SPACE-AGE SCIENCE
AND STONE-AGE POLITICS

John Avery

Danish Pugwash Group and Danish Peace Academy

Contents

Preface

Modern science has, for the first time in history, offered humankind the possibility of a life of comfort, free from hunger and cold, and free from the constant threat of death through infectious disease. At the same time, science has given humans the power to obliterate their civilization with nuclear weapons, or to make the earth uninhabitable through overpopulation and pollution. The question of which of these paths we choose is literally a matter of life or death for ourselves and our children.

Will we use the discoveries of modern science constructively, and thus choose the path leading towards life? Or will we use science to produce more and more lethal weapons, which sooner or later, through a technical or human failure, may result in a catastrophic nuclear war? Will we thoughtlessly destroy our beautiful planet through unlimited growth of population and industry? The choice among these alternatives is ours to make. We live at a critical moment of history - a moment of crisis for civilization.

Measured on the time-scale of genetic evolution, the cultural evolution of our species has been astonishingly rapid. Humans have been living on the earth for roughly two million years (more or less depending on where one draws the line between our human and prehuman ancestors). During almost all of this time, our ancestors lived by hunting and food-gathering. They were not at all numerous, and not conspicuously different from other animals.

Then, suddenly, during the brief space of ten thousand years, our species exploded in numbers from a few million to more than six billion, populating all parts of the earth, and even setting foot on the moon. Genetically, we are almost identical with our hunter-gatherer ancestors who lived 10,000-40,000 years ago, but cultural evolution has changed our way of life beyond recognition.

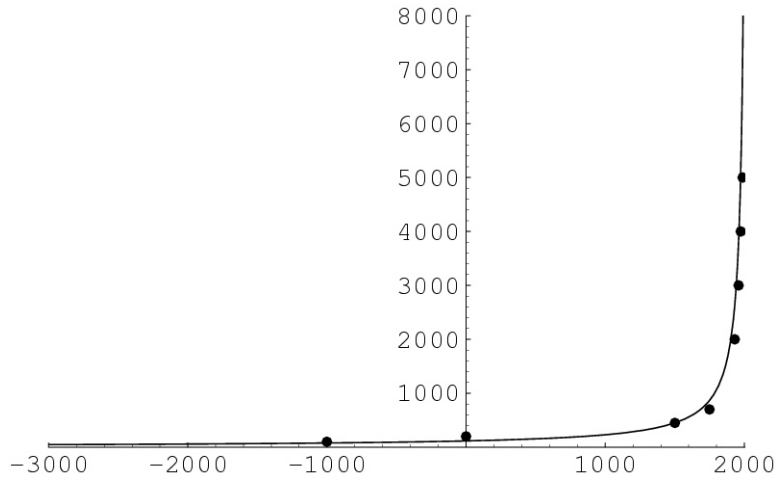The figure shown on the next page illustrates the dramatic information-

Figure 1: *Starting with the Neolithic agricultural revolution and the inven-
tion of writing, human culture began to develop with explosive speed. This
figure shows the estimated human population as a function of time during
the last 4,000 years. The dots are population estimates in millions, while the
solid curve is the hyperbola $p = c/(2020 - y)$, where p is the global human
population, y is the year and $c = 234000$. The curve reflects an explosively
accelerating accumulation of information. Culturally transmitted techniques
of agriculture allowed a much greater density of population than was possible
for hunter-gatherers. The growth of population was further accelerated by the
invention of printing and by the industrial and scientific developments which
followed from this invention.*

driven growth of human population during the last few thousand years.
Looking at the figure, one can conclude that that the cultural evolution of
our species has been an enormous success; but at the same time, the almost
vertical slope of the graph in recent years throws doubt on its stability.

During the initial stages of human cultural evolution, the rate of change
was slow enough for genetic adaptation to keep pace. The co-evolution of
speech, tool use, and an enlarged brain in hominids took place over a period
of several million years, and there was ample time for cultural evolution
and genetic adaptation to follow each other. The prolonged childhood that
characterizes our species, and the behavior patterns of familial and tribal
solidarity, were built into the genomes of our ancestors during the era of slow
change, when cultural and genetic evolution moved together in equilibrium.

However, as the pace of cultural information accumulation quickened, genetic change could no longer keep up.

Genetically we are almost identical with our Neolithic ancestors; but their world has been replaced by a world of quantum theory, relativity, supercomputers, antibiotics, genetic engineering and space telescopes - unfortunately also a world of nuclear weapons and nerve-gas. Because of the slowness of genetic evolution in comparison to the rapid and constantly-accelerating rate of cultural change, our bodies and emotions are not adapted to our new way of life. They still reflect the way of life of our hunter-gatherer ancestors.

In addition to the contrast between the slow pace of genetic evolution when compared with the rapid and constantly accelerating rate of cultural evolution, we can also notice a contrast between rapidly- and slowly-moving aspects of cultural change: Social institutions and structures seem to change slowly when compared with the lightning-like pace of scientific and technological innovation. Thus, tensions and instability characterize information-driven society, not only because the human nature we have inheirited from our ancient ancestors is not appropriate to our present way of life, but also because science and technology change so much more rapidly than institutions, laws, and attitudes.

Space-age science and stone-age politics make an extraordinarily dangerous mixture. It seems probable that in the future, the rapidity of scientific and technological change will produce ethical dilemmas and social tensions even more acute than those we experience today. It is likely that the fate of our species (and the fate of the biosphere) will be made precarious by the astonishing speed of scientific and technological change unless this progress is matched by the achievement of far greater ethical and political maturity than we have yet attained.

Science has proved to be double-edged - capable of great good, but also of great harm. Information-driven human cultural evolution is a spectacular success - but can it become stable? Terrestrial life can look back on almost four billion years of unbroken evolutionary progress. Can we say with confidence that an equal period stretches ahead of us?

Population cannot continue to increase in the manner shown in the figure, because we are rapidly approaching the limits of the earth's carrying capacity. Will human numbers overshoot these limits and afterwards crash disastrously? There is certainly a danger that this will happen.

Besides the challenge of stabilizing global population, the information-driven human society of the future will face another daunting task: Because

of the enormously destructive weapons that have already been produced through the misuse of science, and because of the even worse weapons that may be invented in the future, the long-term survival of civilization can only be insured if society is able to eliminate the institution of war. This task will be made more difficult by the fact that human nature seems to contain an element of tribalism.

Humans tend to show great kindness towards close relatives and members of their own group, and are even willing to sacrifice their lives in battle in defense of their own family, tribe or nation. This tribal altruism is often accompanied by inter-tribal aggression - great cruelty towards the "enemy", i.e. towards members of a foreign group that is perceived to be threatening ones own. The fact that human nature seems to contain a tendency towards tribalism is the reason why we find football matches entertaining, and the reason why Arthur Koestler once remarked: "We can control the movements of a space-craft orbiting about a distant planet, but we cannot control the situation in Northern Ireland." In the words of the Spanish writer, Ortega y Gasset, "We live at a time when man, lord of all things, is not lord of himself"

How could evolutionary forces have acted to make the pattern of tribal altruism and inter-tribal aggression a part of human nature? To put the same question differently, how could our ancestors have increased the chances for survival of their own genes by dying in battle in defense of their tribe? The statistician R.A. Fisher and the evolutionary biologist J.B.S. Haldane considered this question in the 1930's, and more recently it has also been discussed by W.D. Hamilton. Their solution was the concept of population genetics, in which the genetically homogeneous group as a whole - now sometimes called the "deme" - is taken to be the unit upon which evolutionary forces act.

Haldane and Fisher postulated that the small tribes in which our ancestors lived were genetically homogeneous, since marriage within the tribe was more probable than marriage outside it. This being the case, a patriotic individual who died for the tribe, killing many members of a competing tribe in the process, increased the chance of survival for his or her own genes, which were carried into the future by the surviving members of the "hero's" group. The tribe as a whole either lived or died; and those with the best "team spirit" survived most frequently.

Because of the extraordinarily bitter and cruel conflicts between ethnic groups which can be found in both ancient and modern history, it is necessary to take this hypothesis seriously. This does not mean that the elimination of

the institution of war is impossible, but it means that the task will require the full resources and full cooperation of the world's educational systems, religions, and mass media. Human behavior is determined by an interaction between biological inheritance and the cultural and social context in which we are brought up. It will be necessary to educate children throughout the world in such a way that they will think of humanity as a single group - a large family to which all humans belong, and to which all owe their ultimate loyalty.

In addition to educational reform, and reform of the images presented by the mass media, the elimination of war will require the construction of a democratic, just, and humane system of international governance, whose laws will act on individuals rather than on states. The problems involved are difficult, but they *must* be solved if the information-driven society of the future is to achieve stability.

No one living today asked to be born at a moment of crisis for human civilization, but in fact history has given us an enormous responsibility, and two daunting tasks: If civilization is to survive, we must not only stabilize the global population but also, even more importantly, we must eliminate the institution of war. We face these daunting tasks with an inherited emotional nature that has not changed much during the last 40,000 years. Furthermore, we face the challenges of the 21st century with an international political system based on the anachronistic concept of the absolutely sovereign nation-state. However, the human brain has shown itself to be capable of solving even the most profound and complex problems. The mind that has seen into the heart of the atom must not fail when confronted with paradoxes of the human heart.

The problem of building a stable, just, and war-free world is difficult, but it is not impossible. The large regions of our present-day world within which war has been eliminated can serve as models. There are a number of large countries with heterogeneous populations (for example Argentina, Brazil, the United States, China and India) within which it has been possible to achieve internal peace and social cohesion, and if this is possible within such extremely large regions, it must also be possible globally.

We must replace the old world of international anarchy, chronic war and institutionalized injustice, by a new world of law. The United Nations Charter, the Universal Declaration of Human Rights and the International Criminal Court are steps in the right direction, but these institutions need to be greatly strengthened and reformed. One of the goals of this book is to dis-

cuss in detail the reforms that are needed, using knowledge gained from the experiences of successful federations, past and present.

We also need a new global ethic, where loyalty to one's family and nation will be supplemented by a higher loyalty to humanity as a whole. 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."

Chapter 1

The world as it is, and the world as it could be

We need to know where we are going before we can take the first step. So let us begin at the end, and only later return to the question of how that end can be achieved.

I would like to invite you to play a game. The rules are as follows: You should imagine the kind of world you would like to have. It must be a world that is possible - something that would work in practice, if we could only achieve it. Then contrast that ideal world with the world as it is today. For the moment, don't worry about the question of how to get from here to there.

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

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

- *In the world as it is, population is increasing so fast that it doubles every thirty-nine years. Most of this increase is in the developing countries, and in many of these, the doubling time is less than twenty-five years. Famine is already present, and it threatens to become more severe and widespread in the future.* **In the world as it could be, population would be stabilized at a level that could be sustained comfortably by the world's food and energy resources. Each country**

would be responsible for stabilizing its own population, and no country would be allowed to export its problem by sending large numbers of its citizens abroad.

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

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

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

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

- *In the world as it is, an estimated 10 million children die each year from starvation or from diseases related to malnutrition.* **In the world as it could be, the international community would support**

programs for agricultural development and famine relief on a
much larger scale than at present.

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

- *In the world as it is, malaria, tuberculosis, AIDS, cholera, schisto-
somiasis, 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 of-
ten causes blindness. In Africa alone, malaria kills more than a mil-
lion children every year.* **In the world as it could be, these pre-
ventable diseases would be controlled by a concerted interna-
tional 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 coun-
tries 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 ele-
mentary education. Laws against child labor would prevent
parents from regarding very young children as a source of
income, thus removing one of the driving forces behind the
population explosion. The money invested in education would
pay economic dividends after a few years.**

- *In the world as it is, there is no generally enforcible system of interna-
tional law, although the International Criminal Court is a step in the
right direction.* **In the world as it could be, the General Assem-
bly of the United Nations would have the power to make inter-
national 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 enforcible 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 enforcible system of international laws would protect threatened species. Indigenous human cultures would also be protected.**

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

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

- *In the world as it is, opium poppies and other drug-producing plants are grown with little official hindrance in certain parts of Asia, the Middle East, and Latin America. Hard drugs refined from these plants are imported illegally into the developed countries, where they become a major source of high crime rates and human tragedy.* **In the world as it could be, all nations would work together in a coordinated 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, ha e an enormous influence on public pinion. 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?'"

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

Chapter 2

Tribalism

Ethology

In the long run, because of the terrible weapons that have already been produced through the misuse of science, and because of the even more terrible weapons that are likely to be invented in the future, the only way in which we can ensure the survival of civilization is to abolish the institution of war. But is this possible? Or are the emotions that make war possible so much a part of human nature that we cannot stop humans from fighting any more than we can stop cats and dogs from fighting? Can biological science throw any light on the problem of why our supposedly rational species seems intent on choosing war, pain and death instead of peace, happiness and life? To answer this question, we need to turn to the science of ethology - the study of inherited emotional tendencies and behavior patterns in animals and humans.

In *The Origin of Species*, Charles Darwin devoted a chapter to the evolution of instincts, and he later published a separate book, *The Expression of the Emotions in Man and Animals*. Because of these pioneering studies, Darwin is considered to be the founder of ethology.

Behind Darwin's work in this field is the observation that instinctive behavior patterns are just as reliably inherited as morphological characteristics. Darwin was also impressed by the fact that within a given species, behavior patterns have some degree of uniformity, and the fact that the different species within a family are related by similarities of instinctive behavior, just as they are related by similarities of bodily form. For example, certain elements of cat-like behavior can be found among all members of the cat family; and certain elements of dog-like or wolf-like behavior can be found among all

members of the dog family. On the other hand, there are small variations in instinct among the members of a given species. For example, not all domestic dogs behave in the same way.

"Let us look at the familiar case of breeds of dogs", Darwin wrote in *The Origin of Species*, "It cannot be doubted that young pointers will sometimes point and even back other dogs the very first time they are taken out; retrieving is certainly in some degree inherited by retrievers; and a tendency to run round, instead of at, a flock of sheep by shepherd dogs. I cannot see that these actions, performed without experience by the young, and in nearly the same manner by each individual, and without the end being known - for the young pointer can no more know that he points to aid his master than the white butterfly knows why she lays her eggs on the leaf of the cabbage - I cannot see that these actions differ essentially from true instincts..."

"How strongly these domestic instincts habits and dispositions are inherited, and how curiously they become mingled, is well shown when different breeds of dogs are crossed. Thus it is known that a cross with a bulldog has affected for many generations the courage and obstinacy of greyhounds; and a cross with a greyhound has given to a whole family of shepherd dogs a tendency to hunt hares."

Darwin believed that in nature, desirable variations of instinct are propagated by natural selection, just as in the domestication of animals, favorable variations of instinct are selected and propagated by kennelmen and stock breeders. In this way, according to Darwin, complex and highly developed instincts, such as the comb-making instinct of honey-bees, have evolved by natural selection from simpler instincts, such as the instinct by which bumble bees use their old cocoons to hold honey and sometimes add a short wax tube.

In the introduction to *The Expression of the Emotions in Man and Animals*, Darwin says "I thought it very important to ascertain whether the same expressions and gestures prevail, as has often been asserted without much evidence, with all the races of mankind, especially with those who have associated but little with Europeans. Whenever the same movements of the features or body express the same emotions in several distinct races of man, we may infer with much probability, that such expressions are true ones, - that is, are innate or instinctive."

To gather evidence on this point, Darwin sent a printed questionnaire on the expression of human emotions and sent it to missionaries and colonial administrators in many parts of the world. There were 16 questions to be

answered:

1. *Is astonishment expressed by the eyes and mouth being opened wide, and by the eyebrows being raised?*

2. *Does shame excite a blush when the color of the skin allows it to be visible? and especially how low down on the body does the blush extend?*

3. *When a man is indignant or defiant does he frown, hold his body and head erect, square his shoulders and clench his fists?*

4. *When considering deeply on any subject, or trying to understand any puzzle, does he frown, or wrinkle the skin beneath the lower eyelids?*

and so on.

Darwin received 36 replies to his questionnaire, many coming from people who were in contact with extremely distinct and isolated groups of humans. The results convinced him that our emotions and the means by which they are expressed are to a very large extent innate, rather than culturally determined, since the answers to his questionnaire were so uniform and so independent of both culture and race. In preparation for his book, he also closely observed the emotions and their expression in very young babies and children, hoping to see inherited characteristics in subjects too young to have been greatly influenced by culture. Darwin's observations convinced him that in humans, just as in other mammals, the emotions and their expression are to a very large extent inherited universal characteristics of the species.

The study of inherited behavior patterns in animals (and humans) was continued in the 20th century by such researchers as Karl von Frisch (1886-1982), Nikolaas Tinbergen (1907-1988), and Konrad Lorenz (1903-1989), three scientists who shared the Nobel Prize in Medicine and Physiology in 1973.

Karl von Frisch, the first of the three ethologists, is famous for his studies of the waggle-dance of honeybees. Bees guide each other to sources of food by a genetically programmed signaling method - the famous waggle dance, deciphered in 1945 by von Frisch. When a worker bee has found a promising food source, she returns to the hive and performs a complex dance, the pattern of which indicates both the direction and distance of the food. The dancer moves repeatedly in a pattern resembling the Greek letter Θ. If the food-discoverer is able to perform her dance on a horizontal flat surface in

view of the sun, the line in the center of the pattern points in the direction of the food. However, if the dance is performed in the interior of the hive on a vertical surface, gravity takes the place of the sun, and the angle between the central line and the vertical represents the angle between the food source and the sun.

The central part of the dance is, in a way, a re-enactment of the excited forager's flight to the food. As she traverses the central portion of the pattern, she buzzes her wings and waggles her abdomen rapidly, the number of waggles indicating the approximate distance to the food [1]. After this central portion of the dance, she turns alternately to the left or to the right, following one or the other of the semicircles, and repeats the performance. Studies of the accuracy with which her hive-mates follow these instructions show that the waggle dance is able to convey approximately 7 bits of information - 3 bits concerning distance and 4 bits concerning direction. After making his initial discovery of the meaning of the dance, von Frisch studied the waggle dance in many species of bees. He was able to distinguish species-specific dialects, and to establish a plausible explanation for the evolution of the dance.

Among the achievements for which Tinbergen is famous are his classic studies of instinct in herring gulls. He noticed that the newly-hatched chick of a herring gull pecks at the beak of its parent, and this signal causes the parent gull to regurgitate food into the gaping beak of the chick. Tinbergen wondered what signal causes the chick to initiate this response by pecking at the beak of the parent gull. Therefore he constructed a series of models of the parent in which certain features of the adult gull were realistically represented while other features were crudely represented or left out entirely. He found by trial and error that the essential signal to which the chick responds is the red spot on the tip of its parent's beak. Models which lacked the red spot produced almost no response from the young chick, although in other respects they were realistic models; and the red spot on an otherwise crude model would make the chick peck with great regularity.

In other experiments, Tinbergen explored the response of newly-hatched chicks of the common domestic hen to models representing a hawk. Since the chicks were able to recognize a hawk immediately after hatching, he knew that the response must be genetically programmed. Just as he had done in his experiments with herring gulls, Tinbergen experimented with various

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[1]The number of waggles is largest when the source of food is near, and for extremely nearby food, the bees use another dance, the "round dance".

models, trying to determine the crucial characteristic that was recognized by the chicks, causing them to run for cover. He discovered that a crude model in the shape of the letter T invariably caused the response if pulled across the sky with the wings first and tail last. (Pulled backwards, the T shape caused no response.)

In the case of a newly-hatched herring gull chick pecking at the red spot on the beak of its parent, the program in the chick's brain must be entirely genetically determined, without any environmental component at all. Learning cannot play a part in this behavioral pattern, since the pattern is present in the young chick from the very moment when it breaks out of the egg. On the other hand (Tinbergen pointed out) many behavioral patterns in animals and in man have both an hereditary component and an environmental component. Learning is often very important, but learning seems to be built on a foundation of genetic predisposition.

To illustrate this point, Tinbergen called attention to the case of sheep-dogs, whose remote ancestors were wolves. These dogs, Tinbergen wrote, can easily be trained to drive a flock of sheep towards the shepherd. However, it is difficult to train them to drive the sheep away from their master. Tinbergen explained this by saying that the sheep-dogs regard the shepherd as their "pack leader"; and since driving the prey towards the pack leader is part of the hunting instinct of wolves, it is easy to teach the dogs this maneuver. However, driving the prey away from the pack leader would not make sense for wolves hunting in a pack; it is not part of the instinctive makeup of wolves, nor is it a natural pattern of behavior for their remote descendants, the sheep-dogs.

As a further example of the fact that learning is usually built on a foundation of genetic predisposition, Tinbergen mentions the ease with which human babies learn languages. The language learned is determined by the baby's environment; but the astonishing ease with which a human baby learns to speak and understand implies a large degree of genetic predisposition.

The third of the 1973 prizewinners, Konrad Lorenz, is more controversial, but at the same time very interesting in the context of studies of the causes of war and discussions of how war may be avoided. As a young boy, he was very fond of animals, and his tolerant parents allowed him to build up a large menagerie in their house in Altenberg, Austria. Even as a child, he became an expert on waterfowl behavior, and he discovered the phenomenon of imprinting. He was given a one day old duckling, and found, to his intense joy, that it transferred its following response to his person. As Lorenz discovered,

young waterfowl have a short period immediately after being hatched, when they identify as their "mother" whomever they see first. In later life, Lorenz continued his studies of imprinting, and there exists a touching photograph of him, with his white beard, standing waist-deep in a pond, surrounded by an adoring group of goslings who believe him to be their mother. Lorenz also studied pair bonding rituals in waterfowl.

It is, however, for his controversial book *On Aggression* that Konrad Lorenz is best known. In this book, Lorenz makes a distinction between intergroup aggression and intragroup aggression. Among animals, he points out, rank-determining fights are seldom fatal. Thus, for example, the fights that determine leadership within a wolf pack end when the loser makes a gesture of submission. By contrast, fights between groups of animals are often fights to the death, examples being wars between ant colonies, or of bees against intruders, or the defense of a rat pack against strange rats.

Many animals, humans included, seem willing to kill or be killed in defense of the communities to which they belong. Lorenz calls this behavioral tendency a "communal defense response". He points out that the "holy shiver" - the tingling of the spine that humans experience when performing a heroic act in defense of their communities - is related to the prehuman reflex for raising the hair on the back of an animal as it confronts an enemy - a reflex that makes the animal seem larger than it really is.

Konrad Lorenz and his followers have been criticized for introducing a cathartic model of instincts. According to Lorenz, if an instinct is not used, a pressure for its use builds up over a period of time. In the case of human aggression, according to Lorenz, the nervous energy has to be dissipated in some way, either harmlessly through some substitute for aggression, or else through actual fighting. Thus, for example, Lorenz believed that violent team sports help to reduce the actual level of violence in a society. This conclusion has been challenged by by the distinguished ethologist Prof. R.A. Hinde and by many others in his field who believe that there is no experimental evidence for the cathartic model of aggression.[2]

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[2]In a 1985 letter to the author, Professor Hinde wrote; "Dear Dr. Avery, I found your pamphlet 'The World as it is and the World as it could be' a very inspiring document, and I hope that it will be widely circulated. But just one comment - amongst the suggestions for further reading you include Konrad Lorenz's 'On Aggression'. The message that comes from this book is that human aggressiveness is inevitably part of our human nature, and we must seek harmless outlets for it. This rests on a cathartic model of human behavior that is outdated. A more appropriate message is that we must find ways of rearing our

Professor Hinde points out that unused instincts tend to atrophy; and he concludes that violent team sports or violence shown on television tend to raise rather than lower the level of harmful violence in a society. Although the cathartic model of aggression is now widely considered to be incorrect (and on this point I certainly agree with Professor Hinde) it seems probable that the communal defense response discussed by Lorenz will prove to be a correct and useful concept. The communal defense mechanism can be thought of as the aspect of human emotions which makes it natural for soldiers to kill or be killed in defense of their countries. In the era before nuclear weapons made war prohibitively dangerous, such behavior was considered to be the greatest of virtues. Generations of schoolboys have learned the Latin motto: "Dulce et decorum est pro patria mori" - it is both sweet and proper to die for one's country. Even in today's world, death in battle in defense of country and religion is still praised by nationalists. However, because of the development of weapons of mass destruction, both nationalism and narrow patriotism have become dangerous anachronisms.

In thinking of violence and war, we must be extremely careful not to confuse the behavioral patterns that lead to wife-beating or bar-room brawls with those that lead to episodes like the trench warfare of the First World War, or to the nuclear bombing of Hiroshima and Nagasaki. The first type of aggression is similar to the rank-determining fights of animals, while the second is more akin to the team-spirit exhibited by a football side. Heroic behavior in defense of one's community has been praised throughout the ages, but the tendency to such behavior has now become a threat to the survival of civilization, since tribalism makes war possible, and war with thermonuclear weapons threatens civilization with catastrophe.

In an essay entitled *The Urge to Self-Destruction* [3], Arthur Koestler says:

"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

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children so that their propensity to show aggression is reduced, and provide individuals with environments in which any aggressive propensities are not called forth. I'm sure you would agree with this. I hope that you will forgive this slight reservation about what seems to me to be a totally admirable and important statement. With best wishes, Yours sincerely, Robert A. Hinde.

[3]in *The Place of Value in a World of Facts*, A. Tiselius and S. Nielsson editors, Wiley, New York, (1970)

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, makes 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." The emotion described here by Koestler is the same as the communal defense mechanism ("militant enthusiasm") described in biological terms by Lorenz.

In *On Aggression*, Konrad Lorenz gives the following description of the emotions of a hero preparing to risk his life for the sake of the group:

"In reality, militant enthusiasm is a specialized form of communal aggression, clearly distinct from and yet functionally related to the more primitive forms of individual aggression. Every man of normally strong emotions knows, from his own experience, the subjective phenomena that go hand in hand with the response of militant enthusiasm. A shiver runs down the back and, as more exact observation shows, along the outside of both arms. One soars elated, above all the ties of everyday life, one is ready to abandon all for the call of what, in the moment of this specific emotion, seems to be a sacred duty. All obstacles in its path become unimportant; the instinctive inhibitions against hurting or killing one's fellows lose, unfortunately, much of their power. Rational considerations, criticisms, and all reasonable arguments against the behavior dictated by militant enthusiasm are silenced by an amazing reversal of all values, making them appear not only untenable, but base and dishonorable. Men may enjoy the feeling of absolute righteousness even while they commit atrocities. Conceptual thought and moral responsibility are at their lowest ebb. As the Ukranian proverb says: 'When the banner is unfurled, all reason is in the trumpet'."

"The subjective experiences just described are correlated with the following objectively demonstrable phenomena. The tone of the striated musculature is raised, the carriage is stiffened, the arms are raised from the sides and slightly rotated inward, so that the elbows point outward. The head is proudly raised, the chin stuck out, and the facial muscles mime the 'hero face' familiar from the films. On the back and along the outer surface of the arms, the hair stands on end. This is the objectively observed aspect of the shiver!"

"Anybody who has ever seen the corresponding behavior of the male

chimpanzee defending his band or family with self-sacrificing courage will doubt the purely spiritual character of human enthusiasm. The chimp, too, sticks out his chin, stiffens his body, and raises his elbows; his hair stands on end, producing a terrifying magnification of his body contours as seen from the front. The inward rotation of the arms obviously has the purpose of turning the longest-haired side outward to enhance the effect. The whole combination of body attitude and hair-raising constitutes a bluff. This is also seen when a cat humps its back, and is calculated to make the animal appear bigger and more dangerous than it really is. Our shiver, which in German poetry is called a 'heiliger Schauer', a 'holy' shiver, turns out to be the vestige of a prehuman vegetative response for making a fur bristle which we no longer have. To the humble seeker for biological truth, there cannot be the slightest doubt that human militant enthusiasm evolved out of a communal defense response of our prehuman ancestor."

Lorenz goes on to say, "An impartial visitor from another planet, looking at man as he is today - in his hand the atom bomb, the product of his intelligence - in his heart the aggression drive, inherited from his anthropoid ancestors, which the same intelligence cannot control - such a visitor would not give mankind much chance of survival."

There are some semantic difficulties connected with discussions of the parts of human nature that make war possible. In one of the passages quoted above, Konrad Lorenz speaks of "militant enthusiasm", which he says is both a form of communal aggression and also a communal defense response. In their inspiring recent book *War No More*, Professor Robert Hinde and Sir Joseph Rotblat use the word "duty" in discussing the same human emotional tendencies. I will instead use the word "tribalism".

I prefer the word "tribalism" because from an evolutionary point of view the human emotions involved in war grew out of the territorial competition between small tribes during the formative period when our ancestors were hunter-gatherers on the grasslands of Africa. Members of tribe-like groups are bound together by strong bonds of altruism and loyalty. Echos 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. As Arthur Koestler points out, "Wars are not fought for personal

gain, but out of loyalty and devotion to king, country or cause..."

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.

Population genetics

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 from an evolutionary point of view the communal defense mechanism discussed by Lorenz - 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. The idea of group selection in evolution was proposed in the 1930's by J.B.S. Haldane and R.A. Fisher, and more recently it has been discussed by W.D. Hamilton.

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, intertribal aggression might, under some circumstances, 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.

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. These tribal markings will be discussed in more detail below.

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.

Religion and ethnic identity

All known societies practice some form of religion, and for this reason it seems probable that the tendency to be religious is an innate characteristic of human nature.[4] It is possible that as the culture, intelligence, and linguistic abilities of our hunter-gatherer ancestors slowly evolved over a period of several million years, the tendency of humans to be religious evolved too, as a mechanism for the preservation and propagation of culture.

For the hominids that formed a bridge between present-day humans and the common ancestor of ourselves and the anthropoid apes, culture included not only rudimentary language, but also skills such as methods of tool-making and weapon making. Table 2.1 shows the most important hominid species, while Table 2.2 shows some of their cultural achievements.

