The act allows soldiers to arrest or shoot anyone who has committed cognizable offenses or is reasonably suspected of having done so. The act also specifies that “Army officers have legal immunity for their actions. There can be no prosecution, suit or any other legal proceeding against anyone acting under that law. Nor is the government’s judgement on why an area is found to be disturbed subject to judicial review.”

In practice, the AFSPA allows soldiers to terrorize the citizens of the states where it is being applied. The soldiers’ immunity from prosecution encourages them to act brutally. In the states of Northeast India where it is being applied, the brutality of the AFSPA leads to secessionist sentiment, which in turn, in the view of India’s government, justifies the use of the AFSPA in these states. It is a vicious circle.

On 23 March, 2009, the United Nations asked India to repeal AFSPA, an act that they considered to be contrary to Article 4 of the International Covenant of Civil and Political Rights. The UN Commissioner on Human Rights, Navanethem Pillay termed the law a “dated and colonial-era law that breaches contemporary international human rights standards.” The United Nations also questioned the constitutionality of the AFSPA under Indian law.

On March 31, 2012, Christof Heyns, the UN’s Special Rapporteur on extrajudicial, summary or arbitrary executions, again called on India to repeal the AFSPA. “During my visit to Kashmir”, he said, “AFSPA was described to me as ‘hated’ and ‘draconian’. It clearly violates international law”.

Since 2000, a woman from Manipur named Iram Sharmila Chanu has been on a hunger strike, protesting against the AFSPA. She is still alive only because she is forcibly fed through a tube passing through her nose and down

her throat. She has been kept in prison for a decade on the charge of attempting suicide. Sharmila's fast is in the tradition of Gandhi's nonviolent resistance, and she says that she will stop only when the terrible act is repealed. However, Sharmila's physical condition is deteriorating, and if the act is not repealed soon, her long fast may end in death.

The attention of international human rights groups would help to hasten the repeal of the unjust Armed Forces Special Powers Act. With its repeal, the states of Northeast India could become equal partners in a democratic India. At present they are terrorized and unwilling colonies.

KILL OR BE KILLED, (OR BOTH)

“Beyond the Fringe” was a satirical review that performed in London’s West End in the early 1960’s. In one of the sketches, the Prime Minister of England was being interviewed by a journalist, and the following exchange took place:

Journalist: “Sir, could you say something about our nation’s foreign policy?”
Prime Minister: “Our foreign policy is very simple: Kill or be killed.” Voice at the back of the hall: “Or both! Or both!”

During the 60 years that separate us from that sharp observation, it has lost none of its relevance. The doctrines of nuclear deterrence and massive retaliation are still based on the stone age maxim: “Kill or be killed”, and the voice at the back of the hall is still right in adding “Or both!”

A full-scale thermonuclear war would be the definitive ecological catastrophe. It would destroy human civilization and much of the biosphere. No one can win a nuclear war, just as no one can win a tsunami or an earthquake. In such an event, everyone would suffer equally, also neutral nations.

Recent research has shown that thick clouds of smoke from firestorms in burning cities would rise to the stratosphere where they would spread globally and remain for a decade, blocking sunlight, blocking the hydrological cycle, and destroying the ozone layer. A decade of greatly lowered temperatures would also follow. Global agriculture would be destroyed. Human, plant and animal populations would perish.

We must also consider the very long-lasting effects of radioactive contamination. One can gain a small idea of what this would be like by thinking of the radioactive contamination that has made large areas near to Chernobyl and Fukushima uninhabitable, or the testing of hydrogen bombs in the Pacific, which continues to cause leukemia and birth defects in the Marshall Islands more than half a century later.

In 1954, the United States tested a hydrogen bomb at Bikini. The bomb was 1,300 times more powerful than the bombs that destroyed Hiroshima and Nagasaki. Fallout from the bomb contaminated the island of Rongelap, one of the Marshall Islands 120 kilometers from Bikini. The islanders experienced radiation illness, and many died from cancer. Even today, half a century later, both people and animals on Rongelap and other nearby islands suffer from birth defects. The most common defects have been “jellyfish babies”, born with no bones and with transparent skin. Their brains and beating hearts can be seen. The babies usually live a day or two before they stop breathing.

A girl from Rongelap describes the situation in the following words: “I cannot have children. I have had miscarriages on seven occasions... Our culture and religion teach us that reproductive abnormalities are a sign that women have been unfaithful. For this reason, many of my friends keep quiet about the strange births that they have had. In privacy they give birth, not to children as we like to think of them, but to things we could only describe as octopuses, apples, turtles, and other things in our experience. We do not have Marshallese words for these kinds of babies, because they were never born before the radiation came.”

A nuclear war would produce radioactive contamination of the kind that we have already experienced in the areas around Chernobyl and Fukushima and in the Marshall Islands, but on an enormously increased scale. We have to remember that the total explosive power of the nuclear weapons in the world today is 500,000 times as great as the power of the bombs that destroyed Hiroshima and Nagasaki. What is threatened by a nuclear war today is the complete breakdown of human civilization.

The common human culture that we all share is a treasure to be carefully protected and handed on to our children and grandchildren. The beautiful earth, with its enormous richness of plant and animal life, is also a treasure almost beyond our power to measure or express. What enormous arrogance and blasphemy it is for our leaders to think of risking these in a thermonuclear war!

Suggestions for further reading

1. O. Toon , A. Robock, and R. Turco, “The Environmental Consequences of Nuclear War”, Physics Today, vol. 61, No. 12, 2008, p. 37-42).
2. Climatic Consequences of Regional Nuclear Conflicts. A. Robock, L. Oman, G. L. Stenchikov, O. B. Toon, C. Bardeen and R. P. Turco in Atmospheric Chemistry and Physics, Vol. 7, No. 8, pages 20032012; April 2007.
3. Conard RA, Knudsen KD, Dobyns BM et al. A twenty year review of medical findings in a Marshallese population accidentally exposed to radioactive fallout, BNL 50424. Upton, NY: Brookhaven National Laboratory, 1974.

THOU SHALT NOT KILL

One of the functions of good literature is to help us to put ourselves imaginatively into the skin of another person. Good literature (and for that matter, good cinema and television) ought to broaden the range of human sympathy, allowing us to share the feelings of other people who are very different from ourselves.

It is an interesting fact that Leo Tolstoy, who is generally considered to have been one of the greatest novelists of all time, was deeply aware of ethical problems, especially as an old man. "...The sharpest of all contradictions", Tolstoy wrote, "can be seen between the governments professed faith in the Christian law of the brotherhood of all humankind, and the military laws of the state, which force each young man to prepare himself for enmity and murder..."

In 1894, the young Indian lawyer, Mohandas K. Gandhi, (who was then working for the civil rights of Indians in South Africa), read Tolstoy's books on Christianity and was greatly influenced by them. Gandhi wrote a review of Tolstoy's "The Kingdom of God is Within Us", and in 1909 he sent Tolstoy an account of the activities of the civil rights movement in South Africa.

He received a reply in which Tolstoy said: "...The longer I live, and especially now, when I vividly feel the nearness of death, the more I want to tell others what I feel so particularly clearly and what to my mind is of great importance - namely that which is called passive resistance, but which is in reality nothing else but the teaching of love, uncorrupted by false interpretations. That love i.e. The striving for the union of human souls and the activity derived from that striving - is the highest and only law of human life, and in the depth of his soul every human being knows this (as we most clearly see in children); he knows this until he is entangled in the false teachings of the world. This law was proclaimed by all - by the Indian as by the Chinese, Hebrew, Greek and Roman sages of the world. I think that this law was most clearly expressed by Christ, who plainly said that in this alone is all the law and the prophets..."

"...The peoples of the Christian world have solemnly accepted this law, while

at the same time they have permitted violence and built their lives on violence; and that is why the whole life of the Christian peoples is a continuous contradiction between what they profess, and the principles on which they order their lives - a contradiction between love accepted as the law of life, and violence which is recognized and praised, acknowledged even as a necessity in different phases of life, such as the power of rulers, courts, and armies..."

"This year, in the spring, at a Scripture examination in a girls high school in Moscow, the teacher and the bishop present asked the girls questions on the Commandments, and especially on the sixth. After a correct answer, the bishop generally put another question, whether murder was always in all cases forbidden by Gods law; and the unhappy young ladies were forced by previous instruction to answer not always - that murder was permitted in war and in the execution of criminals. Still, when one of these unfortunate young ladies (what I am telling is not an invention, but a fact told to me by an eye witness) after her first answer, was asked the usual question, if killing was always sinful, she, agitated and blushing, decisively answered Always, and to all the usual sophisms of the bishop, she answered with decided conviction that killing always was forbidden in the Old Testament and forbidden by Christ, not only killing, but every wrong against a brother. Notwithstanding all his grandeur and arts of speech, the bishop became silent and the girl remained victorious."

In the hands of Gandhi, non-violent passive resistance became a practical political force., which he and his followers used to free India from colonial domination. To the insidious argument that "the end justifies the means", Gandhi answered firmly: "They say means are after all means. I would say means are after all everything. As the means, so the end. Indeed the Creator has given us control (and that very limited) over means, none over end... The means may be likened to a seed, and the end to a tree; and there is the same inviolable connection between the means and the end as there is between the seed and the tree. Means and end are convertible terms in my philosophy of life."

In other words, a dirty method produces a dirty result; killing produces more killing; hate leads to more hate. But there are positive feedback loops as well as negative ones. A kind act produces a kind response; a generous gesture is returned; hospitality results in reflected hospitality. Hindus and Buddhists

call this principle “the law of karma”.

The ideas of non-violence were also used in the civil rights movement in America, led by Martin Luther King, Jr. In 1967, a year before his assassination, Dr. King forcefully condemned the Viet Nam war in an address at a massive peace rally in New York City. He felt that opposition to war followed naturally from his advocacy of non-violence. In his book, “Strength to Love”, Dr. King wrote, “Wisdom born of experience should tell us that war is obsolete. ...If we assume that life is worth living, and that man has a right to survival, then we must find an alternative to war ... I am convinced that the Church cannot be silent while mankind faces the threat of nuclear annihilation. If the church is true to her mission, she must call for an end to the nuclear arms race.”

Today, with the world poised on the edge of a disaster that might be produced by escalatory cycles of revenge and counter-revenge, we need to remember wise voices from the past, among them the voices of Tolstoy, Gandhi and King. They tell us of the immorality, waste and folly of war. They tell us to recognize the humanity of all other humans. They tell us to show the love and generosity of spirit that can turn enemies into friends.

Suggestions for further reading

1. Leo Tolstoy, “The Kingdom of God is Within You”, (1894), Project Gutenberg.
2. Mohandas K. Gandhi, “My Experiments With Truth”, (1929), Beacon Press, (1993).
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The Arms Trade Treaty Opens New Possibilities at the UN

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Abstract

On 2 April, 2013, the Arms Trade Treaty, which had been blocked for ten years in the consensus-bound Conference on Disarmament in Geneva, was put directly before the United Nations General Assembly, and was passed by a massive majority. This historic victory opens new possibilities for progress on other seemingly intractable issues. In particular, it gives hope that a Nuclear Weapons Convention might be adopted by a direct vote on the floor of the General Assembly. The adoption of the NWC, even if achieved against the bitter opposition of the nuclear weapon states, would make it clear that the world's peoples consider the threat of an all-destroying thermonuclear war to be completely unacceptable.

Other precedents can be found in the International Criminal Court and the Ottawa Land Mine Treaty, both of which were adopted despite the vehement opposition of militarily powerful states. The Arms Trade Treaty, the ICC and the Land Mine Treaty all represent great steps forward. Although they may function imperfectly because of powerful opposition, they make the question of legality clear. In time, world public opinion will force aggressor states to follow international law.

On April 2, 2013, a historic victory was won at the United Nations, and the world achieved its first treaty limiting international trade in arms. Work towards the Arms Trade Treaty (ATT) began in the Conference on Disarmament in Geneva, which requires a consensus for the adoption of any measure. Over the years, the consensus requirement has meant that no real progress in arms control measures has been made in Geneva, since a consensus among 193 nations is impossible to achieve.

To get around the blockade, British U.N. Ambassador Mark Lyall Grant sent the draft treaty to Secretary-General Ban Ki-moon and asked him on behalf of Mexico, Australia and a number of others to put the ATT to a swift vote in the General Assembly, and on Tuesday, April 3, it was adopted by a massive majority.

Among the people who have worked hardest for the ATT is Anna Macdonald, Head of Arms Control at Oxfam. The reason why Oxfam works so hard on this issue is that trade in small arms is a major cause of poverty and famine in the developing countries. On April 9, Anna Macdonald wrote:

“Thanks to the democratic process, international law will for the first time regulate the \$70 billion global arms trade. Had the process been launched in the

consensus-bound Conference on Disarmament in Geneva currently in its 12th year of meeting without even being able to agree an agenda, chances are it would never have left the starting blocks. Striving for consensus is, of course, sensible. The problem is that it can lead to a lowest-common-denominator approach. The balance of power shifts to those, often the minority, who oppose an issue, because all the effort goes into trying to persuade them not to bring everything to a shuddering halt. Tuesday, April 2, was a good day for the U.N. It showed that things can get done. It showed that the democratic process can work. And it set an important precedent. Does it make any difference, legally, that the treaty was adopted by vote, not consensus? No. It is the same text as on the final day of negotiations, and its legal status is the same as if it had been agreed by consensus. But it should give hope to those working on other seemingly intractable issues that you can change the rules of the game and make progress.”

I think that the point made by Anna Macdonald is an enormously important one. The success achieved by moving discussion of the Arms Trade Treaty from the Conference on Disarmament to the UN General Assembly points the way to progress on many other issues, especially the adoption of a Nuclear Weapons Convention. In my opinion, it is highly desirable to make a motion for the adoption of a Nuclear Weapons Convention on the floor of the General Assembly, following exactly the same procedure as was followed with the ATT. If this is done, the NWC (a draft of which is already prepared) would certainly be adopted by a large majority.

It might be objected that the nuclear weapon states would be offended by this procedure, but I believe that they deserve to be offended, since the threat or use of nuclear weapons is illegal according to the 1996 ruling of the International Court of Justice, and in fact the threat or use of force in international relations is a violation of the UN Charter. The adoption of the NWC would make clear the will of the great majority of the world's peoples, who consider the enormous threat which nuclear war poses to human civilization and the biosphere to be completely unacceptable.

It is not only the ATT that forms a precedent, but also the International Criminal Court, whose establishment was vehemently opposed by several militarily powerful states. Nevertheless, the ICC was adopted because a majority of the peoples of the world believed it to be a step forward towards a stable, peaceful and just global society.

In 1998, in Rome, representatives of 120 countries signed a statute establishing the International Criminal Court, with jurisdiction over the crime of genocide, crimes against humanity, war crimes, and the crime of aggression.

Four years were to pass before the necessary ratifications were gathered, but by Thursday, April 11, 2002, 66 nations had ratified the Rome agreement, 6 more than the 60 needed to make the court permanent. It would be impossible to overstate the importance of the International Criminal Court. At last, international law acting on individuals has become a reality! The only effective and just way that international laws can act is to make individuals respon-

sible and punishable, since (in the words of Alexander Hamilton), “To coerce states is one of the maddest projects ever devised.”

Although the ICC is in place, it has the defect that since it is opposed by powerful states, it functions very imperfectly. Should the Nuclear Weapons Convention be adopted by the UN General Assembly despite the opposition of the nuclear weapon states, it would have the same defect. It would function imperfectly because despite the support of the vast majority of the world’s peoples, a few powerful opponents would remain.

“In the case of a Nuclear Weapons Convention, world public opinion would especially have great force.”

Another precedent can be found in the Antipersonnel Land-Mine Convention, also known as the Ottawa Treaty. In 1991, six NGOs organized the International Campaign to Ban Landmines, and in 1996, the Canadian government launched the Ottawa process to ban landmines by hosting a meeting among like-minded anti-landmine states. A year later, in 1997, the Mine Ban Treaty was adopted and opened for signatures. In the same year, Jody Williams and the International Campaign to ban Landmines were jointly awarded the Nobel Peace Prize. After the 40th ratification of the Mine Ban Treaty in 1998, the treaty became binding international law on the 1st of March, 1999.

The adoption of a Nuclear Trade Treaty is a great step forward; the adoption of the ICC, although its operation is imperfect, is also a great step forward, and likewise, the Antipersonnel Land-Mine Convention is a great step forward. In my opinion, the adoption of a Nuclear Weapons Convention, even in the face of powerful opposition, would also be a great step forward. When the will of the majority of the world’s peoples is clearly expressed in an international treaty, even if the treaty functions imperfectly, the question of legality is clear. Everyone can see which states are violating international law. In time, world public opinion will force the criminal states to conform to the law.

“I feel that the question may justifiably be put to the leading nuclear powers: by what right do they decide the fate of humanity? From Scandinavia to Latin America, from Europe and Africa to the Far East, the destiny of every man and woman is affected by their actions.”
– Javier Pérez de Cuéllar

In the case of a Nuclear Weapons Convention, world public opinion would especially have great force. It is generally agreed that a full-scale nuclear war would have disastrous effects, not only on belligerent nations but also on neutral countries. Mr. Javier Pérez de Cuéllar, former Secretary-General of the United Nations, emphasized this point in one of his speeches:

“I feel”, he said, “that the question may justifiably be put to the leading nuclear powers: by what right do they decide the fate of humanity? From Scandinavia

to Latin America, from Europe and Africa to the Far East, the destiny of every man and woman is affected by their actions. No one can expect to escape from the catastrophic consequences of a nuclear war on the fragile structure of this planet. ...”

“No ideological confrontation can be allowed to jeopardize the future of humanity. Nothing less is at stake: today’s decisions affect not only the present; they also put at risk succeeding generations. Like supreme arbiters, with our disputes of the moment, we threaten to cut off the future and to extinguish the lives of innocent millions yet unborn. There can be no greater arrogance. At the same time, the lives of all those who lived before us may be rendered meaningless; for we have the power to dissolve in a conflict of hours or minutes the entire work of civilization, with all the brilliant cultural heritage of humankind.”

“...In a nuclear age, decisions affecting war and peace cannot be left to military strategists or even to governments. They are indeed the responsibility of every man and woman. And it is therefore the responsibility of all of us... to break the cycle of mistrust and insecurity and to respond to humanity’s yearning for peace.”

The eloquent words of Javier Pérez de Cuéllar express the situation in which we now find ourselves: Accidental nuclear war, nuclear terrorism, insanity of a person in a position of power, or unintended escalation of a conflict, could at any moment plunge our beautiful world into a catastrophic thermonuclear war which might destroy not only human civilization but also much of the biosphere.

We are reminded that such a disaster could occur at any moment by the threat of an attack by Israel on Iran and by the threat of an all-destroying nuclear war started by the conflict in the Korean Peninsula. It is clear that if the peoples of the world do not act quickly to abolish nuclear weapons, neither we nor our children nor our grandchildren have much chance of survival.

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Abstract

T.R. Malthus' "An Essay on the Principle of Population" (1798) was one of the first systematic studies of the problem of population in relation to resources. It was the first such study to stress the fact that, in general, powerful checks operate at all times to keep human populations from increasing beyond the available food supply. In a later edition, published in 1803, he buttressed this assertion with carefully collected demographic and sociological data from many societies at various periods of their histories. The debate between Malthus and his contemporaries closely parallels current discussions of optimal global population in relation to the carrying capacity of the earth's environment. This essay will discuss not only the historical debate on the ideas of Malthus, but also its relevance to the 21st century. In particular, the essay will discuss the danger that a famine of unprecedented scale may occur during the present century, caused by prohibitively high prices of fossil fuels (on which modern agriculture depends) compounded by the effects of climate change.

1. Introduction

Because of the close parallel between the optimism and disappointments of Malthus' time and those of our own, much light can be thrown on our present situation by rereading the debate between Malthus and his contemporaries. Malthus classified the checks on population growth into two categories: "preventive checks" such as late marriage and contraception, which lower birth rates; and "positive checks", such as famine, disease and war, which raise death rates.

Looking at today's world, we can see that in some regions, the preventive checks, which lower the birth rate, seem to be dominant, while in other regions, the grim Malthusian forces of famine, disease and war hold sway, raising the death rate. The contrast makes the work of Malthus relevant to the 21st century, as we strive to achieve global peace and to eliminate the suffering caused by poverty and preventable disease.

2. A Debate between Father and Son

Thomas Robert Malthus (1766-1834) came from an intellectual family: His father, Daniel Malthus, was a moderately well-to-do English country gentleman, an enthusiastic believer in the optimistic ideas of the Enlightenment, and a friend of the philosophers Henry Rousseau,

David Hume and William Godwin. The famous book on population by the younger Malthus grew out of conversations with his father.

Robert Malthus was at first tutored at home; but in 1782, when he was 16 years old, he was sent to study at the famous Dissenting Academy at Warrington in Lancashire. Joseph Priestley had taught at Warrington, and he had completed his “History of Electricity” there, as well as his “Essay on Government”, which contains the phrase “the greatest good for the greatest number”.

Robert’s tutor at Warrington Academy was Gilbert Wakefield (who was later imprisoned for his radical ideas). When Robert was 18, Wakefield arranged for him to be admitted to Jesus College, Cambridge University, as a student of mathematics. Robert Malthus graduated from Cambridge in 1788 with a first-class degree in mathematics. He was Ninth Wrangler, which meant that he was the ninth-best mathematician in his graduating class. He also won prizes in declamation, both in English and in Latin, which is surprising in view of the speech defect from which he suffered all his life.

In 1793, Robert Malthus was elected a Fellow of Jesus College, and he also took orders in the Anglican Church. He was assigned as Curate to Okewood Chapel in Surrey. This small chapel stood in a woodland region, and Malthus’ illiterate parishioners were so poor that the women and children went without shoes. They lived in low thatched huts made of woven branches plastered with mud. The floors of these huts were of dirt, and the only light came from tiny window openings. Malthus’ parishioners’ diet consisted almost entirely of bread. The children of these cottagers developed late, and were stunted in growth. Nevertheless, in spite of the harsh conditions of his parishioners’ lives, Malthus noticed that the number of births which he recorded in the parish register greatly exceeded the number of deaths. It was probably this fact which first turned his attention to the problem of population.

1793, the year when Robert Malthus took up his position at Okewood, was also the year in which Daniel Malthus’ friend, William Godwin, published his enormously optimistic book, *Political Justice*. In this book, Godwin predicted a future society where scientific progress would liberate humans from material want. Godwin predicted that in the future, with the institution of war abolished, with a more equal distribution of property, and with the help of scientific improvements in agriculture and industry, much less labour would be needed to support life. Luxuries are at present used to maintain artificial distinctions between the classes of society, Godwin wrote, but in the future values will change; humans will live more simply, and their efforts will be devoted to self-fulfillment and to intellectual and moral improvement, rather than to material possessions. With the help of automated agriculture, the citizens of a future society will need only a few hours a day to earn their bread.

Godwin went on to say, “The spirit of oppression, the spirit of servility and the spirit of fraud: these are the immediate growth of the established administration of property. They are alike hostile to intellectual improvement. The other vices of envy, malice, and revenge are their inseparable companions. In a state of society where men lived in the midst of plenty, and where all shared alike the bounties of nature, these sentiments would inevitably expire. The

narrow principle of selfishness would vanish. No man being obliged to guard his little store, or provide with anxiety and pain for his restless wants, each would lose his own individual existence in the thought of the general good. No man would be the enemy of his neighbor, for they would have nothing to contend; and of consequence philanthropy would resume the empire which reason assigns her. Mind would be delivered from her perpetual anxiety about corporal support, and free to expatiate in the field of thought which is congenial to her. Each man would assist the inquiries of all.”

Godwin insisted that there is an indissoluble link between politics, ethics and knowledge. Political Justice is an enthusiastic vision of what humans could be like at some future period when the trend towards moral and intellectual improvement has lifted men and women above their present state of ignorance and vice. Much of the savage structure of the penal system would then be unnecessary, Godwin believed. (At the time when he was writing, there were more than a hundred capital offenses in England, and this number had soon increased to almost two hundred. The theft of any object of greater value than ten shillings was punishable by hanging.)