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[4]A close examination of atheists would show that for many of them, some aspect of culture, such as music, art, or science, takes the place of religion

Table 2.1: Hominid species

genus and species	years before present	brain volume
Ardipithecus ramidus	5.8 to 4.4 million	
Australopithecus anamensis	4.2 to 3.9 million	
Australopithecus afarensis	3.9 to 3.0 million	375 to 550 cm^3
Australopithecus africanus	3 to 2 million	420 to 500 cm^3
Australopithecus aethiopicus	2.6 to 2.3 million	410 cm^3
Australopithecus robustus	2 to 1.5 million	530 cm^3
Australopithecus boisei	2.1 to 1.1 million	530 cm^3
Homo habilis	2.4 to 1.5 million	500 to 800 cm^3
Homo erectus	1.8 to 0.3 million	750 to 1225 cm^3
Homo sapiens (archaic)	0.5 to 0.2 million	1200 cm^3
Homo sapiens neand.	0.23 to 0.03 million	1450 cm^3
Homo sapiens sapiens	0.12 mil. to present	1350 cm^3

Table 2.2: Palaeolithic cultures

name	years before present	characteristics
Oldowan	2.4 to 1.5 million	Africa, flaked pebble tools
Choukoutien	1.2 to 0.5 million	chopper tool culture of east Asia
Abbevillian	500,000 to 450,000	crude stone handaxes Africa, Europe, northeast Asia
Acheulian	400,000 to 200,000	skillfully shaped stone handaxes, some use of fire
Clactonian	450,000 to 250,000	fully developed flake tools
Mousterian	70,000 to 20,000	produced by Neanderthal man, retouched core and flake tools, wooden, spears, fire, burial of dead
Aurignacian	50,000 to 20,000	western Europe, fine stone blades, pins and awls of bone, fire, cave art
Solutrian	20,000 to 17,000	France and central Europe, long, pressure-flaked bifacial blades
Magdalenian	17,000 to 10,000	western Europe, reindeer hunting awls and needles of bone and antler

An acceleration of human cultural development seems to have begun approximately 40,000 years ago. The first art objects date from that period, as do migrations that ultimately took modern man across the Bering Strait to the western hemisphere. A land bridge extending from Siberia to Alaska is thought to have been formed approximately 70,000 years ago, disappearing again roughly 10,000 years before the present. Cultural and genetic studies indicate that migrations from Asia to North America took place during this period. Shamanism,[5] which is found both in Asia and the new world, as well as among the Sami (Lapps) of northern Scandinavia, is an example of the cultural links between the hunting societies of these regions.

Before the acceleration of human cultural development just mentioned, genetic change and cultural change went hand in hand, but during the last 40,000 years, the constantly accelerating rate of information-accumulation and cultural evolution has increasingly outdistanced the rate of genetic change in humans. Genetically we are almost identical with our hunter-gatherer ancestors of 40,000 years ago, but cultural evolution has changed our way of life beyond recognition.

Humans are capable of cultural evolution because it is so easy to overwrite and modify our instinctive behavior patterns with learned behavior. Within the animal kingdom, humans are undoubtedly the champions in this respect. No other species is so good at learning as we are. During the early stages of cultural evolution, the tendency of humans to be religious may have facilitated the overwriting of instinctive behavior with the culture of the tribe. For this reason an innate tendency to be religious may have been favored by the forces of natural selection and incorporated into our genomes.[6]

In many religions, leaders and gods appear on more or less the same footing. For example, in the religion of ancient Egypt, pharaohs had the

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[5]A shaman is a special member of a hunting society who, while in a trance, is thought to be able pass between the upper world, the present world, and the lower world, to cure illnesses, and to insure the success of a hunt.

[6]It is more probable for a mutation to slightly modify an existing instinct, which thereafter serves a different purpose, than for a mutation to create an entirely new instinct. The tendency of humans to be religious may have been derived from a slight modification of the preexisting tendency to follow a living leader. In religion, the cultural achievements of unusually gifted leaders are reverentially preserved by subsequent generations. The ability of humans to do this makes them capable of cultural evolution. Humans are able to overwrite instincts with culture, and this ability was undoubtedly strongly favored by natural selection.

status of gods.[7] Other examples of deification of humans in the ancient world include a number of Roman emperors, and also Alexander of Macedon, who announced himself to be a god when he and his army invaded Asia. The interchangeable roles of leaders and gods in many religions is consistent with the hypothesis that the innate human tendency to be religious evolved as a culture-perpetuating mechanism in which the insights and innovations of gifted leaders were honored and perpetuated after their deaths. Since religions, like languages, are closely associated with particular cultures, they serve as marks of ethnic identity.

Tribal markings; ethnicity; pseudospeciation

In biology, a species is defined to be 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-Ebesfeldt, 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, she 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 her 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 her book shows the marks left by ritual scarification

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[7]There is even a case of a commoner who became a god: Imhotep, the Egyptian God of Medicine, who lived approximately 2950 B.C., was the High Priest of the Heleopolis and the trusted administrative assistant of the pharaoh Zoser. He was a physician and architect of genius - the designer of the first pyramid built in Egypt - the step pyramid of Zoser - and the inventor of the special technique of cutting and laying massive blocks of stone used in all subsequent pyramids. After his death, Imhotep was deified, and may people prayed to small statues of him, hoping for cures.

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; nonrational 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". Undoubtedly there many people in New York who would never think of marrying someone who could not appreciate the paintings of Jasper Johns, and many in London who would consider anyone had not read all the books of Virginia Wolfe to be entirely outside the bounds of civilization.

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.

Within a particular language, dialects and accents mark the boundaries of subgroups. For example, in England, great social significance is attached to accents and diction, a tendency that George Bernard Shaw satirized in his play, *Pygmalion*, which later gained greater fame as the musical comedy,

My Fair Lady. This being the case, we can ask why all citizens of England do not follow the example of Eliza Dolittle in Shaw's play, and improve their social positions by acquiring Oxford accents. However, to do so would be to run the risk of being laughed at by one's peers and regarded as a traitor to one's own local community and friends. School children everywhere can be very cruel to any child who does not fit into the local pattern. At Eton, an Oxford accent is compulsory; but in a Yorkshire school, a child with an Oxford accent would suffer for it.

Next after language, the most important "tribal marking" is religion. As mentioned above, 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, or at any rate, the needs that religion satisfies seem to be a part of our inherited makeup. Otherwise, religion would not be as universal as it is.

Religion is often strongly associated with ethnicity and nationalism - that is to say, it is associated with the demarcation of a particular group of people by its culture or race. For example, the Jewish religion is associated with Zionism and with Jewish nationalism. Similarly Islam is strongly associated with Arab nationalism. Christianity too has played an important role in many aggressive wars, for example the Crusades, the European conquest of the New World, European colonial conquests in Africa and Asia, and the wars between Catholics and Protestants within Europe (notably the Thirty Years War). We shall see in a later chapter how the originators of the German nationalist movement (the precursors of the Nazis), used quasi-religious psychological methods.

Many of the atrocities with which the history of humankind is stained have involved what Irenäus Eibl-Eibesfeldt called "pseudospeciation", that is to say, they were committed in conflicts involving groups between which sharply marked cultural barriers have made intermarriage difficult and infrequent. Examples include the present conflict between Israelis and Palestinians; "racial cleansing" in Kosovo; the devastating wars between Catholics and Protestants in Europe; the Lebanese civil war; genocide committed against Jews and Gypsies during World War II; recent genocide in Rwanda; current intertribal massacres in the Ituri Provence of Congo; use of poison gas against Kurdish civilians by Saddam Hussein's regime in Iraq; the massacre

of Armenians by Turks; massacres of Hindus by Muslims and of Muslims by Hindus in post-independence India; massacres of Native Americans by white conquerors and settlers in all parts of the New World; and massacres committed during the Crusades. The list seems almost endless.

Religion often contributes to conflicts by sharpening the boundaries between ethnic groups and by making marriage across those boundaries difficult and infrequent. However, this negative role is balanced by a positive one, whenever religion is the source of ethical principles, especially the principle of universal human brotherhood. In Chapter 4 we will discuss the positive role that religion can play.

Many of the great ethical teachers of history lived at a time when cultural evolution was changing humans from hunter-gatherers and pastoral peoples to farmers and city dwellers. To live and cooperate in larger groups, humans needed to overwrite their instinctive behavior patterns with culturally determined behavior involving a wider range of cooperation than previously. This period of change is marked by the lives and ideas of a number of great ethical teachers - Moses, Buddha, Lao Tse, Confucius, Socrates, Aristotle, Jesus, and Saint Paul. Mohammed lived at a slightly later period, but it was still a period of transition for the Arab peoples, a period during which their range cooperation needed to be enlarged.

Most of the widely practiced religions of today contain the principle of universal human brotherhood. This is contained, for example, in Christianity, in the Sermon on the Mount and in the Parable of the Good Samaritan. The Sermon on the Mount tells us that we must love our neighbor as much as we love ourselves. When asked "But who is my neighbor?", Jesus replied with the Parable of the Good Samaritan, which says that our neighbor may belong to a different ethnic group than ourselves, or may be separated from us by geographical distance. Nevertheless, he is still our neighbor and he still deserves our love and assistance. To this, Christianity adds that we must love and forgive our enemy, and do good to those who persecute us - a principle that would make war impossible if it were only followed. Not only in Christianity, but also in Hinduism, Buddhism, and Islam, the principles of compassion and universal human brotherhood hold a high place.

The religious leaders of today's 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.

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Chapter 3

Nationalism, a false religion

From tribalism to nationalism

Forty thousand years ago, our hunter-gatherer ancestors lived in tribes. Loyalty to the tribe was natural for our ancestors, as was collective work on tribal projects. Today, at the start of the 21st century, we live in nation-states to which we feel emotions of loyalty very similar to the tribal emotions of our ancestors.

The enlargement of the fundamental political and social unit has been made necessary and possible by improved transportation and communication, and by changes in the techniques of warfare. In Europe, for example, the introduction of cannons in warfare made it possible to destroy castles, and thus the power of central monarchs was increased at the expense of feudal barons. At the same time, improved roads made merchants wish to trade freely over larger areas. Printing allowed larger groups of people to read the same books and newspapers, and thus to experience the same emotions. Therefore the size of the geographical unit over which it was possible to establish social and political cohesion became enlarged.

The tragedy of our present situation is that the same forces that made the nation-state replace the tribe as the fundamental political and social unit have continued to operate with constantly increasing intensity. For this reason, the totally sovereign nation-state has become a dangerous anachronism. Although the world now functions as a single unit because of modern technology, its political structure is based on fragments, on absolutely sovereign nation-states - large compared to tribes, but too small for present-day technology, since they do not include all of mankind. Gross injustices mar today's

global economic interdependence, and because of the development of thermonuclear weapons, the continued existence of civilization is threatened by the anarchy that exists today at the international level.

In this chapter, we will discuss nationalism in Europe, and especially the conflicts between absolutely sovereign nation-states that led to the two World Wars. However, it is important to remember that parallel to this story, run others, equally tragic - conflicts in the Middle East, the Vietnam War, the Cuban Missile Crisis, conflicts between India and Pakistan, the Korean War, the two Gulf Wars, and so on. In all of these tragedies, the root the trouble is that international interdependence exists in practice because of modern technology, but our political institutions, emotions and outlook are at the stunted level of the absolutely sovereign nation-state. Although we focus here on German nationalism as an example, and although historically it had terrible consequences, it is not a danger today. Germany is now one of the world's most peaceful and responsible countries, and the threats to world peace now come from nationalism outside Europe.

Nationalism in Europe

There is no doubt that the founders of nationalism in Europe were idealists; but the movement that they created has already killed more than sixty million people in two world wars, and today it contributes to the threat of a catastrophic third world war.

Nationalism in Europe is an outgrowth of the Enlightenment, the French Revolution, and the Romantic Movement. According to the philosophy of the Enlightenment and the ideas of the French Revolution, no government is legitimate unless it derives its power from the will of the people. Speaking to the Convention of 1792, Danton proclaimed that "by sending us here as deputies, the French Nation has brought into being a grand committee for the general insurrection of peoples."

Since all political power was now believed to be vested in the "nation", the question of national identity suddenly became acutely important. France itself was a conglomeration of peoples - Normans, Bretons, Provenceaux, Burgundians, Flemings, Germans, Basques, and Catalans - but these peoples had been united under a strong central government since the middle ages, and by the time of the French Revolution it was easy for them to think of themselves as a "nation". However, what we now call Germany did not exist. There was only a collection of small feudal principalities, in some of which

the most common language was German.

The early political unity of France enabled French culture to dominate Europe during the 17th and 18th centuries. Frederick the Great of Prussia and his court spoke and wrote in French. Frederick himself regarded German as a language of ignorant peasants, and on the rare occasions when he tried to speak or write in German, the result was almost incomprehensible. The same was true in the courts of Brandenburg, Saxony, Pomerania, etc. Each of them was a small-scale Versailles. Below the French-speaking aristocracy was a German-speaking middle class and a German or Slavic-speaking peasantry.

The creators of the nationalist movement in Germany were young middle-class German-speaking students and theologians who felt frustrated and stifled by the narrow *kleinstädtisch* provincial atmosphere of the small principalities in which they lived. They also felt frustrated because their talents were completely ignored by the French-speaking aristocracy. This was the situation when the armies of Napoleon marched across Europe, easily defeating and humiliating both Prussia and Austria. The young German-speaking students asked themselves what it was that the French had that they did not have.

The answer was not hard to find. What the French had was a sense of national identity. In fact, the French Revolution had unleashed long-dormant tribal instincts in the common people of France. It was the fanatical support of the Marseillaise-singing masses that made the French armies invincible. The founders of the German nationalist movement concluded that if they were ever to have a chance of defeating France, they would have to inspire the same fanaticism in their own peoples. They would have to touch the same almost-forgotten chord of human nature that the French Revolution had touched.

The common soldiers who fought in the wars of Europe in the first part of the 18th century were not emotionally involved. They were recruited from the lowest ranks of society, and they joined the army of a king or prince for the sake of money. All this was changed by the French Revolution. In June, 1792, the French Legislative Assembly decreed that a Fatherland Altar be erected in each commune with the inscription, "The citizen is born, lives and dies for *la patrie.*" The idea of a "Fatherland Altar" clearly demonstrates the quasi-religious nature of French nationalism.

The soldiers in Napoleon's army were not fighting for the sake of money, but for an ideal that they felt to be larger and more important than themselves - Republicanism and the glory of France. The masses, who for so long

had been outside of the politics of a larger world, and who had been emotionally involved only in the affairs of their own village, were now fully aroused to large-scale political action. The surge of nationalist feeling in France was tribalism on an enormous scale - tribalism amplified and orchestrated by new means of mass communication.

This was the phenomenon with which the German nationalists felt they had to contend. One of the founders of the German nationalist movement was Johan Gottlieb Fichte (1762-1814), a follower of the philosopher Immanuel Kant (1724-1804). Besides rejecting objective criteria for morality, Fichte denied the value of the individual. According to him, the individual is nothing and the state is everything. Denying the value of the individual, Fichte compared the state to an organism of which the individual is a part:

"In a product of nature", Fichte wrote, "no part is what it is but through its relation to the whole, and it would absolutely not be what it is apart from this relation; more, if it had no organic relation at all, it would be absolutely nothing, since without reciprocity in action between organic forces maintaining one another in equilibrium, no form would subsist... Similarly, man obtains a determinate position in the scheme of things and a fixity in nature only through his civil association... Between the isolated man and the citizen there is the same relation as between raw and organized matter... In an organized body, each part continuously maintains the whole, and in maintaining it, maintains itself also. Similarly the citizen with regard to the State."

Another post-Kantian, Adam Müller (1779-1829) wrote that "the state is the intimate association of all physical and spiritual needs of the whole nation into one great, energetic, infinitely active and living whole... the totality of human affairs... If we exclude for ever from this association even the most unimportant part of a human being, if we separate private life from public life even at one point, then we no longer perceive the State as a phenomenon of life and as an idea."

The doctrine that Adam Müller sets forth in this passage is what we now call Totalitarianism, i.e. the belief that the state ought to encompass "the totality of human affairs". This doctrine is the opposite of the Liberal belief that the individual is all-important and that the role of the state ought to be as small as possible.

Fichte maintains that "a State which constantly seeks to increase its internal strength is forced to desire the gradual abolition of all favoritisms, and the establishment of equal rights for all citizens, in order that it, the State

itself, may enter upon its own true right - to apply the whole surplus power of all its citizens without exception to the furtherance of its own purposes... Internal peace, and the condition of affairs in which everyone may by diligence earn his daily bread... is only a means, a condition and framework for what love of Fatherland really wants to bring about, namely that the Eternal and the Divine may blossom in the world and never cease to become more pure, perfect and excellent."

Fichte proposed a new system of education which would abolish the individual will and teach individuals to become subservient to the will of the state. "The new education must consist essentially in this", Fichte wrote, "that it completely destroys the will in the soil that it undertakes to cultivate... If you want to influence a man at all, you must do more than merely talk to him; you must fashion him, and fashion him, and fashion him in such a way that he simply cannot will otherwise than you wish him to will."

Fichte and Herder (1744-1803) developed the idea that language is the key to national identity. They believed that the German language is superior to French because it is an "original" language, not derived from Latin. In a poem that is obviously a protest against the French culture of Frederick's court in Prussia, Herder wrote:

> "Look at other nationalities!
> Do they wander about
> So that nowhere in the world they are strangers
> Except to themselves?
> They regard foreign countries with proud distain.
> And you, German, alone, returning from abroad,
> Wouldst greet your mother in French?
> Oh spew it out before your door!
> Spew out the ugly slime of the Seine!
> Speak German, O you German!

Another poem, "The German Fatherland", by Ernst Moritz Arndt (1769-1860), expresses a similar sentiment:

"What is the Fatherland of the German?
Name me the great country!
Where the German tongue sounds
And sings *Lieder* in God's praise,
That's what it ought to be
Call that thine, valiant German!
That is the Fatherland of the German,
Where anger roots out foreign nonsense,
Where every Frenchman is called enemy,
Where every German is called friend,
That's what it ought to be!
It ought to be the whole of Germany!"

It must be remembered that when these poems were written, the German nation did not exist except in the minds of the nationalists. Groups of people speaking various dialects of German were scattered throughout central and eastern Europe. In many places, the German-speaking population was a minority. To bring together these scattered German-speaking groups would require, in many cases, the conquest and subjugation of Slavic majorities; but the quasi-religious fervor of the nationalists was such that aggression took on the appearance of a "holy war". Fichte believed that war between states introduces "a living and progressive principle into history". By war he did not mean a decorous limited war of the type fought in the 18th century, but "...a true and proper war - *a war of subjugation*!"

The German nationalist movement was not only quasi-religious in its tone; it also borrowed psychological techniques from religion. It aroused the emotions of the masses to large-scale political activity by the use of semi-religious political liturgy, involving myth, symbolism, and festivals. In his book "German Society" (1814), Arndt advocated the celebration of "holy festivals". For example, he thought that the celebration of the pagan festival of the summer solstice could be combined with a celebration of the victory over Napoleon at the Battle of Leipzig.

Arndt believed that special attention should be given to commemoration of the "noble dead" of Germany's wars for, as he said, "...here history enters life, and life becomes part of history". Arndt advocated a combination of Christian and pagan symbolism. The festivals should begin with prayers and a church service; but in addition, the oak leaf and the sacred flame of ancient pagan tradition were to play a part.

In 1815, many of Arndt's suggestions were followed in the celebration of the anniversary of the Battle of Leipzig. This festival clearly exhibited a mixing of secular and Christian elements to form a national cult. Men and women decorated with oak leaves made pilgrimages to the tops of mountains, where they were addressed by priests speaking in front of altars on which burned "the sacred flame of Germany's salvation". This borrowing of psychological techniques from religion was deliberate, and it was retained by the Nazi Party when the latter adopted the methods of the early German nationalists. The Nazi mass rallies retained the order and form of Protestant liturgy, including hymns, confessions of faith, and responses between the leader and the congregation.[1]

In 1832, the first mass meeting in German history took place, when 32,000 men and women gathered to celebrate the "German May". Singing songs, wearing black, red, and gold emblems, and carrying flags, they marched to Hambrach Castle, where they were addressed by their leaders.

By the 1860's the festivals celebrating the cult of nationalism had acquired a definite form. Processions through a town, involving elaborate national symbolism, were followed by unison singing by men's choirs, patriotic plays, displays by gymnasts and sharp-shooters, and sporting events. The male choirs, gymnasts and sharp-shooters were required to wear uniforms; and the others attending the festivals wore oak leaves in their caps. The cohesion of the crowd was achieved not only by uniformity of dress, but also by the space in which the crowd was contained. Arndt advocated the use of a "sacred space" for mass meetings. The idea of the "sacred space" was taken from Stonehenge, which was seen by the nationalists as a typical ancient Germanic meeting place. The Nazi art historian Hubert Schrade wrote: "The space which urges us to join the community of the *Volk* is of greater importance than the figure which is meant to represent the Fatherland."

Dramas were also used to promote a feeling of cohesion and national identity. An example of this type of propagandist drama is Kleist's play, "Hermann's Battle" (1808). The play deals with a Germanic chieftain who, in order to rally the tribes against the Romans, sends his own men, disguised as Roman soldiers, to commit atrocities in the neighboring German villages.

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[1] The Nazi sacred symbols and the concept of the swastika or "gamma cross", the eagle, the red/black/white color scheme, the ancient Nordic runes (one of which became the symbol of the SS), were all adopted from esoteric traditions going back centuries, shared by Brahmins, Scottish Masons, Rosicrucians, the Knights Templars and other esoteric societies.

At one point in the play, Hermann is told of a Roman soldier who risked his own life to save a German child in a burning house. Hearing this report, Hermann exclaims, "May he be cursed if he has done this! He has for a moment made my heart disloyal; he has made me for a moment betray the august cause of Germany!... I was counting, by all the gods of revenge, on fire, loot, violence, murder, and all the horrors of unbridled war! What need have I of Latins who use me well?"

At another point in the play, Hermann's wife, Thusnelda, tempts a Roman Legate into a romantic meeting in a garden. Instead of finding Thusnelda, the Legate finds himself locked in the garden with a starved and savage she-bear. Standing outside the gate, Thusnelda urges the Legate to make love to the she-bear, and, as the bear tears him to pieces, she faints with pleasure.

Richard Wagner's dramas were also part of the nationalist movement. They were designed to create "an unending dream of sacred *völkisch* revelation". No applause was permitted, since this would disturb the reverential atmosphere of the cult. A new type of choral theater was developed which "...no longer represented the fate of the individual to the audience, but that which concerns the community, the *Volk*... Thus, in contrast to the bourgeois theater, private persons are no longer represented, but only types."

We have primarily been discussing the growth of German nationalism, but very similar movements developed in other countries throughout Europe and throughout the world. Characteristic for all these movements was the growth of state power, and the development of a reverential, quasi-religious, attitude towards the state. Patriotism became "a sacred duty." According to Georg Wilhelm Fredrich Hegel, "The existence of the State is the movement of God in the world. It is the ultimate power on earth; it is its own end and object. It is an ultimate end that has absolute rights against the individual."

Nationalism in England (as in Germany) was to a large extent a defensive response against French nationalism. At the end of the 18th century, the liberal ideas of the Enlightenment were widespread in England. There was much sympathy in England with the aims of the French Revolution, and a similar revolution almost took place in England. However, when Napoleon landed an army in Ireland and threatened to invade England, there was a strong reaction towards national self-defense. The war against France gave impetus to nationalism in England, and military heroes like Wellington and Nelson became objects of quasi-religious worship. British nationalism later found an outlet in colonialism.

Italy, like Germany, had been a collection of small principalities, but as

a reaction to the other nationalist movements sweeping across Europe, a movement for a united Italy developed. The conflicts between the various nationalist movements of Europe produced the frightful world wars of the 20th century. Indeed, the shot that signaled the outbreak of World War I was fired by a Serbian nationalist.

War did not seem especially evil to the 18th and 19th century nationalists because technology had not yet given humanity the terrible weapons of the 20th century. In the 19th century, the fatal combination of space-age science and stone-age politics still lay in the future. However, even in 1834, the German writer Heinrich Heine was perceptive enough to see the threat:

"There will be", Heine wrote, "Kantians forthcoming who, in the world to come, will know nothing of reverence for aught, and who will ravage without mercy, and riot with sword and axe through the soil of all European life to dig out the last root of the past. There will be well-weaponed Fichtians upon the ground, who in the fanaticism of the Will are not restrained by fear or self-advantage, for they live in the Spirit."

The two world wars

In 1870, the fiercely nationalistic Prussian Chancellor, Otto von Bismarck, won revenge for the humiliations which his country had suffered under Napoleon Bonaparte. In a lightning campaign, Prussia's modern army overran France and took Emperor Napoleon III prisoner. The victorious Prussians demanded from France not only the payment of a huge sum of money - five billion francs - but also the annexation of the French provinces of Alsace and Lorraine. In 1871, Wilhelm I was proclaimed Emperor of all Germany in the Hall of Mirrors at Versailles. The dreams of the German nationalists had been realized! The small German-speaking states of central Europe were now united into a powerful nation dominated by Prussia.

Bismarck had provoked a number of wars in order to achieve his aim - the unification of Germany under Prussia; but after 1871 he strove for peace, fearing that war would harm his new creation. "I am bored", Bismarck remarked to his friends, "The great things are done. The German Reich is made."

In order to preserve the status quo in Europe, Bismarck now made alliances not only with Austria-Hungary and Italy, but also with Russia. To make alliances with both Austria-Hungary and Russia required considerable diplomatic skill, since the two empires were enemies - rivals for influence in

the Balkan Peninsula. Several small Balkan states had broken away from the decaying Turkish Empire. Both the Hapsburg Emperors and the Romanoff Czars were anxious to dominate these small states. However, nationalist emotions were even more frenzied in the Balkans than they were elsewhere in Europe. Nationalism was a cause for which 19th century Europeans were willing to kill each other, just as three centuries earlier they had been willing to kill each other over their religious differences.

Serbia was an independent state, but the fanatical Serbian nationalists were far from satisfied. Their real aim was to create an independent Pan-Serbia (or Yugoslavia) which would include all the Slavic parts of Austria-Hungary. Thus, at the turn of the century, the Balkans were a trouble spot, much as the Middle East is a trouble spot today.

Kaiser Wilhelm I was a stable monarch, but in 1888 he died and the German throne passed to his son, the liberal-minded Frederick III, who was incurably ill with cancer of the throat. After reigning only 90 days, Frederick also died, and his 29 year old son became the new German Emperor - the ultra-conservative Kaiser Wilhelm II. Wilhelm II had been born with a withered arm, and as a boy he had been constantly told that he must become a great warrior. His adult behavior sometimes showed tendencies towards both paranoia and megalomania.

In 1890, Wilhelm dismissed Otto von Bismarck ("dropping the pilot"). Bismarck was now on the side of peace, or at any rate caution, and he might have guided Germany safely through the troubled waters of European politics if he had been allowed to continue; but Wilhelm wanted to play Bismarck himself.

Wilhelm's first act was to break off Germany's alliance with Russia. Czar Alexander III, against his principles, then formed an alliance with republican France. Realizing that he had blundered, Wilhelm tried to patch up relations with the Czar, but it was too late. Europe was now divided into two armed camps - Germany, Austria-Hungary and Italy, opposed by Russia and France.

Wilhelm's government then began to build a huge modern navy, much to the consternation of the English. The government of England felt that it was necessary for their country to have control of the sea, since England was a densely populated island, dependent on imports of food, and in possession of a far-flung empire. It was not only with respect to naval power that England felt threatened: After being united in 1871 Germany had undergone an industrial revolution; and German industries were pouring out steel and high-quality manufactured goods that threatened England's dominance of

world trade. Commercial and naval competition with the rising German Empire drove England into an informal alliance with Russia and France - the Triple Entente.

Meanwhile the situation in the Balkans became increasingly troubled, and at the end of July, 1914, the Austrian Foreign Minister, Count Brechtold, used the assassination of Archduke Francis Ferdinand and his wife as a pretext for crushing the Serbian Pan-Slavic movement. Russia mobilized against Austria in defense of the Serbs, and the Austrian government interpreted the mobilization as a declaration of war. Germany was linked to Austria by an alliance, while France was linked to Russia. In this way, both France and Russia were drawn into the conflict.

On August 2, Wilhelm demanded free passage of German troops through Belgium. The Belgians refused. They gave warning that an invasion would be resisted, and they appealed to England for support of their country's neutrality. On August 4, Britain sent an ultimatum to the Kaiser: Unless he halted the invasion of Belgium, Britain would enter the war. The invasion of Belgium rolled on. It was now too late to stop the great death-machine, and as it gained momentum, Sir Edward Grey spoke the sad and prophetic words. "The lamps are going out all over Europe; we shall not see them lit again in our lifetime."

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 Europe's 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-marshalled 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. On the German side, the soldiers sang "Lili Marlene" - "She waits for a boy who's far away..." and on the other side, British and American soldiers sang:

> "There's a long long trail a-winding
> Into the land of my dreams
> Where the nightingale is singing
> and the pale moon beams.
> There's a long long night of waiting
> Until my dreams all come true,
> 'Til the day that I'll be going
> Down that long long trail with you."

For millions of Europe's young men, the long, long trail lead 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 lead, only twenty years later, to an even more catastrophic global war.

The First World War brought about the downfall of four emperors: the Russian Czar, the Turkish Sultan, the Austro-Hungarian Emperor and the German Kaiser. The decaying and unjust Czarist government had for several years been threatened by revolution; and the horrors of the war into which the Czar had led his people were enough to turn them decisively against his government. During 1915 alone, Russia lost more than two million men, either killed or captured. Finally the Russian soldiers refused to be driven into battle and began to shoot their officers. In February, 1917, the Czar abdicated; and on December 5, 1917, the new communist government of Russia signed an armistice with Germany.

The German Chief of Staff, General Ludendorff, then shifted all his troops to the west in an all-out offensive. In March, 1918, he threw his entire army into a gigantic offensive which he called "the Emperor's Battle". The German army drove forward, and by June they were again on the Marne, only 50 miles from Paris. However, the Allies counterattacked, strengthened by the first American troops, and using, for the first time, large numbers of tanks. The Germans fell back, and by September they had lost more than a million men in six months. Morale in the retreating German army was falling rapidly, and fresh American troops were landing in France at the rate of 250,000 per month. Ludendorff realized that the German cause was hopeless and that if peace were not made quickly, a communist revolution would take place in Germany just as it had in Russia.

The old feudal Prussian military caste, having led Germany into disaster,

now unloaded responsibility onto the liberals. Ludendorff advised the Kaiser to abdicate, and a liberal leader, Prince Max of Baden, was found to head the new government. On November 9, 1918, Germany was proclaimed a republic. Two days later, an armistice was signed and the fighting stopped.

During the last years of the war the world, weary of the politics of power and nationalist greed, had looked with hope towards the idealism of the American President, Woodrow Wilson. He had proposed a "peace without victory" based on his famous Fourteen Points. Wilson himself considered that the most important of his Fourteen Points was the last one, which specified that "A general association of nations must be formed... for the purpose of affording mutual guaranties of political independence and territorial integrity of great and small states alike."

When Wilson arrived in Europe to attend the peace conference in Paris, he was wildly cheered by crowds of ordinary people, who saw in his idealism new hope for the world. Unfortunately, the hatred produced by four years of horrible warfare was now too great to be overcome. At the peace conference, the aged nationalist Georges Clemenceau was unswerving in his deep hatred of Germany. France had suffered greatly during the war. Half of all French males who had been between the ages of 20 and 32 in 1914 had been killed; much of the French countryside had been devastated; and the retreating German armies had destroyed the French coal mines. Clemenceau was determined to extract both revenge and financial compensation from the Germans.

In the end, the peace treaty was a compromise. Wilson was given his dream, the League of Nations; and Clemenceau was given the extremely harsh terms which he insisted should be imposed on Germany. By signing the treaty, Germany would be forced to acknowledge sole responsibility for having caused the war; it would be forced to hand over the Kaiser and other leaders to be tried as war criminals; to pay for all civilian damage during the war; to agree to internationalisation of all German rivers and the Kiel Canal; to give France, Belgium and Italy 25 million tons of coal annually as part of the reparations payments; to surrender coal-rich Alsace-Lorraine[2] to France; to give up all foreign colonies; to lose all property owned by Germans abroad; and to agree to Allied occupation of the Rhineland for fifteen years.

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[2]Alsace-Lorraine was a bitter issue for the French from 1870 to 1918. During all that time, the allegorical figures representing Alsace and Lorraine on the Pont Alexandre III in Paris were draped in black, which was triumphantly removed in 1918

The loss of coal, in particular, was a death-blow aimed at German industry. Reading the terms of the treaty, the German Chancellor cried: "May the hand wither that signs such a peace!" The German Foreign Minister, Count Ulrich von Brockendorff-Rantzau, refused to sign, and the German government made public the terms of the treaty which it had been offered.

French newspapers picked up the information, and at 4 o'clock one morning, a messenger knocked at the door of the Paris hotel room where Herbert Hoover (the American war relief administrator) was staying, and handed him a copy of the terms. Hoover was so upset that he could sleep no more that night. He dressed and went out into the almost deserted Paris streets, pacing up and down, trying to calm himself. "It seemed to me," Hoover wrote later, "that the economic consequences alone would pull down all Europe and thus injure the United States." By chance, Hoover met the British economist, John Maynard Keynes, who was walking with General Jan Smuts in the pre-dawn Paris streets. Both of them had received transcripts of the terms offered to Germany, and both were similarly upset. "We agreed that it was terrible," Hoover wrote later, "and we agreed that we would do what we could ... to make the dangers clear."

In the end, continuation of the blockade forced the Germans to sign the treaty; but they did so with deeply felt bitterness. Describing the signing of the Versailles treaty on June 28, 1919, a member of the American delegation wrote: "It was not unlike when in olden times the conqueror dragged the conquered at his chariot wheel."

While he participated in the peace negotiations, Wilson had been absent from the United States for six months. During that time, Wilson's Democratic Party had been without its leader, and his Republican opponents made the most of the opportunity. Republican majorities had been returned in both the House of Representatives and the Senate. When Wilson placed the peace treaty before the Senate, the Senate refused to ratify it. Wilson desperately wanted America to join the League of Nations, and he took his case to the American people. He traveled 8,000 miles and delivered 36 major speeches, together with scores of informal talks urging support for the League. Suddenly, in the middle of this campaign, he was struck with a cerebral thrombosis from which he never recovered.

Without Wilson's leadership, the campaign collapsed. The American Senate for a second time rejected the peace treaty, and with it the League of Nations. Without American participation, the League was greatly handicapped. It had many successes, especially in cultural and humanitarian

projects and in settling disputes between small nations; but it soon became clear that the League of Nations was not able to settle disputes between major powers.

Postwar Germany was in a state of chaos - its economy in ruins. The nation was now a republic, with its capital in Weimar, but this first experiment in German democracy was not running smoothly. Many parts of the country, especially Bavaria, were swarming with secret societies led by former officers of the German army. They blamed the republican government for the economic chaos and for signing a disgraceful peace treaty. The "war guilt" clause of the treaty especially offended the German sense of honor.

In 1920 a group of nationalist and monarchist army officers led by General Ludendorff staged an army revolt or "Putsch". They forcibly replaced the elected officials of the Weimar Republic by a puppet head of state named Dr. Kapp. However, the republic was saved by the workers of Berlin, who turned off the public utilities.

After the failure of the "Kapp Putsch", Ludendorff went to Bavaria, where he met Adolf Hitler, a member of a small secret society called the National Socialist German Workers Party. (The name was abbreviated as "Nazi" after the German pronunciation of the first two syllables of "National"). Together, Ludendorff and Hitler began to plot another Putsch.

In 1921, the Reparations Commission fixed the amount that Germany would have to pay at 135,000,000,000 gold marks. Various western economists realized that this amount was far more than Germany would be able to pay; and in fact, French efforts to collect it proved futile. Therefore France sent army units to occupy industrial areas of the Ruhr in order to extract payment in kind. The German workers responded by sitting down at their jobs. Their salaries were paid by the Weimar government, which printed more and more paper money. The printing presses ran day and night, flooding Germany with worthless currency. By 1923, inflation had reached such ruinous proportions that baskets full of money were required to buy a loaf of bread. At one point, four trillion paper marks were equal to one dollar. This catastrophic inflation reduced the German middle class to poverty and destroyed its faith in the orderly working of society.

The Nazi Party had only seven members when Adolf Hitler joined it in 1919. By 1923, because of the desperation caused by economic chaos, it had grown to 70,000 members. On November 8, 1923, there was a meeting of nationalists and monarchists at the Bürgerbräu beer hall in Munich. The Bavarian State Commissioner, Dr. Gustav von Kahr, gave a speech denounc-

ing the Weimar Republic. He added, however, that the time was not yet ripe for armed revolt.

In the middle of Kahr's speech, Adolf Hitler leaped to the podium. Firing two revolver bullets into the ceiling Hitler screamed that the revolution was on - it would begin immediately! He ordered his armed troopers to bar the exits, and he went from one Bavarian leader to the other, weeping with excitement, a beer stein in one hand and a revolver in the other, pleading with them to support the revolution. At this point, the figure of General Ludendorff suddenly appeared. In full uniform, and wearing all his medals, he added his pleading to that of Hitler. The Bavarian leaders appeared to yield to Hitler and Ludendorff; and that night the Nazis went into action. Wild disorder reigned in Munich. Republican newspapers and trade union offices were smashed, Jewish homes were raided, and an attempt was made to seize the railway station and the post office. However, units of policemen and soldiers were forming to resist the Nazis. Hitler realized that the Bavarian government officials under Kahr had only pretended to go along with the revolution in order to escape from the armed troopers in the beer hall.

At dawn, Hitler grouped his followers together for a parade to show their strength and to intimidate opposition. With swastika flags flying, the Nazis marched to the main square of Munich. There they met troops of Bavarian government soldiers and policemen massed in force. A volley of shots rang out, and 18 Nazis fell dead. Many other Nazis were wounded, and the remainder scattered. Hitler broke his shoulder diving for the pavement. Only General Ludendorff remained standing where he was. The half-demented old soldier, who had exercised almost dictatorial power over Germany during the last years of the war, marched straight for the Bavarian government troops. They stepped aside and let him pass.

Adolf Hitler was arrested and sentenced to five years in prison. After serving less than a year of his sentence, he was released. He had used the time in prison to write a book, *Mein Kampf.*

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Chapter 4

Religion: Part of the problem? - or the answer?

From tribalism to universal brotherhood

Early religions tended to be centered on particular tribes, and the ethics associated with them were usually tribal in nature. However, as was mentioned in Chapter 2, the more cosmopolitan societies that began to form after the Neolithic agricultural revolution required a more universal code of ethics.

In the 6th century B.C., Prince Gautama Buddha founded a new religion in India, with a universal (non-tribal) code of ethics. Among the sayings of the 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."

One of the early converts to Buddhism was the emperor Ashoka Maurya, who reigned in India between 273 B.C. and 232 B.C. After his conversion, he resolved never again to use war as an instrument of policy. He became one of the most humane rulers in history, and he also did much to promote the spread of Buddhism throughout Asia.

In Christianity, which is built on the foundations of Judaism, the concept of universal human brotherhood replaces narrow loyalty to the tribe. The universality of Christian ethical principles, which we see especially in the Parable of the Good Samaritan, make them especially relevant to our own times. Today, in a world of thermonuclear weapons, the continued exis-

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tence of civilization depends on whether or not we are able to look on all of humanity as a single family.

In the Christian Gospel According to Mathew, the following passage occurs: "You 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 echos the sayings of Buddha, "Hatred does not cease by hatred at any time; hatred ceases by love", and "Let a man overcome anger by love; let him overcome evil by good."

The seemingly impractical advice given to us by both Jesus and Buddha - that we should love our enemies and return good for evil - 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 in Northern Ireland. Amazingly, 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 retaliation is aimed. It is planned that entire populations shall be killed in a "massive retaliation", innocent children along with guilty politicians. The startling contradiction between what 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.

Tolstoy, Gandhi, and Martin Luther King; Nonviolence

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. 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.

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 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 children[1]. 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, Natassia, is modeled after his sister-in-law, Tanya Bers. Pierre in "War and Peace" and Levin in "Anna Karinina" 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.

By the time Tolstoy had finished "Anna Karinina", 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

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[1]However, when Tolstoy was an old man, his family life was marred by conflicts.

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. ...

"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."

Tolstoy's book, "What Then Must We Do?", tells of his experiences in the slums and analyzes 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:

"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 Christiandom, where it arouses feelings of pride and happiness in us regardless of our na-

tionality; 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 government's 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."

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.

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. ...

"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 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 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."

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.

In the hands of Gandhi, non-violent passive resistance became a practical political force. Mohandas Karamchand Gandhi was born in 1869 in Porbandar, India. His family belonged to the Hindu caste of shopkeepers. (In Gujarati "Gandhi" means "grocer".) However, the family had risen in status, and Gandhi's father, grandfather, and uncle had all served as prime ministers of small principalities in western India.

In 1888, Gandhi sailed for England, where he spent three years studying law at the Inner Temple in London. Before he left India, his mother had made him take a solemn oath not to touch women, wine, or meat. He thus came into contact with the English vegetarians, who included Sir Edward Arnold (translator of the Bhagavad Gita), the Theosophists Madame Blavatski and Annie Besant, and the Fabians. Contact with this idealistic group of social critics and experimenters helped to cure Gandhi of his painful shyness, and it also developed his taste for social reform and experimentation.

Gandhi's exceptionally sweet and honest character won him many friends in England, and he encountered no racial prejudice at all. However, when he traveled to Pretoria in South Africa a few years later, he experienced racism in its worst form. Although he was meticulously well dressed in an English frock coat, and in possession of a first-class ticket, Gandhi was given the choice between traveling third class or being thrown off the train. (He chose the second alternative.) Later in the journey he was beaten by a coach driver because he insisted on his right to sit as a passenger rather than taking a humiliating position on the footboard of the coach.

The legal case which had brought Gandhi to South Africa was a dispute between a wealthy Indian merchant, Dada Abdullah Seth, and his relative, Seth Tyeb (who had refused to pay a debt of 40,000 pounds, in those days a huge sum). Gandhi succeeded in reconciling these two relatives, and he persuaded them to settle their differences out of court. Later he wrote about this experience:

"Both were happy with this result, and both rose in public estimation. 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. The lesson was so indelibly burnt into me that a large part of my time during my twenty years of practice as a lawyer was occupied in bringing about compromises of hundreds of cases. I lost nothing thereby - not even money, certainly not my soul."

Gandhi was about to return to India after the settlement of the case, but at a farewell party given by Abdullah Seth, he learned of a bill before the legislature which would deprive Indians in South Africa of their right to vote. He decided to stay and fight against the bill.

Gandhi spent the next twenty years in South Africa, becoming the leader of a struggle for the civil rights of the Indian community. In this struggle he tried "...to find the better side of human nature and to enter men's hearts."

Gandhi's stay in England had given him a glimpse of English liberalism and English faith in just laws. He felt confident that if the general public in England could be made aware of gross injustices in any part of the British Empire, reform would follow. He therefore organized non-violent protests in which the protesters sacrificed themselves so as to show as vividly as possible the injustice of an existing law. For example, when the government ruled that Hindu, Muslim and Parsi marriages had no legal standing, Gandhi and his followers voluntarily went to prison for ignoring the ruling.

Gandhi used two words to describe this form of protest: "satyagraha" (the force of truth) and "ahimsa" (non-violence). Of these he later wrote: "I have nothing new to teach the world. Truth and non-violence are as old as the hills. All that I have done is to try experiments in both on as vast a scale as I could. In so doing, I sometimes erred and learnt by my errors. Life and its problems have thus become to me so many experiments in the practice of truth and non-violence."

In his autobiography, Gandhi says: "Three moderns have left a deep impression on my life and captivated me: Raychandbhai (the Indian philosopher and poet) by his living contact; Tolstoy by his book 'The Kingdom of God is Within You'; and Ruskin by his book 'Unto This Last'."

Ruskin's book, "Unto This Last", which Gandhi read in 1904, is a criticism of modern industrial society. Ruskin believed that friendships and warm interpersonal relationships are a form of wealth that economists have failed to consider. He felt that warm human contacts are most easily achieved in small agricultural communities, and that therefore the modern tendency towards centralization and industrialization may be a step backward in terms of human happiness. While still in South Africa, Gandhi founded two religious utopian communities based on the ideas of Tolstoy and Ruskin. Phoenix Farm (1904) and Tolstoy Farm (1910). At this time he also took an oath of chastity ("bramacharya"), partly because his wife was unwell and he wished to protect her from further pregnancies, and partly in order to devote himself more completely to the struggle for civil rights.

Because of his growing fame as the leader of the Indian civil rights movement in South Africa, Gandhi was persuaded to return to India in 1914 and to take up the cause of Indian home rule. In order to reacquaint himself with conditions in India, he traveled tirelessly, now always going third class as a matter of principle.

During the next few years, Gandhi worked to reshape the Congress Party into an organization which represented not only India's Anglicized upper

middle class but also the millions of uneducated villagers who were suffering under an almost intolerable burden of poverty and disease. In order to identify himself with the poorest of India's people, Gandhi began to wear only a white loincloth made of rough homespun cotton. He traveled to the remotest villages, recruiting new members for the Congress Party, preaching non-violence and "firmness in the truth", and becoming known for his voluntary poverty and humility. The villagers who flocked to see him began to call him "Mahatma" (Great Soul).

Gandhi organized demonstrations whose purpose was to show the British public that although the British raj gave India many benefits, the toll exacted was too high, not only in terms of money, but also in terms of India's self-respect and self-sufficiency. All of Gandhi's demonstrations were designed to underline this fact. For example, in 1930 Gandhi organized a civil-disobedience campaign against the salt laws. The salt laws gave the Imperial government a monopoly and prevented Indians from making their own salt by evaporating sea water. The majority of Indians were poor farmers who worked long hours in extreme heat, and salt was as much a necessity to them as bread. The tax on salt was essentially a tax on the sweat of the farmers.

Before launching his campaign, Gandhi sent a polite letter to the Viceroy, Lord Irwin, explaining his reasons for believing that the salt laws were unjust, and announcing his intention of disregarding them unless they were repealed. Then, on March 12 1930, Gandhi and many of his followers, accompanied by several press correspondents, started on a march to the sea to carry out their intention of turning themselves into criminals by making salt. Every day, Gandhi led the procession about 12 miles, stopping at villages in the evenings to hold prayer meetings. Many of the villagers joined the march, while others cast flower petals in Gandhi's path or sprinkled water on his path to settle the dust.

On April 5 the marchers arrived at the sea, where they spent the night in prayer on the beach. In the morning they began to make salt by wading into the sea, filling pans with water, and letting it evaporate in the sun. Not much salt was made in this way, but Gandhi's action had a strong symbolic power. A wave of non-violent civil disobedience demonstrations swept over India, so extensive and widespread that the Imperial government, in danger of losing control of the country, decided to arrest as many of the demonstrators as possible. By midsummer, Gandhi and a hundred thousand of his followers were in prison, but nevertheless the civil disobedience demonstrations continued.

In January, 1931, Gandhi was released from prison and invited to the Viceroy's palace to talk with Lord Irwin. They reached a compromise agreement: Gandhi was to call off the demonstrations and would attend a Round Table Conference in London to discuss Indian home rule, while Lord Irwin agreed to release the prisoners and would change the salt laws so that Indians living near to the coast could make their own salt.

The salt march was typical of Gandhi's non-violent methods. Throughout the demonstrations he tried to maintain a friendly attitude towards his opponents, avoiding escalation of the conflict. Thus at the end of the demonstrations, the atmosphere was one in which a fair compromise solution could be reached. Whenever he was in prison, Gandhi regarded his jailers as his hosts. Once, when he was imprisoned in South Africa, he used the time to make a pair of sandals, which he sent to General Smuts, the leader of the South African government. Thus Gandhi put into practice the Christian principle, "Love your enemies; do good to them that hate you."

Gandhi's importance lies in the fact that he was a major political leader who sincerely tried to put into practice the ethical principles of religion. In his autobiography Gandhi says: "I can say without the slightest hesitation, and yet with all humility, that those who say that religion has nothing to do with politics do not know what religion means."

Gandhi believed that human nature is essentially good, and that it is our task to find and encourage whatever is good in the character of others. During the period when he practiced as a lawyer, Gandhi's aim was "to unite parties riven asunder," and this was also his aim as a politician. In order for reconciliation to be possible in politics, it is necessary to avoid escalation of conflicts. Therefore Gandhi used non-violent methods, relying only on the force of truth. "It is my firm conviction," he wrote, "that nothing can be built on violence."

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".

Gandhi believed that the use of violent means must inevitably contaminate the end achieved. Because Gandhi's methods were based on love, understanding, forgiveness and reconciliation, the non-violent revolution which he led left very little enmity in its wake. When India finally achieved its independence from England, the two countries parted company without excessive bitterness. India retained many of the good ideas which the English had brought - for example the tradition of parliamentary democracy - and the two countries continued to have close cultural and economic ties.

Another example of a successful non-violent revolution is the black civil rights movement in America, led by Martin Luther King, Jr. The son of a southern Baptist minister, King received his Ph.D. in theology from Boston University in 1955. During his studies, he had admired Thoreau's essay "On the Duty of Civil Disobedience," and he had also been greatly moved by the life and teachings of Mahatma Gandhi.

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 busses. Suddenly thrust into this situation of intense conflict, he remembered both the Christian principle of loving one's 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."

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.

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 Gandhi's disciples.

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.

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. 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."

Concerning the Christian principle of loving one's 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 '50's and '60's 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 despitefully 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.

The examples that we have considered here - the Indian civil rights movement in South Africa, the Indian independence movement, and the black civil rights movement in the United States - all show that non-violent protest can sometimes be a very effective method for resisting governmental violence and for changing unjust laws. As Gandhi pointed out, the end achieved inevitably reflects the means used. Therefore, if harmony and understanding are to be the end result of a political movement, then non-violent methods must be used.

There is, however, another question that we should try to answer: To what extent can violence be eliminated altogether from a society and replaced by the rule of love? Tolstoy was completely uncompromising in his condemnation of violence, and he even went so far as to maintain that there are no circumstances whatever under which violence can be justified, even in law-enforcement. Tolstoy's arguments are logically consistent, and consistent also with the words and spirit of the Sermon on the Mount. However, one feels that he may be exaggerating for the sake of clarity.

Tolstoy tells us that the only thing needed for a new order - "the Kingdom of God" - to be established on Earth is for all men and women to abandon violence and to follow the rule of love. He is right, of course, but when we read his words, we cannot help noticing the word "all". If *all* humans abandon violence and follow the rule of love, a new order will come; but what if some

of us become as gentle as lambs, while others remain unregenerate wolves? Will not the wolves eat the lambs? This is the difficulty that has always blocked progress towards a non-violent society. It is the problem that lies at the root of the arms race. It is the riddle that we somehow must solve if we are to save civilization from a third world war.

Although no real society is completely free from violence, some societies are much less violent than others. For example, feudal Japan was a very violent society, as was the American west in the days when everyone carried a gun. Scandinavia, as it is described in the Sagas, was also extremely violent. By contrast, one can also think of societies where the level of violence is very low, for example Bhutan, Tibet or Nepal (until recently), modern Scandinavia, modern Switzerland, or the Arapesh society described by Margaret Mead, to name only a few.

Many of the world's nations have reduced their level of internal violence considerably during the last few hundred years. A few centuries ago, a gentleman in France or England carried a sword, and a child could be hanged for stealing a handkerchief. Today it is usually no longer necessary for citizens to carry personal weapons, and in many countries both torture and the death penalty have been abolished. On the other hand, very little progress has been made towards solving the problem of international violence.

While the level of violence *within* many nations has decreased, the level of international violence has greatly increased because of modern weapons: The two world wars that took place during the 20th century produced destruction and death on a scale previously unknown; and humanity is threatened with the possibility of a third world war that could dwarf the other two. Thus it is imperative that we achieve at an international level the same degree of order and good government that has been achieved locally in such places as (for example) Scandinavia.

In the Sagas, one can hardly find a page that is free from violence, and yet in modern Scandinavia the citizens are so law-abiding that they will not cross a street against a red light, even if there is neither an automobile nor a policeman anywhere in sight. This obedience to laws is not derived from fear, but from a belief that the laws are beneficial. The fact that it has been possible to achieve such a degree of internal peace and order in what was once one of the world's most violent societies can make us optimistic as we work to make the same transition at the international level.

Violence within a society is a symptom that something is wrong, just as violence within a family is a symptom that something is wrong. A good

government does not need torture or the death penalty or an excessively numerous police force in order to govern, just as good parents do not need the threat of physical violence in order to control their children. The power of a good government rests on the consent of the governed, just as the authority of good parents rests on the love and respect that their children feel for them.

The achievement of good government is not a trivial problem. In those places in the world where it exists today, it has been built up only through much effort and thought. Nevertheless, the fact that there are countries where much peace and happiness have been achieved locally shows that the problem is not insoluble.

What we need to do is to concentrate more effort and intelligence on the problem of achieving good government globally. This problem should not really be beyond the ability of mankind to solve. Humans are, after all, very intelligent. In fact, the acuteness of the present crisis is due to the rapid technological development that human ingenuity has produced. The intelligence of mankind has seen very deeply into the secrets of nature. Can we not use the same intelligence to achieve good government at a global level? Religion, an important part of the accumulated wisdom of humankind, can help can help us to build a war-free world.

In his excellent and highly readable book, *Ancient Wisdom, Modern World: Ethics for the New Millennium*, the Dalai Lama writes:

"..At present and for the conceivable future, the UN is the only global institution capable of influencing and formulating policy on behalf of the international community. Of course, many people criticize it on the grounds that it is ineffective, and it is true that time and again we have seen its resolutions ignored, abandoned and forgotten. Nevertheless, in spite of its shortcomings, I for one continue to have the highest regard not only for the principles on which it was founded but also for the great deal that it has achieved since its inception in 1945. We need only ask ourselves whether or not it has helped to save lives by defusing potentially dangerous situations to see that it is more than the toothless bureaucracy some people say it is. We should also consider the great work of its subsidiary organizations, such as UNICEF, United Nations High Commission for Refugees, UNESCO and the World Health Organization..."

"I see the UN, developed to its full potential, as being the proper vehicle for carrying out the wishes of humanity as a whole. As yet it is not able to do this very effectively, but we are only just beginning to see the emergence of a global consciousness (which is made possible by the communications

revolution). And in spite of tremendous difficulties, we have seen it in action in numerous parts of the world, even though at the moment there may be only one or two nations spearheading these initiatives. The fact that they are seeking the legitimacy conferred by a United Nations mandate suggests a felt need for justification through collective approbation. This, in turn, I believe to be indicative of a growing sense of a single, mutually dependent, human community."

Another example of religious leadership in addressing global problems was given by H.H. Pope John Paul II. In his Christmas address on December 25, 2002, the Pope said that efforts for peace were urgently needed "in the Middle East, to extinguish the ominous smoldering of a conflict which, with the joint efforts of all, can be avoided." Although he did not specifically name the countries involved, it was clear that his remarks referred to the threatened invasion of Iraq by the United States and Great Britain. This interpretation was strengthened by senior Vatican officials who reiterated Catholic teaching that "preventive" war is unjustifiable. In an interview with Rome's La Repubblica, Archbishop Renato Martino, prefect of the Council for Justice and Peace, stated that "unilateralism is not acceptable."

Pope John Paul II was not an exception among the Roman Catholic popes of the 20th century. All of them have spoken strongly against the institution of war. Especially notable are H.H. Pope Paul VI who made a one-day visit to the United Nations where his speech included the words "no more war, war never again", and H.H. Pope John XXIII, author of the eloquent encyclical, *Pacem in Terris*. One can think also of the Ecumenical Council *Vatican II*, which denounced the arms race as an "utterly treacherous trap for humanity," questioned the method of deterrence as a safe way to preserve a steady peace, and condemned war as a "crime against God and man himself."

Other powerful voices have been raised by the World Conference of Religions for Peace, which met for the first time in October 1970 in Kyoto, Japan.[2] At this meeting, more than 1000 religious leaders gathered to discuss the grave dangers posed by modern war. Among them were representatives of the Baha'i, Mahayana and Trevada Buddhists, Protestants, Roman Catholics, Orthodox Christians, Confucians, representatives of several streams of Hinduism, a number of communities of indigenous faith, Shi'ite

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[2]Subsequent World Assemblies of the WCRP have been held in Louvain, Belgium, (1974); Princeton New Jersey, (1979); Nairobi, Kenya, (1984); Melbourne, Australia, (1989); Riva del Garde, Italy, (1994); and Amman, Jordan, (1999).

and Sunni Muslims, Jains, Reform Jews, Shintos, Sikhs, Zoroastrians, and representatives of a number of new religions.

The WCRP sponsors many projects related to conflict resolution, the world's children, development, disarmament and security, human rights, and peace education. For example, in the field of peace education, WCRP sponsors a project in Israel called "Common Values/Different Sources" which brings together Jews, Muslims and Christians to study sacred texts together in search of shared values, eventually resulting in a book for classroom use. In England and Germany, another WCRP project analyzes school textbooks' treatment of religious traditions that are foreign to the books' intended audiences.

Dr. Edy Korthals Altes, a former Ambassador of the Netherlands to Poland and Spain and an Honorary President of the World Conference of Religions for Peace, has expressed his vision of our current global situation in the following words: "We need a new concept of security. The old concept dates back to the Romans who said 'If you want peace, prepare for war.' The new concept I would propose is exactly the opposite, 'If you want peace, prepare for peace.' While this may sound simplistic, it is difficult to put into practice since the application of justice and solidarity in international political and economic relations requires sacrifices from 'those who have.' I would give three reasons why the old concept of 'security' is no longer valid: a) The extreme vulnerability of modern society; b) The tremendous destructive power of modern arms and terrorism; c) The interdependence between nations. These three elements are closely interconnected. It is therefore imperative to apply justice and solidarity in our international relations. If not, disaster looms!"

Dr. Altes feels that economic reforms are needed if global peace is to be achieved. "Not only economic justice is involved", he writes, "but also political justice. A clear example of which is the current situation in the Middle East. There must also be justice in the economic world situation in which 1/5 of the world population enjoys a high standard of living while 1/5 lives in terrible poverty, millions dying every year from hunger. This 'North South gap' is increasing!"

Discussing "myths that underlie our present economic system", he points to

1. "The notion that each person has unlimited material needs. We are told to 'consume more' which is totally contrary to any religion. What

is more, it is a self-defeating program that is contrary to humanity in general. The New Testament is clear 'you shall not live on bread alone.' Our deeper needs are not for material goods but for inner growth."

2. "Unlimited growth. The economy, my firm, my salary should all grow. In a finite planet, this is total nonsense. This maxim of growth has brought about great ecological damage."

3. Idolatry of the Free Market. I am in favor of a free market, but one that is set in the context of social and human conditions. We need to apply means to avoid the 'law of the jungle' in the market place."

No enumeration of religious voices raised in the cause of peace would be complete without mention of the Religious Society of Friends (Quakers), all of whom refuse to give any support whatever to the institution of war. Although they are fundamentally opposed to war as being completely contrary to Christian ethics, the Quakers are active in caring for the victims of war, and in 1947 the American Friends Service Committee and the Friends Service Council were jointly awarded the Nobel Peace Prize.

The non-violence of Mahatma Gandhi, Martin Luther King and Nelson Mandela, the writings of the Dalai Lama, the messages of Pope John Paul II and other popes, the anti-war convictions of the Quakers, and the many projects of the World Conference of Religions for Peace all illustrate the potentialities of the world's religions as powerful forces for mobilizing public opinion in the cause of peace. One hopes that the voice of religion in this cause will become still more powerful in the future. Each week, all over the world, congregations assemble and are addressed by their leaders on ethical issues. But all too often there is no mention of the astonishing and shameful contradiction between the institution of war (especially the doctrine of "massive retaliation"), and the principle of universal human brotherhood, loving and forgiving one's enemies, and returning good for evil. At a moment of history when the continued survival of civilization is in doubt because of the incompatibility of war with the existence of thermonuclear weapons, our religious leaders ought to use their enormous influence to help to solve the problem of war, which is after all an ethical problem. In this way, religion can become part of the cure for a mortal social illness, rather than part of the disease - part of the answer, rather than of part of the problem.

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Chapter 5

Science changes the character of war

While our emotions resemble those of our remote ancestors, cultural evolution has drastically changed all of the conditions of human life. Tribal emotions (which make quasi-religious nationalism and war possible) are still with us, but science has changed the character of war. Both nationalism and war have become highly dangerous anachronisms.