In its present state, Godwin wrote, society decrees that the majority of its citizens “should be kept in abject penury, rendered stupid with ignorance and disgusting with vice, perpetuated in nakedness and hunger, goaded to the commission of crimes, and made victims to the merciless laws which the rich have instituted to oppress them”. But human behavior is produced by environment and education, Godwin pointed out. If the conditions of upbringing were improved, behavior would also improve. In fact, Godwin believed that men and women are subject to natural laws no less than the planets of Newton’s solar system. “In the life of every human”, Godwin wrote, “there is a chain of causes, generated in that eternity which preceded his birth, and going on in regular procession through the whole period of his existence, in consequence of which it was impossible for him to act in any instance otherwise than he has acted.”

The chain of causality in human affairs implies that vice and crime should be regarded with the same attitude with which we regard disease. The causes of poverty, ignorance, vice and crime should be removed. Human failings should be cured rather than punished. With this in mind, Godwin wrote, “our disapprobation of vice will be of the same nature as our disapprobation of an infectious distemper.”

In France the Marquis de Condorcet had written an equally optimistic book, *Esquisse d'un Tableau Historique des Progrès de l'Esprit Humain*. Condorcet’s optimism was unaffected even by the fact that at the time when he was writing he was in hiding, under sentence of death by Robespierre’s government. Besides enthusiastically extolling Godwin’s ideas to his son, Daniel Malthus also told him of the views of Condorcet.

Condorcet’s *Esquisse* is an enthusiastic endorsement of the idea of infinite human perfectibility which was current among the philosophers of the 18th century, and in this book, Condorcet anticipated many of the evolutionary ideas of Charles Darwin. He compared humans with animals, and found many common traits. Condorcet believed that animals are able to think, and even to think rationally, although their thoughts are extremely simple

compared with those of humans. He also asserted that humans historically began their existence on the same level as animals and gradually developed to their present state. Since this evolution took place historically, he reasoned, it is probable, or even inevitable, that a similar evolution in the future will bring mankind to a level of physical, mental and moral development which will be as superior to our own present state as we are now superior to animals.

As Daniel Malthus talked warmly about Godwin, Condorcet, and the idea of human progress, the mind of his son, Robert, turned to the imbalance between births and deaths which he had noticed among his parishioners at Okewood Chapel. He pointed out to his father that no matter what benefits science might be able to confer, they would soon be eaten up by population growth. Regardless of technical progress, the condition of the lowest social class would remain exactly the same: The poor would continue to live, as they always had, on the exact borderline between survival and famine, clinging desperately to the lower edge of existence. For them, change for the worse was impossible since it would loosen their precarious hold on life; their children would die and their numbers would diminish until they balanced the supply of food. But any change for the better was equally impossible, because if more nourishment should become available, more of the children of the poor would survive, and the share of food for each of them would again be reduced to the precise minimum required for life.

Observation of his parishioners at Okewood had convinced Robert Malthus that this sombre picture was a realistic description of the condition of the poor in England at the end of the 18th century. Techniques of agriculture and industry were indeed improving rapidly; but among the very poor, population was increasing equally fast, and the misery of society's lowest class remained unaltered.

3. Publication of the First Essay in 1798

Daniel Malthus was so impressed with his son's arguments that he urged him to develop them into a small book. Robert Malthus' first essay on population, written in response to his father's urging, was only 50,000 words in length. It was published anonymously in 1798, and its full title was *An Essay on the Principle of Population, as it Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Godwin, M. Condorcet, and Other Writers*. Robert Malthus' *Essay* explored the consequences of his basic thesis that "the power of population is indefinitely greater than the power in the earth to produce subsistence for man".

"That population cannot increase without the means of subsistence", Robert Malthus wrote, "is a proposition so evident that it needs no illustration. That population does invariably increase, where there are means of subsistence, the history of every people who have ever existed will abundantly prove. And that the superior power cannot be checked without producing misery and vice, the ample portion of these two bitter ingredients in the cup of human life, and the continuance of the physical causes that seem to have produced them, bear too convincing a testimony."

In order to illustrate the power of human populations to grow quickly to enormous numbers if left completely unchecked, Malthus turned to statistics from the United States, where the population had doubled every 25 years for a century and a half. Malthus called this type of growth “geometrical” (today we would call it “exponential”); and, drawing on his mathematical education, he illustrated it by the progression 1,2,4,8,16,32,64,128,256,...etc. In order to show that, in the long run, no improvement in agriculture could possibly keep pace with unchecked population growth, Malthus allowed that, in England, agricultural output might with great effort be doubled during the next quarter century; but during a subsequent 25-year period it could not again be doubled. The growth of agricultural output could at the very most follow an arithmetic (linear) progression, 1,2,3,4,5,6,...etc.

Because of the overpoweringly greater numbers which can potentially be generated by exponential population growth, as contrasted to the slow linear progression of sustenance, Malthus was convinced that at almost all stages of human history, population has not expanded freely, but has instead pressed painfully against the limits of its food supply. He maintained that human numbers are normally held in check either by “vice or misery”. (Malthus classified both war and birth control as forms of vice.) Occasionally the food supply increases through some improvement in agriculture, or through the opening of new lands; but population then grows very rapidly, and soon a new equilibrium is established, with misery and vice once more holding the population in check.

Like Godwin’s *Political Justice*, Malthus’ *Essay on the Principle of Population* was published at exactly the right moment to capture the prevailing mood of England. In 1793, the mood had been optimistic; but by 1798, hopes for reform had been replaced by reaction and pessimism. Public opinion had been changed by Robespierre’s Reign of Terror and by the threat of a French invasion. Malthus’ clear and powerfully written essay caught the attention of readers not only because it appeared at the right moment, but also because his two contrasting mathematical laws of growth were so striking.

One of Malthus’ readers was William Godwin, who recognized the essay as the strongest challenge to his utopian ideas that had not yet been published. Godwin several times invited Malthus to breakfast at his home to discuss social and economic problems. (After some years, however, the friendship between Godwin and Malthus cooled, the debate between them having become more acrimonious.)

In 1801, Godwin published a reply to his critics, among them his former friends James Mackintosh and Samuel Parr, by whom he recently had been attacked. His ‘Reply to Parr’ also contained a reply to Malthus: Godwin granted that the problem of overpopulation raised by Malthus was an extremely serious one. However, Godwin wrote, all that is needed to solve the problem is a change of the attitudes of society. For example we need to abandon the belief “that it is the first duty of princes to watch for (i.e. encourage) the multiplication of their subjects, and that a man or woman who passes the term of life in a condition of celibacy is to be considered as having failed to discharge the principal obligations owed to the community”.

“On the contrary”, Godwin continued, “it now appears to be rather the man who rears a numerous family that has to some degree transgressed the consideration he owes to the public welfare”. Godwin suggested that each marriage should be allowed only two or three children or whatever number might be needed to balance the current rates of mortality and celibacy. This duty to society, Godwin wrote, would surely not be too great a hardship to be endured, once the reasons for it were thoroughly understood.

4. The Second Essay, Published in 1803

Malthus’ small essay had captured public attention in England, and he was anxious to expand it with empirical data which would show his principle of population to be valid not only in England in his own day, but in all societies and all periods. He therefore traveled widely, collecting data. He also made use of the books of explorers such as Cook and Vancouver.

Malthus’ second edition, more than three times the length of his original essay on population, was ready in 1803. Book I and Book II of the 1803 edition of Malthus’ “Essay” are devoted to a study of the checks to population growth which have operated throughout history in all the countries of the world for which he possessed facts.

In his first chapter, Malthus stressed the potentially enormous power of population growth and contrasted the slow growth of food supply. He concluded that strong checks to the increase of population must almost always be operating to keep human numbers within the bounds of sustenance. He classified the checks as either preventive or positive, the preventive checks being those which reduce fertility, while the positive checks are those which increase mortality. Among the positive checks, Malthus listed “unwholesome occupations, severe labour and exposure to the seasons, extreme poverty, bad nursing of children, great towns, excesses of all kinds, the whole train of common diseases and epidemics, wars, plague, and famine”.

In the following chapters of Book I, Malthus showed in detail the mechanisms by which population is held at the level of sustenance in various cultures. He first discussed primitive hunter-gatherer societies, such as the inhabitants of Tierra del Fuego, Van Diemens Land and New Holland, and those tribes of North American Indians living predominantly by hunting. In hunting societies, he pointed out, the population is inevitably very sparse: “The great extent of territory required for the support of the hunter has been repeatedly stated and acknowledged”, Malthus wrote, “...The tribes of hunters, like beasts of prey, whom they resemble in their mode of subsistence, will consequently be thinly scattered over the surface of the earth. Like beasts of prey, they must either drive away or fly from every rival, and be engaged in perpetual contests with each other...The neighboring nations live in a perpetual state of hostility with each other. The very act of increasing in one tribe must be an act of aggression against its neighbors, as a larger range of territory will be necessary to support its increased numbers. The contest will in this case continue, either till the equilibrium is restored by mutual losses, or till the weaker party is exterminated or driven from its country... Their object in battle is not conquest but destruction. The life of the victor depends on the

death of the enemy”. Malthus concluded that among the American Indians of his time, war was the predominant check to population growth, although famine, disease and infanticide each played a part.

In the next chapter, Malthus quoted Captain Cook’s description of the natives of the region near Queen Charlotte’s Sound in New Zealand, whose way of life involved perpetual war. “If I had followed the advice of all our pretended friends”, Cook wrote, “I might have extirpated the whole race; for the people of each hamlet or village, by turns, applied to me to destroy the other”. According to Cook, the New Zealanders practiced both ceaseless war and cannibalism; and population pressure provided a motive for both practices.

In later chapters on nomadic societies of the Near East and Asia, war again appears, not only as a consequence of the growth of human numbers, but also as one of the major mechanisms by which these numbers are reduced to the level of their food supply. The studies quoted by Malthus make it seem likely that the nomadic Tartar tribes of central Asia made no use of the preventive checks to population growth. In fact the Tartar tribes may have regarded growth of their own populations as useful in their wars with neighboring tribes.

Malthus also described the Germanic tribes of Northern Europe, whose population growth led them to the attacks which destroyed the Roman Empire. He quoted the following passage from Machiavelli’s *History of Florence*: “The people who inhabit the northern parts that lie between the Rhine and the Danube, living in a healthful and prolific climate, often increase to such a degree that vast numbers of them are forced to leave their native country and go in search of new habitations. When any of those provinces begins to grow too populous and wants to disburden itself, the following method is observed. In the first place, it is divided into three parts, in each of which there is an equal portion of the nobility and commonality, the rich and the poor. After this they cast lots; and that division on which the lot falls quits the country and goes to seek its fortune, leaving the other two more room and liberty to enjoy their possessions at home. These emigrations proved the destruction of the Roman Empire”. Regarding the Scandinavians in the early middle ages, Malthus wrote: “Mallet relates, what is probably true, that it was their common custom to hold an assembly every spring for the purpose of considering in what quarter they should make war”.

In Book II, Malthus turned to the nations of Europe, as they appeared at the end of the 18th century, and here he presents us with a different picture. Although in these societies poverty, unsanitary housing, child labour, malnutrition and disease all took a heavy toll, war produced far less mortality than in hunting and pastoral societies, and the preventive checks, which lower fertility, played a much larger role.

Malthus had visited Scandinavia during the summer of 1799, and he had made particularly detailed notes on Norway. He was thus able to present a description of Norwegian economics and demography based on his own studies. Norway was remarkable for having the lowest reliably-recorded death rate of any nation at that time: Only 1 person in 48 died each year in Norway. (By comparison, 1 person in 20 died each year in London.) The rate of marriage was also remarkably low, with only 1 marriage each year for every 130 inhabitants;

and thus in spite of the low death rate, Norway's population had increased only slightly from the 723,141 inhabitants recorded in 1769.

There were two reasons for late marriage in Norway: Firstly, every man born of a farmer or a labourer was compelled by law to be a soldier in the reserve army for a period of ten years; and during his military service, he could not marry without the permission of both his commanding officer and the parish priest. These permissions were granted only to those who were clearly in an economic position to support a family. Men could be inducted into the army at any age between 20 and 30, and since commanding officers preferred older recruits, Norwegian men were often in their 40s before they were free to marry. At the time when Malthus was writing, these rules had just been made less restrictive; but priests still refused to unite couples whose economic foundations they judged to be insufficient.

The second reason for late marriages was the structure of the farming community. In general, Norwegian farms were large; and the owner's household employed many young unmarried men and women as servants. These young people had no chance to marry unless a smaller house on the property became vacant, with its attached small parcel of land for the use of the "houseman"; but because of the low death rate, such vacancies were infrequent. Thus Norway's remarkably low death rate was balanced by a low birth rate. Other chapters in Book II are devoted to the checks to population growth in Sweden, Russia, Central Europe, Switzerland, France, England, Scotland and Ireland.

Malthus painted a very dark panorama of population pressure and its consequences in human societies throughout the world and throughout history: At the lowest stage of cultural development are the hunter-gatherer societies, where the density of population is extremely low. Nevertheless, the area required to support the hunters is so enormous that even their sparse and thinly scattered numbers press hard against the limits of sustenance. The resulting competition for territory produces merciless intertribal wars. The domestication of animals makes higher population densities possible; and wherever this new mode of food production is adopted, human numbers rapidly increase; but very soon a new equilibrium is established, with the population of pastoral societies once more pressing painfully against the limits of the food supply, growing a little in good years, and being cut back in bad years by famine, disease and war.

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Finally, agricultural societies can maintain extremely high densities of population; but the time required to achieve a new equilibrium is very short. After a brief period of unrestricted growth, human numbers are once more crushed against the barrier of limited resources; and if excess lives are produced by overbreeding, they are soon extinguished by deaths among the children of the poor.

Malthus was conscious that he had drawn an extremely dark picture of the human condition. He excused himself by saying that he has not done it gratuitously, but because he was convinced that the dark shades really are there, and that they form an important part of the picture. He did allow one ray of light, however: By 1803, his own studies of Norway, together with personal conversations with Godwin and the arguments in Godwin's "Reply to Parr", had convinced Malthus that "moral restraint" should be included among the possible checks to population growth. Thus he concluded Book II of his 1803 edition by saying that the checks which keep population down to the level of the means of subsistence can all be classified under the headings of "moral restraint, vice and misery". (In his first edition he had maintained that vice and misery are the only possibilities).

5. Avoiding the Terrible Malthusian Forces

Malthus died in Bath in 1834, but debate on his ideas continued to rage, both in his own century and our own. Each year he is refuted, and each year revived. Despite impressive scientific progress since his time, the frightful Malthusian forces – poverty, famine, disease, and war – cast as dark a shadow in our own times as they did in the nineteenth century. Indeed, the enormous power of modern weapons has greatly intensified the dangers posed by war; and the rapid growth of global population has given new dimensions to the problems of poverty and famine.

Looking at the world today, we can see regions where Malthus seems to be a truer prophet than Condorcet and Godwin. In most developing countries, poverty and disease are still major problems. In other parts of the world, the optimistic prophecies of Condorcet and Godwin have been at least partially fulfilled. In the industrialized nations, Godwin's prophecy of automated agriculture has certainly come true. In the nations of the North, only a small percentage of the population is engaged in agriculture, while most of the citizens are free to pursue other goals than food production.

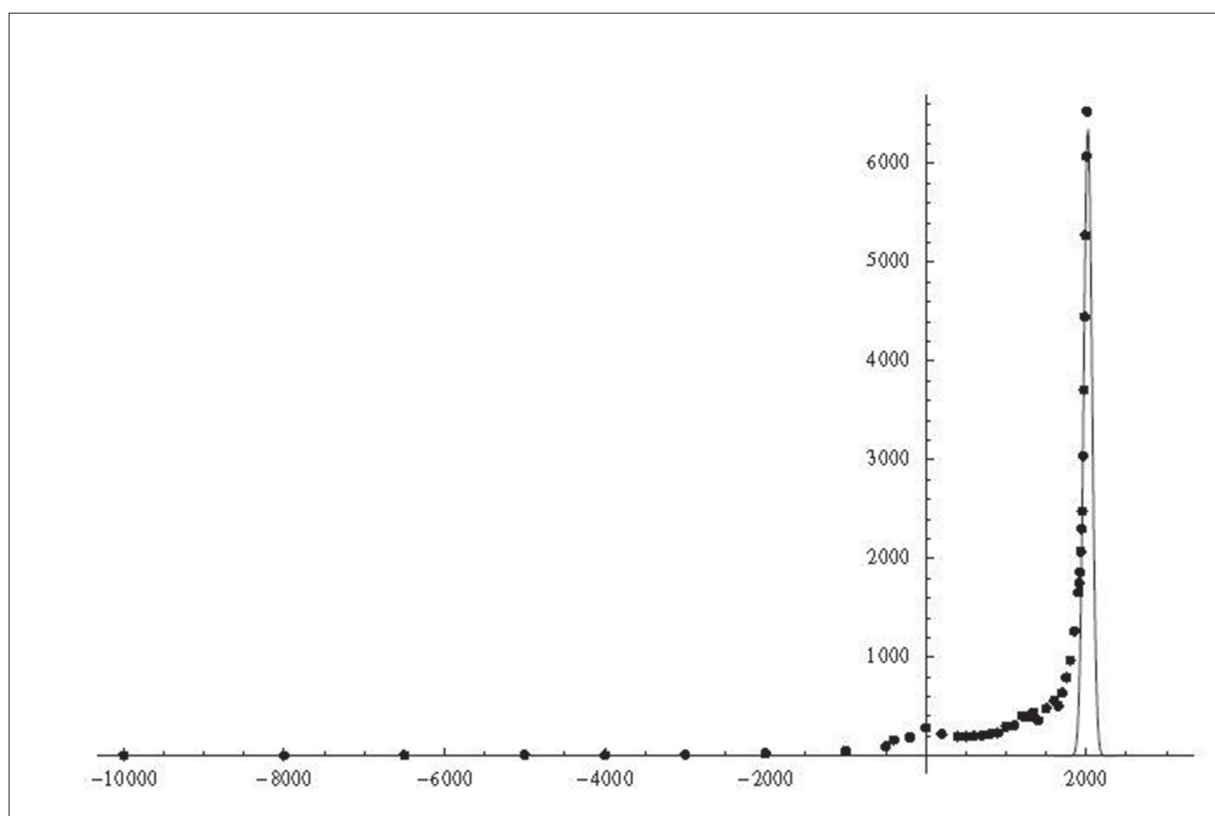
Scandinavia is an example of an area where poverty and war have both been eliminated locally, and where death from infectious disease is a rarity. These achievements would have been impossible without the low birth rates which also characterize the region. In Scandinavia, and in other similar regions, low birth rates and death rates, a stable population, high educational levels, control of infectious disease, equal status for women, democratic governments, and elimination of poverty and war are linked together in a mutually re-enforcing circle of cause and effect.

By contrast, in many large third-world cities, overcrowding, contaminated water, polluted air, dense population without adequate sanitation, low status of women, high birth rates, rapidly increasing population, high unemployment levels, poverty, crime, ethnic conflicts, and resurgence of infectious disease are also linked in a self-perpetuating causal loop, in this case a vicious circle.

6. Population Stabilization and Sustainability

Has the number of humans in the world already exceeded the earth's sustainable limits? Will the global population of humans crash catastrophically after having exceeded the carrying capacity of the environment? There is certainly a danger that this will happen – a danger that the 21st century will bring very large scale famines to vulnerable parts of the world, because modern energy-intensive agriculture will be dealt a severe blow by prohibitively high petroleum prices, and because climate change will reduce the world's agricultural output. When the major glaciers in the Himalayas have melted, they will no longer be able to give India and China summer water supplies; rising oceans will drown much agricultural land; and aridity will reduce the output of many regions that now produce much of the world's grain. Falling water tables in overdrawn aquifers, and loss of topsoil will add to the problem. We should be aware of the threat of a serious global food crisis in the 21st century if we are to have a chance of avoiding it.

Figure 1: Human Population Growth and Fossil Fuel Use*



* This graph shows human population growth and fossil fuel use, seen on a time-scale of several thousand years. The dots are population estimates in millions from the US Census Bureau. Fossil fuel use appears as a spike-like curve, rising from almost nothing to a high value, and then falling again to almost nothing in the space of a few centuries. When the two curves are plotted together, the explosive rise of global population is seen to be simultaneous with, and perhaps partially driven by, the rise of fossil fuel use. This raises the question of whether the world's population is headed for a crash when the fossil fuel era has ended. As an example of the dependence of modern agriculture on fossil fuels, we can consider the US food system, which has been shown by Mario Giampietro and David Pimentel to require more than 10 fossil fuel calories for every food calorie provided. High-yield grain varieties require heavy use of petroleum-derived fertilizers and pesticides. Modern farm machinery is driven by petroleum. If tractors are replaced by draft animals in the future, these animals will require land for pasturage. Furthermore, when synthetic fibers derived from petroleum or coal are no longer available, cropland will have to be diverted from agriculture to growing natural fibers for clothing. Thus there is a danger that the end of the fossil fuel era will lead to widespread famine. Population growth, climate change, and water shortages will add to the severity of this danger.

We can anticipate that as the earth's human population approaches 10 billion, severe famines will occur in many developing countries. The beginnings of this tragedy can already be seen. It is estimated that roughly 40,000 children now die every day from starvation, or from a combination of disease and malnutrition.

Rather than an increase in the global area of cropland, we may encounter a future loss of cropland through soil erosion, salination, desertification, loss of topsoil, depletion of minerals in topsoil, urbanization and failure of water supplies. In China and in the southwestern part of the United States, water tables are falling at an alarming rate. The Ogallala aquifer (which supplies water to many of the plains states in the central and southern parts of the United States) has a yearly overdraft of 160%. Falling water tables form the background for China's stringent population policy.

It may seem surprising that fresh water can be regarded as a non-renewable resource. However, groundwater in deep aquifers is often renewed very slowly. Sometimes, renewal requires several thousand years. When the rate of withdrawal of groundwater exceeds the rate of renewal, the carrying capacity of the resource has been exceeded, and withdrawal of water becomes analogous to mining a mineral. However, it is more serious than ordinary mining because water is such a necessary support for life.

In the 1950s, both the U.S.S.R. and Turkey attempted to convert arid grasslands into wheat farms. In both cases, the attempts were defeated by drought and wind erosion, just as the wheat farms of Oklahoma were overcome by drought and dust in the 1930s.

If irrigation of arid lands is not performed with care, salt may be deposited, so that the land is ruined for agriculture. This type of desertification can be seen, for example, in some parts of Pakistan. Another type of desertification can be seen in the Sahel region of Africa, south of the Sahara. Rapid population growth in the Sahel has led to overgrazing, destruction of trees, and wind erosion, so that the land has become unable to support even its original population.

Especially worrying is a prediction of the International Panel on Climate Change concerning the effect of global warming on the availability of water: According to Model A1 of the IPCC, global warming may, by the 2050s, have reduced by as much as 30% the water available in large areas of the world that now are important producers of grain. These regions include much of the United States, Brazil, the Mediterranean region, Eastern Russia and Belarus, the Middle East, Southern Africa and Australia.

Added to the agricultural and environmental problems, are problems of finance and distribution. Famines can occur even when grain is available somewhere in the world, because those who are threatened with starvation may not be able to pay for the grain, or for its transportation. The economic laws of supply and demand are not able to solve this type of problem. One says that there is no "demand" for food (meaning demand in the economic sense), even though people are in fact starving.

Thus there is a danger that just as global population reaches the unprecedented level of 10 billion or more, the agricultural base for supporting it may suddenly collapse. Ecological

catastrophe, possibly compounded by war and other disorders, could produce famine and death on a scale unprecedented in history, a disaster of unimaginable proportions, involving billions rather than millions of people.

The resources of the earth and the techniques of modern science can support a global population of moderate size in comfort and security; but the optimum size is undoubtedly smaller than the world's present population. Given a sufficiently small global population, renewable sources of energy can be found to replace disappearing fossil fuels. Technology may also be able to find renewable substitutes for many disappearing mineral resources for a global population of a moderate size. What technology cannot do, however, is to give a global population of 10 billion people the standard of living which the industrialized countries enjoy today.

What would Malthus tell us if he were alive today? Certainly he would say that we have reached a period of human history where it is vital to stabilize the world's population if catastrophic environmental degradation and famine are to be avoided. He would applaud efforts to reduce suffering by eliminating poverty, widespread disease, and war; but he would point out that, since it is necessary to stop the rapid increase of human numbers, it follows that whenever the positive checks to population growth are removed, it is absolutely necessary to replace them by preventive checks. Malthus' point of view became more broad in the successive editions of his "Essay"; and if he were alive today, he would probably agree that family planning is the most humane of the preventive checks.

In Malthus' *Essay on the Principle of Population*, population pressure appears as one of the main causes of war; and Malthus also discusses many societies in which war is one of the principal means by which population is reduced to the level of the food supply. Examples of this are Cook's description of constant warfare among the Maori people of New Zealand, and the connection between population growth and war in Machiavelli's description of the Germanic tribes. (In our own time, Michael Klare has documented the close connection between war and the competition for scarce resources.) Thus, the "Essay on Population" contains another important message for our own times: If he were alive today, Malthus would also say that there is a close link between the two most urgent tasks which history has given to the 21st century: stabilization of the global population, and abolition of the institution of war.

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Suggestions for Further Reading

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Federalism and Global Governance

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Abstract

It is becoming increasingly clear that the concept of the absolutely sovereign nation-state is a dangerous anachronism in a world of thermonuclear weapons, instantaneous communication, and economic interdependence. Probably our best hope for the future lies in developing the United Nations into a World Federation. The strengthened United Nations should have a legislature with the power to make laws that are binding on individuals, and the ability to arrest and try individual political leaders for violations of these laws. The world federation should also have the power of taxation, and the military and legal powers necessary to guarantee the human rights of ethnic minorities within nations.

1. Making the United Nations into a Federation

A federation of states is, by definition, a limited union where the federal government has the power to make laws that are binding on individuals, but where the laws are confined to interstate matters, and where all powers not expressly delegated to the federal government are retained by the individual states. In other words, in a federation each of the member states runs its own internal affairs according to its own laws and customs; but in certain agreed-on matters, where the interests of the states overlap, authority is specifically delegated to the federal government.

Since the federal structure seems well suited to a world government with limited and carefully-defined powers that would preserve as much local autonomy as possible, it is worthwhile to look at the histories of a few of the federations. There is much that we can learn from their experiences.

2. The Success of Federations

Historically, the federal form of government has proved to be extremely robust and successful. Many of today's nations are federations of smaller, partially autonomous, member states. Among these nations are Argentina, Australia, Austria, Belgium, Brazil, Canada, Germany, India, Mexico, Russia, Spain, South Africa and the United States.

The Swiss Federation is an interesting example, because its regions speak three different languages: German, French and Italian. In 1291, citizens of Uri, Schwyz and Unterwalden, standing on the top of a small mountain called Rütli, swore allegiance to the first Swiss

federation with the words “we will be a one and only nation of brothers”. During the 14th century, Luzern, Zürich, Glarus, Zug and Bern also joined. Later additions during the 15th and 16th centuries included Fribourg, Solothurn, Basel, Schaffhausen and Appenzell. In 1648, Switzerland declared itself to be an independent nation, and in 1812, the Swiss Federation declared its neutrality. In 1815, the French-speaking regions Valais, Neuchatel and Genève were added, giving Switzerland its final boundaries.

In some ways, Switzerland is a very advanced democracy, and many issues are decided by the people of the cantons in direct referenda. On the other hand, Switzerland was very late in granting votes to women (1971), and it was only in 1990 that a Swiss federal court forced Appenzell Innerrhoden to comply with this ruling. Switzerland was also very late in joining the United Nations (10 September, 2002).

The federal Constitution of United States of America is one of the most important and influential constitutions in history. It later formed a model for many other governments, especially in South America. The example of the United States is especially interesting because the original union of states formed by the Articles of Confederation in 1777 proved to be too weak, and it had to be replaced eleven years later by a federal constitution.

During the revolutionary war against England the 13 former colonies sent representatives to a Continental Congress, and on May 10, 1776, the Congress authorized each of the colonies to form its own local provincial government. On July 4, 1776 it published a formal Declaration of Independence. The following year, the Congress adopted the Articles of Confederation defining a government of the new United States of America. The revolutionary war continued until 1783, when the Treaty of Paris was signed by the combatants, ending the war and giving independence to the United States. However, the Articles of Confederation soon proved to be too weak. The main problem with the Articles was that laws of the Union acted on its member states rather than on individual citizens.

In 1787, a Constitutional Convention was held in Philadelphia with the aim of drafting a new and stronger constitution. In the same year, Alexander Hamilton began to publish “The Federalist Papers”, a penetrating analysis of the problems of creating a workable government uniting a number of semi-independent states. The key idea of “The Federalist Papers” is that the coercion of states is neither just nor feasible, and that a government uniting several states must function by acting on individuals. This central idea was incorporated into the federal Constitution of the United States, which was adopted in 1788. Another important feature of the new Constitution was that legislative power was divided between the Senate, where the states had equal representation regardless of their size, and the House of Representatives, where representation was proportional to the populations of the states. The functions of the executive, the legislature and the judiciary were separated in the Constitution, and in 1789 a Bill of Rights was added.

George Mason, one of the architects of the federal Constitution of the United States, believed that “such a government was necessary as could directly operate on individuals, and would punish those only whose guilt required it”, while James Madison (another drafter of the U.S. federal Constitution) remarked that the more he reflected on the use of force, the more he doubted “the practicability, the justice and the efficacy of it when applied to people collectively, and not individually”. Finally, Alexander Hamilton, in his “The Federa-

list Papers”, discussed the Articles of Confederation with the following words: “To coerce the states is one of the maddest projects that was ever devised... Can any reasonable man be well disposed towards a government which makes war and carnage the only means of supporting itself, a government that can exist only by the sword? Every such war must involve the innocent with the guilty. The single consideration should be enough to dispose every peaceable citizen against such a government... What is the cure for this great evil? Nothing, but to enable the... laws to operate on individuals, in the same manner as those of states do.”

Because the states were initially distrustful of each other and jealous of their independence, the powers originally granted to the US Federal Government were minimal. However, as they evolved, the Federal Government of the United States gradually became stronger, and bit by bit it became involved in an increasingly wide range of activities.

“The successes and problems of the European Union provide invaluable experience as we consider the measures that will be needed to make the United Nations into a federation.”

The formation of the Federal Government of Australia is interesting because it illustrates the power of ordinary citizens to influence the large-scale course of events. In the 19th century, the six British colonies that were later to be welded into the Commonwealth of Australia imposed tariffs on each other, so that citizens living near the Murray River (for example) would have to stop and pay tolls each time they crossed the river. The tolls, together with disagreements over railways linking the colonies, control of river water and other common concerns, finally became so irritating that citizens’ leagues sprang up everywhere to demand federation. By the 1890s such federation leagues could be found in cities and towns throughout the continent.

In 1893, the citizens’ leagues held a conference in Corowa, New South Wales, and proposed the “Corowa Plan”, according to which a Constitutional Convention should be held. After this, the newly drafted constitution was to be put to a referendum in all of the colonies. This would be the first time in history that ordinary citizens would take part in the nation-building process. In January 1895, the Corowa Plan was adopted by a meeting of Premiers in Hobart, and finally, despite the apathy and inaction of many politicians, the citizens had their way: The first Australian federal election was held in March 1901, and on May 9, 1901, the Federal Parliament of Australia opened. Australia was early in granting votes to women (1903). Its voting system has evolved gradually. Today, there is a system of compulsory voting by citizens for both the Australian House of Representatives and the Australian Senate.

“The European Union has today made war between its member states virtually impossible.”

The successes and problems of the European Union provide invaluable experience as we consider the measures that will be needed to make the United Nations into a federation. On the whole, the EU has been an enormous success, demonstrating beyond question that it is possible to begin with a very limited special-purpose federation and to gradually expand it,

judging at each stage whether the cautiously-taken steps have been successful. The European Union has today made war between its member states virtually impossible. This goal, now achieved, was in fact the vision that inspired the leaders who initiated the European Coal and Steel Community in 1950.

The European Union is by no means without its critics or without problems, but, as we try to think of what is needed for the United Nations' reform, these criticisms and problems are just as valuable to us as are the successes of the EU.

Countries that have advanced legislation protecting the rights of workers or protecting the environment complain that their enlightened laws will be nullified if everything is reduced to the lowest common denominator in the EU. This complaint is a valid one, and two things can be said about it: Firstly, diversity is valuable, and therefore it may be undesirable to homogenize legislation, even if uniform rules make trade easier. Secondly, if certain rules are to be made uniform, it is the most enlightened environmental laws or labor laws that ought to be made the standard, rather than the least enlightened ones. Similar considerations would hold for a reformed and strengthened United Nations.

Another frequently heard complaint about the EU is that it takes decision-making far away from the voters, to a remote site where direct political will of the people can hardly be felt. This criticism is also very valid. Often, in practice, the EU has ignored or misunderstood one of the basic ideas of federalism: A federation is a compromise between the desirability of local self-government, balanced against the necessity of making central decisions on a few carefully selected issues. As few issues as possible should be taken to Bruxelles, but there are certain issues that are so intrinsically transnational in their implications that they must be decided centrally. This is the principle of subsidiarity, so essential for the proper operation of federations: local government whenever possible, and only a few central decisions when absolutely necessary. In applying the principle of subsidiarity to a world government of the future, one should also remember that UN reform will take us into a new and uncharted territory. Therefore it is prudent to grant only a few carefully chosen powers, one at a time, to a reformed and strengthened UN, to see how these work, and then to cautiously grant other powers, always bearing in mind that wherever possible, local decisions are the best.

3. Weaknesses of the UN Charter and Steps Towards a World Federation

3.1 Laws must be made binding on individuals

Among the weaknesses of the present U.N. Charter is the fact that it does not give the United Nations the power to make laws which are binding on individuals. At present, in international law, we treat nations as though they were persons: We punish entire nations by sanctions when the law is broken, even when only the leaders are guilty, even though the burdens of the sanctions fall most heavily on the poorest and least guilty of the citizens, and even though sanctions often have the effect of uniting the citizens of a country behind the guilty leaders. To be effective, the United Nations needs a legislature with the power to make laws which are binding on individuals, and the power to arrest individual political leaders for flagrant violations of international law.

The present United Nations Charter is similar to the United States' Articles of Confederation, a fatally weak union that lasted only eleven years, from 1777 to 1788. Like it, the

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UN attempts to act by coercing states. Although the United Nations Charter has lasted almost sixty years and has been enormously valuable, its weaknesses are also apparent, like those of the Articles. One can conclude that the proper way to reform the United Nations is to make it into a full federation, with the power to make and enforce laws that are binding on individuals.

The International Criminal Court, which was established when the Rome Treaty came into force in 2002, is a step in the right direction. The ICC’s jurisdiction extends only to the crime of genocide, crimes against humanity, war crimes, and (at some time in the future) the crime of aggression. In practice, the ICC is open to the criticisms that it is often unable to enforce its rulings and that it lacks impartiality. Nevertheless, the establishment of the ICC is a milestone in humanity’s efforts to replace the brutal military force of powerful governments by the rule of law. For the first time in history, individuals are being held responsible for violating international laws.

3.2 The voting system of the UN General Assembly must be reformed

Another weakness of the present United Nations Charter is the principle of “one nation one vote” in the General Assembly. This principle seems to establish equality between nations, but in fact it is very unfair: For example, it gives a citizen of China or India less than a thousandth the voting power of a citizen of Malta or Iceland. A reform of the voting system is clearly needed. (A recent and detailed discussion of these issues has been given by Dr. Francesco Stipo, See Reference 1.)

One possible plan (proposed by Bertrand Russell) would be for final votes to be cast by regional blocks, each block having one vote. The blocks might be: 1) Latin America 2) Africa 3) Europe 4) North America 5) Russia and Central Asia 6) China 7) India and Southeast Asia 8) The Middle East and 9) Japan, Korea and Oceania.

Today, Ambassadors and Permanent Representatives at the United Nations are appointed by national governments. However, in the long-term future, this system may evolve into a more democratic one, where citizens will vote directly for their representatives, as they do in many federations, such as Australia, Germany, the United States and the European Union.

3.3 The United Nations must be given the power to impose taxes

If the UN is to become an effective World Federation, it will need a reliable source of income to make the organization less dependent on wealthy countries, which tend to give support only to those interventions of which they approve. A promising solution to this problem is the so-called “Tobin tax”, named after the Nobel-laureate economist James Tobin of Yale University. Tobin proposed that international currency exchanges should be taxed at a rate between 0.1 and 0.25 percent. He believed that even this extremely low rate of taxation would have the beneficial effect of damping speculative transactions, thus stabilizing the rates of exchange between currencies. When asked what should be done with the proceeds of the tax, Tobin said, almost as an afterthought, “Let the United Nations have it.”

The volume of money involved in international currency transactions is so enormous that even the tiny tax proposed by Tobin would provide the United Nations with between 100 billion and 300 billion dollars annually. By strengthening the activities of various UN agencies, the additional income would add to the prestige of the United Nations and thus make the organization more effective when it is called upon to resolve international political conflicts.

The budgets of UN agencies, such as the World Health Organization, the Food and Agricultural Organization, UNESCO and the UN Development Programme, should not just be doubled but should be multiplied by a factor of at least twenty. With increased budgets the UN agencies could sponsor research and other actions aimed at solving the world's most pressing problems — AIDS, drug-resistant infectious diseases, tropical diseases, food insufficiencies, pollution, climate change, alternative energy strategies, population stabilization, peace education, as well as combating poverty, malnutrition, illiteracy, lack of safe water and so on. Scientists would be less tempted to find jobs with arms related industries if offered the chance to work on idealistic projects. The United Nations could be given its own television channel, with unbiased news programs, cultural programs, and "State of the World" addresses by the UN Secretary General.

Besides the Tobin tax, other measures have been proposed to increase the income of the United Nations. For example, it has been proposed that income from resources of the sea bed be given to the UN, and that the UN be given the power to tax carbon dioxide emissions. All of the proposals for giving the United Nations an adequate income have been strongly opposed by a few nations that wish to control the UN through their purse strings, especially by the United States, which has threatened to withdraw from the UN if a Tobin tax is introduced. However, it is absolutely essential for the future development of the United Nations that the organization be given the power to impose taxes. No true government can exist without this power. It is just as essential as is the power to make and enforce laws that are binding on individuals.

3.4 The United Nations must be given a standing military force

At present, when the United Nations is called upon to meet an emergency, such as preventing genocide, an ad hoc force must be raised, and the time required to do this often means that the emergency action is fatally delayed. The UN should immediately be given a standing force of volunteers from all nations, ready to meet emergencies. The members of this force would owe their primary loyalty to the UN, and one of its important duties would be to prevent gross violations of human rights.

In the perspective of a longer time-frame, we need to work for a world where national armies will be very much reduced in size, where the United Nations will have a monopoly on heavy armaments, and where the manufacture or possession of nuclear weapons, as well as the export of arms and ammunition from industrialized countries to the developing countries, will be prohibited. (See reference 3).

Looking towards the future, we can foresee a time when the United Nations will have the power to make and enforce international laws which are binding on individuals. Under such circumstances, true police action will be possible, incorporating all of the needed safeguards for lives and property of the innocent.

“ ***The veto power of the Security Council must be eliminated.*** ”

One can hope for a future world where public opinion will support international law to such an extent that a new Hitler or Saddam Hussein or a future Milosevic will not be able to organize large-scale resistance to arrest, a world where international law will be seen by all to be just, impartial and necessary, a well-governed global community within which each person will owe his or her ultimate loyalty to humanity as a whole.

3.5 The veto power of the Security Council must be eliminated

We should remember that the UN Charter was drafted and signed before the first nuclear bomb was dropped on Hiroshima; and it also could not anticipate the extraordinary development of international trade and communication which characterizes the world today. The five permanent members of the Security Council, China, France, Russia, the United Kingdom and the United States, were the victors of World War II, and were given special privileges by the Charter as it was established in 1945, among these the power to veto UN actions on security issues. In practice, the veto power of the P5 nations has made the UN ineffective, and it has become clear that changes are needed. If the Security Council is retained in a World Federation, the veto power must be eliminated.

3.6 Subsidiarity

The need for international law must be balanced against the desirability of local self-government. Like biological diversity, the cultural diversity of humankind is a treasure to be carefully guarded. A balance or compromise between these two desirable goals can be achieved by granting only a few carefully chosen powers to a World Federation with sovereignty over all other issues retained by the member states. This leaves us with a question: Which issues should be decided centrally, and which locally?

The present United Nations Charter contains guarantees of human rights, but there is no effective mechanism for enforcing these guarantees. In fact, there is a conflict between the parts of the Charter protecting human rights and the concept of absolute national sovereignty. Recent history has given us many examples of atrocities committed against ethnic minorities by leaders of nation-states, who claim that sovereignty gives them the right to run their internal affairs as they wish, free from outside interference. One feels that it ought to be the responsibility of the international community to prevent gross violations of human rights, such as genocide; and if this is in conflict with the concept of national sovereignty, then sovereignty must yield.

In the future, overpopulation and famine are likely to become increasingly difficult and painful problems in several parts of the world. Since various cultures take widely different attitudes towards birth control and family size, the problem of population stabilization seems to be one which should be decided locally. At the same time, aid for local family planning programs, as well as famine relief, might appropriately come from global agencies, such as WHO and FAO. With respect to large-scale migration, it would be unfair for a country which has successfully stabilized its own population, and which has eliminated poverty within its own borders, to be forced to accept a flood of migrants from regions of high fertility. Therefore, the extent of immigration should be among those issues to be decided locally.

Security, and controls on the manufacture and export of armaments will require an effective authority at the global level.

The steps needed to convert the United Nations into a World Federation can be taken cautiously, one at a time. Having seen the results of a particular step, one can move on to the next. The establishment of the International Criminal Court is an important first step towards a system of international laws that act on individuals. Another important step would be to give the UN a much larger and more reliable source of income. The establishment of a standing UN emergency military force is another step that ought to be taken in the near future.

4. Obstacles to a World Federation

It is easy to write down what is needed to convert the United Nations into a World Federation. But will not the necessary steps towards a future world of peace and law be blocked by the powerholders of today? Not everyone wants peace. Not everyone wants international law.*

The United Nations was established at the end of the most destructive war the world had ever seen, and its horrors were fresh in the minds of the delegates to the 1945 San Francisco Conference. The main purpose of the Charter that they drafted was to put an end to the institution of war. It was hoped that as a consequence, the UN would also end the colonial era, since war is needed to maintain the unequal relationships of colonialism. Neither of these things happened. War is still with us, and war is still used to maintain the intolerable economic inequalities of neocolonialism. The fact that military might is still used by powerful industrialized nations to maintain economic hegemony over less developed countries has been amply documented by Professor Michael Klare in his books on Resource Wars.

Today, 2.7 billion people live on less than \$2 a day — 1.1 billion on less than \$1 per day. 18 million of our fellow humans die each year from poverty-related causes. In 2006, 1.1 billion people lacked safe drinking water, and waterborne diseases killed an estimated 1.8 million people. The developing countries are also the scene of a resurgence of other infectious diseases, such as malaria, drug-resistant tuberculosis and HIV/AIDS.†

Meanwhile, in 2011, world military budgets reached a total of 1.7 trillion dollars (i.e. 1.7 million million dollars). This amount of money is almost too large to be imagined. The fact that it is being spent means that many people are making a living from the institution of war. Wealthy and powerful lobbies from the military-industrial complex are able to influence mass media and governments. Thus, the institution of war persists, although we know very well that it is a threat to civilization and that it is responsible for much of the suffering that humans experience.

Today's military spending of almost two trillion US dollars per year would be more than enough to finance safe drinking water for the entire world, and to bring primary health care and family planning advice to all. If used constructively, the money now wasted (or worse

*The interested reader can find the "Hague Invasion Act" described on the Internet.

†It would be wrong to attribute poverty in the developing world entirely to war, and to exploitation by the industrialized countries. Rapid population growth is also a cause of poverty. Nevertheless, the enormous contrast between the rich and poor parts of the world is partly the result of unfair trade agreements imposed by means of "regime change" and "nation building", i.e. interference backed by military force.

than wasted) on the institution of war could also help the world to make the transition from fossil fuel use to renewable energy systems.

The way in which some industrialized countries maintain their control over less developed nations can be illustrated by the resource curse, i.e. the fact that resource-rich developing countries are no better off economically than those that lack resources, but are cursed with corrupt and undemocratic governments. This is because foreign corporations extracting local resources under unfair agreements exist in a symbiotic relationship with corrupt local officials.

As long as enormous gaps exist between the rich and poor nations of the world, the task turning the United Nations into an equitable and just federation will be blocked. Thus, we are faced with the challenge of breaking the links between poverty and war. Civil society throughout the world must question the need for colossal military budgets, since, according to the present UN Charter, as well as the Nuremberg Principles, war is a violation of international law, except when sanctioned by the Security Council. By following this path we can free the world from the intolerable suffering caused by poverty and from the equally intolerable suffering caused by war.

“Today, there is a pressing need to enlarge the size of the political unit from the nation-state to the entire world.”

5. Governments of Large Nations Compared with Global Government

The problem of achieving internal peace over a large geographical area is not insoluble. It has already been solved. There exist today many nations or regions within each of which there is internal peace, and some of these are so large that they are almost worlds in themselves. One thinks of China, India, Brazil, Australia, the Russian Federation, the United States, and the European Union. Many of these enormous societies contain a variety of ethnic groups, a variety of religions and a variety of languages, as well as striking contrasts between wealth and poverty. If these great land areas have been forged into peaceful and cooperative societies, cannot the same methods of government be applied globally?

Today, there is a pressing need to enlarge the size of the political unit from the nation-state to the entire world. The need to do so results from the terrible dangers of modern weapons and from global economic interdependence. The progress of science has created this need, but science has also given us the means to enlarge the political unit: Our almost miraculous modern communications media, if properly used, have the power to weld all of humankind into a single supportive and cooperative society.

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The acronym of the South-East European Division of The World Academy of Art and Science – SEED – prompted us to initiate a journal devoted to seed ideas - to leadership in thought that leads to action. Cadmus (or Kadmos in Greek and Phoenician mythology) was a son of King Agenor and Queen Telephassa of Tyre, and brother of Cilix, Phoenix and Europa. Cadmus is credited with introducing the original alphabet – the Phoenician alphabet, with “the invention” of agriculture, and with founding the city of Thebes. His marriage with Harmonia represents the symbolic coupling of Eastern learning and Western love of beauty. The youngest son of Cadmus and Harmonia is Illyrius. The city of Zagreb, which is the formal seat of SEED, was once a part of Illyria, a region including what is today referred to as the Western Balkans and even more. Cadmus will be a journal for fresh thinking and new perspectives that integrate knowledge from all fields of science, art and humanities to address real-life issues, inform policy and decision-making, and enhance our collective response to the challenges and opportunities facing the world today.

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Flaws in the Concept of Nuclear Deterrence

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Abstract

The concept of nuclear deterrence is seriously flawed, and it violates the fundamental ethical principles of all major religions. Besides being morally unacceptable, nuclear weapons are also illegal according to a historic 1996 decision of the International Court of Justice, a ruling that reflects the opinion of the vast majority of the world's peoples. Even a small nuclear war would be an ecological catastrophe, not only killing civilian populations indiscriminately in both belligerent and neutral countries, but also severely damaging global agriculture and making large areas of the earth permanently uninhabitable through radioactive contamination. The danger of accidental nuclear war continues to be very great today, and the danger of nuclear terrorism is increasing. In this perilous situation, it is necessary for the nuclear nations to acknowledge that the concept of deterrence has been a mistake, which is threatening the lives of all human beings as well as threatening devastation of the biosphere. Acknowledging that the policy of nuclear deterrence has been a grave error can reduce risk of nuclear weapons proliferation.