Modern weapons and colonialism

In the 18th and 19th centuries, the continually accelerating development of science and science-based industry began to affect the whole world. As the factories of Europe poured out cheap manufactured goods, a change took place in the patterns of world trade: Before the Industrial Revolution, trade routes to Asia had brought Asian spices, textiles and luxury goods to Europe. For example, cotton cloth and fine textiles, woven in India, were imported to England. With the invention of spinning and weaving machines, the trade was reversed. Cheap cotton cloth, manufactured in England, began to be sold in India, and the Indian textile industry withered, just as the hand-loom industry in England itself had done a century before.

The rapid development of technology in the west also opened an enormous gap in military strength between the industrialized nations and the rest of the world. Taking advantage of their superior weaponry, the advanced industrial nations rapidly carved the remainder of the world into colonies, which acted as sources of raw materials and food, and as markets for manufactured goods.

Throughout the American continent, the native Indian population had proved vulnerable to European diseases, such as smallpox, and large numbers of them had died. The remaining Indians were driven westward by streams of immigrants arriving from Europe.

Often the industrialized nations made their will felt by means of naval bombardments: In 1854, Commodore Perry forced Japan to accept foreign traders by threatening to bombard Tokyo. In 1856, British warships bombarded Canton in China to punish acts of violence against Europeans living in the city. In 1864, a force of European and American warships bombarded Choshu in Japan, causing a revolution. In 1882, Alexandria was bombarded, and in 1896, Zanzibar.

Much that was beautiful and valuable was lost, as mature traditional cultures collapsed, overcome by the power and temptations of modern industrial civilization. For the Europeans and Americans of the late 19th century and early 20th century, progress was a religion, and imperialism was its crusade.

Between 1800 and 1875, the percentage of the earth's surface under European rule increased from 35 percent to 67 percent. In the period between 1875 and 1914, there was a new wave of colonial expansion, and the fraction of the earth's surface under the domination of colonial powers (Europe, the United States and Japan) increased to 85 percent, if former colonies are included. The unequal (and unfair) contest between the industrialized countries, armed with modern weapons, and the traditional cultures with their much more primitive arms, was summarized by the English poet Hilaire Belloc in a sardonic couplet: [1]

> Whatever happens, we have got
> The Maxim gun, and they have not.

During the period between 1880 and 1914, British industrial and colonial dominance began to be challenged. Industrialism had spread from Britain to Belgium, Germany and the United States, and, to a lesser extent, to France, Italy, Russia and Japan. By 1914, Germany was producing twice as much steel as Britain, and the United States was producing four times as much.

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[1]The Maxim gun was one of the world's first automatic machine guns. It was invented in the United States in 1884 by Hiram S. Maxim. The explorer and colonialist Henry Morton Stanley (1841-1904) was extremely enthusiastic about Maxim's machine gun, and during a visit to the inventor he tried firing it, demonstrating that it really could fire 600 rounds per minute. Stanley commented that the machine gun would be "a valuable tool in helping civilization to overcome barbarism".

New techniques in weaponry were introduced, and a naval armaments race began among the major industrial powers. The English found that their old navy was obsolete, and they had to rebuild. Thus, the period of colonial expansion between 1880 and 1914 was filled with tensions, as the industrial powers raced to arm themselves in competition with each other, and raced to seize as much as possible of the rest of the world. Industrial and colonial rivalry contributed to the outbreak of the First World War, to which the Second World War can be seen as a sequel.

With the founding of the United Nations at the end of the Second World War, a system of international law was set up to replace the rule of military force. Law is a mechanism for equality. Under law, the weak and the powerful are in principle equal. One of the basic purposes of the United Nations is to make war illegal, and if war is illegal, the powerful and weak are on equal footing, much to the chagrin of the powerful. How can one can one construct or maintain an empire if war is not allowed? It is only natural that powerful nations should be opposed to international law, since it is a curb on their power. However, despite opposition, the United Nations has been largely successful in ending the era of colonialism, perhaps because of the balance of power between East and West during the Cold War. One by one, former colonies have regained their independence.

Casualties produced by modern weapons

The American Civil War was the first war in which breech-loading and repeating rifles were used on a large scale, and observers came from Europe to study their horrifying effectiveness. Together, the North and South had 3,867,000 men under arms - about 11 percent of America's population at that time. By its end, the Civil War had killed or wounded almost a million people! No war before or since has resulted in as many American casualties, either absolutely or proportionately. Neither side had expected anything of the kind. They had entered lightheartedly a war that both North and South had expected to be romantic and brief, but a new technology of killing had changed the character of war.

In the First World War, it became still clearer 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.

Chemical weapons

Modern chemical warfare began during World War I, when the Germans used chlorine gas against the Allies. The first attack occurred near the Belgian village of Ypres on April 22, 1915, and a second took place two days later. In these two attacks with chlorine gas, 5,000 allied soldiers were killed and 15,000 wounded. By the end of the war, both sides were using poison gas in large quantities, not only chlorine and mustard gas, but also the much more deadly compound phosgene. The total number of soldiers killed by gas was only 92,000, but 1.3 million were injured by it, many becoming lifelong invalids.

All of Wilfred Owen's bitter and powerful poems about the First World War are worth reading, especially his poem *Dulce Et Decorum Est* [2], which gives a vivid picture of the effects of poison gas:

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[2] "It is sweet and proper [to die for one's country]"– Horace

Bent double, like old beggars under sacks,
Knock-kneed, coughing like hags, we cursed through sludge,
Till on the haunting flares we turned our backs,
And towards our distant rest began to trudge.
Men marched asleep. Many had lost their boots,
But limped on, blood-shod. All went lame; all blind;
Drunk with fatigue; deaf even to the hoots
Of tired, outstripped Five-Nines that dropped behind.

Gas! GAS! Quick, boys!–An ecstasy of fumbling
Fitting the clumsy helmets just in time,
But someone still was yelling out and stumbling
And flound'ring like a man in fire or lime.–
Dim through the misty panes and thick green light,
As under a green sea, I saw him drowning.

In all my dreams before my helpless sight
He plunges at me, guttering, choking, drowning.
If in some smothering dreams, you too could pace
Behind the wagon that we flung him in,
And watch the white eyes writhing in his face,
His hanging face, like a devil's sick of sin,
If you could hear, at every jolt, the blood
Come gargling from the froth-corrupted lungs
Obscene as cancer, bitter as the cud
Of vile, incurable sores on innocent tongues,–
My friend, you would not tell with such high zest
To children ardent for some desperate glory,
The old Lie: *Dulce et decorum est*
Pro patria mori.

After World War I, there was public revulsion against the use of poison gas in warfare, and in 1925 the Geneva Protocol was signed, prohibiting "the use in warfare of asphyxiating, poisonous or other gases, and of bacteriological methods in warfare." Originally signed by 38 members of the League of Nations, it has since been signed by more than 130 countries. However, the Geneva Protocol does not prohibit the manufacture and stockpiling of chemical and bacteriological weapons, nor the threat of their use, and it con-

tains no specification of sanctions to be used against nations violating the Protocol.

Before and during World War II, Germany produced and stockpiled large quantities of the newly-invented and highly deadly nerve gases. At the start of the war, Germany already possessed between 20,000 and 30,000 tons of the nerve gas Tabun, as well as a factory capable of producing 12,000 tons of it per year. Perhaps fearing reprisals, Germany never made use of these extremely potent weapons against Allied troops. However, they were used in the genocide carried out in concentration camps. At the end of the war, Germany's stockpiled nerve gasses were seized by various Allied nations, taken to secret laboratories, and studied. Mutual distrust caused continued development and manufacture of these agents.

During World War II, mustard gas was manufactured in large quantities by Britain, Canada, France, Germany, Hungary, Italy, the Netherlands, Poland, South Africa, the USA and the USSR. The overall quantity stockpiled was over a hundred thousand tons. It was used by Italy in Ethiopia and by Japan in China. In the mid-1960's, mustard gas was used by Egypt in Yemen, and in the 1980's it was also used very extensively by Iraq in its invasion of Iran. Mustard gas, bis (2-chlorethyl) sulfide, is an oily liquid that causes skin damage on contact and which evaporates in warm weather into a highly toxic gas that burns body tissues causing blindness, blistering and lung damage.

In 1952, poison gas research in the United Kingdom produced a nerve gas related to insecticides and known as VX. It was much more deadly than any nerve gas previously discovered. Large-scale manufacturing of VX was started in the United States in 1961 and continued until 1968, when a plant in Dugway Utah was closed. One of the reasons for closure of the plant was public concern aroused by an accident in which a small amount of VX was blown by the wind in the direction of a nearby town, killing 6,000 sheep.

In the Vietnam War, various chemical defoliants were used in large quantities by the United States - "Agent Orange", "Agent Purple", "Agent Blue" and "Agent White". Besides making large quantities of land unsuitable for agriculture for many years after the war, these defoliants are said to have caused human casualties, such as cancer, and birth abnormalities.

In March, 1988, during its war with Iran, Iraq used various types of poison gas against Iraqi Kurdish civilians in the town of Halabjah. Between 5,000 and 8,000 people reportedly perished in these attacks, mostly women, children and elderly. Iraq had previously used both mustard gas and nerve gasses

on a large scale against Iran, violating the Geneva Protocol which both Iraq and Iran had signed. Nevertheless, the response of the international community was muted, mainly because the United States, the United Kingdom, and their allies regarded Saddam Hussein's government as a "bulwark against Iran," and indeed they had supported and armed Saddam expressly for this purpose.

On the 3rd of September, 1992, the Conference on Disarmament in Geneva adopted a Convention on the Prohibition of Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction. This agreement, which is usually called the Chemical Weapons Convention (CWC), attempted to remedy some of the shortcomings of the Geneva Protocol of 1925. The CWC went into force in 1997, after Hungary deposited the 65th instrument of ratification[3]. The provisions of Article I of the CWC are as follows:[4]

1. Each State Party to this convention undertakes never under any circumstances:

   (a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
   (b) To use chemical weapons;
   (c) To engage in any military preparation to use chemical weapons;
   (d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party in accordance with the provisions of this Convention.

2. Each State Party undertakes to destroy chemical weapons it owns or possesses, or that are located any place under its jurisdiction or control, in accordance with the provisions of this Convention.

3. Each State Party undertakes to destroy all chemical weapons it abandoned on the territory of another State Party, in accordance with the provisions of this Convention.

4. Each State Party undertakes to destroy any chemical weapons production facilities it owns or possesses, or that are located in any place

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[3]In 1995, during the period between the adoption of the CWC and its entry into force, the Aum Shinriko religious cult in Japan released the nerve gas Sarin in a Tokyo subway, causing thousands of casualties.

[4]For the full text of the CWC see http://www.opcw.org/

under its jurisdiction or control, in accordance with the provisions of this Convention.

5. Each State Party undertakes not to use riot control agents as a method of warfare.

The CWC also makes provision for verification by teams of inspectors, and by 2004, 1,600 such inspections had been carried out in 59 countries. It also established an Organization for the Prevention of Chemical Warfare. All of the declared chemical weapons production facilities have now been inactivated, and all declared chemical weapons have been inventoried. However, of the world's declared stockpile of chemical warfare agents (70,000 metric tons), only 12% have been destroyed. One hopes that in the future the CWC will be ratified by all the nations of the world and that the destruction of stockpiled chemical warfare agents will become complete.

Biological weapons; The case of smallpox

One of the most terrible plague epidemics in history, the Black Death of 1347-1352, began as an early example of biological warfare: In 1346, Tartar soldiers laying siege to the Black Sea port of Kaffa (now Feodossa, Ukraine) catapulted bodies of plague victims into the city. The defending Genoese became infected, and the city fell. When the Genoese retreated to Italy, they brought the plague with them, and during the ensuing epidemic a third of the population of Europe died. This early instance of biological warfare and its catastrophic consequences illustrates the basic unpredictability of biological weapons: Once released into the environment, they may spread in entirely unpredictable ways.

The history of biological warfare makes one despair for sanity of our species. One sees in this history not only some of the highest achievements of the human mind, but also the darkest sides of human nature. Biological warfare is indeed a case of "space-age science and stone-age politics".

Consider the case of smallpox, a frightful disease from which 300 million people died during the 20th century alone. Approximately one third of the people infected with smallpox die from it, and those who survive are often severely disfigured.

Smallpox inadvertently became a biological weapon aiding the Spanish conquistadors in Central and South America. Much of their military success was due to the fact that they brought smallpox and measles with them,

diseases to which the Indians had never been exposed. Since they had no immunity, the majority of the Indians died of these diseases whenever they contracted them in epidemics brought by the Spanish.

In North America, smallpox was deliberately used as a weapon by the British. In 1763, during the Pontiac Rebellion, Sir Jeffrey Amherst, the Commander in Chief of British forces in North America, wrote to Col. Henry Bouquet, "Could it not be contrived to send smallpox among these disaffected tribes of Indians? We must use every stratagem within our power to reduce them." Bouquet replied: "I will try to inoculate [them] with some blankets that may fall into their hands, and take care not to get the disease myself." As in South America, the disease was horrifyingly effective as a weapon, since the Indians had no immunity.

Thus smallpox played an early role in the history of biological warfare, a dark chapter in human history. But as we shall see, it also played a role in the some of the greatest successes of modern medicine. Smallpox is the first disease against which vaccination proved to be possible.

In 18th century Europe, smallpox was so common that people scarcely hoped to avoid it entirely, they hoped instead to have a mild case. It had been noticed that anyone who survived an attack of smallpox could never be attacked again. In Turkey and China, people sometimes inoculated themselves with pus taken from the blisters of patients sick with smallpox in a mild form. The Turkish and Chinese custom of inoculation was introduced into Europe in the 18th century by Lady Mary Montague, the widow of a diplomat who had spent some time in Turkey. Diderot, the editor of the Encyclopedia, did much to make this practice popular. However, this type of inoculation was dangerous: It gave protection against future attacks, but often the inoculated person became severely ill or died. In addition, the person inoculated was an active source of contagion for some time. It was like "Russian roulette".

The story of safe immunization against smallpox began when an English physician named Edward Jenner (1749-1823) treated a dairymaid. He suspected that she might have smallpox; but when he told her this, she replied: "I cannot take the smallpox sir, because I have had the cowpox". She told him that it was common knowledge among the people of her district that anyone who had been ill with cowpox (a mild disease of cattle which sometimes affected farmers and dairymaids), would never be attacked by smallpox.

Jenner realized that if her story were true, it might offer humanity a safe method of immunization against one of its most feared diseases. On May 14,

1796, he found a dairymaid with active cowpox, and taking a little fluid from a blister on her hand, he scratched it into the skin of a boy. The boy became ill with cowpox but he recovered quickly, because the disease is always mild.

Jenner then took the dangerous step of inoculating the boy with smallpox. If the boy had died, Jenner would have been a criminal - but he was immune! It took Jenner two years to find the courage and the opportunity to try the experiment again; but when he repeated it in 1798 with the same result, he decided to publish his findings.

So great was the terror of smallpox, that Jenner was immediately besieged with requests for immunization by inoculation with cowpox (which he called "vaccination" after *vacca*, the Latin word for "cow"). The practice quickly became accepted: The English Royal Family was vaccinated, and Parliament voted Jenner rewards totaling thirty thousand pounds - in those days an enormous sum.

In 1807 Bavaria made vaccination compulsory[5], and celebrated Jenner's birthday as a holiday. Russia also enthusiastically adopted vaccination. The first child in Russia to be vaccinated was given the name "Vaccinov", and was educated at the expense of the state.

In France, the great chemist and bacteriologist Louis Pasteur (1822-1895) and his coworkers were able to apply Jenner's discovery to other diseases. Working first with chicken cholera, and later with anthrax[6], they discovered methods for producing a safe vaccines by weakening cultures of bacteria, so that they no longer produced the disease but still conferred immunity. Pasteur and his coworkers even discovered how to make a vaccine against rabies, which is a virus disease. Thus smallpox played a special role in the history of modern medicine by providing an instance of safe vaccination, a method that was later generalized to the prevention of many other diseases.

During World War II, British and American scientists investigated the possibility of using smallpox as a biological weapon. However, it was never used, and in 1969 President Nixon officially ended the American biological weapons program, bowing to the pressure of outraged public opinion.[7] In

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[5]This was the initiative of Benjamin Thompson, Count Rumford, the American physicist-soldier-politician.

[6]Anthrax is an often-fatal disease of animals and humans. The anthrax bacilli can form spores that which are able to live in the ground for years. These bacilli have been cultured and stockpiled as a biological weapon by several countries, including t!e United States and the former Soviet Union.

[7]Nevertheless the United States seems to have supplied Saddam Hussein with cultures

1972, the United States, the United Kingdom and the Soviet Union signed a Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction. Usually this treaty is known as the Biological Weapons Convention (BWC), and it has now been signed by virtually all of the countries of the world.

After his discovery of safe vaccination against smallpox, Edward Jenner had written, "It now becomes too manifest to admit of controversy, that the annihilation of the Small Pox, the most dreadful scourge of the human species, must be the final result of this practice." In 1959, Jenner's prophecy began to move towards fulfillment when the World Health Assembly passed a resolution initiating a program for the global eradication of smallpox.

A World Health Organization team led by D.A. Henderson devised a strategy in which cases of smallpox were isolated and all their contacts vaccinated, so that the disease had no way of reaching new victims. Descriptions of the disease were circulated, and rewards offered for reporting cases. The strategy proved to be successful, and finally, in 1977, the last natural case of smallpox was isolated in Somalia. After a two-year waiting period, during which no new cases were reported, WHO announced in 1979 that smallpox, one of the most frightful diseases of humankind, had been totally eliminated from the world. This was the first instance of the complete eradication of a disease, and it was a demonstration of what could be achieved by the enlightened use of science combined with international cooperation. The eradication of smallpox was a milestone in human history.

But our species is not completely rational; we do not really deserve to be called "Homo sapiens". Stone-age emotions and stone-age politics are alas still with us. Samples of smallpox virus were taken to "carefully controlled" laboratories in the United States and the Soviet Union. Why? Probably because these two Cold War opponents did not trust each other, although both had signed the Biological Weapons Convention. Each feared that the other side might intend to use smallpox as a biological weapon. There were also rumors that unofficial samples of the virus had been saved by a number of other countries, including North Korea, Iraq, China, Cuba, India, Iran, Israel, Pakistan and Yugoslavia.

In 1989 Vladimir Pasechnik, a senior Soviet scientist, defected to the UK.

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of anthrax for use against Iran. Also the cultures of anthrax that killed several people in Washington and New York in 2001 apparently came from American military laboratories.

According to Pasechnik, the civilian pharmaceutical firm Biopreparat was in fact a front for a massive Soviet bio-weapons program. His testimony was echoed by Dr. Kanatjan Alibekov, who had been Chief Scientist at Biopreparat between 1987 and 1992, but who defected to the United States in 1992. Alibekov said that a particularly virulent strain of smallpox virus was being cultivated at Biopreparat and that it was being developed as an offensive weapon. In November, 2001, the United States announced that it will not destroy its stocks of smallpox virus, and that it intends to keep them.

To make the discouraging story of smallpox complete, the financial section of a European newspaper ("Metroxpress") recently published a photograph of two very satisfied-looking businessmen. The accompanying article explained the reason for their satisfaction: It was considered likely that smallpox might be used by terrorists. Hence a massive vaccination program would undoubtedly soon take place in Europe, and the company of these two businessmen would make large profits by manufacturing the vaccine. One despairs for the human race!

There is another idea of the biological weapons community that equally repellent, if not more so - racially selective bio-weapons. Basically the idea is this: The Human Genome Project has revealed the sequences of junk DNA (i.e., sequences that do not code for useful proteins) are racially specific. Thus the various races of humankind can be identified by looking at their junk DNA sequences. This being so, it should in principle be possible to construct a virus or toxin that will selectively attack people of a particular race. This idea is particularly abhorrent because it simultaneously violates two important principles of human solidarity. The first principle is that, since disease is the common enemy of mankind, all humans must to work together for its eradication. The second is that all humans must regard each other as members of a single large family. This is absolutely necessary if we are to survive on our small planet.

Land mines

We mentioned above the increased proportion of civilians, and in particular children, in modern war casualties. One sees this especially clearly if one looks at the victims of land mines, which very often maim or kill children from the poorer countries of the world. UNICEF estimates that 30%-40% of all mine victims are children under the age of 15. The countries most severely affected by land mines are Angola, Afghanistan, Cambodia, Bosnia, Croatia,

Vietnam, Mosambique, Iraq, Somalia, Eritria, Sudan, Colombia, Chechnya, Myanmar, and India.

Unexploded land mines are still present in 82 countries, and each year there are an estimated 20,000 new land mine casualties. The mines are inexpensive to manufacture, and can cost as little as 3 US dollars to produce. In contrast to this low production cost, the economic damage caused by land mines can be very large. The cost of removing a land mine can be as much as 100 times as great as the cost of producing it. This is because modern land mines are designed in such a way that they cannot be located with metal detectors.[8] When a land mine victim loses a limb, the costs of treatment can be very large. A growing child requires a new prosthesis every six to twelve months. The US Department of State estimates that only one in four land mine amputees has a proper artificial limb.

The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personel Land Mines and on their Destruction entered into force on March 1, 1999. At present, 134 countries have signed this treaty, which is sometimes known as the Mine Ban Treaty or the Ottawa Treaty. However, the United States, China and Russia have not signed it. In fact, the US has the fourth largest anti-personnel arsenal in the world, with a stockpile of approximately 10,400,000 mines.

"Weapons of mass destruction"

The term "weapons of mass destruction" has come into wide use in connection with the US-led invasion of Iraq in 2003. This term is extremely misleading, since it lumps chemical and biological weapons together with nuclear weapons. Although nerve gas and anthrax are inhumane, and although their use is contrary to international law, the destructive power of nuclear weapons is greater by many orders of magnitude, as we shall see in the next chapter. Therefore it is wrong to lump the three categories together. It is also wrong to think of using nuclear weapons in response to an attack with chemical and biological weapons. The policy of NATO regarding nuclear response to a CBW attack needs to be re-examined.

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[8]There is some hope that it may be possible to use genetically modified plants to detect land mines. In Denmark, research is underway on a modified version of thale cress (Arabidopsis thaliana), which is sensitive to nitrogen dioxide, a gas released by by the explosives in land mines. Changes in the color of the leaves of the plant may allow the positions of mines to be determined.

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Chapter 6

The nuclear arms race

Nuclear weapons

The first hint that nuclear weapons might be possible came in 1896 with the discovery of radioactivity by the French physicist Henri Becquerel. He observed that compounds of uranium emitted a strange radiation that was able to darken a photographic plate even though the plate was wrapped in an opaque covering. Becquerel was able to show that the radiation had nothing to do with chemical reactions. It was a phenomenon of the nuclei of the uranium atoms.

Two of the most basic assumptions of classical physics were challenged by Becquerel's discovery - the indivisibility of the atom and the conservation of energy. Later studies indicated that in radioactive decay, mass was being converted to energy, the equivalence being given by Einstein's famous formula, $E = mc^2$.

By 1917, the English physicist Ernest Rutherford was able to produce artificial nuclear transmutations of elements by bombarding them with the alpha particles (helium nuclei) that are thrown off at high velocity by radioactive elements such as uranium or radium. For example, in one of Rutherford's experiments a nitrogen nucleus absorbed an alpha particle and later emitted a proton, thus becoming a nucleus of oxygen, one place higher in the periodic system.

Only light nuclei could be bombarded using Rutherford's method. The charges on the nuclei of heavy elements were so large that the alpha particles were too strongly repelled. The splitting of nuclei was thought to be impossible. However, in 1932, a new elementary particle - the neutron -

was discovered by Rutherford's assistant, James Chadwick. Since it had no charge, the neutron was not repelled by the large charges of heavy nuclei. In Italy, Enrico Fermi tried bombarding all the elements of the periodic system with Chadwick's newly-discovered neutrons, and in 1934 he unwittingly split the uranium atom.

The fact that Fermi had actually split uranium nuclei by bombarding them with neutrons became clear in 1938 through the work of Otto Hahn in Germany and studies by O.R. Frisch and Lise Meitner in Sweden and Denmark. By consulting tables of the weights of isotopes and using Einstein's relation, $E = mc^2$, Frisch and Meitner were also able to show that when a single uranium nucleus is split, 200,000,000 electron volts of energy are released. Thus in nuclear fission, roughly a hundred million times as much energy is released as in an ordinary chemical reaction.

Experiments performed by Frisch at Niels Bohr's laboratory in Copenhagen observed the giant pulses of ionization produced by fission fragments rushing apart with enormous kinetic energies inside a Geiger counter. Later experiments by Fermi and others showed that the fission of a uranium nucleus not only releases enormous amounts of energy, but also several neutrons. Thus it became clear to physicists in both Europe and America that in principle it would be possible to construct enormously powerful nuclear bombs utilizing nuclear chain reactions.

A paper published in 1939 by Niels Bohr and John A. Wheeler indicated that it was the rare isotope of uranium, U-235, that undergoes fission. A bomb could be constructed if enough highly enriched U-235 could be isolated from the more common isotope, U-238 [1]. Calculations showed that the "critical mass" of highly enriched uranium needed is quite small - only a few kilograms.

Meanwhile night was falling on Europe. In 1929, an economic depression had begun in the United States and had spread to Europe. Without the influx of American capital, the postwar reconstruction of the German economy

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[1]Uranium has atomic number 92, i.e., a neutral uranium atom has a nucleus containing 92 positively-charged protons, around which 92 negatively-charged electrons circle. All of the isotopes of uranium have the same number of protons and electrons, and hence the same chemical properties, but they differ in the number of neutrons in their nuclei. For example, the nucleus of U-235 has 143 neutrons, while that of U-238 has 146. This means that U-238 is slightly heavier than U-235. If the two isotopes are to be separated, difficult physical methods dependent on mass must be used, since their chemical properties are identical.

collapsed. The German middle class, which had been dealt a severe blow by the great inflation of 1923, now received a second heavy blow. The desperation produced by economic chaos drove German voters into the hands of political extremists.

On January 30, 1933, Adolf Hitler was appointed Chancellor and leader of a coalition cabinet by President Hindenberg. Although Hitler was appointed legally to this post, he quickly consolidated his power by unconstitutional means: On May 2, Hitler's police seized the headquarters of all trade unions, and arrested labor leaders. The Communist and Socialist parties were also banned, their assets seized and their leaders arrested. Other political parties were also smashed. Acts were passed eliminating Jews from public service; and innocent Jewish citizens were boycotted, beaten and arrested. On March 11, 1938, Nazi troops entered Austria.

On March 16, 1939, the same day that Bohr and Wheeler mailed their paper on uranium to a journal, Enrico Fermi (who by then was a refugee in America) went to Washington to inform the Office of Naval Operations that it might be possible to construct an atomic bomb, and on the same day, German troops poured into Czechoslovakia.

A few days later, a meeting of six German atomic physicists was held in Berlin to discuss the applications of uranium fission. Otto Hahn, the discoverer of fission, was not present, since it was known that he was opposed to the Nazi regime. He was even said to have exclaimed: "I only hope that you physicists will never construct a uranium bomb! If Hitler ever gets a weapon like that, I'll commit suicide."

The meeting of German atomic physicists was supposed to be secret; but one of the participants reported what had been said to Dr. S. Flügge, who wrote an article about uranium fission and about the possibility of a chain reaction. Flügge's article appeared in the July issue of *Naturwissenschaften*, and a popular version of it was printed in the *Deutsche Allgemeine Zeitung*. These articles greatly increased the alarm of American atomic scientists, who reasoned that if the Nazis permitted so much to be printed, they must be far advanced on the road to building an atomic bomb.

In the summer of 1939, while Hitler was preparing to invade Poland, alarming news reached the physicists in the United States: A second meeting of German atomic scientists had been held in Berlin, this time under the auspices of the Research Division of the German Army Weapons Department. Furthermore, Germany had stopped the sale of uranium from mines in Czechoslovakia.

The world's most abundant supply of uranium, however, was not in Czechoslovakia, but in Belgian Congo. Leo Szilard, a refugee Hungarian physicist who had worked with Fermi to measure the number of neutrons produced in uranium fission, was deeply worried that the Nazis were about to construct atomic bombs, and it occurred to him that uranium from Belgian Congo should not be allowed to fall into their hands.

Szilard knew that his former teacher, Albert Einstein, was a personal friend of Elizabeth, the Belgian Queen Mother. Einstein had met Queen Elizabeth and King Albert of Belgium at the Solvay Conferences, and mutual love of music had cemented a friendship between them. When Hitler came to power in 1933, Einstein had moved to the Institute for Advanced Studies at Princeton, and Szilard decided to visit him there. Szilard reasoned that because of Einstein's great prestige, and because of his long-standing friendship with the Belgian Royal Family, he would be the proper person to warn the Belgians not to let their uranium fall into the hands of the Nazis.

Einstein agreed to write to the Belgian king and queen. On August 2, 1939, Szilard again visited Einstein, accompanied by Edward Teller and Eugene Wigner, who (like Szilard) were refugee Hungarian physicists. By this time, Szilard's plans had grown more ambitious; and he carried with him the draft of another letter, this time to the American President, Franklin D. Roosevelt. Einstein made a few corrections, and then signed the fateful letter, which reads (in part) as follows:

"Some recent work of E. Fermi and L. Szilard, which has been communicated to me in manuscript, leads me to expect that the element uranium may be turned into an important source of energy in the immediate future. Certain aspects of the situation seem to call for watchfulness and, if necessary, quick action on the part of the Administration. I believe, therefore, that it is my duty to bring to your attention the following. ... It is conceivable that extremely powerful bombs of a new type may be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port, together with some of the surrounding territory. ...

"I understand that Germany has actually stopped the sale of uranium from Czechoslovakian mines which she has taken over. That she should have taken such an early action might perhaps be understood on the ground that the son of the German Under-Secretary of State, von Weizäcker, is attached to the Kaiser Wilhelm Institute in Berlin, where some of the American work is being repeated."

On October 11, 1939, three weeks after the defeat of Poland, Roosevelt's

economic adviser, Alexander Sachs, personally delivered the letter to the President. After discussing it with Sachs, the President commented, "This calls for action." Later, when atomic bombs were dropped on civilian populations in an already virtually defeated Japan, Einstein bitterly regretted having signed the letter to Roosevelt.