Before discussing other defects in the concept of deterrence, it must be said very clearly that the idea of “massive nuclear retaliation” is completely unacceptable from an ethical point of view. The doctrine of retaliation, performed on a massive scale, violates not only the principles of common human decency and common sense, but also the ethical principles of every major religion. Retaliation is especially contrary to the central commandment of Christianity which tells us to love our neighbor, even if he or she is far away from us, belonging to a different ethnic or political group, and even if our distant neighbor has seriously injured us. This principle has a fundamental place not only in Christianity but also in all other major religions. “Massive retaliation” completely violates these very central ethical principles, which are not only clearly stated and fundamental but are also very practical, since they prevent escalatory cycles of revenge and counter-revenge.

Contrast Christian ethics with estimates of the number of deaths that would follow a US nuclear strike against Russia: Several hundred million deaths. These horrifying estimates shock us not only because of the enormous magnitude of the expected mortality, but also because the victims would include people of every kind: women, men, old people, children and infants, completely irrespective of any degree of guilt that they might have. As a result of such an attack, many millions of people in neutral countries would also die. This type of killing has to be classified as genocide.

When a suspected criminal is tried for a wrongdoing, great efforts are devoted to clarifying the question of guilt or innocence. Punishment only follows if guilt can be proved beyond any reasonable doubt. Contrast this with the totally indiscriminate mass slaughter that results from a nuclear attack!

It might be objected that disregard for the guilt or innocence of victims is a universal characteristic of modern war, since statistics show that, with time, a larger and larger percentage of the victims have been civilians, especially children. For example, the air attacks on Coventry during World War II, or the fire bombings of Dresden and Tokyo, produced massive casualties which involved all segments of the population with complete disregard for the question of guilt or innocence. The answer, I think, is that modern war has become generally unacceptable from an ethical point of view, and this unacceptability is epitomized in nuclear weapons.

The enormous and indiscriminate destruction produced by nuclear weapons formed the background for a historic 1996 decision by the International Court of Justice in The Hague. In response to questions put to it by WHO and the UN General Assembly, the Court ruled that “the threat and use of nuclear weapons would generally be contrary to the rules of international law applicable in armed conflict, and particularly the principles and rules of humanitarian law”. The only possible exception to this general rule might be “an extreme circumstance of self-defense, in which the very survival of a state would be at stake”. But the Court refused to say that even in this extreme circumstance the threat or use of nuclear weapons would be legal. It left the exceptional case undecided. In addition, the World Court added unanimously that “there exists an obligation to pursue in good faith and bring to a conclusion, negotiations leading to nuclear disarmament in all its aspects under strict international control”.

This landmark decision has been criticized by the nuclear weapon states as being decided “by a narrow margin”, but the structuring of the vote made the margin seem more narrow than it actually was. Seven judges voted against Paragraph 2E of the decision (the paragraph which states that the threat or use of nuclear weapons would be generally illegal, but mentions as a possible exception the case where a nation might be defending itself from an attack that threatened its very existence). Seven judges voted for the paragraph, with the President of the Court, Mohammad Bedjaoui of Algeria casting the deciding vote. Thus the Court adopted it, seemingly by a narrow margin. But three of the judges who voted against 2E did so because they believed that no possible exception should be mentioned! Thus, if the vote had been slightly differently structured, the result would have been ten to four.

Of the remaining four judges who cast dissenting votes, three represented nuclear weapons states, while the fourth thought that the Court ought not to have accepted the questions from WHO and the UN. However, Judge Schwebel from the United States, who voted against Paragraph 2E, added in a separate opinion, “It cannot be

“The concept of nuclear deterrence is not only unacceptable from the standpoint of ethics; it is also contrary to international law. Although no formal plebiscite has been taken, the votes in numerous resolutions of the UN General Assembly speak very clearly on this question.”

accepted that the use of nuclear weapons on a scale which would – or could – result in the deaths of many millions in indiscriminate inferno and by far-reaching fallout, have pernicious effects in space and time, and render uninhabitable much of the earth, could be lawful”. Judge Higgins from the UK, the first woman judge in the history of the Court, had problems with the word “generally” in Paragraph 2E and therefore voted against it, but she thought that a more profound analysis might have led the Court to conclude in favor of illegality in all circumstances. Judge Fleischhauer of Germany said in his separate opinion, “The nuclear weapon is, in many ways, the negation of the humanitarian considerations underlying the law applicable in armed conflict and the principle of neutrality. The nuclear weapon cannot distinguish between civilian and military targets. It causes immeasurable suffering. The radiation released by it is unable to respect the territorial integrity of neutral States”.

President Bedjaoui, summarizing the majority opinion, called nuclear weapons “the ultimate evil”, and said “By its nature, the nuclear weapon, this blind weapon, destabilizes humanitarian law, the law of discrimination in the use of weapons... The ultimate aim of every action in the field of nuclear arms will always be nuclear disarmament, an aim which is no longer utopian and which all have a duty to pursue more actively than ever”.

Thus the concept of nuclear deterrence is not only unacceptable from the standpoint of ethics, it is also contrary to international law. The World Court’s 1996 advisory opinion unquestionably also represents the opinion of the majority of the world’s peoples. Although no formal plebiscite has been taken, the votes in numerous resolutions of the UN General Assembly speak very clearly on this question. For example, the New Agenda Resolution (53/77Y) was adopted by the General Assembly on 4 December 1998 by a massively affirmative vote, in which only 18 out of the 170 member states voted against the resolution.* The New Agenda Resolution proposes numerous practical steps towards complete nuclear disarmament, and it calls on the Nuclear-Weapon States “to demonstrate an unequivocal commitment to the speedy and total elimination of their nuclear weapons and without delay to pursue in good faith and bring to a conclusion negotiations leading to the elimination of these weapons, thereby fulfilling their obligations under Article VI of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT)”. Thus, in addition to being ethically unacceptable and contrary to international law, nuclear weapons are also contrary to the principles of democracy.

Having said these important things, we can now turn to some of the other defects in the concept of nuclear deterrence. One important defect is that nuclear war may occur through accident or miscalculation – through technical defects or human failings. This possibility is made greater by the fact that despite the end of the Cold War, thousands of missiles carrying nuclear warheads are still kept on a “hair-trigger” state of alert with a quasi-automatic reaction time measured in minutes. There is a constant danger that a nuclear war will be triggered by an error in evaluating the signal on a radar screen. For example, the BBC reported recently that a group of scientists and military leaders are worried that a small asteroid entering the earth’s atmosphere and exploding could trigger a nuclear war if mistaken for a missile strike.

* Of the 18 countries that voted against the New Agenda resolution, 10 were Eastern European countries hoping for acceptance into NATO, whose votes seem to have been traded for increased probability of acceptance.

A number of prominent political and military figures (many of whom have ample knowledge of the system of deterrence, having been part of it) have expressed concern about the danger of accidental nuclear war. Colin S. Gray, Chairman, National Institute for Public Policy, expressed this concern as follows: "The problem, indeed the enduring problem, is that we are resting our future upon a nuclear deterrence system concerning which we cannot tolerate even a single malfunction". General Curtis E. LeMay, Founder and former Commander in Chief of the United States Strategic Air Command, has written, "In my opinion a general war will grow through a series of political miscalculations and accidents rather than through any deliberate attack by either side". Bruce G. Blair (Brookings Institute) has remarked that "It is obvious that the rushed nature of the process, from warning to decision to action, risks causing a catastrophic mistake"... "This system is an accident waiting to happen."

"But nobody can predict that the fatal accident or unauthorized act will never happen," Fred Iklé of the Rand Corporation has written, "Given the huge and far-flung missile forces, ready to be launched from land and sea on both sides, the scope for disaster by accident is immense... In a matter of seconds – through technical accident or human failure – mutual deterrence might thus collapse."

Another serious failure of the concept of nuclear deterrence is that it does not take into account the possibility that atomic bombs may be used by terrorists. Indeed, the threat of nuclear terrorism has today become one of the most pressing dangers that the world faces, a danger that is particularly acute in the United States.

Since 1945, more than 3,000 metric tons (3,000,000 kilograms) of highly enriched uranium and plutonium have been produced – enough for several hundred thousand nuclear weapons. Of this, roughly a million kilograms are in Russia, inadequately guarded, in establishments where the technicians are poorly paid and vulnerable to the temptations of bribery. There is a continuing danger that these fissile materials will fall into the hands of terrorists, or organized criminals, or irresponsible governments. Also, an extensive black market for fissile materials, nuclear weapons components etc. has recently been revealed in connection with the confessions of Pakistan's bomb-maker, Dr. A.Q. Khan. Furthermore, if Pakistan's less-than-stable government should be overthrown, complete nuclear weapons could fall into the hands of terrorists.

On November 3, 2003, Mohamed ElBaradei, Director General of the International Atomic Energy Agency, made a speech to the United Nations in which he called for "limiting the processing of weapons-usable material (separated plutonium and high enriched uranium) in civilian nuclear programmes – as well as the production of new material through reprocessing and enrichment – by agreeing to restrict these operations to facilities exclusively under international control." It is almost incredible, considering the dangers of nuclear proliferation and nuclear terrorism, that such restrictions were not imposed long ago. Nuclear reactors used for "peaceful" purposes unfortunately also generate fissionable isotopes of plutonium, neptunium and americium. Thus, all nuclear reactors must be regarded as ambiguous in function, and all must be put under strict international control. One might ask, in fact, whether globally widespread use of nuclear energy is worth the danger that it entails.

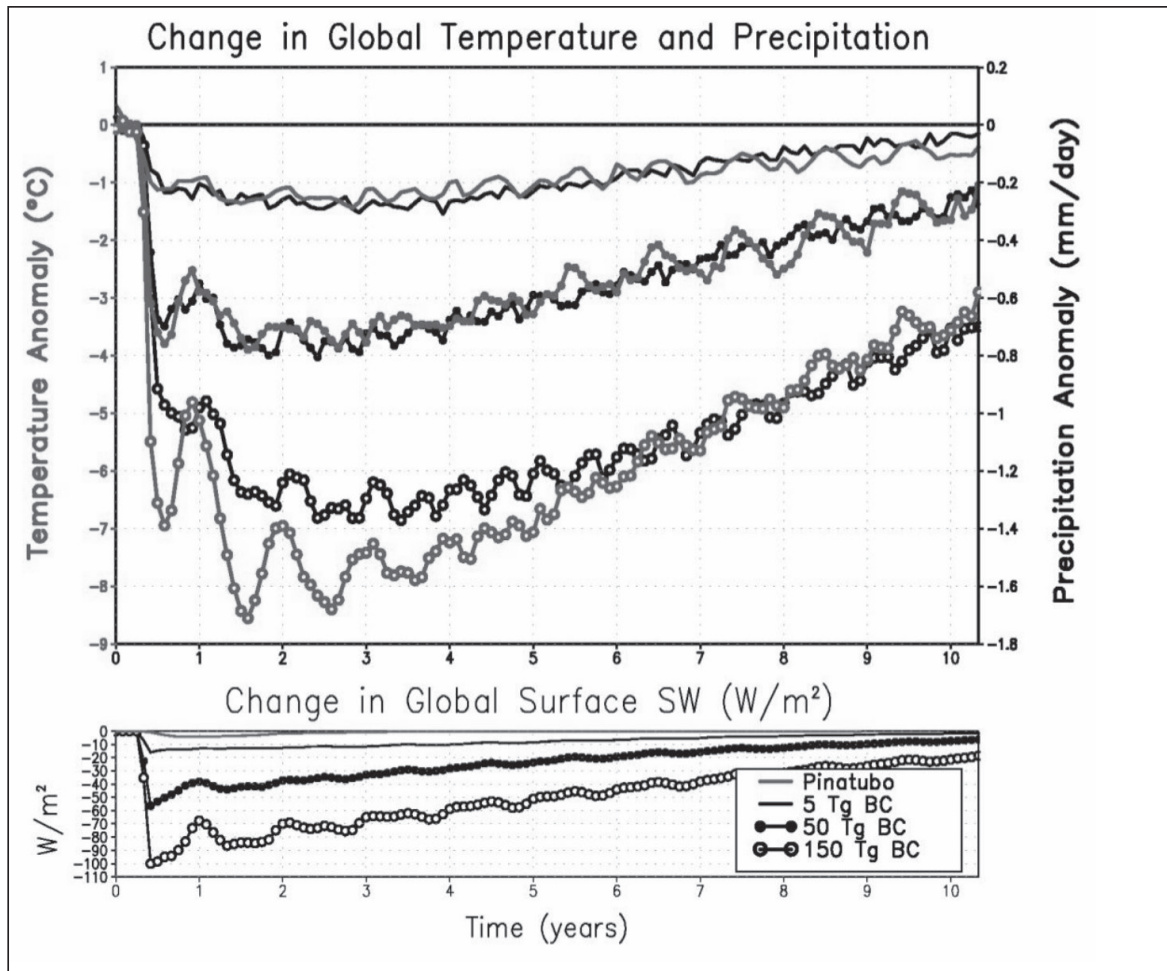


Figure 1: Recent studies by atmospheric scientists have shown that the smoke from burning cities produced by even a limited nuclear war would have a devastating effect on global agriculture. The studies show that the smoke would rise to the stratosphere, where it would spread globally and remain for a decade, blocking sunlight and destroying the ozone layer. Because of the devastating effect on global agriculture, darkness from even a small nuclear war (e.g. between India and Pakistan) would result in an estimated billion deaths from famine. Nuclear darkness resulting from a large-scale war involving all of the nuclear weapons that are now on high alert status would destroy all agriculture on earth for a period of ten years, and almost all humans would die of starvation. (See O. Toon, A. Robock, and R. Turco, "The Environmental Consequences of Nuclear War", *Physics Today*, vol. 61, No. 12, 2008, p. 37-42).

The Italian nuclear physicist Francesco Calogero, who has studied the matter closely, believes that terrorists could easily construct a simple gun-type nuclear bomb if they were in possession of a critical mass of highly enriched uranium. In such a simple atomic bomb, two grapefruit-sized sub-critical portions of HEU are placed at opposite ends of the barrel of an artillery piece and are driven together by means of a conventional explosive. Prof. Calogero estimates that the fatalities produced by the explosion of such a device in the center of a large city could exceed 100,000.

We must remember the remark of U.N. Secretary General Kofi Annan after the 9/11/2001 attacks on the World Trade Center. He said, “This time it was not a nuclear explosion”. The meaning of his remark is clear: If the world does not take strong steps to eliminate fissionable materials and nuclear weapons, it will only be a matter of time before they will be used in terrorist attacks on major cities. Neither terrorists nor organized criminals can be deterred by the threat of nuclear retaliation, since they have no territory against which such retaliation could be directed. They blend invisibly into the general population. Nor can a “missile defense system” prevent terrorists from using nuclear weapons, since the weapons can be brought into a port in any one of the hundreds of thousands of containers that enter on ships each year, a number far too large to be checked exhaustively.

“It is time for civil society to make its will felt. If our leaders continue to enthusiastically support the institution of war, if they will not abolish nuclear weapons, then let us have new leaders.”

In this dangerous situation, the only logical thing for the world to do is to get rid of both fissile materials and nuclear weapons as rapidly as possible. We must acknowledge that the idea of nuclear deterrence is a dangerous fallacy, and that the development of military systems based on nuclear weapons has been a terrible mistake, a false step that needs to be reversed. If the most prestigious of the nuclear weapons states can sincerely acknowledge their mistakes and begin to reverse them, nuclear weapons will seem less glamorous to countries like India, Pakistan, North Korea and Iran, where they now are symbols of national pride and modernism.

Civilians have for too long played the role of passive targets, hostages in the power struggles of politicians. It is time for civil society to make its will felt. If our leaders continue to enthusiastically support the institution of war, if they will not abolish nuclear weapons, then let us have new leaders.

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At the root of the current crisis are not subprime mortgages, credit rating agencies, financial institutions or central banks. It is the Great Divorce between finance and economy, which is a subset of the widening precipice between economy and human welfare.

The Great Divorce: Finance and Economy

The Limits to Growth proved the inherent limitations of the existing industrial model of economic growth, not any inherent limits to growth itself.

Garry Jacobs & Ivo Šlaus, From Limits to Growth to Limitless Growth

Focusing on growth of the part without reference to its impact on the whole is a formula for social disease.

Economic Crisis and the Science of Economics

The idea of nuclear deterrence is a dangerous fallacy, and that the development of military systems based on nuclear weapons has been a terrible mistake, a false step that needs to be reversed.

John Scales Avery, Flaws in the Concept of Nuclear Deterrence

The first step into the direction of a world parliament would be the establishment of a Parliamentary Assembly at the United Nations.

Andreas Bummel, Social Evolution, Global Governance & a World Parliament

The evolution from physical violence to social power to authorized competence and higher values is an affirmation of the value basis of law.

Winston P. Nagan & Garry Jacobs, New Paradigm for Global Rule of Law

We propose that a new organisation be set up, perhaps called the 'World Community for Food Reserves'.

John McClintock, From European Union to World Union

A proper and well accepted definition of (forms of) misconduct, reliable means of identification, and effective corrective actions deserve a high priority on the agenda of research institutes, universities, academies and funding organs.

Pieter J. D. Drenth, Research Integrity

The clearing house should encourage thinking ahead so that law and governance can attempt to accommodate the numerous challenges of globalization, many new technologies, and the emerging Anthropocene Era.

Michael Marien, Law in Transition Biblioessay

The economics of growth must be replaced by equilibrium economics, where considerations of ecology, carrying capacity, and sustainability are given proper weight, and where the quality of life of future generations has as much importance as present profits.

John Scales Avery, Entropy & Economics

A strong and strategic knowledge system is essential for identifying, formulating, planning and implementing policy-driven actions while maintaining the necessary economic growth rate.

Jyoti Parikh, Dinoj Kumar Upadhyay & Tanu Singh,
Gender Perspectives on Climate Change & Human Security in India

The very possession of nuclear weapons violates the fundamental human rights of the citizens of the world and must be regarded as illegal.

Winston P. Nagan, Simulated ICJ Judgment

The emerging individual is less deferential to the past and more insistent on his or her rights; less willing to conform to regimentation, more insistent on freedom and more tolerant of diversity.

Evolution from Violence to Law to Social Justice

It is more rational to argue that developing countries cannot afford unemployment and underemployment, than to suppose that they cannot afford full employment.

Jesus Felipe, Inclusive Growth

The tremendously wasteful underutilization of precious human resources and productive capacity is Greece's most serious problem and also its greatest opportunity.

Immediate Solution for the Greek Financial Crisis

The Original thinker seeks not just ideas but original ideas which are called in Philosophy Real-Ideas. Cadmus Journal refers to them as Seed-Ideas. Ideas, sooner or later, lead to action. Pregnant ideas have the dynamism to lead to action. Real-Ideas are capable of self-effectuation, as knowledge and will are integrated in them.

Ashok Natarajan, Original Thinking

Given the remarkable progress of humanity over the past two centuries, the persistence of poverty might not be so alarming, were it not for the persistent poverty of new ideas and fresh thinking on how to eliminate the recurring crises, rectify the blatant injustices and replace unsustainable patterns with a new paradigm capable of addressing the deep flaws in the current paradigm.

Great Transformations

Our global systems can be resilient if they are based not only on efficient markets that can cope with future crises, but on principles that also allow for the projection of civic will and preference onto the global level. Stability and resilience are laudable goals but they need to be achieved in all three dimensions, the financial, the economic and the social, in a participatory fashion.

Patrick M. Liedtke, Getting Risks Right

Continued . . .



PROMOTING LEADERSHIP IN THOUGHT
THAT LEADS TO ACTION

THE WEALTH OF NATIONS REVISITED

CADMUS

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Entropy and Economics

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Fellow, World Academy of Art and Science

Abstract

In this essay, human society is regarded as a “superorganism”, analogous to colonies of social insects. The digestive system of the human superorganism is the global economy, which ingests both free energy and resources, and later excretes them in a degraded form. This process involves an increase in entropy. Early in the 20th century, both Frederick Soddy and Nicholas Georgescu-Roegen discussed the relationship between entropy and economics. Soddy called for an index system to regulate the money supply and a reform of the fractional reserve banking system, while Georgescu-Roegen pointed to the need for Ecological Economics, a steady-state economy, and population stabilization. As we reach the end of the fossil fuel era and as industrial growth falters, massive unemployment can only be avoided by responsible governmental action. The necessary steps include shifting labor to projects needed for a sustainable economy, dividing the available work fairly among those seeking employment, and reforming the practices of the financial sector.

1. Human Society as a Superorganism, with the Global Economy as its Digestive System

A completely isolated human being would find it as difficult to survive for a long period of time as would an isolated ant or bee or termite. Therefore, it seems correct to regard human society as a superorganism. In the case of humans, the analog of the social insects' nest is the enormous and complex material structure of civilization. It is, in fact, what we call the human economy. It consists of functioning factories, farms, homes, transportation links, water supplies, electrical networks, computer networks and much more. Almost all of the activities of modern humans take place through the medium of these external “exosomatic” parts of our social superorganism.*

The economy associated with the human superorganism “eats” resources and free energy. It uses these inputs to produce local order, and finally excretes them as heat and waste. The process is closely analogous to food passing through the alimentary canal of an individual organism. The free energy and resources that are the inputs of our economy drive it just as food drives the processes of our body, but in both cases, waste products are finally excreted in a degraded form.

*The terms “exosomatic” and “endosomatic” were coined by the American scientist Alfred Lotka (1820-1949). A lobster's claw is endosomatic - it is part of the lobster's body. The hammer used by a human is exosomatic - like a detachable claw. Lotka spoke of “exosomatic evolution”, including in this term not only cultural evolution but also the building up of the material structure of civilization.

Almost all of the free energy that drives the human economy came originally from the Sun's radiation, the exceptions being geothermal energy which originates in the decay of radioactive substances inside the earth, and tidal energy, which has its origin in the relative motion of the Earth-Moon system. However, since the start of the Industrial Revolution, our economy has been using the solar energy stored in fossil fuels. These fossil fuels were formed over a period of several hundred million years. We are using them during a few hundred years, i.e., at a rate approximately a million times the rate at which they were formed.

The total ultimately recoverable resources of fossil fuels amount to roughly 1260 terawatt-years of energy (1 terawatt-year = 10¹² watt-years - 1 TWy is equivalent to 5 billion barrels of oil or 1 billion tons of coal). Of this total amount, 760 TWy is coal, while oil and natural gas each constitute roughly 250 TWy. In 1890, the rate of global consumption of energy was 1 terawatt, but by 1990 this figure had grown to 13.2 TW, distributed as follows: oil, 4.6; coal, 3.2; natural gas, 2.4; hydropower, 0.8; nuclear, 0.7; fuel wood, 0.9; crop wastes, 0.4; and dung, 0.2. By 2005, the rate of oil, natural gas and coal consumption had risen to 6.0 TW, 3.7 TW and 3.5 TW respectively. Thus, the present rate of consumption of fossil fuels is more than 13 terawatts and, if used at the present rate, fossil fuels would last less than a century. However, because of the very serious threats posed by climate change, human society would be well advised to stop the consumption of coal, oil and natural gas well before that time.

The rate of growth of new renewable energy sources is increasing rapidly. These sources include small hydro, modern biomass, solar, wind, geothermal, wave and tidal energy. However, these sources currently account for only 2.8% of total energy use. There is an urgent need for governments to set high taxes on fossil fuel consumption and to shift subsidies from the petroleum and nuclear industries to renewables. These changes in economic policy are needed to make the prices of renewables more competitive.

The shock to the global economy that will be caused by the end of the fossil fuel era will be compounded by the scarcity of other non-renewable resources, such as metals. While it is true (as neoclassical economists emphasize) that "matter and energy can neither be created nor destroyed", free energy can be degraded into heat, and concentrated deposits of minerals can be dispersed. Both the degradation of Gibbs free energy into heat and the dispersal of minerals involve increase of entropy.

2. Frederick Soddy

One of the first people to call attention to the relationship between entropy and economics was the English radiochemist Frederick Soddy (1877-1956). Soddy won the Nobel Prize for Chemistry in 1926 for his work with Ernest Rutherford demonstrating the transmutation of elements in radioactive decay processes. His concern for social problems then led him to a critical study of the assumptions of classical economics.