The first nuclear reactor

As a result of Einstein's letter, President Roosevelt set up an advisory Committee on Uranium. On December 6, 1941, the day before the Japanese attack on Pearl Harbor, the Committee decided to make an all-out effort to develop atomic energy and atomic bombs. This decision was based in part on intelligence reports indicating that the Germans had set aside a large section of the Kaiser Wilhelm Institute for research on uranium, and it was based in part on promising results obtained by Enrico Fermi's group at Columbia University.

Fermi soon moved to the University of Chicago, and on December 2, 1942, he and his coworkers produced a world's first controlled chain reaction within a pile of cans containing ordinary (nonenriched) uranium powder, separated by blocks of very pure graphite. The graphite moderator slowed the neutrons, making them more effective. The chain-reacting pile had a double significance: It represented a new source of energy for mankind, but at the same time it represented an easy path to nuclear weapons, since one of the by-products of the reaction was a fissionable isotope of plutonium, Pu-239.

The Bohr-Wheeler theory predicted that Pu-239 should be just as fissionable as U-235. Instead of trying to separate the rare isotope, U-235, from the common isotope, U-238, physicists could just operate a nuclear reactor until a sufficient amount of Pu-239 accumulated, and then separate it out by ordinary chemical means.

This was done on a very large scale by the Dupont chemical company. Four large chain-reacting piles were built beside the Columbia River at Hanford, Washington. Cold water from the river was allowed to flow through the piles to carry away the heat.

An alternative method for producing atomic bombs was to separate the rare fissionable isotope of uranium from the common isotope. Three different methods for isotope separation seemed possible: One could make a gaseous compound of uranium and allow it to diffuse through a porous barrier. (The

lighter isotope would diffuse slightly faster.) Alternatively, one could use a high-speed gas centrifuge, or one could separate the isotopes in a mass spectrograph.

All three methods of isotope separation were tried, and all proved successful. A huge plant to carry out the gaseous separation methods was constructed at Oak Ridge Tennessee, and at the University of California in Berkeley, Ernest O. Lawrence and his group converted the new giant cyclotron into a mass spectrograph. Ultimately, 150,000 people were working at Hanford, Oak Ridge and Berkeley, producing material for atomic bombs. Of these, only a few knew the true purpose of the work in which they were engaged. In addition, a secret laboratory for the actual construction of atomic bombs was established at Los Alamos New Mexico under the direction of J. Robert Oppenheimer.

As time passed, many of the scientists at Los Alamos, including Niels Bohr, became deeply worried about the ethical aspects of work on the atomic bomb. When the project had first begun, everyone was sure that the Germans had a great lead in the development of nuclear weapons. They were convinced that the only way to save civilization from the threat of Nazi atomic bombs would be to have a counter-threat. In 1944, however, as the Allied invasion of Europe began, and no German atomic bombs appeared, this dogma seemed less certain.

In 1943, a special intelligence unit of the American Army had been established. Its purpose was to land with the first Allied troops invading Europe, and to obtain information about the German atomic bomb project. The code-name of the unit was *Aslos*, a literal Greek translation of the name of General Groves. The Dutch refugee physicist, Samuel Goudschmidt, was the scientific director of the *Aslos* mission.

When Strasbourg fell to the Allies, Goudschmidt found documents which made it clear that the Germans had not even come close to building atomic bombs. While walking with one of his military colleagues, Goudschmidt exclaimed with relief, "Isn't it wonderful? The Germans don't have atomic bombs! Now we won't have to use ours!"

He was shocked by the reply of his military colleague: "Of course you understand, Sam, that if we have such a weapon, we are going to use it." Goudschmidt's colleague unfortunately proved to have an accurate understanding of the psychology of military and political leaders.

Unfortunately, it was too late for the scientists to stop the machine which they themselves had set in motion. President Franklin Roosevelt might have

stopped the use of the bomb; but in August, 1945, he was dead. On his desk, unread, lay letters from Albert Einstein and Leo Szilard - the same men who had written to Roosevelt six years previously, thus initiating the American atomic bomb project. In 1945, both Einstein and Szilard wrote again to Roosevelt, this time desperately urging him not to use nuclear weapons against Japan; but their letters arrived too late.

In Roosevelt's place was a new President, Harry Truman, who had been in office only a few weeks. He was shocked to find himself suddenly thrust into a position of enormous power. Overwhelmed with new responsibilities, Truman was cautiously feeling his way. Until Roosevelt's death he had known nothing whatever about the atomic bomb project; and he therefore had little chance to absorb its full meaning.

By contrast, General Leslie Groves, the military commander of the bomb project, was very sure of himself, and he was determined to use atomic bombs against Japan. General Groves had supervised the spending of two billion dollars of the American taxpayers' money. He was anxious to gain credit for winning the war, rather than to be blamed for the money's misuse.

Under these circumstances, it is understandable that Truman did nothing to stop the use of the atomic bomb. In General Groves' words, "Truman did not so much say 'yes', as not say 'no'. It would, indeed, have taken a lot of nerve to say 'no' at that time."

Hiroshima and Nagasaki

On August 6, 1945, at 8:15 in the morning, an atomic bomb was exploded in the air over Hiroshima. The force of the explosion was equivalent to twenty thousand tons of T.N.T.. Out of a city of two hundred and fifty thousand people, almost one hundred thousand were killed by the bomb; and another hundred thousand were hurt.

In some places, near the center of the city, people were completely vaporized, so that only their shadows on the pavement marked the places where they had been. Many people who were not killed by the blast or by burns from the explosion, were trapped under the wreckage of their houses. Unable to move, they were burned to death in the fire which followed.

Some accounts of the destruction of Hiroshima, written by children who survived it, have been collected by Professor Arata Osada. Among them is the following account, written by a boy named Hisato Ito. He was 11 years old when the atomic bomb was exploded over the city:

"On the morning of August 5th (we went) to Hiroshima to see my brother, who was at college there. My brother spent the night with us in a hotel... On the morning of the 6th, my mother was standing near the entrance, talking with the hotel proprietor before paying the bill, while I played with the cat. It was then that a violent flash of blue-white light swept in through the doorway.

"I regained consciousness after a little while, but everything was dark. I had been flung to the far end of the hall, and was lying under a pile of debris caused by the collapse of two floors of the hotel. Although I tried to crawl out of this, I could not move. The fine central pillar, of which the proprietor was so proud, lay flat in front of me.

"I closed my eyes and was quite overcome, thinking that I was going to die, when I heard my mother calling my name. At the sound of her voice, I opened my eyes; and then I saw the flames creeping close to me. I called frantically to my mother, for I knew that I should be burnt alive if I did not escape at once. My mother pulled away some burning boards and saved me. I shall never forget how happy I felt at that moment - like a bird let out of a cage.

"Everything was so altered that I felt bewildered. As far as my eyes could see, almost all the houses were destroyed and on fire. People passed by, their bodies red, as if they had been peeled. Their cries were pitiful. Others were dead. It was impossible to go farther along the street on account of the bodies, the ruined houses, and the badly wounded who lay about moaning. I did not know what to do; and as I turned to the west, I saw that the flames were drawing nearer. ...

"At the water's edge, opposite the old Sentai gardens, I suddenly realized that I had become separated from my mother. The people who had been burned were plunging into the river Kobashi, and then were crying our: 'It's hot! It's hot!' They were too weak to swim, and they drowned while crying for help."

In 1951, shortly after writing this account, Hisato Ito died of radiation sickness. His mother died soon afterward from the same cause.

The postwar nuclear arms race

When the news of the atomic bombing of Hiroshima and Nagasaki reached Albert Einstein, his sorrow and remorse were extreme. During the remainder of his life, he did his utmost to promote the cause of peace and to warn

humanity against the dangers of nuclear warfare.

When Otto Hahn, the discoverer of fission, heard the news of the nuclear destruction of the two Japanese cities, he and nine other German atomic scientists were being held prisoner at an English country house near Cambridge[2]. Hahn became so depressed that his colleagues feared that he would take his own life.

Although many people on the Allied side reacted to the atomic bombs with jubilation and relief that the war was over, other segments of world public opinion were greatly affected by the indiscriminate destruction of human life in Hiroshima and Nagasaki. Shortly after the bombings, the French existentialist author Albert Camus wrote: "Our technical civilization has just reached its greatest level of savagery. We will have to choose, in the more or less near future, between collective suicide and the intelligent use of our scientific conquests. Before the terrifying prospects now available to humanity, we see even more clearly that peace is the only battle worth waging. This is no longer a prayer, but a demand to be made by all peoples to their governments - a demand to choose definitively between hell and reason."

Among the scientists who had worked at Chicago and Los Alamos, there was relief that the war was over; but as descriptions of Hiroshima and Nagasaki became available there were also sharp feelings of guilt. Many scientists who had worked on the bomb project made great efforts to persuade the governments of the United States, England and the Soviet Union to agree to international control of atomic energy; but these efforts met with failure; and the nuclear arms race developed with increasing momentum.

In 1946, the United States proposed the Baruch plan to internationalize atomic energy, but the plan was rejected by the Soviet Union, which had been conducting its own secret nuclear weapons program since 1943. On August 29, 1949, the USSR exploded its first nuclear bomb. It had a yield equivalent to 21,000 tons of TNT, and had been constructed from Pu-239 produced in a nuclear reactor. Meanwhile the United Kingdom had begun to build its own nuclear weapons.

The explosion of the Soviet nuclear bomb caused feelings of panic in the United States, and President Truman authorized an all-out effort to build superbombs using thermonuclear reactions - the reactions that heat the sun

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[2]The country house, Farm Hill, contained hidden microphones, and the conversations of the German atomic scientists were secretly recorded. The Farm Hill Transcripts are now available to historians interested in the German nuclear weapons program.

and stars. The idea of using a U-235 fission bomb to trigger a thermonuclear reaction in a mixture of light elements had first been proposed by Enrico Fermi in a 1941 conversation with his Chicago colleague Edward Teller. After this conversation, Teller (perhaps the model for Stanly Kubrick's character Dr. Strangelove) became a fanatical advocate of the superbomb.

After Truman's go-ahead, the American program to build thermonuclear weapons made rapid progress, and on October 31, 1952, the first US thermonuclear device was exploded at Eniwetok Atoll in the Pacific Ocean. It had a yield of 10.4 megatons, that is to say it had an explosive power equivalent to 10,400,000 tons of TNT. Thus the first thermonuclear bomb was five hundred times as powerful as the bombs that had devastated Hiroshima and Nagasaki. Lighter versions of the device were soon developed, and these could be dropped from aircraft or delivered by rockets.

The Soviet Union and the United Kingdom were not far behind. In 1955 the Soviets exploded their first thermonuclear device, followed in 1957 by the UK. In 1961 the USSR exploded a thermonuclear bomb with a yield of 58 megatons. A bomb of this size, two thousand times the size of the Hiroshima bomb, would be able to totally destroy a city even if it missed it by 50 kilometers. Fallout casualties would extend to a far greater distance.

In the late 1950's General Gavin, Chief of Army Research and Development in the United States, was asked by the Symington Committee, "If we got into a nuclear war and our strategic air force made an assault in force against Russia with nuclear weapons exploded in a way where the prevailing winds would carry them south-east over Russia, what would be the effect in the way of death?"

General Gavin replied: "Current planning estimates run on the order of several hundred million deaths. That would be either way depending on which way the wind blew. If the wind blew to the south-east they would be mostly in the USSR, although they would extend into the Japanese area and perhaps down into the Philippine area. If the wind blew the other way, they would extend well back into Western Europe."

Between October 16 and October 28, 1962, the Cuban Missile Crisis occurred, an incident in which the world came extremely close to a full-scale thermonuclear war. During the crisis, President Kennedy and his advisers estimated that the chance of an all-out nuclear war with Russia was 50%. Recently-released documents indicate that the probability of war was even higher than Kennedy's estimate. Robert McNamara, who was Secretary of Defense at the time, wrote later, "We came within a hairbreadth of nuclear

war without realizing it. ... It's no credit to us that we missed nuclear war."

In 1964 the first Chinese nuclear weapon was tested, and this was followed in 1967 by a Chinese thermonuclear bomb with a yield of 3.3 megatons. France quickly followed suit testing a fission bomb in 1966 and a thermonuclear bomb in 1968. In all about thirty nations contemplated building nuclear weapons, and many made active efforts to do so.

Because the concept of deterrence required an attacked nation to be able to retaliate massively even though many of its weapons might be destroyed by a preemptive strike, the production of nuclear warheads reached insane heights, driven by the collective paranoia of the Cold War. More than 50,000 nuclear warheads were produced worldwide, a large number of them thermonuclear. The collective explosive power of these warheads was equivalent to 20,000,000,000 tons of TNT, i.e., 4 tons for every man, woman and child on the planet, or, expressed differently, a million times the explosive power of the bomb that destroyed Hiroshima.

The end of the Cold War

In 1985, Mikhail Gorbachev (1931-) became the General Secretary of the Communist Party of the Soviet Union. Gorbachev had become convinced by his conversations with scientists that the policy of nuclear confrontation between the United States and the USSR was far too dangerous to be continued over a long period of time. If continued, sooner or later, through accident of miscalculation, it would result in a disaster of unprecedented proportions. Gorbachev also believed that the USSR was in need of reform, and he introduced two words to characterize what he felt was needed: *glasnost* (openness) and *perestroika* (reconstruction).

In 1986, US President Ronald Reagan met Mikhail Gorbachev in Reykjavik, Iceland. The two leaders hoped that they might find ways of reducing the danger that a thermonuclear Third World War would be fought between their two countries. Donald Regan, the White House Chief of Staff, was present at the meeting, and he records the following conversation: "At one point in time Gorbachev said 'I would like to do away with all nuclear weapons'. And Reagan hit the table and said 'Well why didn't you say so in the first place! That's exactly what I want to do! And if you want to do away with all the weapons, I'll agree to do away with all the weapons. Of course we'll do away with all the weapons.' 'Good,' said Gorbachev 'That's great, but you must confine SDI to the laboratory.' 'No I won't,' said Reagan. 'No

way. SDI continues. I told you that I am never going to give up SDI.'" The SDI program, which seemingly prevented Presidents Reagan and Gorbachev from reaching and agreement to completely eliminate their nuclear weapons, was Reagan's "Star Wars" program which (in violation of the ABM Treaty) proposed to set up a system of of radar, satellites and missiles to shoot down attacking missiles.

Gorbachev's reforms effectively granted self-government to the various parts of the Soviet Union, and he himself soon resigned from his post as its leader, since the office was no longer meaningful. Most of the newly independent parts of the old USSR began to introduce market economies, and an astonished world witnessed a series of unexpected and rapid changes: On September 10, 1989 Hungarian government opened its border for East German refugees; on November 9, 1989 Berlin Wall was reopened; on December 22, 1989 Brandenburg Gate was opened; and on October 3, 1990 Germany was reunited. The Cold War was over!

The Non-Proliferation Treaty

During the Cold War, a number of international treaties attempting to reduce the global nuclear peril had been achieved after much struggle. Among these, the 1968 Nuclear Non-Proliferation Treaty (NPT) has special importance. The NPT was designed to prevent the spread of nuclear weapons beyond the five nations that already had them; to provide assurance that "peaceful" nuclear activities of non-nuclear-weapon states would not be used to produce such weapons; to promote peaceful use of nuclear energy to the greatest extent consistent with non-proliferation of nuclear weapons; and finally, to ensure that definite steps towards complete nuclear disarmament would be taken by all states, as well steps towards comprehensive control of conventional armaments (Article VI).

The non-nuclear-weapon states insisted that Article VI be included in the treaty as a price for giving up their own ambitions. The full text of Article VI is as follows: "Each of the Parties to the Treaty undertakes 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 on a Treaty on general and complete disarmament under strict international control."

The NPT has now been signed by 187 countries and has been in force as international law since 1970. However, Israel, India, Pakistan, and Cuba

have refused to sign, and North Korea, after signing the treaty, withdrew from it in 1993. Israel began producing nuclear weapons in the late 1960's (with the help of technology provided by France, and with the tacit approval of the United States) and the country is now believed to possess 100-150 of them, including neutron bombs. Israel's policy is one of visibly possessing nuclear weapons while denying their existence.

South Africa, with the help of Israel and France, also produced nuclear weapons, which it tested in the Indian Ocean in 1979. In 1991 however, South Africa signed the NPT and destroyed its nuclear weapons.

India produced what it described as a "peaceful nuclear explosion" in 1974. By 1989 Indian scientists were making efforts to purify the lithium-6 isotope, a key component of the much more powerful thermonuclear bombs. In 1998, India conducted underground tests of nuclear weapons, and is now believed to have roughly 60 warheads, constructed from Pu-239 produced in "peaceful" reactors.

Pakistan's efforts to obtain nuclear weapons were spurred by India's 1974 "peaceful nuclear explosion". Zulfiquar Ali Bhutto, who initiated Pakistan's program, first as Minister of Fuel, Power and Natural Resources, and later as President and Prime Minister, declared: "There is a Christian Bomb, a Jewish Bomb and a Hindu Bomb. There must be an Islamic Bomb! We will get it even if we have to starve - even if we have to eat grass!" As early as 1970, the laboratory of Dr. Abdul Qadeer Khan, (a metallurgist who was to become Pakistan's leading nuclear bomb maker) had been able to obtain from a Dutch firm the high-speed ultracentrafuges needed for uranium enrichment. With unlimited financial support and freedom from auditing requirements, Dr. Khan purchased restricted items needed for nuclear weapon construction from companies in Europe and the United States. In the process, Dr. Khan became an extremely wealthy man. With additional help from China, Pakistan was ready to test five nuclear weapons in 1998. The Indian and Pakistani nuclear bomb tests, conducted in rapid succession, presented the world with the danger that these devastating bombs would be used in the conflict over Kashmir. Indeed, Pakistan announced that if a war broke out using conventional weapons, Pakistan's nuclear weapons would be used "at an early stage".

In Pakistan, Dr. A.Q. Khan became a great national hero. He was presented as the person who had saved Pakistan from attack by India by

creating Pakistan's own nuclear weapons. In a Washington Post article[3] Parvez Hoodbhoy wrote: "Nuclear nationalism was the order of the day as governments vigorously promoted the bomb as the symbol of Pakistan's high scientific achievement and self-respect, and as the harbinger of a new Muslim era." Similar manifestations of nuclear nationalism could also be seen in India after India's 1998 bomb tests.

Early in 2004, it was revealed that Dr. Khan had for years been selling nuclear secrets and equipment to Lybia, Iran and North Korea. However, observers considered that it was unlikely that Khan would be tried for these offenses, since a trial might implicate Pakistan's army as well as two of its former prime ministers. Furthermore, Dr. Khan has the strong support of Pakistan's Islamic fundamentalists.

Recent assassination attempts directed at Pakistan's President, Parvez Musharraf, emphasize the precariousness of Pakistan's government. There a danger that it may be overthrown by Islamic fundamentalists, who would give Pakistan's nuclear weapons to terrorist organizations. This type of danger is a general one associated with nuclear proliferation. As more and more countries obtain nuclear weapons, it becomes increasingly likely that one of them will undergo a revolution, during the course of which nuclear weapons will fall into the hands of subnational organizations.

Article VIII of the Non-Proliferation Treaty provides for a conference to be held every five years to make sure that the NPT is operating as intended. In the 1995 NPT Review Conference, the lifetime of the treaty was extended indefinitely, despite the general dissatisfaction with the bad faith of the nuclear weapon states: They had dismantled some of their warheads but had taken no significant steps towards complete nuclear disarmament. The 2000 NPT Review Conference made it clear that the nuclear weapons states could not postpone indefinitely their commitment to nuclear disarmament by linking it to general and complete disarmament, since these are separate and independent goals of Article VI. The Final Document of the conference also contained 13 Practical Steps for Nuclear Disarmament, including ratification of a Comprehensive Test Ban Treaty (CTBT), negotiations on a Fissile Materials Cutoff Treaty, the preservation and strengthening of the Anti-Ballistic Missile (ABM) Treaty, greater transparency with regard to nuclear arsenals, and making irreversibility a principle of nuclear reductions. Another review conference is scheduled for 2005, a year that marks the 60th anniversary of

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[3]1 February, 2004

the destruction of Hiroshima and Nagasaki.

Something must be said about the concept of irreversibility mentioned in the Final Document of the 2000 NPT Review Conference. Nuclear weapons can be destroyed in a completely irreversible way by getting rid of the special isotopes which they use. In the case of highly enriched uranium (HEU), this can be done by mixing it thoroughly with ordinary unenriched uranium. In natural uranium, the rare fissile isotope U-235 is only 0.7%. The remaining 99.3% consists of the common isotope, U-238, which under ordinary circumstances cannot undergo fission. If HEU is mixed with a sufficient quantity of natural uranium in such a way that the percentage of U-235 falls below 20%, it can no longer be used in nuclear weapons. The rare isotopes of lithium and hydrogen that are used in thermonuclear weapons can be irreversibly disposed of in much the same way, by mixing them with the natural forms of these elements.

Getting rid of plutonium irreversibly is more difficult, but it could be cast into large concrete blocks and dumped into extremely deep parts of the ocean (e.g. the Japan Trench) where recovery would be almost impossible. Alternatively, it could be placed in the bottom of very deep mine shafts, which could afterwards be destroyed by means of conventional explosives. None of the strategic arms reduction treaties, neither the SALT treaties nor the 2002 Moscow Treaty, incorporate irreversibility.

Rather than witnessing progress towards implementation of Article VI of the NPT, recent years have unfortunately shown us dangerous backward steps. The United States election of 2000 brought to power a group of neo-conservatives who have since exhibited a general contempt for international laws, treaties and norms. In 2002, the Bush Administration published its Nuclear Posture Review paper, a document that totally undermines not only the Non-Proliferation Treaty but also the signed but not yet ratified Comprehensive Test Ban Treaty (CTBT).

The 2002 Nuclear Posture Review paper proposed that US nuclear weapons should target seven countries - Russia, China, Libya, Syria, Iraq, Iran and North Korea. Situations in which the weapons might be used included war in the Middle East, conflict between China and Taiwan, North Korean invasion of South Korea, or responding to "surprising military developments", a vague phrase that could include many things. Furthermore, the Bush Administration's 2002 paper called for the development of small and "usable" nuclear weapons, for example a "nuclear robust earth penetrator" that could be used to destroy deeply buried concrete bunkers. Such new nuclear weapons would

need testing, and thus a program to develop them would undermine the CTBT. The development of low-yield nuclear weapons would trivialize and legitimize them, thus eroding the taboo that has prevented nuclear tragedies during the half century since the the destruction of Hiroshima and Nagasaki.

There is a danger that the NPT will be fatally weakened by the Bush Administration's new policies. The signatories are already skeptical because of the nuclear weapon states' bad faith regarding their own promise of nuclear disarmament. They will now ask, "If the nation with most conventional armaments, a nation whose military expenditures exceed those of all others combined, feels that it needs more nuclear weapons to be secure, do we not need them as well?" The danger of a new nuclear arms race provoked by the Bush Administration's policies is very real.

In addition to violating the NPT, the Bush Administration's Nuclear Posture Review paper also violates the advisory Opinion on Nuclear Weapons given in 1996 by the International Court of Justice in the Hague, a ruling that will be discussed in more detail below.

Flaws in the concept of nuclear deterrence

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 the ethical principles of every major religion. Retaliation is especially contrary 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 both in Christianity and in Buddhism. "Massive retaliation" completely violates these very central ethical principles, which are not only clearly stated and fundamental but also very practical, since they prevent escalatory cycles of revenge and counter-revenge.

Contrast Christian ethics with General Gavin's estimate of the number of deaths that would follow a US nuclear strike against Russia. As you will remember, General Gavin said: "Current planning estimates run on the order of several hundred million deaths. ... If the wind blew to the south-east they would be mostly in the USSR, although they would extend into the Japanese area and perhaps down into the Philippine area. If the wind blew the other

way, they would extend well back into Western Europe."

General Gavin's horrifying estimate shocks 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.

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, and 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 by nuclear weapons.

The enormous and indiscriminate destruction produced by nuclear weapons formed the background for an 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 which 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, Muhammad 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 be 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. Judge Schwebel from the United States, who voted against Paragraph 2E, nevertheless added, in a separate opinion, "It cannot be 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 the resolution.[4] 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 also contrary to the principles of democracy.

Having said 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 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 earths atmosphere and exploding could trigger a nuclear war if mistaken for a missile strike.

A number of prominent political and military figures (many of whom have ample knowledge of the system of deterrence, having been part of it, ha,e expressed concern about the danger of accidental nuclear war. Colin S. Grey[5] 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[6] has written, "In my opinion a general war will grow through a series of political miscalculations and accidents rather than through any

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[4]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.

[5]Chairman, National Institute for Public Policy

[6]Founder and former Commander in Chief of the United States Strategic Air Command

deliberate attack by either side." Bruce G. Blair[7] has 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 Ikle of the Rand Corporation has written, "Given the huge and far-flung missile forces, ready to be launched from land and sea on 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 programs - 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

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[7]Brookings Institution

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.

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.

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 acknowledge 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.

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Chapter 7

The cost

Direct and indirect economic costs

The costs of war, both direct and indirect, are so enormous that they are almost beyond comprehension. Globally, the institution of war interferes 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 colossal flood of money could have been used instead for education, famine relief, development of infrastructure, or on 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 that 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.

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

$5.7 trillion well spent?

In 1998, a report prepared by the Brookings Institution estimated that between 1940 and 1998, the United States spent more than $5.7 trillion on nuclear weapons. The report was the result of a four-year study initiated in order to form the basis for an honest and fully informed public debate. The Brookings Institution audit estimated the costs of nuclear research, development, command and control, defenses and dismantlement. If future clean-up costs and increased interest on the national debt had been included, the total figure would have been much higher.

Stephen I. Schwartz, chairman of the Brookings project, stated that the "impetus to manufacture and deploy large numbers of nuclear weapons gathered strength because nuclear weapons were considered less expensive than conventional forces." Had the true costs been known, he continued, "there almost certainly would have been a debate about the wisdom" of a continued nuclear buildup. Michael Armacost, president of Brookings added that "While the costs of individual programs were debated from time to time, the near total absence of data documenting either annual or cumulative costs of the overall effort made effective democratic debate and oversight impossible."

Presumably the Soviet Union spent a similar amount on nuclear weapons. Each side felt that this was necessary because of the weapons of the other side. One wonders what could have been achieved if these colossal sums had been used constructively.

Medical and psychological consequences; loss of life

While in earlier epochs it may have been possible to confine the effects of war mainly to combatants, in the 20th century the victims of war were increasingly civilians, and especially children. For example, according to Quincy Wright's statistics, the First and Second World Wars 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 UN, 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 recent conflicts in Indo-China, the proportion of civilian victims was between 80% and 90%, while in the Lebanese civil war some sources state that the proportion of civilian casualties was as high as 97%.

Civilian casualties often occur through malnutrition and through diseases that 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.

As bad as conventional arms and conventional weapons may be, it is the possibility of a catastrophic nuclear war that poses the greatest threat to humanity. As already noted, there are today more than 30,000 nuclear warheads in the world. The total explosive power of the warheads that exist or that could be made on short notice is approximately equal to one million Hiroshima bombs.

To multiply the tragedy of Hiroshima by a factor of a million makes an enormous difference, not only quantitatively, but also qualitatively. Those who have studied the question believe that a nuclear catastrophe today would inflict irreversible damage on our civilization, genetic pool and environment.

Thermonuclear weapons consist of an inner core where the fission of uranium-235 or plutonium takes place. The fission reaction in the core is able to start a fusion reaction in the next layer, which contains isotopes of hydrogen. It is possible to add a casing of ordinary uranium outside the hydrogen layer, and under the extreme conditions produced by the fusion reaction, this ordinary uranium can undergo fission. In this way, a fission-fusion-fission bomb of almost limitless power can be produced.

An international panel organized by the Swedish Royal Academy of Sciences has studied the probable consequences of a thermonuclear war. The results of the study are reported in a special issue of the journal *Ambio*

(1983). This study estimates that in a nuclear exchange of 5,700 megatons, approximately 750 million people would be killed immediately in urban areas of the northern hemisphere, while more than 300 million would be seriously injured.

A report on the medical effects of nuclear war prepared by the British Medical Association's Board of Science and Education (*The Medical Consequences of Nuclear Weapons*, Wiley, 1983) states that: "Even a one megaton air-burst bomb over St. Paul's Cathedral would result in about 1,600,000 blast injuries. ... There would be about 25,000 major burns if 1 percent of the population were in the open at the time of the attack, and about 650,000 major burns if 25 percent of the population were out of doors. Casualty figures would be further increased by the many secondary fires which would ensue. It is clear therefore, that the burden of casualties from just one bomb would completely overwhelm the medical facilities of this country." In reading this estimate of the destruction that would be caused by a single one-megaton bomb, we should remember that in the event of a nuclear catastrophe, the United Kingdom would probably receive between 200 and 600 megatons.

As well as severe burns, blast injuries, and injuries from crushing under fallen buildings, a population suffering a nuclear attack would also be subjected to immediate direct radiation and fallout, as well as to radioactive isotopes ingested with food. The radiation dose experienced by a person is often measured in rads. A dose of 600 rads is lethal in virtually all cases, while a dose of 450 rads is lethal for half of the victims. For humans exposed to between 50 and 100 rads, the immune system is seriously suppressed. Ninety-six hours after the explosion of a 15-megaton bomb on Bikini Atoll in 1954, the 3,000-rad total dose contour extended 190 kilometers downwind, while the 300-rad contour extended 360 kilometers.

For a victim of severe radiation exposure, the symptoms during the first week are nausea, vomiting, fever, apathy, delirium, diarrhea, oropharyngeal lesions and leukopenia. Death occurs during the first or second week.

We can perhaps be helped to imagine what a nuclear catastrophe means in human terms by reading the words of a young university professor, who was 2,500 meters from the hypocenter at the time of the bombing of Hiroshima: "Everything I saw made a deep impression - a park nearby covered with dead bodies waiting to be cremated... very badly injured people evacuated in my direction. ... Perhaps most impressive were girls, very young girls, not only with their clothes torn off, but their skin peeled off as well. ... My immediate

thought was that this was like the hell I had always read about. ... I had never seen anything which resembled it before, but I thought that should there be a hell, this was it."

One argument that has been used in favor of nuclear weapons is that no sane political leader would employ them. However, the concept of deterrence ignores the possibility of war by accident or miscalculation, a danger that has been increased by nuclear proliferation and by the use of computers with very quick reaction times to control weapons systems.