Soddy believed that there was a close connection between Gibbs free energy and wealth, but only a very tenuous connection between wealth and money. He was working on these problems during the period after World War I, when England left the gold standard, and he advocated an index system to replace it. In this system, the Bank of England would print more money and lend it to private banks whenever the cost of standard items indicated that too little money was in circulation, or conversely destroy printed money if the index showed the money supply to be too large.

Soddy was extremely critical of the system of “fractional reserve banking” whereby private banks keep only a small fraction of the money that is entrusted to them by their depositors and lend out the remaining amount. He pointed out that, in this system, the money supply is controlled by the private banks rather than by the government, and also that profits made from any expansion of the money supply go to private corporations instead of being used to provide social services. Fractional reserve banking exists today, not only in England but also in many other countries. Soddy’s criticisms of this practice cast light on the subprime mortgage crisis of 2008 and the debt crisis of 2011.

As Soddy pointed out, real wealth is subject to the second law of thermodynamics. As entropy increases, real wealth decays. Soddy contrasted this with the behavior of debt at compound interest, which increases exponentially without any limit, and he remarked: “You cannot permanently pit an absurd human convention, such as the spontaneous increment of debt [compound interest] against the natural law of the spontaneous decrement of wealth [entropy]”. Thus, in Soddy’s view, it is a fiction to maintain that being owed a large amount of money is a form of real wealth.

Frederick Soddy’s book, *Wealth, virtual wealth and debt: The solution of the economic paradox*, published in 1926 by Allen and Unwin, was received by the professional economists of the time as the quixotic work of an outsider. Today, however, Soddy’s commonsense economic analysis is increasingly valued for the light that it throws on the problems of our fractional reserve banking system, which becomes more and more vulnerable to failure as economic growth falters.

3. Nicholas Georgescu-Roegen

The incorporation of the idea of entropy into economic thought also owes much to the mathematician and economist Nicholas Georgescu-Roegen (1906- 1994), the son of a Romanian army officer. Georgescu-Roegen’s talents were soon recognized by the Romanian school system, and he was given an outstanding education in Mathematics, which later contributed to his success and originality as an economist.

Between 1927 and 1930 the young Georgescu studied at the Institut de statistique in Paris, where he completed an award-winning thesis: *On the problem of finding out the cyclical components of phenomena*. He then worked in England with Karl Pearson from 1930 to 1932, and during this period his work attracted the attention of a group of economists who were working on a project called the Harvard Economic Barometer. He received a Rockefeller Fellowship to join this group, but when he arrived at Harvard, he found that the project had been disbanded. In desperation, Georgescu-Roegen asked the economist Joseph Schumpeter for an appointment to join his group. Schumpeter’s group was in fact a remarkably active and interesting one, which included the Nobel laureate Wassily Leontief, and there followed a period of intense intellectual activity during which Georgescu-Roegen became an economist.

Despite offers of a permanent position at Harvard, Georgescu-Roegen returned to his native Romania in the late 1930s and early 1940s in order to serve his country. He served as a member of the Central Committee of the Romanian National Peasant Party. His experiences at this time led to his insight that economic activity involves entropy. He was also helped to

this insight by Borel's monograph on Statistical Mechanics, which he had read during his period of stay in Paris.

Georgescu-Roegen later wrote: "The idea that the economic process is not a mechanical analogue, but an entropic, unidirectional transformation began to turn over in my mind long ago, as I witnessed the oil wells of the Ploesti field of both World Wars' fame becoming dry one by one, and as I grew aware of the Romanian peasants' struggle against the deterioration of their farming soil by continuous use and by rains as well. However it was the new representation of a process that enabled me to crystallize my thoughts in describing the economic process as the entropic transformation of valuable natural resources (low entropy) into valueless waste (high entropy)." After making many technical contributions to economic theory, Georgescu-Roegen returned to this insight in his important 1971 book, *The Entropy Law and the Economic Process* (Harvard University Press, Cambridge, 1971), where he outlines his concept of bioeconomics. In a later book, *Energy and Economic Myths* (Pergamon Press, New York, 1976), he offered the following recommendations for moving towards a bioeconomic society:

- the complete prohibition of weapons production, thereby releasing productive forces for more constructive purposes;
- immediate aid to underdeveloped countries;
- gradual decrease in population to a level that could be maintained only by organic agriculture;
- avoidance, and strict regulation if necessary, of wasteful energy use;
- abandon our attachment to "extravagant gadgetry";
- "get rid of fashion";
- make goods more durable and repairable; and
- cure ourselves of workaholic habits by rebalancing the time spent on work and leisure, a shift that will become incumbent as the effects of the other changes make themselves felt.

Georgescu-Roegen did not believe that his idealistic recommendations would be adopted, and he feared that human society was headed for a crash.

4. Limits to Growth: A steady-state economy

Nicholas Georgescu-Roegen's influence continues to be felt today, not only through his own books and papers but also through those of his student, the distinguished economist Herman E. Daly, who for many years has been advocating a steady-state economy. As Daly points out in his books and papers, it is becoming increasingly apparent that unlimited economic growth on a finite planet is a logical impossibility. However, it is important to distinguish between knowledge, wisdom and culture, which can and should continue to grow, and growth in the sense of an increase in the volume of material goods produced, which is reaching its limits.

Daly describes our current situation as follows: "The most important change in recent times has been the growth of one subsystem of the Earth, namely the economy, relative to

the total system, the ecosphere. This huge shift from an “empty” to a “full” world is truly ‘something new under the sun’... The closer the economy approaches the scale of the whole Earth, the more it will have to conform to the physical behavior mode of the Earth... The remaining natural world is no longer able to provide the sources and sinks for the metabolic throughput necessary to sustain the existing oversized economy – much less a growing one. Economists have focused too much on the economy’s circulatory system and have neglected to study its digestive tract.”

In 1968, Aurelio Peccei, Thorkil Kristensen and others founded the Club of Rome, an organization of economists and scientists devoted to studying the predicament of human society. One of the first acts of the organization was to commission an MIT study of future trends using computer models. The result was a book entitled *The Limits to Growth* published in 1972. From the outset the book was controversial, but it became a best-seller. It was translated into many languages and sold 10 million copies. The book made use of an exponential index for resources, i.e. the number of years that a resource would last if used at an exponentially increasing rate. Today, the more accurate Hubbert Peak model is used instead to predict rate of use of a scarce resource as a function of time. Although the specific predictions of resource availability in *The Limits to Growth* lacked accuracy, its basic thesis – that unlimited industrial growth on a finite planet is impossible – was indisputably correct. Nevertheless, the book was greeted with anger and disbelief by the community of economists, and these emotions still surface when it is mentioned.

Economic activity is usually divided into two categories, 1) production of goods and 2) provision of services. It is the rate of production of goods that will be limited by the carrying capacity of the global environment. Services that have no environmental impact will not be constrained in this way. Thus, a smooth transition to a sustainable economy will involve a shift in a large fraction of the workforce from the production of goods to the provision of services.

In his recent popular book *The Rise of the Creative Class*, the economist Richard Florida points out that in a number of prosperous cities – Stockholm, for example – a large fraction of the population is already engaged in what might be called creative work – a type of work that uses few resources, and produces few waste products – work which develops knowledge and culture rather than producing material goods. For example, producing computer software requires few resources and results in few waste products. Thus, it is an activity with a very small ecological footprint. Similarly, education, research, music, literature and art are all activities that do not weigh heavily on the carrying capacity of the global environment. Furthermore, cultural activities lead in a natural way to global cooperation and internationalism, since cultural achievements are shared by the people of the entire world. Indeed, the shared human inheritance of culture and knowledge is growing faster than ever before. Florida sees this as a pattern for the future, and maintains that everyone is capable of creativity. He visualizes the transition to a sustainable future economy as one in which a large fraction of the workforce moves from industrial jobs to information-related work. Meanwhile, as Florida acknowledges, industrial workers feel uneasy and threatened by such trends.

5. Biological Carrying Capacity and Economics

Classical economists pictured the world as largely empty of human activities. According to the empty-world picture of economics, the limiting factors in the production of food and goods are shortages of human capital and labor. The land, forests, fossil fuels, minerals, oceans filled with fish, and other natural resources upon which human labor and capital operate, are assumed to be present in such large quantities that they are not limiting factors. In this picture, there is no naturally-determined upper limit to the total size of the human economy. It can continue to grow as long as new capital is accumulated, as long as new labor is provided by population growth, and as long as new technology replaces labor by automation.

Biology, on the other hand, presents us with a very different picture. Biologists remind us that if any species, including our own, makes demands on its environment which exceed the environment's carrying capacity, the result is a catastrophic collapse, both of the environment and of the population which it supports. Only demands which are within the carrying capacity are sustainable. For example, there is a limit to regenerative powers of a forest. It is possible to continue to cut trees in excess of this limit, but only at the cost of a loss of forest size, and ultimately the collapse and degradation of the forest. Similarly, cattle populations may for some time exceed the carrying capacity of grasslands, but the ultimate penalty for overgrazing will be degradation or desertification of the land. Thus, in biology, the concept of the carrying capacity of an environment is extremely important; but in economic theory this concept has not yet been given the weight which it deserves.

Adam Smith was perfectly correct in saying that the free market is the dynamo of economic growth; but exponential growth of human population and economic activity have brought us, in a surprisingly short time, from the empty-world situation in which he lived to a full-world situation. In today's world, we are pressing against the absolute limits of the earth's carrying capacity, and further growth carries with it the danger of future collapse. Full-world economics, the economics of the future, will no longer be able to rely on industrial growth to give profits to stockbrokers or to solve problems of unemployment or to alleviate poverty. In the long run, neither the growth of industry nor that of population is sustainable; and we have now reached or exceeded the sustainable limits.

The limiting factors in economics are no longer the supply of capital or human labor or even technology. The limiting factors are the rapidly vanishing supplies of petroleum and metal ores, the forests damaged by acid rain, the diminishing catches from overfished oceans, and the croplands degraded by erosion or salination, or lost to agriculture under a cover of asphalt. Neo-classical economists have maintained that it is generally possible to substitute man-made capital for natural resources; but a closer examination shows that there are only very few cases where this is really practical.

The size of the human economy is, of course, the product of two factors: the total number of humans, and the consumption per capita. If we are to achieve a sustainable global society in the future, a society whose demands are within the carrying capacity of the global environment, then both these factors must be reduced. The responsibility for achieving sustainability is thus evenly divided between the North and the South: Where there is excessively high consumption per capita, it must be reduced; and this is primarily

the responsibility of the industrialized countries. High birth rates must also be reduced; and this is primarily the responsibility of the developing countries. Both of these somewhat painful changes are necessary for sustainability; but both will be extremely difficult to achieve because of the inertia of institutions, customs and ways of thought which are deeply embedded in society, in both the North and the South.

6. Population and Food Supply

Let us look first at the problem of high birth rates: The recent spread of modern medical techniques throughout the world has caused death rates to drop sharply; but since social customs and attitudes are slow to change, birth rates have remained high. As a result, between 1930 and 2011, the population of the world increased with explosive speed from two billion to seven billion.

During the last few decades, the number of food-deficit countries has lengthened; and it now reads almost like a United Nations roster. The food-importing nations are dependent, almost exclusively, on a single food-exporting region, the grain belt of North America. In the future, this region may be vulnerable to droughts produced by global warming.

An analysis of the global ratio of population to cropland shows that we probably already have exceeded the sustainable limit of population through our dependence on petroleum. Between 1950 and 1982, the use of cheap petroleum-derived fertilizers increased by a factor of 8, and much of our present agricultural output depends on their use. Furthermore, petroleum-derived synthetic fibers have reduced the amount of cropland needed for growing natural fibers, and petroleum-driven tractors have replaced draft animals which required cropland for pasturage. Also, petroleum fuels have replaced fuel wood and other fuels derived for biomass. The reverse transition, from fossil fuels back to renewable energy sources, will require a considerable diversion of land from food production to energy production.

As population increases, the cropland per person will continue to fall, and we will be forced to make still heavier use of fertilizers to increase output per hectare. Also marginal land will be used in agriculture, with the probable result that much land will be degraded through erosion or salination. Reserves of oil are likely to be exhausted by the middle of this century. Thus, there is a danger that just as global population reaches the unprecedented level of 9 billion or more, the agricultural base for supporting it may suddenly collapse. The resulting ecological catastrophe, possibly compounded by war and other disorders, could produce famine and death on a scale unprecedented in history – a catastrophe of unimaginable proportions, involving billions rather than millions of people. The present tragic famine in Africa is to this possible future disaster what Hiroshima is to the threat of thermonuclear war, a tragedy of smaller scale, whose horrors should be sufficient, if we are wise, to make us take steps to avoid the larger catastrophe.

At present, a child dies from starvation every five seconds – six million children die from hunger every year. Over a billion people in today's world are chronically undernourished. There is a threat that unless prompt and well-informed action is taken by the international community, the tragic loss of life that is already being experienced will increase to unimaginable proportions.

As glaciers melt in the Himalayas, threatening the summer water supplies of India and China, as ocean levels rise, drowning the fertile rice-growing river deltas of Asia, as aridity begins to decrease the harvests of Africa, North America and Europe as populations grow, as aquifers are overdrawn, as cropland is lost to desertification and urban growth and as energy prices increase, the billion people who now are undernourished but still survive, might not survive. They might become the victims of a famine whose proportions could exceed anything that the world has previously experienced.

It is vital for the world to stabilize its population, not only because of the threat of a catastrophic future famine, but also because rapid population growth is closely linked with poverty. Today, a large fraction of the world's people live in near-poverty or absolute poverty, lacking safe water, sanitation, elementary education, primary health care and proper nutrition. Governments struggling to solve these problems, and to provide roads, schools, jobs and medical help for all their citizens, find themselves defeated by the rapid doubling times of populations. For example, in Liberia, the rate of population growth is 4 percent per year, which means that the population of Liberia doubles in size every eighteen years. Under such circumstances, despite the most ambitious development programs, the infrastructure per capita decreases. Also, since new jobs must be found for the new millions added to the population, the introduction of efficient modern methods in industry and agriculture aggravates the already-serious problem of unemployment.

Education and higher status for women are vitally important measures, not only for their own sake, but also because in many countries these social reforms have proved to be strongly correlated with lower birth rates. Religious leaders who oppose programs for the education of women and for family planning on "ethical" grounds should think carefully about the scope and consequences of the catastrophic global famine which will undoubtedly occur within the next 50 years if population is allowed to increase unchecked.

At the United Nations Conference on Population and Development, held in Cairo in September 1994, a theme which emerged very clearly was that one of the most important keys to controlling the global population explosion is giving women better education and equal rights. These goals are desirable for the sake of increased human happiness, and for the sake of the uniquely life-oriented point of view which women can give us; but in addition, education and improved status for women have shown themselves to be closely connected with lowered birth rates. When women lack education and independent careers outside their homes, they can be forced into the role of baby-producing machines by men who do not share in the drudgery of cooking, washing and cleaning; but when women have educational, legal, economic, social and political equality with men, experience has shown that they choose to limit their families to a moderate size.

Sir Partha Dasgupta of Cambridge University has pointed out that the changes needed to break the cycle of overpopulation and poverty are all desirable in themselves. Besides education and higher status for women, they include state-provided social security for old people, provision of water supplies near dwellings, provision of health services to all, abolition of child labor and general economic development.

7. Social Values and Levels of Consumption

Let us next turn to the problem of reducing the per-capita consumption in the industrialized countries. The whole structure of western society seems designed to push its citizens in the opposite direction, towards ever-increasing levels of consumption. The mass media hold before us continually the ideal of a personal utopia filled with material goods.

Every young man in a modern industrial society feels that he is a failure unless he fights his way to the “top”; and in recent years, women too have been drawn into this competition. Of course, not everyone can reach the top; there would not be room for everyone; but society urges all of us to try, and we feel a sense of failure if we do not reach the goal. Thus, modern life has become a struggle of all against all for power and possessions.

One of the central problems in reducing consumption is that in our present economic and social theory, consumption has no upper bound; there is no definition of what is enough; there is no concept of a state where all of the real needs of a person have been satisfied. In our growth-oriented present-day economics, it is assumed that, no matter how much a person earns, he or she is always driven by a desire for more.

The phrase “conspicuous consumption” was invented by the Norwegian-American economist Thorstein Veblen (1857-1929) in order to describe the way in which our society uses economic waste as a symbol of social status. In *The Theory of the Leisure Class*, first published in 1899, Veblen pointed out that it is wrong to believe that human economic behavior is rational, or that it can be understood in terms of classical economic theory. To understand it, Veblen maintained, one might better make use of insights gained from anthropology, psychology, sociology, and history.

“Western society urgently needs to find new values to replace our worship of power, our restless chase after excitement, and our admiration of excessive consumption.”

The sensation caused by the publication of Veblen’s book, and the fact that his phrase, “conspicuous consumption”, has become part of our language, indicate that his theory did not completely miss its mark. In fact, modern advertisers seem to be following Veblen’s advice: Realizing that much of the output of our economy will be used for the purpose of establishing the social status of consumers, advertising agencies hire psychologists to appeal to the consumer’s longing for a higher social position.

When possessions are used for the purpose of social competition, demand has no natural upper limit; it is then limited only by the size of the human ego, which, as we know, is boundless. This would be all to the good if unlimited economic growth were desirable. But today, when further industrial growth implies future collapse, western society urgently needs to find new values to replace our worship of power, our restless chase after excitement, and our admiration of excessive consumption.

The values which we need, both to protect nature from civilization and to protect civilization from itself, are perhaps not new: Perhaps it would be more correct to say that we need to rediscover ethical values which once were part of human culture, but which were

lost during the process of industrialization when technology allowed us to break traditional environmental constraints.

Our ancestors were hunter-gatherers, living in close contact with nature, and respecting the laws and limitations of nature. There are many hunter-gatherer cultures existing today, from whose values and outlook we could learn much.* In some parts of Africa, before cutting down a tree, a man will offer a prayer of apology to the spirit of the tree, explaining why necessity has driven him to such an act. The attitude involved in this ritual is something which industrialized society needs to learn, or relearn.

Older cultures have much to teach industrial society because they are already pressing against environmental limits. In a traditional culture, where change is extremely slow, population has an opportunity to expand to the limits which the traditional way of life allows, so that it reaches equilibrium with the environment. For example, in a hunter-gatherer culture, population has expanded to the limits which can be supported without the introduction of agriculture. The density of population is, of course, extremely low, but nevertheless it is pressing against the limits of sustainability. Overhunting or overfishing would endanger the future. Respect for the environment is thus necessary for the survival of such a culture.

Similarly, in a stable, traditional agricultural society which has reached an equilibrium with its environment, population is pressing against the limits of sustainability. In such a culture, one can usually find expressed as a strong ethical principle the rule that the land must not be degraded, but left fertile for the use of future generations.

It would be wise for the industrialized countries to learn from the values of older traditional cultures; but what usually happens is the reverse: The unsustainable, power-worshipping, consumption-oriented values of western society are so strongly propagandized by television, films and advertising that they overpower and sweep aside the wisdom of older societies. Today, the whole world seems to be adopting values, fashions, and standards of behaviour presented in the mass media of western society. This is unfortunate, since besides showing us unsustainable levels of affluence and economic waste, the western mass media depict values and behavior patterns which are hardly worthy of imitation.

“Although the history of the 1929 depression is frightening, it may nevertheless be useful to look at the measures which were used then to bring the global economy back to its feet.”

8. The Responsibility of Governments

Like a speeding bus headed for a brick wall, the earth's rapidly-growing population of humans and its rapidly growing economic activity are headed for a collision with a very solid barrier – the carrying capacity of the global environment. As in the case of the bus and the wall, the correct response to the situation is to apply the brakes in good time, but fear prevents us from doing this. What will happen if we slow down very suddenly? Will not many of

* Unfortunately, instead of learning from them, we often move in with our bulldozers and make it impossible for their way of life to continue. During the past several decades, for example, approximately one tribe of South American forest Indians has died out every year. Of the 6000 human languages now spoken, it is estimated that half will vanish during the next 50 years.

the passengers be injured? Undoubtedly. But what will happen if we hit the wall at full speed? Perhaps it would be wise, after all, to apply the brakes!

The memory of the great depression of 1929 makes us fear the consequences of an economic slowdown, especially since unemployment is already a serious problem. Although the history of the 1929 depression is frightening, it may nevertheless be useful to look at the measures which were used then to bring the global economy back to its feet. A similar level of governmental responsibility may help us during the next few decades to avoid some of the more painful consequences of the necessary transition from the economics of growth to the economics of equilibrium.

“The economics of growth must be replaced by equilibrium economics, where considerations of ecology, carrying capacity, and sustainability are given proper weight, and where the quality of life of future generations has as much importance as present profits.”

Economists, industrialists and business leaders have a duty to the peoples of the world and to the global environment in much the same way that physicians have a sacred duty to the welfare of their patients. Therefore, the education of economists and industrialists ought to emphasize ethical and ecological principles. Like doctors, economists and industrialists carry matters of life and death in their hands: Think of the 10 million children who die each year from poverty-related causes; think of the wholesale extinction of species; think of global warming; think of the risk of a catastrophic future famine caused by population growth, by energy shortages, by climate change and by ecological degradation. We urgently need to introduce biology, ecology and ethics into the education of economists. The economics of growth must be replaced by equilibrium economics, where considerations of ecology, carrying capacity, and sustainability are given proper weight, and where the quality of life of future generations has as much importance as present profits.

Not only economists, but students of business administration should also be made conscious of the negative, as well as positive effects of globalization, and should consider the measures that will be needed to correct the negative effects. Students of business administration should be helped to develop an attitude of responsibility towards the less developed countries of the world, so that if they later become administrators in multinational corporations, they will choose generous and enlightened policies rather than exploitative ones.

The economic impact of war and preparation for war should be included in the training of economists. Both the direct and indirect costs of war should be studied, for example, the effect of unimaginably enormous military budgets in reducing the money available to solve pressing problems posed by the resurgence of infectious disease (e.g. AIDS, and drug-resistant forms of malaria and tuberculosis); the problem of population stabilization; food problems; loss of arable land; future energy problems; the problem of finding substitutes for vanishing non-renewable resources, and so on. Many of these problems were discussed at a recent conference of economists in Copenhagen, but the fact that all such global emergencies could be adequately addressed with a fraction of the money wasted on military budgets was not discussed.

Finally, economics curricula should include the problems of converting war-related industries to peaceful ones – the problem of beating swords into plowshares. It is often said that our economies are dependent on arms industries. If this is so, it is an unhealthy dependence, analogous to drug addiction, since arms industries do not contribute to future-oriented infrastructure. The problem of conversion is an important one. It is the economic analog of the problem of ending a narcotics addiction, and it ought to be given proper weight in the education of economists.

The Worldwatch Institute, Washington D.C., lists the following steps as necessary for the transition to sustainability: 1) Stabilizing population; 2) Shifting to renewable energy; 3) Increasing energy efficiency; 4) Recycling resources; 5) Reforestation and 6) Soil Conservation. All of these steps are labor-intensive; and thus, wholehearted governmental commitment to the transition to sustainability can help to solve the problem of unemployment.

In much the same way that Keynes urged Roosevelt to use governmental control of interest rates to achieve social goals, we can now urge our governments to use their control of taxation to promote sustainability. For example, a slight increase in the taxes on fossil fuels could make a number of renewable energy technologies economically competitive; and higher taxes on motor fuels would be especially useful in promoting the necessary transition from private automobiles to bicycles and public transport.

The economic recession that began with the US subprime mortgage crisis of 2007 and 2008 can be seen as an opportunity. It is thought to be temporary, but it is a valuable warning of irreversible long-term changes that will come later in the 21st century when the absolute limits of industrial growth are reached. Already we are faced with the problems of preventing unemployment and simultaneously building the infrastructure of an ecologically sustainable society.