Recent nuclear power plant accidents remind us that accidents frequently happen through human and technical failure, even for systems which are considered to be very "safe." We must also remember the time scale of the problem. To assure the future of humanity, nuclear catastrophe must be avoided year after year and decade after decade. In the long run, the safety of civilization cannot be achieved except by the abolition of nuclear weapons, and ultimately the abolition of the institution of war.

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 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."

In 1985, International Physicians for the Prevention of Nuclear War received the Nobel Peace Prize. IPPNW had been founded in 1980 by six physicians, three from the Soviet Union and three from the United States. Today, the organization has wide membership among the world's physicians. Professor Bernard Lowen of the Harvard School of Public Health, one of the founders of IPPNW, said in a recent speech:

"...No public health hazard ever faced by humankind equals the threat of nuclear war. Never before has man possessed the destructive resources to make this planet uninhabitable... Modern medicine has nothing to offer, not even a token benefit, in the event of nuclear war. ...

"We are but transient passengers on this planet Earth. It does not belong to us. We are not free to doom generations yet unborn. We are not at liberty to erase humanity's past or dim its future. Social systems do not endure for eternity. Only life can lay claim to uninterrupted continuity. This continuity is sacred."

Effects of war on children

According to UNICEF figures, 90% of the casualties of recent wars have been civilians, and 50% children. The organization estimates that in recent years, violent conflicts have driven 20 million children from their homes. They have become refugees or internally displaced persons within their own countries.

During the last decade 2 million children have been killed and 6 million seriously injured or permanently disabled as the result of armed conflicts, while 1 million children have been orphaned or separated from their families. Of the ten countries with the highest rates of death of children under five years of age, seven are affected by armed conflicts. UNICEF estimates that 300,000 child soldiers are currently forced to fight in 30 armed conflicts throughout the world. Many of these have been forcibly recruited or abducted.

Even when they are not killed or wounded by conflicts, children often experience painful psychological traumas: the violent death of parents or close relatives, separation from their families, seeing family members tortured, displacement from home, disruption of ordinary life, exposure to shelling and other forms of combat, starvation and anxiety about the future.

Refugees

Human Rights Watch estimates that in 2001 there were 15 million refugees in the world, forced from their countries by war, civil and political conflict, or by gross violations of human rights. In addition, there were an estimated 22 million internally displaced persons, violently forced from their homes but still within the borders of their countries.

In 2001, 78% of all refugees came from ten areas: Afghanistan, Angola, Burma, Burundi, Congo-Kinshasa, Eritria, Iraq, the Palestinian territories, Somalia and Sudan. A quarter of all refugees are Palestinians, who make up the world's oldest and largest refugee population. 45% of the world's refugees have found sanctuaries in Asia, 30% in Africa, 19% in Europe and 5% in North America.

Refugees who have crossed an international border are in principle protected by Article 14 of the Universal Declaration of Human Rights, which affirms their right "to seek and to enjoy in other countries asylum from persecution". In 1950 the Office of the High Commissioner for Refugees was created to implement Article 14, and in 1951 the Convention Relating to the Status of Refugees was adopted by the UN. By 2002 this legally binding treaty had been signed by 140 nations. However the industrialized countries have recently adopted a very hostile and restrictive attitude towards refugees, subjecting them to arbitrary arrests, denial of social and economic rights, and even forcible return to countries in which they face persecution.

The status of internally displaced persons is even worse than that of refugees who have crossed international borders. In many cases the international community simply ignores their suffering, reluctant to interfere in the internal affairs of sovereign states. In fact, the United Nations Charter is self-contradictory in this respect, since on the one hand it calls for non-interference in the internal affairs of sovereign states, but on the other hand, people everywhere are guaranteed freedom from persecution by the Charter's Universal Declaration of Human Rights.

The most recent example of a humanitarian catastrophe involving internally displaced persons is the "ethnic cleansing" and genocide that is taking place in the Darfur region of Sudan at the moment of writing (May 2004). Government and "Janjaweed" Arab militia forces have overseen systematic massacres of civilians, burnings of towns and villages, rape and forcible depopulation of areas inhabited by the Fur, Masalit and Zhagawa ethnic groups. Roughly a million people have been forced from their homes. Many have fled

to the border between Sudan and Chad, but they are not allowed into the interior of Chad, and in their present location they are still in great danger.

Damage to infrastructure

Most insurance policies have clauses written in fine print exempting companies from payment of damage caused by war. The reason for this is simple. The damage caused by war is so enormous that insurance companies could never come near to paying for it without going bankrupt.

We mentioned above that the world spends roughly a trillion dollars each year on preparations for war. A similarly colossal amount is needed to repair the damage to infrastructure caused by war. Sometimes this damage is unintended, but sometimes it is intentional. During World War II, one of the main aims of air attacks by both sides was to destroy the industrial infrastructure of the opponent. This made some sense in a war expected to last several years, because the aim was to prevent the enemy from producing more munitions. However, during the Gulf War of 1990, the infrastructure of Iraq was attacked, even though the war was expected to be short. Electrical generating plants and water purification facilities were deliberately destroyed with the apparent aim of obtaining leverage over Iraq after the war.

In general, because war has such a catastrophic effect on infrastructure, it can be thought of as the opposite of development. War is the greatest generator of poverty.

Ecological damage

Warfare during the 20th century has not only caused the loss of 175 million lives (primarily civilians) - it has also caused the greatest ecological catastrophes in human history. The damage takes place even in times of peace. Studies by Joni Seager, a geographer at the University of Vermont, conclude that "a military presence anywhere in the world is the single most reliable predictor of ecological damage".

Modern warfare destroys environments to such a degree that it has been described as an "environmental holocaust." For example, herbicides use in the Vietnam War killed an estimated 6.2 billion board-feet of hardwood trees in the forests north and west of Saigon, according to the American Association for the Advancement of Science. Herbicides such as Agent Orange also made

enormous areas of previously fertile land unsuitable for agriculture for many years to come[1]. In Vietnam and elsewhere in the world, valuable agricultural land has also been lost because land mines or the remains of cluster bombs make it too dangerous for farming.

During the Gulf War of 1990, the oil spills amounted to 150 million barrels, 650 times the amount released into the environment by the notorious Exxon Valdez disaster. During the Gulf War an enormous number of shells made of depleted uranium were fired. When the dust produced by exploded shells is inhaled it often produces cancer, and it will remain in the environment of Iraq for decades.

Radioactive fallout from nuclear tests pollutes the global environment and causes many thousands of cases of cancer, as well as birth abnormalities. Most nuclear tests have been carried out on lands belonging to indigenous peoples.

The danger of a catastrophic nuclear war casts a dark shadow over the future of our species. It also casts a very black shadow over the future of the global environment. The environmental consequences of a massive exchange of nuclear weapons have been treated in a number of studies by meteorologists and other experts from both East and West. They predict that a large-scale use of nuclear weapons would result in fire storms with very high winds and high temperatures, which would burn a large proportion of the wild land fuels in the affected nations. The resulting smoke and dust would block out sunlight for a period of many months, at first only in the northern hemisphere but later also in the southern hemisphere. Temperatures in many places would fall far below freezing, and much of the earth's plant life would be killed. Animals and humans would then die of starvation.

The nuclear winter effect was first discovered as a result of the Mariner 9 spacecraft exploration of Mars in 1971. The spacecraft arrived in the middle of an enormous dust-storm on Mars, and measured a large temperature drop at the surface of the planet, accompanied by a heating of the upper atmosphere. These measurements allowed scientists to check their theoretical models for predicting the effect of dust and other pollutants distributed in planetary atmospheres.

Using experience gained from the studies of Mars, R.P. Turco, O.B. Toon,

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[1]Agent Orange also produced cancer, birth abnormalities and other serious forms of illness both in the Vietnamese population and among the foreign soldiers fighting in Vietnam

T. Ackerman, J.B. Pollack and C. Sagan made a computer study of the climatic effects of the smoke and dust that would result from a large-scale nuclear war. This early research project is sometimes called the TTAPS Study, after the initials of the authors.

In April 1983, a special meeting was held in Cambridge, Massachusetts, where the results of the TTAPS Study and other independent studies of the nuclear winter effect were discussed by more than 100 experts. Their conclusions were presented at a forum in Washington, D.C., the following December, under the chairmanship of U.S. Senators Kennedy and Hatfield. The numerous independent studies of the nuclear winter effect all agreed of the following main predictions:

High-yield nuclear weapons exploded near the earth's surface would put large amounts of dust into the upper atmosphere. Nuclear weapons exploded over cities, forests, oilfields and refineries would produce fire storms of the type experienced in Dresden and Hamburg after incendiary bombings during the Second World War. The combination of high-altitude dust and lower altitude soot would prevent sunlight from reaching the earth's surface, and the degree of obscuration would be extremely high for a wide range of scenarios.

A baseline scenario used by the TTAPS study assumes a 5,000-megaton nuclear exchange, but the threshold for triggering the nuclear winter effect is believed to be much lower than that. After such an exchange, the screening effect of pollutants in the atmosphere might be so great that, in the northern and middle latitudes, the sunlight reaching the earth would be only 1 percent of ordinary sunlight on a clear day, and this effect would persist for many months. As a result, the upper layers in the atmosphere might rise in temperature by as much as 100 degrees Celsius, while the surface temperatures would fall, perhaps by as much a 50 degrees Celsius[2].

The temperature inversion produced in this way would lead to super-stability, a condition in which the normal mixing of atmospheric layers is suppressed. The hydrological cycle (which normally takes moist air from the oceans to a higher and cooler level, where the moisture condenses as rain) would be strongly suppressed. Severe droughts would thus take place over continental land masses. The normal cleansing action of rain would be absent in the atmosphere, an effect which would prolong the nuclear winter.

In the northern hemisphere, forests would die because of lack of sunlight, extreme cold, and drought. Although the temperature drop in the southern

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[2]Some recent studies predict a smaller effect.

hemisphere would be less severe, it might still be sufficient to kill a large portion of the tropical forests, which normally help to renew the earth's oxygen.

The oxygen content of the atmosphere would then fall dangerously, while the concentration of carbon dioxide and oxides of nitrogen produced by firestorms would remain high. The oxides of nitrogen would ultimately diffuse to the upper atmosphere, where they would destroy the ozone layer. Thus, even when the sunlight returned after an absence of many months, it would be sunlight containing a large proportion of the ultraviolet frequencies which are normally absorbed by the ozone in the stratosphere, and therefore a type of light dangerous to life. Finally, after being so severely disturbed, there is no guarantee that the global climate would return to its normal equilibrium.

Even a nuclear war below the threshold of nuclear winter might have climatic effects very damaging to human life. Professor Paul Ehrlich, of Stanford University, has expressed this in the following words:

"...A smaller war, which set off fewer fires and put less dust into the atmosphere, could easily depress the temperature by, say, 7 or 8 degrees centigrade. That would be enough to essentially cancel grain production in the northern hemisphere. That in itself would be the greatest catastrophe ever delivered upon *Homo sapiens*, just that one thing, not worrying about prompt effects. Thus even below the threshold, one cannot think of survival of a nuclear war as just being able to stand up after the bomb has gone off."

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Chapter 8

War as a business

Political and economic power of the weapons industry and the military establishment

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. We know that war is madness, but it persists. We know that it threatens the 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.

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. 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[1]. Without a state of war and without enemies, this vast conglomerate of organizations and pressure groups would have languished.

Oil and conflicts in the Middle East

Before discussing the role of oil in the conflicts of the Middle East, it is perhaps worthwhile to look briefly at the general global fossil-fuel picture. Tables 8.1 and 8.2 show the current consumption and use of petroleum, while Table 8.3 illustrates the ultimately recoverable reserves of coal, oil and

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[1](to say nothing of the political needs of the Bush Administration, which was in trouble before that)

natural gas, with an indication of how long these resources would last if used at the present rate. Although one can argue about the exact figures, the essential features of the tables are beyond dispute, and several important conclusions can be drawn from them.

From Table 8.3, we can see that the global reserves of coal are very large, but that reserves of oil are so limited that at the 1990 rate of use they would last only 65 years.[2] One can predict that as the reserves of oil become exhausted, the price will rise to such an extent that production and consumption will diminish. Thus oil experts do not visualize a special date in the future after which oil will totally disappear, but rather a date at which the production and consumption of oil will reach a maximum and afterwards diminish because of scarcity of the resource and increase in price. Such a peak in the production of any nonrenewable resource is called a *Hubbert peak*, after Dr. M. King Hubbert, who applied the idea to oil reserves. Most experts agree that the Hubbert peak for oil will occur within a decade or two. Thus the era of cheap petroleum is rapidly approaching its end, and we must be prepared for the serious economic and political impacts of rising oil prices, as well as great changes in lifestyle in the industrialized countries. Halfway through the present century, petroleum will become too expensive and rare to be used as a fuel. It will be reserved almost exclusively for lubrication and as a starting material for the manufacture of plastics, paint, fertilizers and pharmaceuticals.

From Table 8.3 we can also see that the 1991 rate of energy use from fossil fuels was roughly 10.2 terawatts (TW). The total global rate of energy use at that time was 13.2 TW (as compared with roughly 1 TW in 1890). The 3.0 TW difference between fossil fuel use and total energy use in 1991 was distributed as follows: hydropower, 0.8 TW; nuclear, 0.7 TW; fuelwood, 0.9 TW; crop wastes, 0.4 TW; and dung, 0.2 TW. A terawatt is defined as 10^{12} Watts. With a global population of 6×10^9, 13.2 TW corresponds to 2.2 kilowatts per person. But global energy use is very unevenly distributed: North Americans use energy at the rate of 12 kilowatts per person, while in Bangladesh, the corresponding figure is only 0.1 kilowatts.

The contrast between energy use in the highly industrialized and less industrialized parts of the world can also be seen in Table 8.2. The US per-

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[2]Notice that since 1 TWy = 5 Gb, it follows that 300 TWy = 1500 Gb. Thus the figure mentioned for the "Ultimately recoverable reserves" of oil in Table 8.3 is the same as the total at the bottom of the "Reserves and resources" column in Table 8.1

Table 8.1: *Oil production, reserves and resources in 1995 measured in billions of barrels (Gb). These data were originally published by Oil and Gas Journal and by US Geological Survey. 1 terawatt-year= 5Gb. Only conventional petroleum is shown, i.e. superheavy forms are not included. Extraction of superheavy petroleum is very expensive.*

Country	Cumulative Production	Reserves	Undiscovered Resources	Reserves and Resources
Saudi Arabia	71.5	261.2	41.0	302.2
Iraq	22.8	112.5	45.0	157.5
Russia	92.6	100.0	68.0	168.0
Iran	42.9	93.0	22.0	115.0
UA Emirates	15.1	98.2	7.0	105.2
Kuwait	27.6	97.5	3.0	100.5
Venezuela	47.3	83.3	17.0	100.3
United States	165.8	50.7	49.0	99.7
Mexico	20.5	50.4	37.0	87.4
China	18.8	24.0	48.0	72.0
Kazakhstan	3.2	17.3	26.0	43.3
Canada	16.1	5.1	33.0	38.1
Libya	19.0	22.8	8.0	30.8
Nigeria	15.5	17.9	9.0	26.9
Norway	6.3	11.3	13.0	24.3
Indonesia	15.2	5.8	10.0	15.8
United Kingdom	12.3	4.6	11.0	15.6
Algeria	9.1	9.2	2.0	11.2
Totals	**621.6**	**1052.3**	**449.0**	**1513.8**

Table 8.2: *Main users of petroleum. (US Energy Information Agency, 2001.)*

Country	Yearly use in billions of barrels	Population (millions)	Per-capita yearly use in barrels
United States	7.17	276	26.0
China	1.82	1262	1.4
Germany	1.03	83	12.4
Japan	0.90	127	7.1
India	0.78	1014	0.8
France	0.74	59	12.5
Mexico	0.71	100	7.1
Canada	0.70	31	22.6
Italy	0.68	58	11.7
United Kingdom	0.63	60	10.5

capita consumption of oil is currently 20 times that of China and 37 times the figure for India. One wonders what will happen when China and India, with their enormous populations, reach a rate of per-capita petroleum use approaching that of North America, Japan and Europe.

Petroleum accounts for 90% of the energy used in transportation, and it is also particularly important in agriculture. Thus it is worrying that we will encounter high and constantly increasing oil prices at just the moment when an unprecedentedly large global population will be putting pressure on the food supply. High oil prices will be reflected in high food costs. Even today we can see nations where famine occurs because their weak economies make the poorest countries unable to buy and import food. These vulnerable nations will be hit still harder by famine in the future.

Comparing Tables 8.1 and 8.2, we can see that the United States uses petroleum at the rate of more than 7 billion barrels (7 Gb) per year, while that country's estimated reserves and undiscovered resources are respectively 50.7 Gb and 49.0 Gb. Thus if the United States were to rely only on its own resources for petroleum, then, at the 2001 rate of use, these would

Table 8.3: *Ultimately recoverable coal, oil and natural gas reserves. 1 TWy = 10^{12} Watt-year = 5 billion barrels of oil = 1 billion tons of coal. (From BP Statistical Review of World Energy, London, 1991). US ultimately recoverable reserves of oil and domestic consumption (in 2001) are shown for comparison. If the US used only its domestic oil, its reserves would soon be exhausted. However, the United States imports much of its petroleum from the Middle East.*

	Global reserves	1990 global rate of consumption	Years left at 1990 rate of use
Coal	6700 TWy	3.2 TW	2000 years
Oil	**300 TWy**	**4.6 TW**	**65 years**
Natural gas	300 TWy	2.4 TW	125 years
Total	7300 TWy	10.2 TW	(716 years)

	US reserves	2001 US rate of consumption	Years left at 2001 rate of use
Oil	**20 TWy**	**1.4 TW**	**14 years**

be exhausted within 14 years. In fact, the United States already imports more than half of its oil. According to the "National Energy Policy" report (sometimes called the "Cheney Report" after its chief author) US domestic oil production will decline from 3.1 Gb/y in 2002 to 2.6 Gb/y in 2020, while US consumption will rise from 7.2 Gb/y to 9.3 Gb/y. Thus the United States today imports 57% of its oil, but the report predicts that by 2020 this will rise to 72%. The predicted increment in US imports of oil between 2002 and 2020 is greater than the present combined oil consumption of China and India.

It is clear from these figures that if the United States wishes to maintain its enormous rate of petroleum use, it will have to rely on imported oil, much of it coming from regions of the world that are politically unstable, or else unfriendly to America, or both. This fact does much to explain the massive US military presence in oil-rich regions of the world.

Speaking at a National Energy Summit, on March 19, 2001, Secretary of Energy Spencer Abraham stated that "America faces a major energy supply crisis over the next two decades. The failure to meet this challenge will threaten our nation's economic prosperity, compromise our security, and literally alter the way we lead our lives."

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 world's largest oil companies are located in the world's most powerful countries.

"Almost all of the world's 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, militariization of government and intolerant right-wing nationalism."

Iraq, in particular, has been the scene of a number of wars motivated by the West's 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[3] 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 region's petroleum. For example, Curzon's Cabnet 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 Hussein's Ba'ath Party to power.[4] In 1979 the western-backed Shah of Iran was overthrown, and the United States regarded the fundamentalist Shi'ite regime that replaced him as a threat to supplies of oil from the Middle East.

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[3]a member of the British War Cabinet who became Foreign Minister immediately after the war

[4]This was not the CIA's first sponsorship of Saddam: In 1959 he had been part of a CIA-authorized six-man squad that tried to assassinate the Iraqi Prime Minister, Abd al-Karim Qasim.

Washington saw Saddam's Iraq as a bulwark against the militant Shi'ite 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 Hussein's 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 Hussein's 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 perusant 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 Galspie 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,

Figure 8.1: *Deaths of children under five years of age in Iraq, measured in thousands. This graph is based on a study by UNICEF, and it shows the effect of sanctions on child mortality. From UNICEF's figures it can be seen that the sanctions imposed on Iraq caused the deaths of more than half a million children.*

our own freedom and the freedom of friendly countries around the world would all suffer if control of the world's 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 Baker's 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 Hussein's invasion of Kuwait would have been so whole-hearted if oil had not been involved. By way of comparison, we can think of Rwanda, where little was done to stop the genocide in 1994.

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 Shi'ites and Kurds were encouraged by the Allies to rebel against Saddam Hussein's 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 the UNICEF data shown in Figure 1. 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."

September 11, 2001

On the morning of September 11, 2001, two hijacked airliners were deliberately crashed into New York's World Trade Center, causing the collapse of of three skyscrapers and the deaths of more than three thousand people. Al-

most 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-Quaeda. 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 Ladin's relationship with the CIA began in 1979, when the CIA, acting through Pakistan's Inter-Services Intelligence Agency, began to train and arm the Mujaheddin, an international force of Islamic fundamentalists who were encouraged to attack Afghanistan's 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 Union's 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.

Bin Ladin's father was the head of an extremely wealthy Saudi Arabian family, owner of a very large construction company, with close ties both to the Saudi royal family and the Bush family in America. Through his father's construction company, Osama bin Ladin became involved in building roads and bases for the Mujaheddin in Pakistan and Afghanistan. He also recruited Mujaheddin fighters and solicited support for them. After three years of fighting with covert US support, the Mujaheddin succeeded in defeating the Soviets and in gaining control of Afghanistan. Over eight years, the CIA had

spent almost three billion dollars to support and train Islamic militants.

Despite his father's close connections with the Saudi ruling family, Osama bin Laden became progressively more radical in his views, which were influenced by the Wahhabi sect[5]. He wished to expel the US from the Middle East, and especially to expel US troops from Saudi Arabia. He also dreamed of leading a popular revolt to overthrow the Saudi rulers. He perhaps also visualized the formation of an Islamic superstate with control of much of the world's oil.

After the defeat of Soviet troops in Afghanistan, Osama bin Laden returned to Saudi Arabia, where he worked in his family's construction business. However, in 1991 he was expelled from Saudi Arabia for anti-government activities. He took refuge in Sudan, where he spent the next five years.

Bin Ladin is suspected of arranging a bomb attack on the World Trade Center in 1993, and the bombings of two US embassies in Africa in 1998, as well as an attack on the USS Cole in Yemen in 2000. When Sudan became unsafe for Osama and his organization, he moved to Afghanistan, where the Taliban movement had gained power. Because of his connection with the Mujaheddin, he was welcomed by the Taliban.

The Taliban began as a group of predominantly Pashtun students of the religious madrasa schools of Pakistan, where an extreme Saudi-style Islamic fundamentalism was taught. In fact, the word "Taliban" means "student". Many of the Taliban had been born in refugee camps in Pakistan, and had thus lived with war all their lives. They became an ultraconservative militia, and when they gained control of much of Afghanistan, they reversed many of the liberties and reforms that had been achieved by the previous secular government. In particular, the position of Afghan women was greatly worsened by the Taliban, and production of heroin was much increased.

In discussing Iraq, we mentioned oil as a motivation for western interest. Similar considerations hold also for Afghanistan. US-controlled oil companies have long had plans for an oil pipeline from Turkmenistan, passing through Afghanistan to the Arabian Sea, as well as plans for a natural gas pipeline from Turkmenistan through Afghanistan to Pakistan.

The September 11 terrorist attacks resulted in a spontaneous worldwide outpouring of sympathy for the United States, and within the US, patriotic support of President George W. Bush at a time of national crisis. Bush's re-

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[5]The Wahhabi sect of Islam was founded by Abdul Wahhab (1703-1792). It is known for extremely strict observance of the Koran, and it flourishes mainly in Saudi Arabia.

sponse to the attacks seems to have been to inquire from his advisors whether he was now free to invade Iraq. According to former counterterrorism chief, Richard Clarke, Bush was "obsessed" with Iraq as his principal target after 9/11.

The British Prime Minister, Tony Blair, was a guest at a private White House dinner nine days after the terrorist attacks on New York and Washington. Sir Christopher Meyer, former UK Ambassador to Washington, was also present at the dinner. According to Meyer, Blair said to Bush that they must not get distracted from their main goal - dealing with the Taliban and al-Quaeda in Afghanistan, and Bush replied: "I agree with you Tony. We must deal with this first. But when we have dealt with Afghanistan, we must come back to Iraq." Faced with the prospect of wars in both Iraq and Afghanistan, Blair did not protest, according to Meyer.

During the summer of 2002, Bush and Blair discussed Iraq by telephone. A senior official from Vice-President Dick Cheney's office who read the transcript of the call is quoted by the magazine Vanity Fair as saying: "The way it read was that come what may, Saddam was going to go; they said that they were going forward, they were going to take out the regime, and they were doing the right thing. Blair did not need any convincing. There was no 'Come on, Tony, we've got to get you on board'. I remember reading it and then thinking, 'OK, now I know what we're going to be doing for the next year.'"

On June 1, 2002, Bush announced a new US policy which not only totally violated all precedents in American foreign policy but also undermined the United Nations Charter and international law[6]. Speaking at the graduation ceremony of the US Military Academy at West Point he asserted that the United States had the right to initiate a preemptive war against any country that might in the future become a danger to the United States. "If we wait for threats to fully materialize," he said, "we will have waited too long." He indicated that 60 countries might fall into this category, roughly a third of the nations of the world.

The assertion that the United States, or any other country, has the right to initiate preemptive wars specifically violates Chapter 1, Articles 2.3 and 2.4, of the United Nations Charter. These require that "All members shall settle their disputes by peaceful means in such a manner that international peace, security and justice are not endangered", and that "All members shall

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[6]He had previously abrogated a number of important treaties.

refrain in their international relations from the threat or use of force against the territorial integrity of any state, or in any other manner inconsistent with the purposes of the United Nations." The UN Charter allows a nation that is actually under attack to defend itself, but only until the Security Council has had time to act.

Bush's principle of preemptive war was promptly condemned by the Catholic Church. Senior Vatican officials pointed to the Catholic teaching that "preventive" war is unjustifiable, and Archbishop enato Martino, prefect of the V tican Council for Justice and Peace, stated firmly that "unilateralism is not acceptable". However, in the United States, the shocking content of Bush's West Point address was not fully debated. The speech was delivered only a few months after the 9/11 terrorist attacks, and the US supported whatever exceptional measures its President thought might be necessary for the sake of national security. American citizens, worried by the phenomenon of terrorism, did not fully appreciate that the principle of preemptive war could justify almost any aggression, and that in the long run, if practiced by all countries, it would undermine the security of the United States as well as that of the entire world.

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.

Empire?

The empires of the ancient world were made possible by the technology of the periods during which they flourished. For example, the Roman Empire was made possible by Roman achievements in road-building and bridge-building which allowed imperial legions to move quickly and to crush rebellions wherever they might occur within the boundaries of the Empire. Similarly, the world-wide British Empire, larger than any previous empire, was made pos-

sible by the technology of its era. Machine guns gave those who possessed them military superiority over forces armed with more primitive weapons, steam ships carried troops rapidly to trouble spots so that rebellions could be crushed, and naval power was used to bombard recalcitrant cities.

Technology played an additional role in motivating and supporting the empires of the 19th and 20th centuries: As the Industrial Revolution developed momentum, local sources were no longer sufficient for supplying raw materials to the factories of developed countries, nor were local markets sufficient as outlets for their manufactured goods. Colonies were needed not only to supply the industrialized countries with minerals, timber, rubber, hemp, etc., but also to buy cloth, shoes, tools, toys, clocks, chemicals, and other factory-made products[7]. This division of labor was usually far more advantageous to the industrialized countries than to their colonies. Today, the same unfair economic relationships persist between the highly industrialized countries and the less developed parts of the world, and they contribute to today's painful contrasts between extremes of wealth and poverty.

After serving in the British police force in Burma, George Orwell concluded that Empire is a system in which the soldier holds down the poor Asian, while the merchant goes through his pockets. He resigned his post and wrote a book about his colonial experiences - *Burmese Days*. It is still relevant and worth reading. The same can be said of Orwell's prophetic book *1984*.

For a long time, Britain held its position as the leading industrial and colonial power, but from 1890 onwards its dominance was challenged by Germany, the United States, Belgium, France, Italy, Russia and Japan. Rivalry between these industrial powers, competing with each other for colonies, natural resources, markets, and military power, contributed to the start of World War I. At the end of "the Great War", the League of Nations assigned "protectorates" to the victors. These "protectorates" were, in fact, colonies with a new name, although in principle protectorates were supposed to be temporary.

The Second World War was terrible enough to make world leaders resolve to end the institution of war once and for all, and the United Nations was set up for this purpose. Despite the flaws and weaknesses of the UN Charter,

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[7]During the 18th and early 19th centuries, the mercantile system prohibited colonies from either manufacturing industrial goods or trading for them in countries other than the mother country.

the organization was successful in formally ending the era of colonialism. One must say "formally ending" rather than "ending", because colonialism persisted in a new guise: During the classical era of colonialism, there was direct political power, with Viceroys and Governors General acting as formal rulers of colonies. During the decades following the Second World War, almost all colonies were granted formal independence, but nevertheless the influence of the industrialized nations was strongly felt in the developing world. Direct political power was replaced by indirect methods.

The United States emerged from the two global wars as the world's dominant industrial power, taking over the position that Britain had held during the 19th century. The economies of its rivals had been destroyed by the two wars, but no fighting had taken place on American soil. Because of its unique position as the only large country whose economy was completely intact in 1945, the United States found itself suddenly thrust, almost unwillingly, into the center of the world's political stage.

The new role as "leader of the free world" was accepted by the United States with a certain amount of nervousness. America's previous attitude had been isolationism - a wish to be "free from the wars and quarrels of Europe". After the Second World War, however, this was replaced by a much more active international role. Perhaps the new US interest in the rest of the world reflected the country's powerful and rapidly growing industrial economy and its need for raw materials and markets (the classical motive for empires). Publicly, however, it was the threat of Communism that was presented to American voters as the justification for interference in the internal affairs of other countries. (Today, after the end of the Cold War, it has become necessary to find another respectable motivation that can be used to justify foreign intervention, and the "Crusade Against Communism" has now been replaced by the "War on Terror".)

During the period from 1945 to the present the US interfered, militarily or covertly, in the internal affairs of a large number of nations: China, 1945-49; Italy, 1947-48; Greece, 1947-49; Philippines, 1946-53; South Korea, 1945-53; Albania, 1949-53; Germany, 1950s; Iran, 1953; Guatemala, 1953-1990s; Middle East, 1956-58; Indonesia, 1957-58; British Guiana/Guyana, 1953-64; Vietnam, 1950-73; Cambodia, 1955-73; The Congo/Zaire, 1960-65; Brazil, 1961-64; Dominican Republic, 1963-66; Cuba, 1959-present; Indonesia, 1965; Chile, 1964-73; Greece, 1964-74; East Timor, 1975-present; Nicaragua, 1978-89; Grenada, 1979-84; Libya, 1981-89; Panama, 1989; Iraq, 1990-present; Afghanistan 1979-92; El Salvador, 1980-92; Haiti, 1987-94; Yugoslavia, 1999;

and Afghanistan, 2001-present. Most of these interventions were explained to the American people as being necessary to combat communism (or more recently, terrorism), but an underlying motive was undoubtedly the desire to put in place governments and laws that would be favorable to the economic interests of the US and its allies [8].

For the sake of balance, we should remember that during the Cold War period, the Soviet Union and China also intervened in the internal affairs of many countries, for example in Korea in 1950-53, Hungary in 1956, Czechoslovakia in 1968, and so on. These Cold War interventions were also unjustifyable, like those mentioned above. Neither a fervently-held conviction that capitalism is wicked and communism good nor an equally fervently-held conviction that the opposite is true can justify military or covert interference by superpowers in the internal affairs of smaller countries, since people have a right to live under governments of their own choosing even if those governments are not optimal.

Today United States is the only nation in the world that maintains large numbers of its troops on the soil of other countries. Only 46 nations lack a US military presence.

Many, but by no means all, of the current US military bases on foreign soil are listed in the Defense Department's 2003 *Base Structure Report*. According to this report, the United States owns or rents 702 bases in 130 countries. In the US itself and its territories, there are an additional 6000 bases. The overseas bases are staffed by 253,288 men and women in uniform who have an approximately equal number of dependents. The number of

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[8]The recent US-led invasion of Iraq, illegal in itself, has been followed by an illegal revision of Iraq's fundamental laws to favor the economic interests of large US and UK corporations. The revision of an occupied country's laws violates the Hague Regulations of 1907 and the Geneva Conventions of 1949 (both signed by the US), as well as the US Army's own Code of War. Article 43 of the Hague Regulations requires an occupying power to "re-establish and insure, as far as possible, public order and safety, while respecting, unless absolutely prevented, the laws in force in the country". Resolution 1483 of the UN Security Council (March 26, 2003) specifically instructs the powers occupying Iraq to respect the Hague Regulations and the Geneva Conventions. Britain's Attorney General, Lord Goldsmith, also warned Tony Blair that "the imposition of major structural economic reforms would not be authorized by international law". Naomi Klein has expressed the same principle more simply: "Bombing something does not give you the right to sell it", she wrote. Nevertheless, despite the illegality of their actions, the occupying powers in Iraq are making wholesale changes in the constitution and laws of the country and are awarding its public assets to private corporations such as BearingPoint, Bechtel and Haliburton.

foreign bases listed in the Pentagon's *Base Structure Report* is far less than the true number for 2004, since the report omits several hundred recently-established bases in Kosovo, Afghanistan, Iraq, Israel, Kuwait, Kyrgyzistan, Qatar and Uzbekistan[9]. The Pentagon estimates that it would cost $591 billion to replace all its bases. One of the important companies that construct bases is Kellogg, Brown & Root, a subsidiary of the Haliburton Corporation of Houston Texas.

In February, 2004, President George W. Bush asked the US Congress for $401.7 billion for the Department of Defense for the fiscal year 2005[10]. This figure, colossal as it is, underestimates the true burden that the military establishment places on the US economy. Economic historian Robert Higgs believes as a rule of thumb, one should double the figures given for military budgets to find the true cost. This is primarily because of the increased interest on the national debt incurred by military spending, but hidden expenses, such as clean-up costs, and care of veterans etc. also play a role.

The Pentagon's *Joint Vision for 2020* states that "The US military today is a force of superbly trained men and women who are ready to deliver victory for our Nation. In support of the objectives of our National Security Strategy, it is routinely employed to shape the international security environment and stands ready to respond across the full range of military potential. ... The global interests and responsibilities of the United States will endure, and there is no indication that threats to those interests and responsibilities or to our allies will disappear[11]. ... The overarching vision is full spectrum dominance."

The result of the enormous (and enormously costly) growth of the US military establishment has been the militarization of American foreign policy. Two symptoms of this militarization of foreign policy are the concept of an endless "war on terror", and George W. Bush's West Point speech calling for preemptive wars. In a campaign speech in 1999, Bush had previously embraced the concept of permanent militarism: "Our forces in the next century must be agile, lethal, readily deployable and require a minimum of logistical support", Bush had said in this speech. "We must be able to project our power over long distances, in days or weeks rather than months. Our military

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[9]It is fair to note that the number of US bases is substantially reduced from the number at the end of the Cold War.

[10]According to the US Congressional Budget Office, the yearly US expenditure for military purposes is likely to grow to $600 billion in 2013.

[11]One is reminded of the vision of endless war in George Orwell's *1984*.

must be able to identify targets by a variety of means [and] ... to destroy those targets almost instantly with an array of weapons[12]."

Right-wing journalist Charles Krauthammer, one of the advocates of a militarized US foreign policy, recently wrote that "America is no mere international citizen. It is the dominant power in the world, more dominant than any since Rome. Accordingly, America is in a position to reshape norms - How? By unapologetic and implacable demonstrations of will."

The Project for a New American Century (a group including Dick Cheney, Donald Rumsfeld, and Paul Wolfowitz) had this to say about the US military presence in Iraq: "The United States has for decades sought to play a more permanent role in Gulf security. While the unresolved conflict in the Gulf provides the immediate justification, the need for a substantial American force presence in the Gulf transcends the issue of the regime of Saddam Hussein."

Another (more critical) comment come from Michael Stohl, writing in in Current Perspectives on International Terrorism: "We must recognize that by convention - and it must be emphasized only by convention - great power use of the threat of force is normally described as coercive diplomacy and not as a form of terrorism [though it involves] the threat and often the use of violence for what would be described as terroristic purposes if it were not great powers who were pursuing the very same tactic."

Richard Falk, Professor of International Relations, Princeton, comments: "From Machiavelli to Niebuhr, Morgenthau and Kissinger, there has been inculcated in public consciousness an ethos of violence that is regulated, if at all, only by perceptions of effectiveness. ... A weapon or tactic is acceptable, and generally beyond scrutiny, if it works in the sense of bringing the goals of the state more closely toward realization. ... Considerations of innocence, of human suffering, or on limits of state policy are treated as irrelevant, [and to be] scorned."

The rise of militarism in the United States has been accompanied by attacks on civil liberties. Since the 1970's a massive electronic surveillance system codenamed ECHELON has been operated by the US in collaboration with Britain, Australia, New Zealand and Canada. Each of the partners in this system frequently breaks its own laws against arbitrary and unlimited eavesdropping, as well as the laws of other countries and international laws,

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[12]As Mark Twain once remarked, "When the only instrument in the toolbox is a hammer, all problems begin to look like nails."

but since the operations of ECHELON are secret, no one is able to stop them.

ECHELON intercepts telephone conversations, e-mail messages etc. and feeds the enormous quantities of information thus gathered into arrays of supercomputers that search for key words. Selected conversations or messages are then listened to by humans to determine whether anything useful to "security" can be gleaned. Targets of ECHELON have included (for example) organizations like Amnesty International and Christian Aid. Since the terrorist attacks of September 11, 2001, US spying on its own citizens has been greatly increased under the provisions of the Patriot Act, passed by Congress on October 25, 2001. One danger of the massive spying on their own citizens by governments is that ruling elites may use the information thus gathered to maintain themselves in power.

The British author Niall Ferguson has written several books comparing the American Empire with the British and Roman Empires. He feels that empires are not necessarily a bad thing, and that if any country deserves to have an empire today, it is the United States. According to Niall Ferguson, the benevolent global hegemony of the United States is good for the world, and we live today under a "Pax Americana" analogous to the Pax Romana imposed by the Roman Empire.

What is wrong with this? What is wrong with the idea of a "Pax Americana"? If the Americans want to act as a world government, why not let them? In the first place, any world government based exclusively on military power rather than on globally democratic principles deserves to be called a tyranny. Furthermore, can any single country be truly objective in its evaluation of international issues? Certainly the Islamic world does not feel that American Middle East policy is even-handed. In fact, anger and frustration over what is perceived to be massive US bias in favor of Israel was the main reason for the September 11 attacks. Finally, "Pax Americana" is a misnomer, since US foreign policy has become increasingly based on war.

The United States maintains that it is a democracy, and that its aim is to spread democratic principles throughout the world, but there is something intrinsically undemocratic about the idea of global US hegemony. Why should the inhabitants of a single chosen country have more political power than other citizens of the world? Is it democratic for enormous wealth to be gained at the expense of third world poverty through the military enforcement of unfair economic relationships? Why are the three thousand innocent lives lost in the New York terrorist attacks so much more tragic than the million innocent Iraqi lives lost through the effects of sanctions, or

for that matter the ten million lives of third world children who die each year from malnutrition and preventable disease?

Those of us who love the United States - and there are many reasons for loving the great idealism, generosity and energy of the American people, as well as the enlightened principles of the US Constitution - those of us who love the United States are sad to see militarism growing like a cancer within the country - the same militarism against which President Dwight D. Eisenhower warned in his farewell address.

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Chapter 9

Education for peace

Education for world citizenship

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", 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.

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 teaching of history should also focus on the times and places where good government and internal peace have been achieved, and the methods by which this has been acomplished. Students should be encouraged to think about what is needed if we are to apply the same methods to the world as a whole. In particular, the histories of successful federations should be studied, for example the Hanseatic League, the Universal Postal Union, the federal governments of Australia, Brazil, Germany, Switzerland, the United States, Canada, and so on. The recent history of the European Union provides another extremely important example. Not only the successes, but also the problems of federations should be studied in the light of the principle of subsidiarity[1]. The essential features of federations should be clarified[2], as well as the reasons why weaker forms of union have proved to be unsuccessful.

Reform is also urgently needed in the teaching of economics and business: Classical economics developed during the 18th and 19th centuries, when the global supply of land and raw materials seemed unlimited (at least within the foreseeable future), and when the only limitation to economic development was the shortage of capital. This might be called an "open world" situation, a situation in which growth became the Holy Grail of all economists. Today we are in a "closed world" situation. The possibility of development is limited, not by the availability of capital, but by shrinking supplies of arable land, water and nonrenewable resources, and by the finite carrying capacity of the global environment. Nevertheless economics continues to be taught along classical lines and for this reason, economists continue to worship growth. We urgently need to introduce biology and ecology into the education of economists. The economics of growth must be replaced by equilibrium economics, where considerations of ecology, carrying capacity, and

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[1]The principle of subsidiarity states that within a federation, decisions should be taken at the lowest level at which there are no important externalities. Thus, for example, decisions affecting air quality within Europe should be taken in Bruxelles because winds blow freely across national boundries, but decisions affecting only the local environment should be taken locally.

[2]One of the most important of these features is that federations have the power to make and enforce laws that are binding on individuals, rather than trying to coerce their member states.

sustainability are given their proper weight, and where the quality of life of future generations has as much importance as present profits.

Secondly, the education of economists and businessmen needs to face the problems of global poverty - the painful contrast between the affluence and wastefulness of the industrial North and the malnutrition, disease and illiteracy endemic in the South. Students of economics and business must look for the roots of poverty not only in population growth and war, but also in the history of colonialism and neocolonialism, and in defects in global financial institutions and trade agreements. They must be encouraged to formulate proposals for the correction of North-South economic inequality.

Not only economists, but also students of business administration should be made conscious of the negative effects of globalization as well as the positive ones, and they 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 nonrenewable 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 adequitely 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.

Law students should be made aware of the importance of international

law. They should be familiar with its history, starting with Grotius and the
Law of the Sea. They should know the histories of the International Court
of Justice and the Nüremberg Principles. They should study the United Na-
tions Charter (especially the articles making war illegal) and the Universal
Declaration of Human Rights, as well as the Rome Treaty and the founda-
tion of the International Criminal Court. They should be made aware of a
deficiency in the present United Nations - the lack of a legislature with the
power to make laws that are binding on individuals.

Students of law should be familiar with all of the details of the World
Court's historic Advisory Opinion on Nuclear Weapons, a decision that make
the use or threat of use of nuclear weapons illegal. They should also study the
Hague and Geneva Conventions, and the various international treaties related
to nuclear, chemical and biological weapons. The relationship between the
laws of the European Union and those of its member states should be given
high importance. The decision by the British Parliament that the laws of
the EU take precedence over British law should be a part of the curriculum.

Professors of theology should emphasize three absolutely central compo-
nents of religious ethics: the duty to love and forgive one's enemies, the
prohibition against killing, and the concept of universal human brotherhood.
They should make their students conscious of a responsibility to give sermons
that are relevant to the major political problems of the modern world, and
especially to relate the three ethical principles just mentioned to the problem
of war. Students of theology should be made conscious of their responsibility
to soften the boundries between ethnic groups, to contribute to interreligious
understanding, and to make marriage accross racial and religious boundries
more easy and frequent.

In teaching science too, reforms are needed. Graduates in science and
engineering should be conscious of their responsibilities. They must resolve
never to use their education in the service of war, nor for the production of
weapons, nor in any way that might be harmful to society or to the environ-
ment.

Science and engineering students ought to have some knowledge of the
history and social impact of science. They could be given a course on the
history of scientific ideas, and in connection with modern historical devel-
opments such as the industrial revolution, the global population explosion,
the development of nuclear weapons, genetic engineering, and information
technology, some discussion of social impact could be introduced. One might
hope to build up in science and engineering students an understanding of the

way in which their own work is related to the general welfare of humankind, and a sense of individual social and ethical responsibility. These elements are needed in science education if rapid technological progress is to be beneficial to society rather than harmful.

The changes just mentioned in the specialized university training of historians, economists, businessmen, lawyers, theologians, scientists and engineers should have a counterpart in elementary education. The basic facts about peace and war should be communicated to children in simple language, and related to the everyday experiences of children. Teachers' training colleges ought to discuss with their student-teachers the methods that can be used to make peace education a part of the curriculum at various levels, and how it can be related to familiar concepts. They should also discuss the degree to which the painful realities of war can be explained to children of various ages without creating an undesirable amount of anxiety.

Peace education can be made a part of the curriculum of elementary schools through (for example) theme days or theme weeks in which the whole school participates. This method has been used successfully in many European schools. During the theme days the children have been encouraged to produce essays, poems and drawings illustrating the difference between peace and war, and between negative peace and positive peace[3]. Another activity has been to list words inspired by the concept "peace", rapidly and by free association, and to do the same for the concept "war". Drama has also been used successfully in elementary school peace education, and films have proved to be another useful teaching aid.

The problems of reducing global inequalities, of protecting human rights, and of achieving a war-free world can be introduced into grade school courses in history, geography, religion and civics. The curriculum of these courses is frequently revised, and advocates of peace education can take curriculum revisions as opportunities to introduce much-needed reforms that will make the students more international in their outlook. The argument (a true one) should be that changes in the direction of peace education will make students better prepared for a future in which peace will be a central issue and in which they will interact with people of other nations to a much greater extent than was the case in previous generations. The same can be said for curriculum

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[3]Negative peace is merely the absence of war. In positive peace, neighboring nations are actively engaged in common projects of mutual benefit, in cultural exchanges, in trade, in exchanges of students and so on.

revisions at the university level.

UNESCO and the Culture of Peace

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.

In 1946 the General Conference of UNESCO adopted a nine-point resolution concerning the improvement of textbooks in such a way as to make them support international understanding, paying particular attention to history teaching and civic education. During the next decade, UNESCO produced publications and hosted seminars to promote improvements in the teaching of history, geography and modern languages, so that these subjects could be more instrumental in developing mutual understanding between nations and between cultures. A meeting of French, German, British and American teachers was organized in 1952, with the goal of removing national prejudices from textbooks. Every two years after this date bilateral and multilateral consultations of history teachers have taken place under the auspices of UNESCO.

Here are a few voices that express the aims and ideals of UNESCO over the years:

- Ellen Wilkinson (United Kingdom) (Former UK Minister of Education, Chairwoman of the conference establishing UNESCO in 1945): *What can this organization do? Can we replace nationalist teaching by a conception of humanity that trains children to have a sense of mankind as well as of national citizenship? That means working for international understanding*

- Maria Montessori (Italy), pioneer of modern education and education for peace, Fourth Session of the General Conference of UNESCO, Florence 1950: *If one day UNESCO resolved to involve children i the reconstruction of the world and building peace, if it chose to call on them, to discuss with them, and recognize the value of all the revelations they ave for us, it would find them of immense help in infusing new life into this society which must be founded on the cooperation of all.*

- Jamie Torres Bodet (Mexico), Director-General of UNESCO, 1948-1952, (The UNESCO Courier, 1951): *Knowledge and understanding of the principles of the Universal Declaration of Human Rights and their practical application must begin during childhood. Efforts to make known the rights and duties they imply will never be fully effective unless schools in all countries make teaching about the declaration a regular part of their curriculum...*

- Lionel Elvin (United Kingdom), Director of the Department of Education of UNESCO, 1950-1956 (UNESCO Courier, 1953): *If UNESCO were only an office in Paris, its task would be impossible. It is more than that: it is an association of some sixty-five countries which have pledged themselves to do all they can, not only internationally but within their own boundaries, to advance the common aim of educating for peace. The international side comes in because we shall obviously do this faster and better and with more mutual trust if we do it together.*

- Jawaharlal Nehru (India) Prime Minister, 1947-1964 (Address on a visit to UNESCO, 1962): *It is then the minds and hearts of men that have to be approached for mutual understanding, knowledge and appreciation of each other and through the proper kind of education. ... But we have seen that education by itself does not lead to a conversion of minds towards peaceful purposes. Something more is necessary, new standards,*

new values and perhaps a kind of spiritual background and a feeling of commonness of mankind.

- James P. Grant (United States). Executive Director of UNICEF, 1980-1995, (International Conference on Education, Geneva, 1994): *Education for peace must be global, for as the communications revolution transforms the world into a single community, everyone must come to understand that they are affected by what happens elsewhere, and that their lives , too, have an impact. Solidarity is a survival strategy in the global village.*

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 that express

- Respect for life and for the dignity and human rights of individuals.

- Rejection of violence.

- Recognition of equal rights for men and women.

- Upholding the principles of democracy, freedom, justice, solidarity, tolerance and the acceptance of differences.

- Understanding between nations and countries and between ethnic, religious, cultural and social groups.

Mayor and UNESCO implemented this idea by designating the year 2000 as the International Year of the Culture of Peace. In preparation for this year, a meeting of Nobel Peace Prize Laureates launched *Manifesto 2000*, a campaign in which the following pledge of the Culture of Peace was widely circulated and signed:

Recognizing my share of responsibility for the future of humanity, especially for today's children and those of future generations, I pledge - in my daily life, in my family, my work, my community, my country and my region - to:

1. *respect the life and dignity of every person without discrimination or prejudice;*

2. *practice active non-violence, rejecting violence in all its forms: physical, sexual, psychological, economical and social, in particular towards the most deprived and vulnerable such as children and adolescents;*

3. *share my time and material resources in a spirit of generosity to put an end to exclusion, injustice and political and economic oppression;*

4. *defend freedom of expression and cultural diversity, giving preference always to dialogue and listening without engaging in fanaticism, defamation and the rejection of others;*

5. *promote consumer behavior that is responsible and development practices that respect all forms of life and preserve the balance of nature on the planet;*

6. *contribute to the development of my community, with the full participation of women and respect for democratic principles, in order to create together new forms of solidarity.*

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 it 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 present to the culture of violence and war, and almost silenced the voices speaking for a Culture of Peace. However, military solutions have never provided true security, even for the strongest countries. Expensive and technologically advanced weapons systems may enrich arms manufacturers and military lobbies, but they do not provide security - only an unbelievably expensive case of the jitters. By contrast, the Culture of Peace can give us hope for the future.

Some examples of peace education in Denmark

A book entitled "Et barn har brug for fred!" ("A Child Needs Peace!") by Nils Hartmann of the Danish UNICEF Committee provides a good example of peace education at the elementary level. Here are rough translations of a few of the paragraphs of Nils Hartmann's book:

Peace and solidarity

A more just division of the resources of the world requires that we, in our part of the world, feel more solidarity with people in the less developed countries - in other words we must feel that we have much in common with them. People who feel solidarity with each other don't fight. They are friends.

Solidarity means more than just making sacrifices for each other. If we only give others things we have too much of, something is missing. True solidarity also means that we must have respect for each other - respect for each other's culture, actions, religion and life. When we respect each other, we are also open towards each other. We need each other and learn from each other.

Peace and fundamental needs.

When people's fundamental needs are satisfied, they are able to feel secure, and the reasons for war and conflicts disappear. But it is important that every person satisfies these fundamental needs in a way that doesn't harm or exploit others.

- *If I buy a weapon in order to feel more safe, there will be others who feel threatened.*

- *If I exploit others in order to satisfy my own needs, there will be dissatisfaction and conflicts.*

- *If I use more food than I need, others will go hungry.*

- *If I dig a well and claim all the water for myself, others will go thirsty.*

- *If I buy unnecessary things, others will go without necessities*

What can we get for the money that is wasted on armaments?

In 1985 the world used about 8,000 billion (8,000,000,000,000) kroner[4] for military purposes. In other words, half a billion kroner are being wasted while this lesson is going on. Here are a few examples of things we could have bought for a fraction of that amount of money:

Health

Almost everywhere in the world there is a lack of doctors, nurses and hospitals. This is especially true in the poorest country districts and slums of developing countries. A large number of children in these countries need to be vaccinated against some of the illnesses that are already eliminated from our part of the world. Measels, whooping cough, diphtheria, polio, tuberculosis and lockjaw cost the lives of millions of children each year. Also, many children need to come to a health clinic to get medicine and vitamins. Building up even a very basic health system would do wonders. The cost of a basic health system for the whole world is estimated to be 17 billion kroner per year.

Safe drinking water

More than 2 billion people have no way of getting safe water. Impure water and lack of water lead to many diseases. Today, diarrhea is the most common cause of death for small children in the developing countries. The United Nations has declared the period 1981-1990 to be the International Water Decade. The United Nations has calculated that by using a total of 50 billion kroner, it would be possible to give pure drinking water to all the people of the world.

Education

In developing countries, less than half of the adults have more than a year of schooling. Education is the best investment that we can make if we want to modernize a society and to create positive development. Building schools for all of the developing countries, educating teachers, and producing teaching

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[4]At the time when Nils Hartmann's book was written, eight Danish kroner equaled one US dollar.

materials would cost 55 billion kroner.

These paragraphs from Nils Hartmann's book are illustrated with photographs of children from the developing countries. The paragraphs are written in simple language, and the examples used are related to the needs of children.

Denmark has for many years had an educational policy that aims at teaching children cooperative attitudes and habits rather than purely competitive ones. This system makes use of projects in which several children cooperate rather than individual projects. The use of cooperative projects in the Danish educational system can be thought of as an indirect form of peace education. Even at the university level, the Danish educational system makes much more use of cooperative projects than is the case in most other countries.

Another unique feature of the Danish educational system is the adult education that is available at about a hundred Folkehøjskole (Folk High Schools). This tradition of adult education dates back to the Danish poet-bishop N.F.S. Grundvig (1783-1872). Besides writing more than half of the hymns presently used in Danish churches, Grundvig also founded a system of adult education - the Folk High Schools.

At the time when Grundvig lived, the Industrial Revolution had already transformed England into a country that exported manufactured goods but was unable to feed itself because of its large population. In this situation, Denmark began a prosperous trade, exporting high quality agricultural produce to England (for example dairy products, bacon, and so on). The small-scale Danish farmers educated in Grundvig's High Schools realized that that it would be to their advantage to process and export these products themselves, thus avoiding losing a part of their profits to large land-owners or other middlemen who might do the processing and exporting for them. They organized themselves into cooperatives, and the Grundvigian High Schools gave them enough knowledge and confidence to run the cooperatives successfully. The cooperatives and the adult education system contributed strongly to making Denmark a prosperous and democratic country.

Of the hundred or so Grundvigian High Schools exiting today, about forty offer peace education as a subject. An example of such a peace education course was the two-week summer school "Towards a Non-violent Society", held at the International College in Elsinore during the summer of 1985. Since it was supported not only by the students' fees but also by a gov-

ernment subsidy, the summer school was able to pay the travel and living expenses for lecturers who came from many parts of the world. Among the stars of the summer school were former US Governor Harold Stassen, the only living person who had signed the UN Charter; the famous Cambridge University ethologist, Professor Robert Hinde; Professor Suman Khana from India, an expert on non-violence and Gandhi; Sister George, a Catholic nun from Jerusalem, who spoke 12 languages during the course of her daily work and who was an expert on the conflicts of the Middle East; and Meta Ditzel, a member of the Danish Parliament who advocated legislation to make excessively violent videos less easily available to children. Other lectures were given Ruth Gunnarsen of the World Federalists and by representatives of Amnesty International and the Center for Rehabilitation of Torture Victims.

Since the summer school took place outside the regular term, all of the rooms at the International College were available, and students came not only from Denmark, but also from other parts of Scandinavia and Europe. Part of the summer tradition of the Grundvigian High Schools is that students of all ages pay the modest fees in order to have an intellectually stimulating vacation, during the course of which they will form new friendships. Thus the summer school had a social function as well as a pedagogical one. Accordingly, Suman Khana taught a yoga class as well as a class on the Gandhian tradition of non-violence.

In order to illustrate how horrible excessively violent videos can be, Meta Ditzel was scheduled to show one of the worst videos of this type to the group. She went to a video shop and asked for the worst one available, saying that it was needed as part of her campaign to make violent videos illegal. The owner of the shop, realizing that his livelihood was being threatened, gave her the most innocent film that he could find, and the horrible example later that evening turned out to be less than horrifying. (Meta Ditzel had not pre-viewed it.)

Besides the Grundvigian High Schools, the Danish educational system will soon have another unique feature: Starting in the autumn of 2004, all Danish science and engineering students at the university level will be required to take a course on the philosophy of science and its ethical aspects. The curriculum will cover the history of science and technology, emphasizing cases where technology has produced socially harmful results as well as cases where the results have been beneficial. Global problems related to science will also be a part of the curriculum.

All these examples are taken from peace education in Denmark, about

which I know a little. In some ways, Denmark is unique and advanced, and in other ways much less advanced in peace education than the other countries of Scandinavia. There are many strong traditions of peace education throughout Europe, North America and Latin America. The interested reader can find some of these programs on the link to Robin Crews' list of *University Peace Studies Programs* given in a later paragraph discussing the Internet.

Use and misuse of the mass media

There is a true story about the powerful newspaper owner William Randolph Hearst that illustrates the relationship between the mass media and the institution of war: When an explosion sank the American warship USS Maine in the harbor of Havana, Hearst anticipated (and desired) that the incident would lead to war between the United States and Spain. He therefore sent his best illustrator, Fredrick Remington, to Havana to produce drawings of the scene. After a few days in Havana, Remington cabled to Hearst, "All's quiet here. There will be no war." Hearst cabled back, "You supply the pictures. I'll supply the war." Hearst was true to his words. His newspapers inflamed American public opinion to such an extent that the Spanish-American War became inevitable. During the course of the war, Hearst sold many newspapers, and Remington many drawings. From this story one might almost conclude that newspapers thrive on war, while war thrives on newspapers.

In the chapter on nationalism, we mentioned that printing and newspapers made it possible for nationalist movements to grow in Europe. Before the advent of widely-read newspapers, European wars tended to be fought by mercenary soldiers, recruited from the lowest ranks of society, and motivated by financial considerations. The emotions of the population were not aroused by such limited and decorous wars. However, the French Revolution and the power of newspapers changed this situation, and war became a total phenomenon that involved emotions. The media were able to mobilize on a huge scale the communal defense mechanism that Konrad Lorenz called "militant enthusiasm" - self-sacrifice for the defense of the tribe.

With the advent of radio and television, the influence of the mass media became still greater, and it did not escape the notice of politicians that control of the media is the key to political power in the modern world. For example, Hitler was extremely conscious of the force of propaganda, and it became became one of his favorite instruments for exerting power. Today, state-controlled or money-controlled newspapers, radio and television are

widely used by the power elite to manipulate public opinion. This is true in most countries of the world, even in those that pride themselves on allowing freedom of speech. For example, during the US-led invasion of Iraq in 2003, the official version of events was broadcast by CNN, and criticism of the invasion was almost absent from their transmissions.

In the mid-1950's, television became cheap enough so that ordinary people in the industrialized countries could afford to own sets. During the infancy of television, its power was underestimated. The great power of television is due to the fact that it grips two senses simultaneously, both vision and hearing. The viewer becomes an almost-hypnotized captive of the broadcast. In the 1950's, this enormous power, which can be used both for good and for ill, was not yet fully apparent. Thus insufficient attention was given to the role of television in education, in setting norms, and in establishing values. Television was not seen as an integral part of the total educational system.

It is interesting to compare the educational systems of traditional cultures with those of modern industrial societies. In traditional societies, multigenerational families often live together in the same dwelling. In general, there is a great deal of contact between grandparents and grandchildren, with much transmission of values and norms between generations. Old people are regarded with great respect, since they are considered to be repositories of wisdom, knowledge, and culture.

By contrast, modern societies usually favor nuclear families, consisting of only parents and children. Old people are marginalized. They live by themselves in communities or homes especially for the old. Their cultural knowledge and norms are not valued because they are "out of date". In fact, during the life of a young person in one of the rapidly-changing industrial societies of the modern world, there is often a period when they rebel against the authority of their parents and are accutely embarrassed by their parents, who are "so old-fashioned that they don't understand anything".

Although the intergenerational transmission of values, norms, and culture is much less important in industrial societies than it is in traditional ones, modern young people of the west and north are by no means at a loss over where to find their values, fashions and role models. With every breath they inhale the values and norms of the mass media. Totally surrounded by a world of television and film images, they accept this world as their own. Unfortunately the culture of television, films and computer games is more often a culture of violence than a culture of peace.