Today's economists believe that growth is required for economic health; but at some point during this century, industrial growth will no longer be possible. If no changes have been made in our economic system when this happens, we will be faced with massive unemployment. Three changes are needed to prevent this:

- ♦ Labor must be moved to tasks related to ecological sustainability. The tasks include development of renewable energy, reforestation, soil and water conservation, replacement of private transportation by public transport. Health and family planning services must also be made available to all.
- ♦ Opportunities for employment must be shared among those in need of work, even if this means reducing the number of hours that each person works each week and simultaneously reducing the use of luxury goods, unnecessary travel, conspicuous consumption and so on. It will be necessary for governments to introduce laws reducing the length of the working week, thus ensuring that opportunities for employment are shared equally.
- ♦ The world's fractional reserve banking system needs to be reformed. We have the chance, already today, to make these changes in our economic system. The completely unregulated free market alone has proved to be inadequate in a situation where economic growth has slowed or halted, as is very apparent in the context of the present financial crisis. But, halfway through the 21st century, economic growth

will be halted permanently by ecological constraints and vanishing resources. We must construct a steady-state economic system – one that can function without industrial growth. Our new economic system needs to have a social and ecological conscience, it needs to be responsible, and it needs to have a farsighted global ethic. We have the opportunity to anticipate and prevent future shocks by working today to build a new economic system.

The introduction of Pigovian taxes by one country may make it less able to compete with other countries that do not include externalities in their pricing. Until such reforms become universal, free trade may give unfair advantages to countries which give the least attention to social and environmental ethics. Thus free trade and globalization will become fair and beneficial only when ethical economic practices become universal.

Governments already recognize their responsibility for education. In the future, they must also recognize their responsibility for helping young people to make a smooth transition from education to secure jobs. If jobs are scarce, work must be shared with a spirit of solidarity among those seeking employment; hours of work (and if necessary, living standards) must be reduced to ensure that all who wish it may have jobs. Market forces alone cannot achieve this. The powers of government are needed.

“In the world as it is today, a trillion dollars are wasted on armaments each year; and while this is going on, children in the developing countries sift through garbage dumps searching for scraps of food.”

Governments must recognize their responsibility for thinking not only of the immediate future but also of the distant future, and their responsibility for guiding us from the insecure and socially unjust world of today to a safer and happier future world. In the world as it is today, a trillion dollars are wasted on armaments each year; and while this is going on, children in the developing countries sift through garbage dumps searching for scraps of food. In today's world, the competition for jobs and for material possessions makes part of the population of the industrial countries work so hard that they damage their health and neglect their families; and while this is going on, another part of the population suffers from unemployment, becoming vulnerable to depression, mental illness, alcoholism, drug abuse and crime. In the world of the future, which we now must build, the institution of war will be abolished, and the enormous resources now wasted on war will be used constructively. In the future world, as it can be if we work to make it so, a stable population of moderate size will live without waste or luxury, but in comfort and security, free from the fear of hunger or unemployment. The world which we want will be a world of changed values, where human qualities will be valued more than material possessions. Let us try to combine wisdom and ethics from humanity's past with today's technology to build a sustainable, livable and equitable future world.

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At the root of the current crisis are not subprime mortgages, credit rating agencies, financial institutions or central banks. It is the Great Divorce between finance and economy, which is a subset of the widening precipice between economy and human welfare.

The Great Divorce: Finance and Economy

The Limits to Growth proved the inherent limitations of the existing industrial model of economic growth, not any inherent limits to growth itself.

Garry Jacobs & Ivo Šlaus, From Limits to Growth to Limitless Growth

Focusing on growth of the part without reference to its impact on the whole is a formula for social disease.

Economic Crisis and the Science of Economics

The idea of nuclear deterrence is a dangerous fallacy, and that the development of military systems based on nuclear weapons has been a terrible mistake, a false step that needs to be reversed.

John Scales Avery, Flaws in the Concept of Nuclear Deterrence

The first step into the direction of a world parliament would be the establishment of a Parliamentary Assembly at the United Nations.

Andreas Bummel, Social Evolution, Global Governance & a World Parliament

The evolution from physical violence to social power to authorized competence and higher values is an affirmation of the value basis of law.

Winston P. Nagan & Garry Jacobs, New Paradigm for Global Rule of Law

We propose that a new organisation be set up, perhaps called the 'World Community for Food Reserves'.

John McClintock, From European Union to World Union

A proper and well accepted definition of (forms of) misconduct, reliable means of identification, and effective corrective actions deserve a high priority on the agenda of research institutes, universities, academies and funding organs.

Pieter J. D. Drenth, Research Integrity

The clearing house should encourage thinking ahead so that law and governance can attempt to accommodate the numerous challenges of globalization, many new technologies, and the emerging Anthropocene Era.

Michael Marien, Law in Transition Biblioessay

The economics of growth must be replaced by equilibrium economics, where considerations of ecology, carrying capacity, and sustainability are given proper weight, and where the quality of life of future generations has as much importance as present profits.

John Scales Avery, Entropy & Economics

A strong and strategic knowledge system is essential for identifying, formulating, planning and implementing policy-driven actions while maintaining the necessary economic growth rate.

Jyoti Parikh, Dinoj Kumar Upadhyay & Tanu Singh,
Gender Perspectives on Climate Change & Human Security in India

The very possession of nuclear weapons violates the fundamental human rights of the citizens of the world and must be regarded as illegal.

Winston P. Nagan, Simulated ICJ Judgment

The emerging individual is less deferential to the past and more insistent on his or her rights; less willing to conform to regimentation, more insistent on freedom and more tolerant of diversity.

Evolution from Violence to Law to Social Justice

It is more rational to argue that developing countries cannot afford unemployment and underemployment, than to suppose that they cannot afford full employment.

Jesus Felipe, Inclusive Growth

The tremendously wasteful underutilization of precious human resources and productive capacity is Greece's most serious problem and also its greatest opportunity.

Immediate Solution for the Greek Financial Crisis

The Original thinker seeks not just ideas but original ideas which are called in Philosophy Real-Ideas. Cadmus Journal refers to them as Seed-Ideas. Ideas, sooner or later, lead to action. Pregnant ideas have the dynamism to lead to action. Real-Ideas are capable of self-effectuation, as knowledge and will are integrated in them.

Ashok Natarajan, Original Thinking

Given the remarkable progress of humanity over the past two centuries, the persistence of poverty might not be so alarming, were it not for the persistent poverty of new ideas and fresh thinking on how to eliminate the recurring crises, rectify the blatant injustices and replace unsustainable patterns with a new paradigm capable of addressing the deep flaws in the current paradigm.

Great Transformations

Our global systems can be resilient if they are based not only on efficient markets that can cope with future crises, but on principles that also allow for the projection of civic will and preference onto the global level. Stability and resilience are laudable goals but they need to be achieved in all three dimensions, the financial, the economic and the social, in a participatory fashion.

Patrick M. Liedtke, Getting Risks Right

Continued . . .

The Evolution of Cooperation

John Scales Avery, Fellow, World Academy of Art and Science;
University of Copenhagen, Denmark

Abstract:

The success of humans as a species is due to our genius for cooperation. Cultural evolution, a new form of evolution, in which information is passed between generations in the form of linguistic symbols rather than genetically, has been the key to human success. Cultural evolution depends on the sharing of knowledge, and humans have developed remarkable linguistic and cooperative abilities.

At the same time, human nature also has a darker side inherited from our ancestors who were hunter-gatherers living in small genetically homogeneous tribes competing for territory on the grasslands of Africa. The pattern of intra-tribal altruism and inter-tribal aggression, which humans have inherited from their remote ancestors, has been explained by the theories of population genetics and group selection put forward in the 1930s by R.A. Fischer and J.B.S Haldane, and discussed more recently by W.D. Hamilton and E.O. Wilson. In this picture, the tribe itself, rather than the individual, is the unit on which evolutionary forces acted.

This essay will try to show that symbiosis and cooperation have been responsible for all of the great upward steps in evolution, including the development of the first prokaryotes, the first eukaryotes, the first multi-cellular organisms, and the first cooperative groups of multi-cellular organisms. The views of T.H. Huxley, who stressed competition as an evolutionary force, will be contrasted with the ideas of Charles Darwin himself, Peter Kropotkin and Lynn Margulis and others, who fully understood the importance of symbiosis and cooperation in evolution.

The Explosion of Human Knowledge

Cultural evolution depends on the non-genetic storage, transmission, diffusion and utilization of information. The development of human speech, the invention of writing, the development of paper and printing, and finally in modern times, mass media, computers and the Internet – all these have been crucial steps in society's explosive accumulation of information and knowledge. Human cultural evolution proceeds at a constantly-accelerating speed, so great in fact that it threatens to shake society to pieces.

Every species changes gradually through genetic evolution; but with humans, cultural evolution has rushed ahead with such a speed that it has completely outstripped the slow rate of genetic change. Genetically, we are quite similar to our neolithic ancestors, but their world has been replaced by a world of quantum theory, relativity, supercomputers, antibiotics, genetic engineering and space telescopes; unfortunately, by a world of nuclear weapons and nerve gas too.

Because of the slowness of genetic evolution in comparison to the rapid and constantly-accelerating rate of cultural change, our bodies and emotions (as Malthus put it, the “passions of mankind”) are not completely adapted to our new way of life. They still reflect the way of life of our hunter-gatherer ancestors.

Within rapidly-moving cultural evolution, we can observe that technical change now moves with such astonishing rapidity that neither social institutions, nor political structures, nor education, nor public opinion can keep pace. The lightning-like pace of technical progress has made many of our ideas and institutions obsolete. For example, the absolutely sovereign nation-state and the institution of war have both become dangerous anachronisms in an era of instantaneous communication, global interdependence and all-destroying weapons.

In many respects, human cultural evolution can be regarded as an enormous success. However, at the start of the 21st century, most thoughtful observers agree that civilization is entering a period of crisis. As all curves move exponentially upward – population, production, consumption, rates of scientific discovery, and so on – one can observe signs of increasing environmental stress, while the continued existence and spread of nuclear weapons threaten civilization with destruction. Thus, while the explosive growth of knowledge has brought many benefits, the problem of achieving a stable, peaceful and sustainable world remains serious, challenging and unsolved.

Tribal Emotions and Nationalism

In discussing conflicts, we must be very careful to distinguish between two distinct types of aggression exhibited by both humans and animals. The first is intra-group aggression, which is often seen in rank-determining struggles, for example, when two wolves fight for pack leadership, or when males fight for the privilege of mating with females. Another completely different type of aggression is seen when a group is threatened by outsiders. Most animals, including humans, then exhibit a communal defense response – self-sacrificing and heroic combat against whatever is perceived to be an external threat. It is this second type of aggression that makes war possible.

Arthur Koestler has described inter-group aggression in an essay entitled “The Urge to Self-Destruction”, where he writes:

“Even a cursory glance at history should convince one that individual crimes, committed for selfish motives, play a quite insignificant role in the human tragedy compared with the numbers massacred in unselfish love of one’s tribe, nation, dynasty, church or ideology... Wars are not fought for personal gain, but out of loyalty and devotion to king, country or cause...”

“We have seen on the screen the radiant love of the Führer on the faces of the Hitler Youth... They are transfixed with love, like monks in ecstasy on religious paintings. The sound of the nation’s anthem, the sight of its proud flag, make you feel part of a wonderfully loving community. The fanatic is prepared to lay down his life for the object of his worship, as the lover is prepared to die for his idol. He is, alas, also prepared to kill anybody who represents a supposed threat to the idol.”

Members of tribe-like groups are bound together by strong bonds of altruism and loyalty. Echoes of these bonds can be seen in present-day family groups, in team sports, in the fellowship of religious congregations, and in the bonds that link soldiers to their army comrades and to their nation.

Warfare involves not only a high degree of aggression, but also an extremely high degree of altruism. Soldiers kill, but they also sacrifice their own lives. Thus, patriotism and duty are as essential to war as the willingness to kill.

Tribalism involves passionate attachment to one's own group, self-sacrifice for the sake of the group, willingness both to die and to kill if necessary to defend the group from its enemies, and belief that in case of a conflict, one's own group is always in the right. Unfortunately these emotions make war possible; and today a Third World War might lead to the destruction of civilization.

The Mystery of Self-Sacrifice in War

At first sight, the willingness of humans to die defending their social groups seems hard to explain from the standpoint of Darwinian natural selection. After the heroic death of such a human, he or she will be unable to produce more children, or to care for those already born. Therefore, one might at first suppose that natural selection would work strongly to eliminate the trait of self-sacrifice from human nature. However, the theory of population genetics and group selection can explain both the willingness of humans to sacrifice themselves for their own group, and also the terrible aggression that they sometimes exhibit towards competing groups. It can explain both intra-group altruism and inter-group aggression.

Fischer, Haldane, Hamilton and Wilson

The idea of group selection in evolution was proposed in the 1930s by J.B.S. Haldane and R.A. Fischer, and more recently it has been discussed by W.D. Hamilton and E.O. Wilson.

If we examine altruism and aggression in humans, we notice that members of our species exhibit great altruism towards their own children. Kindness towards close relatives is also characteristic of human behavior, and the closer the biological relationship is between two humans, the greater is the altruism they tend to show towards each other. This profile of altruism is easy to explain on the basis of Darwinian natural selection since two closely related individuals share many genes and, if they cooperate, the genes will be more effectively propagated.

To explain the communal defense mechanism from an evolutionary point of view, – the willingness of humans to kill and be killed in defense of their communities – we have only to imagine that our ancestors lived in small tribes and that marriage was likely to take place within a tribe rather than across tribal boundaries. Under these circumstances, each tribe would tend to consist of genetically similar individuals. The tribe itself, rather than the individual, would be the unit on which the evolutionary forces of natural selection would act.

According to the group selection model, a tribe whose members showed altruism towards each other would be more likely to survive than a tribe whose members cooperated less

effectively. Since several tribes might be in competition for the same territory, successful aggression against a neighboring group could increase the chances for survival of one's own tribe. Thus, on the basis of the group selection model, one would expect humans to be kind and cooperative towards members of their own group, but at the same time to sometimes exhibit aggression towards members of other groups, especially in conflicts over territory. One would also expect intergroup conflicts to be most severe in cases where the boundaries between groups are sharpest – where marriage is forbidden across the boundaries.

Language, Religion and Tribal Markings

In biology, a species is defined as a group of mutually fertile organisms. Thus, all humans form a single species, since mixed marriages between all known races will produce children, and subsequent generations in mixed marriages are also fertile. However, although there is never a biological barrier to marriages across ethnic and racial boundaries, there are often very severe cultural barriers.

Irenäus Eibl-Eibesfeldt, a student of Konrad Lorenz, introduced the word “pseudospeciation” to denote cases where cultural barriers between two groups of humans are so strongly marked that marriages across the boundary are difficult and infrequent.

In such cases, he pointed out, the two groups function as though they were separate species, although from a biological standpoint this is nonsense. When two such groups are competing for the same land, the same water, the same resources, and the same jobs, the conflicts between them can become very bitter indeed. Each group regards the other as being “not truly human”.

In his book “The Biology of War and Peace”, Eibl-Eibesfeldt discusses the “tribal markings” used by groups of humans to underline their own identity and to clearly mark the boundary between themselves and other groups. One of the illustrations in his book shows the marks left by ritual scarification on the faces of the members of certain African tribes. These scars would be hard to counterfeit, and they help to establish and strengthen tribal identity. Seeing a photograph of the marks left by ritual scarification on the faces of African tribesmen, it is impossible not to be reminded of the dueling scars that Prussian army officers once used to distinguish their caste from outsiders.

Surveying the human scene, one can find endless examples of signs that mark the bearer as a member of a particular group – signs that can be thought of as “tribal markings”: tattoos; piercing; bones through the nose or ears; elongated necks or ears; filed teeth; Chinese binding of feet; circumcision, both male and female; unique hair styles; decorations of the tongue, nose, or naval; peculiarities of dress, kilts, tartans, school ties, veils, chadors, and headdresses; caste markings in India; use or nonuse of perfumes; codes of honor and value systems; traditions of hospitality and manners; peculiarities of diet (certain foods forbidden, others preferred); giving traditional names to children; knowledge of dances and songs; knowledge of recipes; knowledge of common stories, literature, myths, poetry or common history; festivals, ceremonies, and rituals; burial customs, treatment of the dead and ancestor worship; methods of building and decorating homes; games and sports peculiar to a culture; relationship to animals, knowledge of horses and ability to ride; non-rational systems of belief.

Even a baseball hat worn backwards or the professed ability to enjoy atonal music can mark a person as a member of a special “tribe”.

By far, the most important mark of ethnic identity is language, and within a particular language, dialect and accent. If the only purpose of language were communication, it would be logical for the people of a small country like Denmark to stop speaking Danish and go over to a more universally-understood international language such as English. However, language has another function in addition to communication: it is also a mark of identity. It establishes the boundary of the group.

After language, the most important “tribal marking” is religion. It seems probable that in the early history of our hunter-gatherer ancestors, religion evolved as a mechanism for perpetuating tribal traditions and culture. Like language, and like the innate facial expressions studied by Darwin, religion is a universal characteristic of all human societies. All known races and cultures practice some sort of religion. Thus, a tendency to be religious seems to be built into human nature.

Formation of Group Identity

Although humans originally lived in small, genetically homogeneous tribes, the social and political groups of the modern world are much larger, and are often multiracial and multiethnic.

There are a number of large countries that are remarkable for their diversity, for example, Brazil, Argentina and the United States. Nevertheless, it has been possible to establish social cohesion and group identity within each of these enormous nations. India and China too, are mosaics of diverse peoples, but nevertheless, they function as coherent societies. Thus, we see that group identity is a social construction, in which artificial “tribal markings” define the boundaries of the group.

As an example of the use of tribal markings to establish social cohesion over a large group of genetically dissimilar humans, one can think of the role of baseball and football in the United States. Affection for these sports and knowledge of their intricacies establish social bonds that transcend racial and religious barriers.

One gains hope for the future by observing how it has been possible to produce both internal peace and social cohesion over very large areas of the globe – areas that contain extremely diverse populations. The difference between making large, ethnically diverse countries function as coherent sociopolitical units and making the entire world function as a unit is not very great.

Since group identity is a social construction, it is not an impossible goal to think of enlarging the already-large groups of the modern world to include all of humanity.

The Social Insects

The social insects, ants, bees, wasps and termites, exhibit nearly perfect altruism towards members of their own group. This extreme form of altruism towards near relations (kin altruism) is closely connected with the peculiar method of reproduction of the social insects.

The workers are sterile or nearly sterile, while the queen is the only reproductive female. The result of this special method of reproduction is that very nearly perfect altruism is possible within a hive or nest, since genetic changes favoring antisocial behavior would be detrimental to the hive or nest as a whole. The hive or nest can, in some sense, be regarded as a superorganism, with the individuals cooperating totally in much the same way that cells cooperate within a multicellular organism. The social insects exhibit aggression towards members of their own species from other hives or nests, and can be said to engage in wars. Interestingly, a similar method of reproduction, associated with extreme intra-group altruism, has evolved among mammals, but is represented by only two species: the naked mole rat and Damaraland mole rat.

From Thomas Huxley to Lynn Margulis and Symbiosis

Charles Darwin (1809-1882) was acutely aware of close and mutually beneficial relationships between organisms. For example, in his work on the fertilization of flowers, he studied the ways in which insects and plants can become exquisitely adapted to each other's needs.

On the other hand, Thomas Henry Huxley (1825-1895), although he was a strong supporter of Darwin, saw competition as the main mechanism of evolution. In his essay "Struggle for Existence and its bearing upon Man", Huxley wrote: "From the point of view of the moralist, the animal world is about on the same level as a gladiators' show. The creatures are fairly well treated and set to fight; hereby the strongest, the swiftest, and the cunningest live to fight another day. The spectator has no need to turn his thumbs down, as no quarter is granted."

Prince Peter Kropotkin (1842-1921) argued strongly against Huxley's point of view in his book "Mutual Aid; A Factor of Evolution". "If we ask Nature," Kropotkin wrote, "'who are the fittest: those who are continually at war with each other, or those who support one another?' we at once see that those animals that acquire habits of mutual aid are undoubtedly the fittest. They have more chances to survive, and they attain, in their respective classes, the highest development of intelligence and bodily organization."

Today, the insights of modern biology show that although competition plays an important role, most of the great upward steps in evolution have involved cooperation. The biologist Lynn Margulis (1938-2011) has been one of the pioneers of the modern viewpoint which recognizes symbiosis as a central mechanism in evolution.

One-Celled Organisms seen as Examples of Cooperation

The first small bacterial cells (prokaryotic cells) can be thought of as cooperative communities in which autocatalytic molecules thrived better together than they had previously done separately.

The next great upward step in evolution, the development of large and complex (eukaryotic) cells, also involved cooperation: many of their components, for example, mitochondria (small granular structures that are needed for respiration) and chloroplasts (the photosynthetic units of higher plants) are believed to have begun their existence as free-living prokaryotic cells. They now have become components of complex cells, cooperating biochemically with the other subcellular structures. Both mitochondria and chloroplasts possess their own DNA,

which shows that they were once free-living bacteria-like organisms, but they have survived better in a cooperative relationship.

Cooperation between Cells: Multicellular Organisms

Multicellular organisms evolved from cooperative communities of eukaryotic cells. Some insights into how this happened can be gained from examples which are just on the borderline between the multicellular organisms and single-celled ones. The cooperative behavior of a genus of unicellular eukaryotes called slime molds is particularly interesting because it gives us a glimpse of how multicellular organisms may have originated. The name of the slime molds is misleading, since they are not fungi, but are similar to amoebae.

Under ordinary circumstances, the individual cells wander about independently searching for food, which they draw into their interiors and digest. However, when food is scarce, they send out a chemical signal of distress. (Researchers have analyzed the molecule which expresses slime mold unhappiness, and they have found it to be cyclic adenosine monophosphate.) At this signal, the cells congregate and the mass of cells begins to crawl, leaving a slimy trail. As it crawls, the community of cells gradually develops into a tall stalk, surmounted by a sphere – the “fruiting body”. Inside the sphere, spores are produced by a sexual process. If a small animal, for example, a mouse, passes by, the spores may adhere to its coat; in this way, they may be transported to another part of the forest where food is more plentiful.

Slime molds represent a sort of missing link between unicellular and multicellular organisms. Normally the cells behave as individualists, wandering about independently, but when challenged by a shortage of food, the slime mold cells join together into an entity which closely resembles a multicellular organism.

The cells even seem to exhibit altruism, since those forming the stalk have little chance of survival, and yet they are willing to perform their duty, holding up the sphere at the top so that the spores will survive and carry the genes of the community into the future.

Multicellular organisms often live in a symbiotic relationship with other species. For example, in both animals and humans, bacteria are essential for the digestion of food. Fungi on the roots of plants aid their absorption of water and nutrients. Communities of bacteria and other organisms living in the soil are essential for the recycling of nutrients. Insects are essential to many plants for pollination.

Cooperation in Groups of Animals and Human Groups

The social behavior of groups of animals, flocks of birds and communities of social insects involves cooperation as well as rudimentary forms of language. Various forms of language, including chemical signals, postures and vocal signals, are important tools for orchestrating cooperative behavior.

The highly developed language of humans made possible an entirely new form of evolution. In cultural evolution (as opposed to genetic evolution), information is passed between generations not in the form of a genetic code, but in the form of linguistic symbols. With the invention of writing, and later the invention of printing, the speed of human cultural

evolution greatly increased. Cooperation is central to this new form of evolution. Cultural advances can be shared by all humans.

Trading in Primitive Societies

Although primitive societies engaged in frequent wars, they also cooperated through trade. Peter Watson, an English historian of ideas, believes that long-distance trade took place 150,000 years ago. There is evidence that extensive trade in obsidian and flint took place during the Stone Age. Evidence for wide ranging prehistoric obsidian and flint trading networks has been found in North America. Ancient burial sites in Southeast Asia show that there too, prehistoric trading took place across very large distances. Analysis of jade jewelry from the Philippines, Thailand, Malaysia and Viet Nam shows that the jade originated in Taiwan.

The invention of writing was prompted by the necessities of trade. In prehistoric Mesopotamia, clay tokens marked with simple symbols were used for accounting as early as 8,000 BC. Often these tokens were kept in clay jars, and symbols on the outside of the jars indicated the contents. About 3,500 BC, the use of such tokens and markings led to the development of pictographic writing in Mesopotamia, and this was soon followed by the cuneiform script, still using soft clay as a medium. The clay tablets were later dried and baked to ensure permanency. The invention of writing led to a great acceleration of human cultural evolution. Since ideas could now be exchanged and preserved with great ease through writing, new advances in technique could be shared by an ever larger cooperating community of humans. Our species became more and more successful as its genius for cooperation developed.

Gracilization and Decreasing Sexual Dimorphism

Early ancestors of modern humans had a relatively heavy (robust) bone structure in relation to their height. This robust bone structure seems to have been favored by frequent combat. During their evolution, modern humans became less robust and more gracile. In other words, their skeletons became lighter in relation to their height. Simultaneously, the height and weight of males became less different from the height and weight of females. These trends are generally interpreted as indicating that combat became less important as present-day humans evolved.

Ethics and Growth of the Social Unit

Early religions tended to be centered on particular tribes, and the ethics associated with them were usually tribal in nature. However, the more cosmopolitan societies that began to form after the Neolithic agricultural revolution required a more universal code of ethics. It is interesting to notice that many of the great ethical teachers of human history, for example, Moses, Socrates, Plato, Aristotle, Lao Tzu, Confucius, Buddha, and Jesus, lived at a time when the change to larger social units was taking place. Tribalism was no longer appropriate. A wider ethic was needed.

Today, the size of the social unit is again being enlarged, this time enlarged to include the entire world. Narrow loyalties have become inappropriate and there is an urgent need for

a new ethic – a global ethic. Loyalty to one's nation needs to be supplemented by a higher loyalty to humanity as a whole.

Interdependence in Modern Human Society

All of the great upward steps in the evolution of life on earth have involved cooperation: prokaryotes, the first living cells, can be thought of as cooperative communities of auto-catalysts; large, complex eukaryote cells are now believed to have evolved as cooperative communities of prokaryotes; multicellular organisms are cooperative communities of eukaryotes; multicellular organisms cooperate to form societies; and different species cooperate to form ecosystems. Indeed, James Lovelock has pointed out that the earth as a whole is a complex interacting system that can be regarded as a huge organism.

The enormous success of humans as a species is due to their genius for cooperation. The success of humans is a success of cultural evolution, a new form of evolution in which information is passed between generations, not in the form of DNA sequences but in the form of speech, writing, printing and finally electronic signals. Cultural evolution is built on cooperation, and has reached great heights of success as the cooperating community has become larger and larger, ultimately including the entire world.

Without large-scale cooperation, modern science would never have evolved. It developed as a consequence of the invention of printing, which allowed painfully gained detailed knowledge to be widely shared. Science derives its great power from concentration. Attention and resources are brought to bear on a limited problem until all aspects of it are understood. It would make no sense to proceed in this way if knowledge were not permanent, and if the results of scientific research were not widely shared. But, today, the printed word and the electronic word spread the results of research freely to the entire world. The whole human community is the repository of shared knowledge.

The achievements of modern society are achievements of cooperation. We can fly, but no one builds an airplane alone. We can cure diseases, but only through the cooperative efforts of researchers, doctors and medicinal firms. We can photograph and understand distant galaxies, but the ability to do so is built on the efforts of many cooperating individuals.

An isolated sponge cell can survive, but an isolated human could hardly do so. Like an isolated bee, a human would quickly die without the support of the community. The comfort and well-being that we experience depends on far-away friendly hands and minds, since trade is global, and the exchange of ideas is also global.

Finally, we should be conscious of our cooperative relationships with other species. We cannot live without the bacteria that help us to digest our food. We cannot live without the complex communities of organisms in the soil that convert dead plant matter into fertile topsoil. We cannot live without plants at the base of the food chain, but plants require pollination, and pollination frequently requires insects. An intricate cooperative network of inter-species relationships is necessary for human life, and indeed necessary for all life. Competition plays a role in evolution, but the role of cooperation is greater.

Two Sides of Human Nature

Looking at human nature, both from the standpoint of evolution and from that of everyday experience, we see the two faces of Janus: one face shines radiantly; the other is dark and menacing. Two souls occupy the human breast, one warm and friendly, the other, murderous. Humans have developed a genius for cooperation, the basis for culture and civilization; but they are also capable of genocide; they were capable of massacres during the Crusades, capable of genocidal wars against the Amerinds, capable of the Holocaust, of Hiroshima, of the killing-fields of Cambodia, of Rwanda, and of Darfur.

As an example of the two sides of human nature, we can think of Scandinavia. The Vikings were once feared throughout Europe. The Book of Common Prayer in England contains the phrase "Protect us from the fury of the Northmen!" Today the same people are so peaceful and law-abiding that they can be taken as an example for how we would like a future world to look. Human nature has the possibility for both kinds of behavior depending on the circumstances. This being so, there are strong reasons to enlist the help of education and religion to make the bright side of human nature win over the dark side. Today, the mass media are an important component of education, and thus the mass media have a great responsibility for encouraging the cooperative and constructive side of human nature rather than the dark and destructive side.

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LEARNING TO LIVE IN HARMONY,

by John Avery, H.C. Ørsted Institute

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New goals for education

Good education ought to make students well adapted to live in their environment. In the largest sense, “environment” means not only the family setting but also the political, economic and natural environments that surround young people as they grow up today. These environments have changed almost beyond recognition during the last few centuries; in fact, they have changed enormously during the last few decades, and consequently traditional education is in great need of revision.

When Samuel Johnson visited the Birmingham factory where James Watt’s newly-invented steam engines were being manufactured during the first stages of the Industrial Revolution, the owner proudly said to him, “I sell here, Sir, what all the world desires to have - Power!” *Power, Growth, Dominance* and *Profit* have been the traditional ideals of industrial society. However, it is doubtful whether they are appropriate ideals for the present and the future. In this essay we will discuss the reasons why *Harmony* is a much better ideal and a better goal for education in the world of today.

From empty world to full world

Adam Smith and other economists of the early Industrial Revolution lived in what might be called an “empty world” situation. In a world largely empty of human economic activities, they considered the limiting factors in the production of food and goods to be shortages of labor and capital. Natural resources were thought to be present in such large quantities that they were

not limiting. In the “empty world” picture of the classical economists, growth can continue as long as new capital can be accumulated, and as long as new labor can be supplied by population growth or mechanization. There is no upper limit. However, we are now encountering a “full world” situation.

In recent years the assumptions of the classical economists have become progressively more untrue. It is becoming increasingly obvious that the limiting factors in economic growth are no longer capital, human labor or ingenuity in automation. The limiting factors today are scarce cropland, scarce water, depleted reserves of fossil fuels and mineral resources, vanishing catches from overfished oceans, and limits imposed by the carrying capacity of the environment, by pollution and by climate change.

Cropland

The possibility of opening new lands for agriculture is decreasing rapidly. A Report by the United Nations Food and Agricultural Organization (*Provisional Indicative World Plan for Agricultural Development*, FAO, Rome, 1970) makes the following statement concerning new agricultural lands:

“In Southern Asia,...in some countries in Eastern Asia, in the Near East, and North Africa...there is almost no scope for expanding the agricultural area... In the dryer regions, it will even be necessary to return to permanent pasture the land which is marginal or submarginal for cultivation. In most of Latin America and Africa south of the Sahara, there are still considerable possibilities for expanding cultivated areas; but the costs of development are high, and it will often be more economical to intensify the utilization of the areas already settled.”

In the 1950's, both the U.S.S.R and Turkey attempted to convert arid grasslands into wheat farms. In both cases, the attempts were defeated by drought and wind erosion, just as the wheat farms of Oklahoma were overcome by drought and dust in the 1930's.

If irrigation of arid lands is not performed with care, salt may be deposited, so that the land is ruined for agriculture. This type of desertification can be seen, for example, in some parts of Pakistan. Another type of desertification can be seen in the Sahel region of Africa, south of the Sahara. Rapid population growth in the Sahel has led to overgrazing, destruction of trees, and wind erosion, so that the land has become unable to support even its original population.

Fossil fuels; peaks of production and consumption

Oil prices are expected to become steadily higher in the future because of diminishing reserves and increasing demand. Petroleum experts predict that the peak of production and consumption of oil (the Hubbert Peak) will occur within one or two decades. Similar figures hold for the production and consumption of a number of important minerals. The oceans cannot yield significantly greater catches of fish than they do now. In many regions, yields have dropped because of overfishing.

Loss of biodiversity

Tropical forests are being destroyed at an alarming rate, with a catastrophic loss of biodiversity. The burning of fossil fuels and the destruction of tropical forests have produced an increase of carbon dioxide in the earth's atmosphere and a steadily increasing average global temperature. Tropical rain forests are thought to be the habitat of more than half of the world's species of plants, animals and insects; and their destruction is accompanied by an alarming rate of extinction of species. The Harvard biologist, E.O. Wilson, estimates that the rate of extinction resulting from deforestation in the tropics may now exceed 4,000 species per year - 10,000 times the natural background rate (*Scientific American*, September, 1989).

The enormous biological diversity of tropical rain forests has resulted from their stability. Unlike northern forests, which have been affected by glacial epochs, tropical forests have existed undisturbed for millions of years. As a result, complex and fragile ecological systems have had a chance to develop. Professor Wilson expresses this in the following words:

“Fragile superstructures of species build up when the environment remains stable enough to support their evolution during long periods of time. Biologists now know that biotas, like houses of cards, can be brought tumbling down by relatively small perturbations in the physical environment. They are not robust at all.”

The number of species which we have until now domesticated or used in medicine is very small compared with the number of potentially useful species still waiting in the world's tropical rain forests. When we destroy them, we damage our future. But we ought to regard the annual loss of thousands of species as a tragedy, not only because biological diversity is potential wealth

for human society, but also because every form of life deserves our respect and protection.

Every year, more than 100,000 square kilometers of rain forest are cleared and burned, an area which corresponds to that of Switzerland and the Netherlands combined. Almost half of the world's tropical forests have already been destroyed. Ironically, the land thus cleared often becomes unsuitable for agriculture within a few years.

Tropical soils may seem to be fertile when covered with luxuriant vegetation, but they are usually very poor in nutrients because of leeching by heavy rains. The nutrients which remain are contained in the vegetation itself; and when the forest cover is cut and burned, they are rapidly leached away.

Often the remaining soil is rich in aluminum oxide and iron oxide. When such soils are exposed to oxygen and sun-baking, a rocklike substance called laterite is formed. The temples of Angkor Wat in Cambodia are built of laterite; and it is thought that the Khmer civilization, which built these temples a thousand years ago, disappeared because of laterization of the soil.

The mathematical properties of exponential growth

Our economists, whose education is based on the assumptions of Adam Smith and other economic thinkers of the early Industrial Revolution, still continue to regard *Growth* as the Holy Grail. A 5 percent rate of growth is considered to be the mark of a healthy economy. This blind faith in growth can only be maintained by ignoring not only the rapid approach of the global economy to limits imposed by the carrying capacity of the earth's environment, but also by ignoring the mathematical properties of exponential growth. Economists apparently refuse to look more than a decade or so into the future. What they would see, if they looked a little farther, is that a 5 percent rate of growth implies that whatever is growing will double in 14 years, grow by a factor of 132 in a century, by a factor of 17,292 in two centuries, by a factor of 2,273,996 in three centuries, and so on. Thus, in the long run, economic growth cannot possibly be sustainable; nor can population growth be sustainable, as can be seen from the mathematics of any type of exponential growth.

The goals of education, especially the education of economists, need to be changed in such a way as to include a realistic picture of today's world. All students, especially economists, must learn the fact that in the long run neither population growth nor economic growth is sustainable. A new kind of

economics should be taught - not “empty world” economics but “full world” economics; not the economics of growth but the economics of equilibrium and stability. More detailed discussions of these issues can be found on this website in *Malthus’ Essay on the Principle of Population* and in *Towards a Sustainable Global Society*.

The social impact of science

Let us consider some other ways in which the world is changing, all of which imply a need for new goals in education. Science and technology have developed extremely rapidly in recent decades, and they will undoubtedly continue to do so in the future. The result has been that humans now have an unprecedented and constantly increasing power over nature, which can be used for both good and evil. Science has given us the possibility of a life free from hunger and free from the constant threat of death through infectious disease. At the same time, however, our constantly accelerating technology has given us the possibility of destroying civilization in a thermonuclear war.

Since it is almost impossible to prevent science from making new discoveries that can be used both constructively and disastrously, one of the new goals of education must be to give voters the knowledge needed to choose wisely the among ways in which our enormous new powers over nature can be used. This implies that some familiarity with science is needed even for students who specialize in the humanities. A study of the history and social impact of science ought to be part of the education of both scientists and humanists. This should include discussions of global problems and ethical dilemmas related to scientific and technological progress. Scientists also need some background in the humanities in order to see their work as part of a larger picture.

Global ethics

Traditional education has always tried to produce patriotism in its students. This may once have been a reasonable goal, but today a broader view than narrow nationalism is needed. Global interdependence and communication have increased to such an extent that the absolutely sovereign nation-state has become a dangerous anachronism. If the disaster of a third world war is to be avoided, structures of government and law must be built up at an

international level. One of the new goals for education should be to prepare students for this great task. Today's students need a global ethic - a loyalty to humanity as a whole, rather than a narrowly nationalistic loyalty.

History has traditionally been taught in such a way that one's own nation is seen as being heroic and always in the right. History textbooks also emphasize power, dominance and military conflicts. A reformed teaching of history might instead be a chronicle of the gradual cultural advances of humankind as a whole, giving adequate recognition to the contributions of all nations and peoples, and giving weight to constructive achievements rather than to power struggles and conflicts.

Harmony in human relations; The problem of war

When he heard of the nuclear destruction of Hiroshima and Nagasaki, Albert Einstein said, "Everything has changed except our way of thinking." Expressing the same thought, but in more detail, the Nobel laureate biochemist Albert Szent-Györgyi once wrote:

"The story of man consists of two parts, divided by the appearance of modern science at the turn of the century. In the first period, man lived in the world in which his species was born and to which his senses were adapted. In the second, man stepped into a new, cosmic world to which he was a complete stranger.... The forces at man's disposal were no longer terrestrial forces, of human dimension, but were cosmic forces, the forces which shaped the universe. The few hundred Fahrenheit degrees of our flimsy terrestrial fires were exchanged for the ten million degrees of the atomic reactions which heat the sun."

"This is but a beginning, with endless possibilities in both directions - a building of a human life of undreamt of wealth and dignity, or a sudden end in utmost misery. Man lives in a new cosmic world for which he was not made. His survival depends on how well and how fast he can adapt himself to it, rebuilding all his ideas, all his social and political institutions."

"...Modern science has abolished time and distance as factors separating nations. On our shrunken globe today, there is room for one group only - the family of man."

New ways of thinking are urgently required to deal with the threat of nuclear weapons. The need for new ways of thinking implies a need for new modes of education. Two enormous tasks for the future will face the students

passing through our educational systems. The first task is to stabilize global population. The second great task for the future will be to eliminate the institution of war and to replace it by humane governance and an equitable system of laws at the global level.

During the last century, the rapid development of science has made war progressively more horrible and potentially catastrophic. In the First World War it became clear that the romantic ideal of war no longer existed. Ideals of heroism, patriotism and gallantry filled the minds of the millions of young men who went to war in 1914, but instead of the romantic adventures they expected, they experienced the horrors of trench warfare, gangrene, barbed wire, artillery bombardments, machine-gun slaughter, and poison gas. Sixty-five million soldiers were mobilized in the First World War. When it was over, 37.5 million of these were casualties - either killed, wounded or missing. For some countries, the percentage of casualties among the mobilized soldiers was astonishingly high: Austria-Hungary mobilized 7.8 million soldiers, and of these, 7.0 million were casualties, i.e., 90%! For Germany, Russia, France and Romania, the percentages were respectively 65%, 76%, 76%, and 71%.

In the Second World War, the number of soldiers killed was roughly the same as in World War I, but the numbers of civilian deaths was much larger. In the USSR alone, about 20 million people are thought to have been killed, directly or indirectly, by World War II, and of these only 7.5 million were battle deaths. Many of the USSR's civilian deaths were caused by starvation, disease or exposure. Civilian populations also suffered greatly in the devastating bombings of cities such as London, Coventry, Rotterdam, Warsaw, Dresden, Cologne, Berlin, Tokyo, Hiroshima and Nagasaki.

If we look several decades into the future, it becomes clear that the survival of civilization requires that nuclear weapons (and ultimately the institution of war itself) must be abolished. Here are some facts that indicate how pressing the danger really is:

- **Despite the end of the Cold War, and despite reductions following the SALT treaties, there are still 30,000 nuclear weapons in the world.** 95% of these weapons are in the United States and Russia, but China, Great Britain, France, Pakistan, India, North Korea and Israel have sufficient numbers to do enormous damage. Israel is thought to have between 100 and 200 nuclear weapons, including thermonuclear bombs and neutron bombs.

- **44 countries have access to the fissile materials and technology needed to make nuclear weapons.** As the number of countries possessing these weapons increases, there is an increasing danger that they will be used in conflicts, or that, through collapse of an unstable state, the weapons will fall into the hands of subnational groups.
- **More than 4,500 warheads remain on hair-trigger alert.** If the “fire on warning” status of these warheads is not reduced, then, over a long period of time, the danger that a catastrophic accident will occur will increase so much as to become almost a certainty. According to the US government, there were 32 accidents, false alarms and malfunctions involving US nuclear weapons prior to 1980. Several of these brought us to the brink of accidental nuclear war. In the USSR, an especially dangerous accident occurred on 26 September, 1983. A newly-installed Soviet surveillance system reported that the United States had launched a missile attack against the Soviet Union. Had it not been for the insistence of Colonel Stanislov Petrov that this should be reported as a false alarm, thousands of warheads would have been launched against the US in retaliation. The megatonnage involved in the resulting thermonuclear exchange between the two countries would have been 30 to 60 times the amount needed to produce nuclear winter. This incident is considered by many analysts to be the closest the world has come to a full-scale nuclear disaster, but there is a great threat that such an accident will actually occur in the future.
- **There are more than 3,000,000 kilograms of highly enriched uranium (HEU) and plutonium in the world.** Almost half of this fissile material is in Russia, in poorly-guarded installations. A subnational organization in possession of a critical mass of HEU would be capable of constructing a crude gun-type nuclear weapon. In such a device, two grapefruit-sized subcritical pieces of HEU are placed at opposite ends of a cannon, and are driven together by conventional explosives. Such a device, brought into a city by means of a truck or boat and exploded, could destroy the city center and cause several hundred thousand deaths. The sequence of events initiated by such a nuclear terrorist attack could be catastrophic.
- **The Nuclear Non-Proliferation Treaty (NPT) is in danger.**

The NPT has been in force as international law since 1970 and it has now been signed by 187 nations. In this treaty, the five original nuclear weapon states (the US, USSR, France, China and England) agreed to take effective steps towards complete nuclear disarmament (Article IV). In return, the non-nuclear-weapon states agreed not to obtain these weapons. Israel, India and Pakistan have refused to sign the NPT, and North Korea has withdrawn its signature. The NPT is reviewed every 5 years and it was reviewed again in May, 2005. However, the disagreement between the nuclear weapon states and those lacking these weapons was so great that they could not even agree on an agenda for the 2005 NPT Review Conference. The nuclear weapon states refused even to discuss the 13 Practical Steps towards nuclear disarmament which were agreed on at the NPT Review Conference in 2000.

These facts indicate that the world must construct a system of global law to replace the institution of war as a means of resolving conflicts. The facts also indicate that we do not have an unlimited time in which to make these reforms. A more detailed discussion of problems related to war and nuclear weapons can be found on this website in in *Space-Age Science and Stone-Age Politics*.

The interrelatedness of global problems; War as a cause of poverty

It is important to notice all of the major problems facing the world today are closely interlinked. For example, the problem of eliminating global inequality and poverty is linked in several ways with the problem of eliminating war.

In the first place, war is one of the greatest sources of poverty. For example, much of the enormous third world debt is due to arms purchases, which make no constructive contribution to development. Indeed, the pervasiveness of small arms in parts of Africa makes armed conflict there so endemic that development is all but impossible. Wars also destroy infrastructure and damage ecology on a large scale. One can think, for example of the destruction of power plants and water purification plants in Iraq during the first Gulf war or the use of defoliants during the Viet Nam War. The defoliants destroyed forests and made large areas of land unsuitable for agriculture.

Victims of land mines, poison gas, bombings or small arms can be crippled for life and can become economic burdens for their societies. Soldiers are taken away from useful occupations during wars, and if killed or severely wounded, they can no longer help their families. The treatment of war casualties imposes a great burden on medical facilities. Psychological damage is inflicted soldiers (especially child soldiers), making them unfit for useful roles in society. Industries making munitions are diverted from useful activities. Thus, in a variety of ways, war is one of the most important sources of poverty.

Poverty as a hindrance to global law and governance

A second link between poverty and the problem of war has to do with the contrasts between rich and poor nations as a hindrance to the development of international law and governance. If we survey the nations of the world, we can find many within which good government has been achieved, together with some measure of internal peace and happiness. Some very large countries can claim to function as coherent (although not ideal) social units, with almost complete freedom from internal wars. One can think, for example, of Brazil, India, China, the United States and Russia. Each of these countries is so large and has such an inhomogeneous population that the problem of achieving internal peace within them is not qualitatively different from the problem of achieving peace throughout the entire world. The same methods that each of these enormous countries uses within itself could be used globally - for example education for social cohesion, and systems of laws that act on individuals. However, plans for strong government at a global level are blocked by enormous contrasts between rich and poor nations. Rich nations fear that with a strong world government, they would lose the advantages that they now have.

The European Union has already encountered the problem of economic inequality as a barrier to efforts to strengthen and enlarge the federation. The richer nations of the EU fear that they will have to pay high taxes to support economic progress in the poorer parts of the Union. Nevertheless, the EU is attempting to solve these problems, motivated by the conviction that whatever its defects, some degree of political union is needed to rule out the possibility that the horrors of World Wars I and II will ever be repeated. The EU is extremely interesting since it gives us a model of what needs to be

done globally. Of course the global contrasts between rich and poor nations are far greater than those found within the EU, but these global North-South contrasts also can be and must be eliminated.

The legacy of the Industrial Revolution and colonialism can be seen in the division of today's world into a set of rich industrialized countries (typified by the G8) and a group of developing countries with far smaller per capita GDP's. The problem of achieving equal economic conditions throughout the world must be solved by the generation of students now going through our school system, and their education must prepare them for this task. A stable future world cannot be a world of inequality.

Pandemics, poverty and war

Another problem facing the world today is the resurgence of infectious disease. Examples of this are pandemics of HIV/AIDS, malaria, and drug-resistant tuberculosis. The seriousness of these pandemics can be gauged by the following statistics:

- In 2004, there were approximately 39.4 million people living with HIV, 4.9 million new HIV infections, and 3.1 million deaths due to AIDS. It is estimated that in five populous countries, Nigeria, Ethiopia, Russia, India and China, the number of people infected with HIV/AIDS will grow from 14-23 million currently to 50-75 million by 2010. 95% of those living with HIV/AIDS do not know that they are infected with the disease.
- Approximately 2 billion people (one third of the world's population!) are infected with TB, often in a latent form. 90% of the burden of TB falls on the developing countries; on India alone, 30%. Roughly 2 million people die from TB each year. It is the number one killer of women of childbearing age.
- Every year there are 300 million cases of malaria, and it causes about one million deaths. There are roughly 10 new cases of malaria every second, 90% of which are in Africa. A quarter of all childhood deaths in Africa are due to malaria.

Clearly these pandemics are linked to poverty, both as causes of poverty and as its effects. They are also linked to the problem of war. Today, the

world spends roughly a trillion (million million) US dollars each year on armaments. This amount of money is almost too large to imagine, and if we instead used it constructively, almost all of the problems facing the world today could be solved. In particular, a tiny fraction of the money wasted (or worse than wasted) on armaments could drastically reduce the number of deaths from malnutrition and preventable disease.