Computer games designed for young boys often give the strongest imagin-

able support to our present 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).

One of the main themes of this book is the contrast between the extremely rapid rate of cultural evolution (especially constantly accelerating rate of scientific and technological change) and the slow rate of genetic evolution. Because of the slowness of genetic change, human emotions are more appropriate for the life-style of our hunter-gatherer ancestors than they are for modern life. The mass media have realized this fact, and they have built an industry to profit from it. Primitive instincts have been suppressed by civilization, and by allowing these instincts to be exercised vicariously one provides entertainment. Ethical rules are necessary for civilized life, but they impose an emotional burden on modern humans. The entertainment industry provides relief by allowing the viewer to identify with heros or heroines who violate the rules of ethics, one after the other.

If entertainment is evaluated only on the basis of popularity, what might be called "the pornography of violence" gets high marks. However, there is another way of looking at entertainment. It is a part, and a very important part, of our total educational system.

Even animals undergo education, and often the playing of young animals is a part of the educational process. For example, when lion cubs play, they are learning skills that are useful to them in hunting. The same can be said of kittens playing with bits of yarn. Books of adventures read by young humans also have an educational value, and on a higher level, works of literature expand our ability to understand our fellow humans and to sympathize with them. Each culture, by means of oral traditions, songs, poems, and stories, as well as by means of formal education, tries to modify raw human nature and to mold it to the ideal of that particular society. In this process, entertainment and formal education go hand in hand, each contributing ethical values and norms that are desirable for the way of life of a particular group.

In modern industrial societies, this important educational function has been given by default to commercial interests. Instead of supporting socially desirable behavior, the entertainment industry, driven by the quest for higher popularity ratings and higher profits, explores increasingly murky depths in the swamp of popular taste. We would not want Coca Cola to run our schools, but entertainment is just as important as the school or home environment in forming values and norms, and entertainment is in the hands of commerce.

Today we are faced with the task of creating a new global ethic in which loyalty to family, religion and nation will be supplemented by a higher loyalty to humanity as a whole. In case of conflicts, loyalty to humanity as a whole must take precedence. In addition, our present culture of violence must be replaced by a culture of peace. To achieve these essential goals, we urgently need the cooperation of the mass media.

One is faced with a dilemma, because on the one hand artistic freedom is desirable and censorship undesirable, but on the other hand some degree of responsibility ought to be exercised by the mass media because of their enormous influence in creating norms and values. Even today, there exists some degree of self-restraint on the part of the entertainment industry. There is a self-imposed code according to which incitement to racial prejudice is not allowed. Today, when a figure of authority, for example a judge, is shown in a film or on a television program, the judge is likely to be a member of a minority group. One can hope for future restraint in the depiction of violence and war, and in the depiction of international conflicts.

Of course we cannot say to the entertainment industry, "From now on you must not show anything but David Attenborough and the life of Gandhi". However, it would be enormously helpful if every film or broadcast or computer game could be evaluated not only for its popularity and artistic merit, but also in terms of the good or harm that it does in the task of building a peaceful world.

Some years ago, when CNN was still owned by Ted Turner, the network introduced a global weather forecast. This feature is still continued by CNN even though its new owners are much less idealistic than Ted Turner. Furthermore, the BBC has also adopted the global weather forecast. When we see a map of the world with temperatures and storms, we receive much more information than we need to decide whether to take an umbrella with us tomorrow. For planning picnics, it is not necessary for us to know that in Beijing it will be warm and slightly overcast. Ted Turner was aware of this, and we are aware of it, but all of us realize that the global weather forecast

is a simple and beautiful means for creating global consciousness.

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.

Possibilities of the Internet

In the 1970's and 1980's, computer networks were set up linking machines in various parts of the world. It became possible for a scientist in Europe to perform a calculation interactively on a computer in the United States just as though the distant machine were in the same room, and two or more computers could be linked for performing large calculations. It also became possible to exchange programs, data, letters and manuscripts very rapidly through the computer networks.

The history of the Internet began in 1961, when Leonard Kleinrock, a student at MIT, submitted a proposal for Ph.D. thesis entitled "Information Flow in Large Communication Nets." In his statement of the problem Kleinrock wrote, "The nets under consideration consist of nodes, connected to each other by links. The nodes receive, sort, store, and transmit messages that enter and leave via the links. The links consist of one-way channels, with fixed capacities. Among the typical systems which fit this description are the Post Office System, telegraph systems, and satellite communication systems."

Kleinrock's theoretical treatment of package switching systems anticipated the construction of computer networks which would function on a principle analogous to a post office rather than a telephone exchange: In a telephone system there is a direct connection between the sender and re-

Table 9.1: *Estimated traffic on Internet backbones in U.S. (after K.G. Coffman and A.M. Odlyzko, AT&T Labs Res. Rept, 2001)*

year	terabytes per month
1990	1.0
1991	2.0
1992	4.4
1993	8.3
1994	16.3
1995	?
1996	1,500
1997	2,500-4,000
1998	5,000-8,000
1999	10,000-16,000
2000	20,000-35,000

ceiver of information. But in a package switching system there is no such connection - only the addresses of the sender and receiver on the package of information, which makes its way from node to node until it reaches its destination. Today the Internet functions as a huge and rapidly growing package switching system. The present impact of the Internet is enormous and its future potential is even greater.

Because it is delocalized over many nodes and many computers, and because it is not centrally financed, the Internet is far more democratic than any other medium of communication. Governments and large corporations have succeeded in dominating most other media, either through direct political power or else through the power of money. Books, films, newspapers, magazines, television and schools, with only a few exceptions, all tend to reflect the point of view of the establishment. To find critical opinions or uncensored information, one must go to the Internet[5].

The reader may enjoy looking some of the following websites, all of which advocate peace rather than war, and international law rather than the uni-

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[5]The Internet is young, but already governments are working hard at ways to regulate it. The Chinese have done so with considerable success.

lateral use of military power. The list is of course very incomplete, but by starting with these websites one can find links to many other good sites.

Organizations

International Peace Bureau

Parliamentary Network for Nuclear Disarmament

Middle Powers Initiative

World Conference on Religion and Peace

Transnational Foundation for Peace and Future Research

Global Policy Forum

International Physicians for the Prevention of Nuclear War

Atomic Archive

Pugwash Conferences on Science and World Affairs

Danish Pugwash Website: Links

Danish Pugwash Website: Documents

Institute for Science and International Security

Nuclear Age Peace Foundation

Physicians for Social Responsibility

PeaceUK.net News and Comment

Z Communications; The Spirit of Resistance Lives

International Forum on Globalization

The Bertrand Russell Peace Foundation

Human Rights Watch

Amnesty International

Norwegian Institute of Human Rights

Common Dreams

Greenpeace

Human Development Reports

People

Senator Douglas Roche, O.C.

David Adams

International law

International Criminal Court

International Law Aspects of the Iraq War and Occupation

Preventive War Sets Perilous Precedent

From Nüremberg to Guantanamo

United Nations

The U.N. and Global Social-Economic Policy

Make the UN a World Government

Renewing the U.N. System

Federalism Around the World

Child Protection: Armed Conflict

Media, freedom of speech, and peace

Media and Freedom of Speech

Eavesdropping on the Planet

EFF: Defending Freedom in the Digital World

Peace education

Culture of Peace

University Peace Studies Programs

Danish Peace Academy

Peace Research Index

War Poems of Wilfred Owen

Nuclear weapons

Nuclear Weapons Archive

Nuclear Weapons and Preventive War

U.S. Has Spent 5.8 Trillion on Nuclear Arms

Treaty on the Non-Proliferation of Nuclear Weapons

Bulletin of Atomic Scientists: Nuclear Notebook

Who is Osama bin Ladin?

War: Metaphor or Reality

9/11: Causes, Repercussions and Consequences

Oil and Iraq

The World's Endowment of Conventional Oil

Electricity and Petroleum Consumption, Selected Countries

Bush-Cheney Energy Strategy

Oil Companies in Iraq

World Petroleum Consumption, 1980-2002

Iraq Conflict: The Historical Background

British Colonialism and Repression in Iraq

US and British Support for Hussein Regime

Shaking Hands With Saddam Hussein

Sanctions Against Iraq

Iraq Crisis

The Economic Colonization of Iraq: Illegal and Immoral

Bush and Blair Made Secret Pact for Iraq War

The Fire This Time: Index

Empire?

Uneasy Empire

American Empire Page

The Militarization of U.S. Foreign Policy

America's Empire of Bases

A Conversation with Tariq Ali

Blowback

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Chapter 10

World government

Reform of the United Nations

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 the use of poison gas against civilians (to mention only one of the more recent political crimes). 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.

An international police force?

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 gross 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. These volunteers would be independent of their own national governments and under the direct command of the United 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.

It is easy to find examples of both good and bad governments among the nation states of our present world. To construct and maintain a good government is a difficult problem; but it is not insoluble. Canada, Switzerland, Holland, and the countries of the Scandinavian region are examples which show that it is possible to achieve good government; and these countries can serve as models for the degree of prosperity, tolerance, health, education, order, law and social justice that we ought to aim at achieving globally.

Within a nation which is characterized by good government, the 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 country 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 nation 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]:

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

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[1]Edith Wynner,"World Federal Government in Maximum Terms: Proposals for United Nations Charter Revision", Fedonat Press, Afton New York, (1954).

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."

Federations, past, present and future

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.

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 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 antiterrorist 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 or fine individuals violating those laws, then we would have a world federation with even broader powers; but these powers would still be carefully defined and limited. 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.

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 federations. There is much that we can learn from their experiences.

In ancient Greece there were many federations, one example being the Amphictyonic League. This was originally a league of 12 tribes, and it was

devoted to regulating religious matters and maintaining shrines. The League had meetings in the spring at the temple of Demeter near Thermopylae and in the autumn at Delphi. The Amphictyonic League is an example of a special-purpose federation. It had authority over certain religious matters, but all other decisions were taken locally by the members of its constituent tribes.

Another special-purpose federation was the Hanseatic League which flourished in Northern Europe during the 12th-17th centuries. The Hanseatic League began as an association of merchants who were interested in salting and selling the herring catch of the Baltic. This was a profitable business during the late Middle Ages because there were so many fast days on which it was forbidden to eat meat, but permissible to eat fish. At the height of its power, the Hansa included merchants from more than sixty cities, for example merchants from such cities as Bruges, Hamburg, Luebeck, Rostock, Danzig, Riga, Novgorod and Bergen. Each city had its own merchant association, but matters concerning intercity trade were organized by a loose federation, the Hanseatic Diet. The Diet had three main divisions, the Rhennish Third, the Wendish Third and the Prussian Third. Besides herring and salt, the Hansa traded in grain, timber, honey, amber, and ships stores. The merchants of the League aimed at having a monopoly in these commodities, and in 1369 they even went so far as to totally destroy, stone by stone, the Copenhagen castle of their Danish competitors[2].

As a final example of a special-purpose federation, we can think of the Universal Postal Union. Prior to the UPU, countries that wished to cooperate with each other in postal matters did so through bilateral treaties. However, this was a clumsy solution, and in 1863 an international postal congress was held at the request of the United States. As a result of the congress, the Treaty of Berne was signed in 1874, creating the General Postal Union. In 1878 it was renamed, and it became the Universal Postal Union. The UPU introduced several innovations:- a more or less uniform flat rate to mail a letter anywhere in the world; equal treatment of foreign and domestic mail; and the retention by each country of the money collected for international postage. After the formation of the UPU, it was no longer necessary for a letter or package to bear the stamps of all the countries through which it

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[2]The Hansa's decision to destroy the castle was expressed in the following plat-deutsch slogan: "Dat hus to Kopenhagen, dat schall man brecken!", a Rhennish version of "Delenda est Cartago!"

would pass, as had previously been the case. The Universal Postal Union has proved to be incredibly robust, and it has usually continued to function well despite the political upheavals and animosities of its constituent members.

From these examples of special-purpose federations we can see that it is possible to limit the authority of a federation to a small domain of activities. However, we can notice in the evolution of the Hanseatic League, a gradual enlargement of federal powers: The League began as an organization of merchants, but it gradually acquired political and military powers, as can be seen from the Hansa's destruction of Copenhagen's castle in 1369.

Let us next turn to the history of nations that have been formed as federations of smaller units. Almost half of the countries of today's world are federations.

The Swiss Federation is an interesting example, because it's regions speak four different languages: German, French, Italian and Romansch. 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, Jura and Genéve 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 referendums. 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. Additional lessons can be learned from the tragedy of the American Civil War.

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 Federalist 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."

The United Nations has a charter analogous to the Articles of Confederation. 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 U.N.'s efforts are hampered because they are applied to people collectively and not one by one. 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."

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 it 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. (We can recall that during the evolution of the Hanseatic League, the League also increased its range of activities.)

What is to be learned from the American Civil War? First we can learn that for a federation to function successfully it requires a very careful division between the powers that are granted to the federal government and those that are retained by the member states. In general, this division should be made by following the principle of subsidiarity, i.e., by the principle that a decision ought to be taken at the lowest level at which there are no important externalities. The American Civil War was caused by a disagreement between North and the South on the division of powers between the Federal Government and the states. A second aspect of the Civil War was that it marked a departure from the main principle of the US Constitution - the principle that coercion of states is neither just nor feasible and that therefore the federal government must act on private citizens. It might be claimed that during the American Civil War, the North successfully coerced the South, but a conflict which produced a million casualties can hardly be characterized as a success. The lessons of the American Civil War should be borne in mind as we work to reform and improve the United Nations.

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 colonies British that were later to be welded into the Commonwealth of Australia imposed teriffs 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 1890's 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 Carawa 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 March, 1901, and on May 9, 1901, the Federal Parliament of Australia opened.

The history of the European Union is of extreme importance to the problem of UN reform. Because of the terrible destruction and loss of life produced by the World Wars I and II, many European leaders had become convinced that the only way to avoid such tragedies in the future would be to unite the countries of Europe both economically and politically. As a first step, the French Foreign Minister Robert Schuman proposed in 1950 that the European coal and steel industries should be integrated. In 1951, Schuman's proposal became a reality, and the European Coal and Steel Community (ECSC) was established, with Belgium, the Netherlands, West Germany, Luxembourg, France and Italy as members. A supernational body called the "High Authority" was given the power to make decisions about coal and steel production in these countries. Thus the ECSC was an example of a special-purpose federation.

Because of the great success of the European Coal and Steel Community, a further integration of the economies of the same six countries took place in 1957 with the signing of the Treaty of Rome. In this treaty the member states removed trade barriers between themselves, creating a "common market" - the European Economic Community (EEC). The Treaty of Rome also set up a European Atomic Energy Community (EURATOM). In 1967, the three separate institutions (ECSC, EEC and EURATOM) merged, and from then on there was a single Commission, a single Council of Ministers and a European Parliament. The members of the European Parliament were originally appointed by the national parliaments, but in 1979 (and every five years thereafter) direct elections were held, allowing citizens of the member

states to choose their own representatives at the European Parliament.

In 1973, the original six countries of the EEC were joined by Denmark, Ireland and the United Kingdom, followed by Greece in 1981 and by Spain and Portugal in 1986. The Treaty of Mastricht, signed in 1992, introduced additional forms of political integration, for example intergovernmental co-operation in defense and in justice and home affairs. After the Mastricht Treaty, the EEC became known as the European Union (EU). What had initially been an economic community had became a political union. This is the same pattern that was followed by the Hanseatic League, which originated as an organization of merchants, but gradually acquired a political dimension.

Ever since 1992, the EU had been aiming at establishing a single currency, managed by by a European Central Bank. The aim became a reality on January 1, 2002 when the euro was introduced in twelve of the fifteen member countries - Belgium, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland. The United Kingdom, Denmark and Sweden have for the moment retained their own currencies, but it is possible that they will go over to the euro at a later date.

The European Convention on Human Rights was signed in Rome on the 4th of November, 1950, and five protocols of the convention were adopted in Paris and Strasbourg during the years 1952-1966. The Council of Europe's Directorate General of Human Rights addresses such issues as basic human rights, economic and social rights, preventing torture, national minorities, combating racism, equality between men and women and protecting media freedom. Citizens of the European Union know that if their rights are violated, they are able to complain to the European Court on Human Rights in Strasbourg, and many do.

The European Social Charter is a Council of Europe Treaty safeguarding economic and social rights. It was originally signed in 1961. A revised version of the European Social Charter was signed in Strasbourg in 1996, and it came into force in 1999. The revised version is gradually replacing the original treaty. The Charter establishes norms in such fields as housing, health, education, employment, social protection, movement of persons and non-discrimination. The provisions of the Charter are enforced by the European Committee of Social Rights, whose members are elected by the Council of Europe's Committee of Ministers for a period of six years, renewable once.

In 2004, the European Union welcomed ten new members: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia. Bulgaria and Romania are expected to follow in a few

years, and Turkey is also a candidate for EU membership. Not only has the EU grown in membership; it also has widened its range of activities to include culture, the environment, agriculture, consumer affairs, competition, energy, transport and trade. Boundaries between EU countries have also been opened, so that a passport is no longer required to cross them.

The successes and problems of the European Union provide invaluable experience as we consider the measures that will be needed to strengthen and reform the United Nations. 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 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 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 gov-

ernment 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 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.

We are faced with the challenge of constructing a world government 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 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. It should also be the responsibility of the international community to prevent gross violations of human rights.

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 police action will be possible, incorporating all of the needed safeguards for lives and property of the innocent.

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 Milosovic 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.

The Nüremberg Principles

At the end of the Second World War, when the full extent of the atrocities that had been committed by the Nazi's 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 Military Tribunal in Nüremberg, 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 Nüremberg Tribunal and the judgment of the Tribunal". The General Assembly also established an International Law Commission to formalize the Nüremberg Principles, and the result was the following list:

- **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 Nüremberg Principles are being used today as the basis for the International Criminal Court's trials of individuals accused of genocide and war crimes in Rwanda and in the former Yugoslavia.

The Principles throw an interesting light onto the status of soldiers. According to the Nüremberg 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 (Appendix A) is designed to remove the burdens of moral and legal

responsibility from a soldier's individual shoulders; but the Nüremberg Principles are designed to put these burdens squarely back where they belong - on the shoulders of the individual.

The International Court of Justice

The Hague Conference on Private International Law was convened in 1893 by the government of the Netherlands. The purpose of this conference and of the organization named after it has been "to work for the unification of the rules of private international law. Between 1893 and 1996, the Conference has adopted 39 international Conventions.

The League of Nations, established after the First World War, had as its judicial branch the Permanent Court of International Justice (1922-1946). After the Second World war and the founding of the United Nations, the PCIJ was replaced by the International Court of Justice.

Between 1946 and 1996, the International Court of Justice dealt with 47 contentious cases between states, and gave 61 judgments, as well as 23 advisory opinions. For the ICJ to have jurisdiction in a case between states, both states have to submit the case to the Court, and both have to agree to abide by its decision. This is the reason why the ICJ has had relatively few cases. In a dispute between two states, one of them would usually realize that it was in the wrong and will therefore not agree to submit the case to the International Court of Justice.

Advisory opinions can be given by the ICJ to public organizations when they encounter legal problems during the course of their work. It was, in fact, the UN General Assembly together with the World Health Organization that brought the question of the legality of nuclear weapons before the International Court of Justice, and the result was the Court's historic Advisory Opinion on Nuclear Weapons (1995).

We can notice that the ICJ usually deals with disputes between states, but by contrast the Nüremberg Principles deal with the responsibilities of individuals under international law. Thus the ICJ is not an appropriate legal institution for enforcing the Nüremberg Principles, and until the creation of the International Court of Justice, there was no such institution, i.e, no international court that could act on individuals.

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 necessity. We cannot have peace and justice without it. But the coercion of states is neither just[3] 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

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[3]because it punishes the innocent as well as the guilty

promise never to hand over US citizens to the International Criminal Court.

The motives behind the Bush Administration's 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 Nüremberg 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 Nüremberg 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. Apparently Bush and his colleagues want to continue to start wars, and they seem to feel that their nation has become so militarily powerful that international law no longer serves the US national interests. The other countries of the world will have to decide whether they will allow the United States to place itself outside the law. The American people will have to decide whether they want their nation to be a rogue state.

The Universal Declaration of Human Rights

On December 10, 1948, the General Assembly of the United Nations adopted a Universal Declaration of Human Rights. 48 states voted for adoption, while 8 states 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 the 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 individual's 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 person's 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[4].

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[4]Many provisions of the Universal Declaration of Human Rights, for example Article

The Declaration affirms that everyone has the right to participate freely in the cultural life of the community, to enjoy the arts, and to share in the benefits of science. The moral and material r!ghts of authors, artists and !nnovators are to be protected.

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.

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. At the moment of writing (summer, 2004), members of a black minority group are being systematically murdered and driven from their homes in the Darfur region of Sudan.

It will certainly not be easy to establish throughout the world the norms defined by the Universal Declaration of Human Rights. However, the principle of individual responsibility underlying the work of the International Criminal Court in cases of genocide and war crimes committed in Rwanda and the former Yugoslavia has given the world community an extremely valuable precedent. By supporting this principle and by supporting and enlarging the work of the ICC, we can gradually move away from barbarism and towards a just and peaceful global society. It must be emphasized, however, that no single nation or coalition of nations has the right to enforce the Universal Declaration of Human Rights by interventions. Only the International Criminal Court and a future United Nations Police Force would have the impartiality and legal authority needed to perform this duty.

25, might be accused of being wishful thinking. Nevertheless, they have great value in defining the norms towards which the world ought to be striving.

The Tobin tax

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 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, 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.

Besides the Tobin tax, other measure 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[5] that wish to control the UN through its purse strings. 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.

Links between poverty and war

There is an indirect mechanism that ought to be considered when we think of economic inequality as a cause of war: The eradication of war as an institution will require that the United Nations be strengthened, that it be given

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[5]especially by the United States, which has threatened to withdraw from the UN if a Tobin tax is introduced

the power of taxation, the power to make laws that are binding on individuals, and a reformed and democratic voting system. These reforms are likely to be opposed by the wealthy part of the world since rich countries do not wish to give up their present advantages of power and wealth. For example, the wealthy nations may fear that if the United Nations had the power to impose taxes, the result would be a transfer of money from themselves to the poorer parts of the world.

Similar problems were faced and overcome during the reunification of the Federal Republic of Germany after the end of the Cold War. It was realized that economic sacrifices by West Germany would be needed in order achieve approximate economic equality between the two parts of the country, but the desire for reunification was so strong that the necessary sacrifices were made.

Similarly, in the formation of the European Union and its extension to the east, there were worries about contrasts between rich and poor regions. Would the wealthy nations of Europe be excessively taxed to help their poorer neighbors? Would workers from the poorer parts of Europe migrate in excessive numbers to the richer regions? In the case of the EU, as in the reunification of Germany, serious problems were present because of economic inequality. But the necessary sacrifices and adjustments were made, and the problems were overcome. The motives for unification were strong: Europe had been a central battleground in two world wars, and the statesmen of Europe were determined that such tragedies should never be repeated.

In the world as a whole, economic inequalities are, of course, far greater than within Europe. For example, the USA, Canada and Western Europe contain only 11.6% of the world's population, but together they account for 60.2% of all private consumption. In the USA, the current household consumption per capita is 21,515 1998 dollars, while in Tanzania, the figure is 375 dollars. In Denmark there are 650 private computers per 1000 people (a world record), while in India and Nigeria, the figures are respectively 6 and 7.

The UN Food and Agricultural Organization (FAO) estimates that today 38 countries suffer from chronic malnutrition. Twenty-four of these countries are in Africa, 7 in Asia, 5 in Latin America and 2 (Chechnya and Serbia-Montenegro) in Europe. If the population of the world continues to grow rapidly, one can foresee a catastrophic future famine.

Rapid population growth is also closely linked with poverty, both as a cause and as an effect. Today a large portion of the earth's people live in

near-poverty or absolute poverty, lacking safe water, sanitation, elementary education, primary health care, and proper nutrition. Attempts to solve these problems are made more difficult by the fact that in many of the countries in which poverty is most acute, population doubles in 25 years or less. The best efforts to build new schools and housing or to create new jobs and infrastructure cannot keep pace with this explosive rate of population growth.

Another important factor that increases the economic gap between the rich and the poor is foreign debt. Many of the debts of the Third World can be traced back to arms purchases, which of course had no positive effect on the economies of the borrowing countries. Nevertheless, the debts remain, and interest payments have become so large that there is today a net transfer of money from the developing countries to the industrialized nations.

The problem of global economic inequality blocks the reforms that are urgently needed to strengthen the United Nations, and in this indirect way the huge contrasts between the rich and poor nations of the world certainly acts as a cause of war. Global governance is needed to prevent war, but the path towards this goal is blocked by the enormous economic inequalities of today's world.

We mentioned above that in the reunification of Germany and in the formation of the European Union, similar problems seemed to block the way, but were overcome. Can we also overcome the problem of global economic inequality, with its indirect link to the institution of war? Perhaps the answer lies in the structure of federations.

In a federation, all powers not expressly granted to the federal authority are retained by the member states. The United Nations is not at a federation, since it does not at present have the power to make laws that are binding on individuals. However, cautious steps could be taken to turn the UN into a true federation, granting at first only a few carefully defined powers. Thus, for example, carefully limited powers of taxation could be granted to the UN. These limited powers might be sufficient to slightly reduce the contrast between the rich and poor parts of the world. As the economic inequalities became less pronounced, the federal form of the UN could gradually be strengthened. Thus, without shocks, a smooth and gradual transition might be achieved from a world of economic injustice, international anarchy and chronic war to a world of peace, equality and law.

There is another link between poverty and war that ought to be mentioned: War is a cause of poverty. For example, small arms were brought into Africa by both sides during the Cold War. These small arms still exist,

still contribute to conflicts and suffering in the region, and still block economic development. The same small arms have allowed ethnic minorities to be driven from their homes and farms and turned into internal refugees, i.e., refugees in their own countries. The FAO estimates that there are between 20,000,000 and 25,000,000 internal refugees in the world, many of them in Africa. Chronic food shortages in a number of African countries are aggravated by civil conflicts, by returning refugees, and by internal refugees. This is the case in Angola, Burundi, Central African Republic, the Democratic Republic of Congo, the Republic of Congo, Ivory Coast, Eritria, Ethiopia, Guinea, Liberia, Sierra Leone, Somalia, Sudan, Tanzania, Uganda and Zimbabwe.

The almost incomprehensible sums now spent on armaments - roughly a thousand billion dollars per year - could do much to reduce poverty. The Worldwatch Institute, Washington DC, estimates that information and materials for family planning could be provided to all women who need them for only 5 billion dollars per year, that an additional 5 billion could virtually eliminate illiteracy, that only 10 billion would be needed annually to provide safe drinking water to all the world's people, and that for only 19 billion dollars per year the problem of malnutrition could be solved, at least temporarily. A permanent solution to the problem of famine of course requires stabilization of global population.

In today's world, we can observe some countries where a high level of education, low birth rate, low death rate, high status of women, stable, democratic government, industrialization, full employment, and low level of violence are linked together by circular loops of cause and effect. Conversely, we can also observe other countries where the general level of education is low, the birth rate and death rate both high, the status of women low, the government unstable, undemocratic or both, where there is little industry, high unemployment, chronic poverty, endemic disease, and wide-spread violence. Again these characteristics are linked together by feed-back loops, this time vicious circles.

From these observations we can see that poverty and war are not separate problems. They must be addressed simultaneously.

A few concrete steps towards United Nations reform

1. Introduce a Tobin tax on all international currency transactions, the proceeds being used to support the United Nations. Other new sources

of funds for the UN should also be introduced.

2. Strengthen UN agencies, such as the World Health Organization, the Food and Agricultural Organization, UNESCO and the UN Development Programme. The budgets of these agencies 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 infections 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 would be less tempted to find jobs with arms-related industries if offered the chance to work on idealistic projects.

3. Give the United Nations its own television and radio channels. Introduce unbiased news programs, cultural programs, and "State of the World" addresses by the UN Secretary General.

4. Give the United Nations a Legislature with a reformed voting system. The UN Legislature should have the power to make laws that are binding on individuals.

5. Expand the International Criminal Court and increase its range of jurisdiction.

6. Prohibit the export of arms and ammunition from industrialized countries to the developing countries.

7. Give the UN a very strong, permanent and highly mobile Emergency Force/UN Police Force composed of volunteers from all nations, under the direct command of the Secretary General, The General Assembly, and the International Criminal Court.

8. Get rid of the veto in the Security Council.

9. Address the problem of third world debt. Reform the World Bank and other UN financial institutions.

10. In connection with the problems of abolishing nuclear, chemical, and biological weapons, legislation should be introduced to protect whistle-blowers, such as Mordechai Vanunu.

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[6], cannot the same methods of government be applied globally?

But what are the methods that nations use to achieve internal peace? Firstly, every true government needs to have the power to make and enforce laws that are binding on individual citizens. Secondly the power of taxation is a necessity. These two requirements of every true government have already been mentioned; but there is a third point that still remains to be discussed:

Within their own territories, almost all nations have more military power than any of their subunits. For example, the US Army is more powerful than the State Militia of Illinois. This unbalance of power contributes to the stability of the Federal Government of the United States. When the FBI wanted to arrest Al Capone, it did not have to bomb Chicago. Agents just went into the city and arrested the gangster. Even if Capone had been enormously popular in Illinois, the the government of the state would have realized in advance that it had no chance of resisting the US Federal Government, and it still would have allowed the "Feds" to make their arrest. Similar considerations hold for almost all nations within which there is internal peace. It is true that there are some nations within which subnational groups have more power than the national government, but these are frequently characterized

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[6]It must of course be acknowledged that the large political units just named are neither perfectly just nor perfectly peaceful. Nevertheless, they all have achieved a high degree of internal peace and political cohesion.

by civil wars.

Of the large land areas within which internal peace has been achieved, the European Union differs from the others because its member states still maintain powerful armies. The EU forms a realistic model for what can be achieved globally in the near future by reforming and strengthening the United Nations. In the distant future, however, we can imagine a time when a world federal authority will have much more power than any of its member states, and when national armies will have only the size needed to maintain local order.

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.

Comparisons between war and slavery

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 to 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, millions of Africans were captured and forced into a life of slavery in the New World and the Middle East. 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, despite 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 cordwood, 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 and stupidity 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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Appendix A

The training of soldiers

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.

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