The World Health Organization lacks funds to carry through an anti-malarial program on as large a scale as would be desirable, but the entire program could be financed for less than our military establishments spend in a single day. Five hours of world arms spending is equivalent to the total cost of the 20-year WHO campaign that resulted in the eradication of smallpox. For every 100,000 people in the world, there are 556 soldiers, but only 85 doctors. Every soldier costs an average of \$20,000 per year, while the average spent on education is only \$380 per school-aged child. With a diversion of funds consumed by three weeks of military spending, the world could create a sanitary water supply for all its people, thus eliminating the cause of almost half of all human illness.

A new drug-resistant form of tuberculosis has recently become widespread in Asia and in the former Soviet Union. In order to combat this new and highly dangerous form of tuberculosis and to prevent its spread, WHO needs \$500 million, an amount equivalent to 4 hours of world arms spending.

Today's world is one in which roughly ten million children die every year from starvation or from diseases related to poverty. Besides this enormous waste of young lives through malnutrition and preventable disease, there is a huge waste of opportunities through inadequate education. The rate of illiteracy in the 25 least developed countries is 80%, and the total number of illiterates in the world is estimated to be 800 million. Meanwhile every 60 seconds the world spends \$2 million on armaments.

Population growth as a cause of poverty

It is vital for the wellbeing of future generations that global population should be stabilized and perhaps even somewhat reduced. Here again there are links to the problem of war. T.R. Malthus, one of the pioneers of demography, pointed out that at almost all times, populations are held in check by strong forces. These may be preventive checks, such as late marriage or birth control; but if the preventive checks fail, the grim "Malthusian forces" come into play

- famine, disease and war. One hopes that in the future it may be possible to reduce the human suffering caused by the terrible Malthusian forces - war, famine, and disease. But if these positive checks to exponential population growth are removed, they must be replaced by preventive checks.

One of the goals of the World Health Organization has been the ideal aim of providing primary health to all people throughout the world. The former Director General of WHO, Halfdan Mahler, realized that his organization had a responsibility for providing social health as well as health in the purely biological sense. Therefore Dr. Mahler believed that primary health care should include the provision of the materials and information needed for family planning. He expressed the relationship between health, development and family planning in the following words:

“Country after country has seen painfully achieved increases in total output, food production, health and educational facilities and employment opportunities reduced or nullified by excessive population growth. Most under-developed countries therefore seek to limit their population growth.”

“The lesson of recent years is that virtually wherever health-care facilities have been made available, women have demanded information and the necessary materials for spacing their children and limiting their families.”

Thus the universal provision of primary health care could help greatly to stabilize the global population. Adequate money for this purpose would be easily available if it were not wasted on armaments. Education, especially education of girls, is also strongly linked to population stabilization, and the money needed for education is only a tiny fraction of the trillion dollars spent each year on war. See also *Malthus Essay on the Principle of Population* on this website.

War, education and the mass media

Advocates of education for peace can obtain important guidance and encouragement from UNESCO - the United Nations Educational, Scientific and Cultural Organization. The Constitution of UNESCO, was written immediately after the end of the Second World War, during which education had been misused (especially in Hitler's Germany) to indoctrinate students in such a way that they became uncritical and fanatical supporters of military dictatorships. The founders of the United Nations were anxious to correct this misuse, and to make education instead one of the foundations

of a peaceful world. One can see this hope in the following paragraph from UNESCO's Constitution:

"The purpose of the Organization is to contribute to peace and security by promoting collaboration among nations through education, science and culture in order to further universal respect for justice, for the rule of law and for the human rights and fundamental freedoms which are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations." In other words, UNESCO was given the task of promoting education for peace, and of promoting peace through international cooperation in education.

During the time when he was Secretary-General of UNESCO, Federico Mayor Zaragoza of Spain introduced the concept of a *Culture of Peace*. He felt, as many did, that civilization was entering a period of crisis. Federico Mayor believed this crisis to be as much spiritual as it was economic and political. It was necessary, he felt, to counteract our present power-worshiping culture of violence with a Culture of Peace, a set of ethical and aesthetic values, habits and customs, attitudes towards others, forms of behavior and ways of life. Mayor and UNESCO implemented this idea by designating the year 2000 as the International Year of the Culture of Peace.

In addition, Federico Mayor and UNESCO initiated a Campaign for the Children of the World, and this eventually developed into the International Decade for a Culture of Peace and Non-Violence for the Children of the World (2001-2010). In support of this work, the UN General Assembly drafted a Program of Action on a Culture of Peace (53rd Session, 2000). The Program of Action obliges its signatories to "ensure that children, from an early age, benefit from education on the values, attitudes, modes of behavior and ways of life to enable them to resolve any dispute peacefully and in a spirit of respect for human dignity and of tolerance and non-discrimination", and to "encourage the revision of educational curricula, including textbooks..."

Just as this program was starting, the September 11 terrorist attacks gave an enormous impetus to the culture of violence, and almost silenced the voices speaking for a Culture of Peace. Since that event, the mass media (which are an important part of our educational system) have more than ever supported a culture of violence and war.

Scientific progress has given us almost miraculously powerful means of electronic communication. If properly used, they could help enormously in the task of building a global ethic and global consciousness, but too often

they are misused to support narrow nationalism and the culture of war and violence. If a peaceful and stable future world is to be built, it must be through reform of education and reform of the mass media.

Why doesn't the United Nations have its own global television and radio network? Such a network could produce an unbiased version of the news. It could broadcast documentary programs on global problems. It could produce programs showing viewers the music, art and literature of other cultures than their own. It could broadcast programs on the history of ideas, in which the contributions of many societies were adequately recognized. At New Year, when people are in the mood to think of the past and the future, the Secretary General of the United Nations could broadcast a "State of the World" message, summarizing the events of the past year and looking forward to the new year, with its problems, and with his recommendations for their solution. A United Nations television and radio network would at least give viewers and listeners a choice between programs supporting militarism, and programs supporting a global culture of peace. At present they have little choice. A more detailed discussion of these issues can be found on this website in Chapter 9 of *Space-Age Science and Stone-Age Politics*.

Learning the concept of harmony from pre-industrial cultures

The era of colonialism has left the industrialized countries with a rather arrogant attitude towards other cultures. Although formal political colonialism has almost entirely vanished, many of the assumptions of the colonial era persist and are strongly supported by the mainstream mass media. It is assumed by many people in the industrialized North that if the developing countries would only learn mass production, modern farming techniques and a modern lifestyle, all would be well. However, a sustainable global future may require a transfer of knowledge, techniques and attitudes in precisely the opposite direction - from pre-industrial societies to highly industrialized ones. The reason for this is that the older societies have cultures that allow them to live in harmony with nature, and this is exactly what the highly industrial North must learn to do.

Industrialism and the rapid development of science and technology have given some parts of the world a 200-year period of unbroken expansion and

growth, but today this growth is headed for a collision with a wall-like barrier - limits set by the carrying capacity of the global environment and by the exhaustion of non-renewable resources. Encountering these limits is a new experience for the industrialized countries. By contrast, pre-industrial societies have always experienced limits. The industrialized world must soon replace the economics of growth with equilibrium economics. Pre-industrial societies have already learned to live in equilibrium - in harmony with nature.

Like biodiversity, cultural diversity is an extremely valuable resource, and for similar reasons. A large genetic pool gives living organisms the flexibility needed to adapt to changes in the environment. Similarly, cultural diversity can give humans the flexibility needed to cope with change. In the changed world of today (changed by the invention of thermonuclear weapons and by the extraordinary growth of global population and commerce) we urgently need to learn to live in harmony, in harmony with ourselves, in harmony with nature, and in harmony with other members of our species. We can do this if we draw on the full human heritage of cultural diversity. We can draw not only on the knowledge and wisdom of presently existing societies, but also on the experiences and ideas of societies of the past.

- **The Pythagorean concept of harmony:** In the ancient world, the concept of harmony was developed to a high level by the Pythagoreans. The Pythagoreans used the idea of harmony to understand medicine, music, mathematics and ethics. A description of Pythagorean ideals can be found on this website in Chapter 2 of *Science and Society*.
- **The concept of harmony in Chinese civilization:** Chinese civilization is very ancient, and it has made many extremely important contributions to the cultural heritage of the world - for example, the invention of paper, ink, printing and the magnetic compass. Agriculture began in China as early as 6,000 B.C. The art of working in bronze was developed in China during the Shang dynasty (1,500 B.C. - 1,100 B.C.) and it reached a high pitch of excellence in the Chou dynasty (1,100 B.C. - 250 B.C.).

In the Chou period, many of the cultural characteristics which we recognize as particularly Chinese were developed. During this period, the Chinese evolved a code of behavior based on politeness and ethics. Much of this code of behavior is derived from the teachings of K'ung

Fu-tzu (Confucius), a philosopher and government official who lived between 551 B.C. and 479 B.C.. The “Golden Rule” was known to K’ung Fu-tzu, but was formulated in a negative way: “Do not do to others anything that you would not like them do to you”.

The rational teachings of K’ung Fu-tzu were complemented by the more mystical and intuitive doctrines of Lao-tzu and his followers. Lao-tzu lived at about the same time as K’ung Fu-tzu, and he founded the Taoist religion. The Taoists believed that unity with nature could be achieved by passively blending oneself with the forces of nature.

On the whole, politicians and scholars followed the practical teachings of K’ung Fu-tzu, while poets and artists became Taoists. The intuitive sensitivity to nature inspired by Taoist beliefs allowed these artists and poets to achieve literature and art of unusual vividness and force with great economy of means. The Taoist religion has much in common with Buddhism, and its existence in China paved the way for the spread of Buddhism from India to China and Japan.

Taoist and Confucian teachings each emphasized a particular aspect of harmony. Taoism emphasized harmony with nature, while Confucianism taught harmonious relationships between humans. Thus in China, harmony became an ideal advocated by both traditions. The Chinese respect for harmony as an ideal can be seen, for example, in the beautiful Temple of Divine Harmony in Beijing.

- **India:** Evidence of a very early river-valley civilization in India has been found at a site called Mohenjo-Daro. However, in about 2,500 B.C., this early civilization was destroyed by some great disaster, perhaps a series of floods; and for the next thousand years, little is known about the history of India. During this dark period between 2,500 B.C. and 1,500 B.C., India was invaded by the Indo-Aryans, who spoke Sanskrit, a language related to Greek. The Indo-Aryans partly drove out and partly enslaved the native Dravidians. However, there was much intermarriage between the groups, and to prevent further intermarriage, the Indo-Aryans introduced a caste system sanctioned by religion.

According to Hindu religious belief, the soul of a person who has died is reborn in another body. If, throughout his life, the person has faithfully performed the duties of his caste, then his or her soul may be reborn

into a higher caste. Finally, after existing as a Brahman, the soul may be so purified that it can be released from the cycle of death and rebirth.

In the 6th century B.C., Gautama Buddha founded a new religion in India. Gautama Buddha was convinced that all the troubles of humankind spring from an excessive attachment to earthly things. He felt that the only escape from sorrow is through the renunciation of earthly desires. He also urged his disciples to follow a high ethical code, the Eightfold Way. Among the sayings of Buddha are the following:

“Hatred does not cease by hatred at any time; hatred ceases by love.”

“Let a man overcome anger by love; let him overcome evil by good.”

“All men tremble at punishment. All men love life. Remember that you are like them, and do not cause slaughter.”

Both Hindu and Buddhist traditions emphasize the unity of all life on earth. Hindus regard killing an animal as a sin, and many try to avoid accidentally stepping on insects as they walk. (The Hindu and Buddhist picture of the relatedness of all life on earth has been confirmed by modern biological science. We now know that all living organisms have the same fundamental biochemistry, based on DNA, RNA, proteins and polysaccharides, and we know that our own human genomes are more similar to than different from the genomes of our close relations in the animal world.)

The peoples of the industrialized nations urgently need to acquire a non-anthropocentric element in their ethics, similar to reverence for all life found in the Hindu and Buddhist traditions, as well as in the teachings of Saint Francis of Assisi and Albert Schweitzer. We need to learn to value other species for their own sakes, and not because we expect to use them for our own economic goals.

The Buddhist concept of karma has great value in human relations. The word “karma” means simply “action”. In Buddhism, one believes that actions return to the actor. Good actions will be returned, and bad actions will also be returned. This is obviously true in social relationships. If we behave with kindness and generosity to our neighbors, they will return our kindness. Conversely, a harmful act may lead to a vicious circle of revenge and counter-revenge which can only be broken

by returning good for evil. However the concept of karma has a broader and more abstract validity beyond the direct return of actions to the actor.

When we perform a good action, we increase the total amount of good karma in the world. If all people similarly behave well, the the world as a whole will become more pleasant and more safe. Human nature seems to have a built-in recognition of this fact, and we are rewarded by inner happiness when we perform good and kind actions. In his wonderful book, “Ancient Wisdom, Modern World”, the Dalai Lama says that good actions lead to happiness and bad actions to unhappiness even if our neighbors do not return these actions. Inner peace, he tells us, is incompatible with bad karma and can be achieved only through good karma, i.e. good actions.

There is a great deal of similarity between the Buddhist concept of karma and some of the ethical principles of Christianity, particularly principles that appear in the Sermon on the Mount. Also Buddha’s saying “Hatred does not cease by hatred at any time; hatred ceases by love” echoes the Christian principle of returning good for evil. Both are aimed at stopping vicious circles of revenge and counter-revenge, such as those that can now be observed in the Middle East.

More details about the Chinese and Indian civilizations can be found in Chapter 4 of *Science and Society*

- **Bhutan** Before the doors of Bhutan were cautiously opened to visitors in 1974, the country remained aloof from the modern world. One of the most striking characteristics of the ancient Bhutanese culture was that most of the actions of its citizens were done from a sense of duty and tradition, rather than for economic reasons. The citizens of Bhutan derived great happiness from these actions. For example, caring for the elderly was to them not only a duty but also a great source of pleasure. It is doubtful whether modernization will increase the happiness of the Bhutanese.
- **Harmony with nature in the Native American culture:** The attitude towards nature of the Sioux can be seen from the following quotations from *Land of the Spotted Eagle* by the Lakota (Western Sioux) chief, Standing Bear (ca. 1834 - 1908):

“The Lakota was a true lover of Nature. He loved the earth and all things of the earth... From Waken Tanka (the Great Spirit) there came a great unifying life force that flowered in and through all things – the flowers of the plains, blowing winds, rocks, trees, birds, animals – and was the same force that had been breathed into the first man. Thus all things were kindred and were brought together by the same Great Mystery.”

“Kinship with all creatures of the earth, sky, and water was a real and active principle. For the animal and bird world there existed a brotherly feeling that kept the Lakota safe among them. And so close did some of the Lakota come to their feathered and furred friends that in true brotherhood they spoke a common tongue.”

“The animal had rights – the right of man’s protection, the right to live, the right to multiply, the right to freedom, and the right to man’s indebtedness – and in recognition of these rights the Lakota never enslaved the animal, and spared all life that was not needed for food and clothing.”

“This concept of life was humanizing and gave to the Lakota an abiding love. It filled his being with the joy and mystery of things; it gave him reverence for all life; it made a place for all things in the scheme of existence with equal importance to all. The Lakota could despise no creature, for all were one blood, made by the same hand, and filled with the essence of the Great Mystery.”

A similar attitude towards nature can be found in traditional Inuit cultures.

- **St. Francis of Assisi (1181-1226) and Mahatma Gandhi (1869-1948):** There are similarities between the doctrines of these two great ethical teachers. Both came from wealthy families, but during the course of their lives they acquired strong sympathy with the poor and rejected excessive attachment to worldly goods. Both dressed in the simplest possible rough homespun clothes. (Gandhi said, “Live simply that others may simply live.”) Both taught peace between humans and kindness to all life. St. Francis is said to have preached sermons to the birds; Gandhi personally took care of sick animals in his ashram.

- **Respect for nature in African cultures:** In some parts of Africa, a man who plans to cut down a tree offers a prayer of apology, telling the tree why necessity has forced him to harm it. This pre-industrial attitude is something from which the industrialized North could learn. In industrial societies, land “belongs” to some one, and the owner has the “right” to ruin the land or to kill the communities of creatures living on it if this happens to give some economic advantage, in much the same way that a Roman slaveowner was thought to have the “right” to kill his slaves. Pre-industrial societies have a much less rapacious and much more custodial attitude towards the land and towards its non-human inhabitants.
- **Preservation of the land for future generations:** Many traditional agricultural societies have an ethical code that requires them to preserve the fertility of the land for future generations. This recognition of a duty towards the distant future is in strong contrast to the shortsightedness of modern economists. For example, John Maynard Keynes has been quoted as saying “In the long run, we will all be dead”, meaning that we need not look that far ahead. By contrast, members of traditional agricultural societies recognize that their duties extend far into the distant future, since their descendants will still be alive.

The pre-industrial societies and ethical teachers mentioned above have much to tell us about how to achieve harmony with ourselves, harmony with nature, and harmony with other members of our own species. Of course it is necessary to learn from the best aspects of each culture and not the worst. Also we must remember that the population of the world is now so large that a complete return to a pre-industrial way of life would not be possible. However, some of the values and attitudes of pre-industrial cultures can help us to an awareness of what it will take to achieve a truly sustainable global society.

The advertising-driven orgies of consumerism that characterize modern market economies cannot be extended into the distant future because of limitations that will be imposed by exhaustion of non-renewable resources and by the limited carrying capacity of the global environment. Therefore we need to stop using material goods as a measure of merit. Gandhi deliberately reduced his possessions to a minimum in order to demonstrate that merit and

goods are not synonymous. St. Francis did the same. We can learn from them, and from the values of pre-industrial societies, to stop worshipping the false ideals, *Power*, *Dominance*, *Growth*, and *Profit*. Instead we must learn to live in *Harmony*.

Education for a harmonious future

Our educational system must reflect the kind of world that we want for the future - and what kind of world do we want? We want a world where war is abolished as an institution, and where the enormous resources now wasted on war are used constructively. We want a world where a stable population of moderate size lives in comfort and security, free from fear of hunger or unemployment. We want a world where peoples of all countries have equal access to resources, and an equal quality of life. We want a world with a new economic system, not designed to produce unlimited growth, but aiming instead at meeting the real needs of the human community in equilibrium with the global environment. We want a world of changed values, where extravagance and waste are regarded as morally wrong; where kindness, wisdom and beauty are admired; and where the survival of other species than our own is regarded as an end in itself, not just a means to our own ends.

In our reverence for the intricate beauty and majesty of nature, and our respect for the dignity and rights of other humans, we can feel united with the great religious and philosophical traditions of mankind, and with the traditional wisdom of our ancestors.

Pictures sent back by the astronauts show the earth as it really is - a small, fragile, beautiful planet, drifting on through the dark immensity of space - our home, where we must learn to live in harmony with nature and with each other.

Acknowledgments

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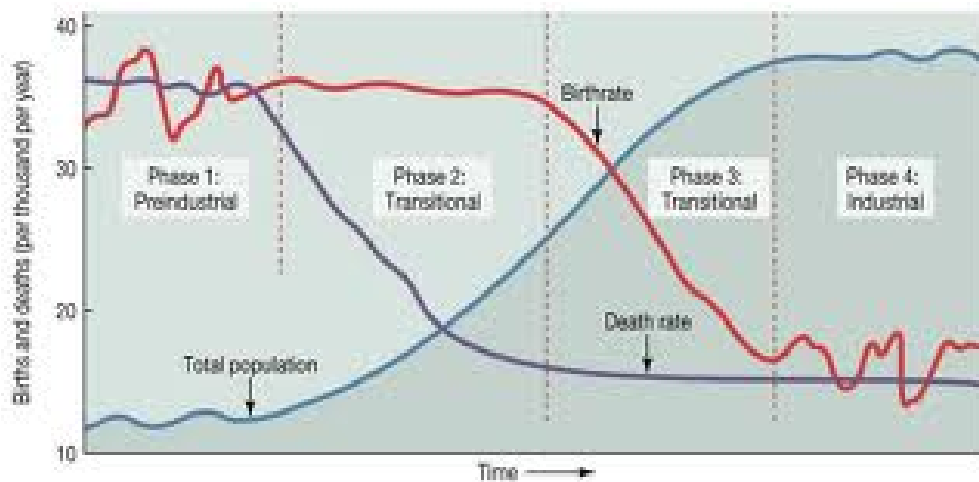
THE WORLD AS IT IS
AND THE WORLD AS IT COULD BE



In the world as it is, 1.7 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.

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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.



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 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, diarrhoea 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 labour 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. One possible plan would be for final votes to be cast by regional blocks, each block having one vote. The blocks might be. 1) Latin America 2) Africa 3) Europe 4) North America 5) Russia and Central Asia 6) China 7) India and Southeast Asia 8) The Middle East and 9) Japan, Korea and Oceania.



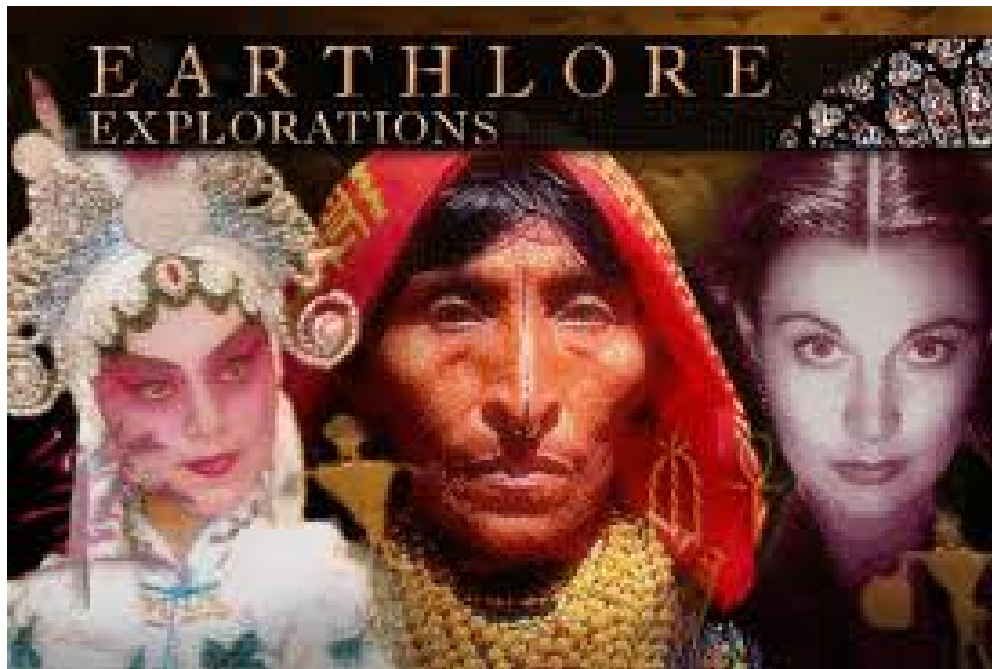
In the world as it is, the United Nations has no reliable means of raising revenues.

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 using revenues derived from taxing international currency transactions.



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, 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 co-ordinated world-wide 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.



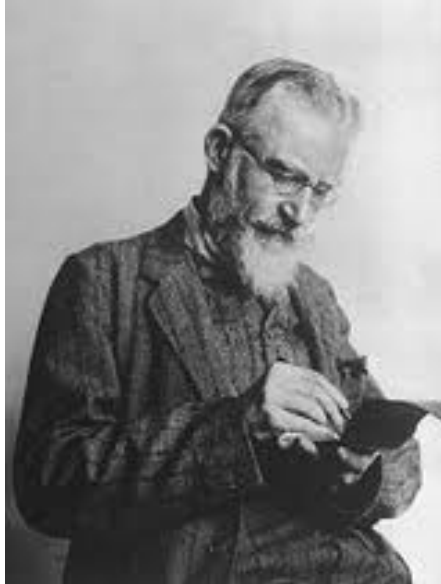
In the world as it is, the institution of slavery existed for so many millennia that it seemed to be a permanent part of human society. Slavery has now been abolished in almost every part of the world. However war, an even greater evil than slavery, still exists as an established human institution.

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.



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.



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?’”





