AGAINST NATIONALISM

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INTRODUCTION[1]

Against nationalism

Today, in an era of all-destroying nuclear weapons, instantaneous global communication and worldwide economic interdependence, nationalism has become a dangerous anachronism. History, as it is taught today, is centered on the country where it is being taught. Our own country is the most important. Our own country is always in the right, according to nationalist historians. Patriotic soldiers and generals are exalted. It is sweet and noble to die for one's country. But today, war has become prohibitively dangerous. Unless we rid the world of nuclear weapons, the end of human civilization and much of the biosphere is just around the corner. Nationalism has become a dangerous anachronism. It must be replaced by a wider view of the world where cooperation is see to be more important than competition, and where all nations are valued equally for their contributions to our mutual civilization.

Tribalism and Nationalism

Human nature seems to have a fault, which might be called "Tribalism". When our ancestors lived in small tribes of genetically homogeneous hunter-gatherers, competing for territory with other tribes on the grasslands of Africa, the tribe as a whole either survived or perished. Thus the group was the unit on which Darwinian forces of natural selection acted. For this reason, fierce loyalty to one's own tribe and equally fierce aggression towards competing groups seems to be built into our inherited emotional nature. In the modern world, this genetically programmed tendency supports nationalism. Fortunately, education can overwrite inherited tendencies. Today education supports nationalism, but hopefully, in the future, reformed education will support internationalism and cooperation.

Against the institution of war

Because the world today spends roughly 2 trillion U.S. dollars on armaments every year, it follows that very many people are making their living from

[1]This book makes much use of my previously published book chapters, but a considerable amount of new material has been added

war. This is the reason why it is correct to call war a social and economic institution. However, in an era of all-destroying thermonuclear weapons, war has become prohibitively dangerous, and we must somehow find a way to abolish it as an institution.

Wars of the United States

At the end of World War II, Europe, Russia, China and Japan were all in ruins. The United States was the only major industrialized power to survive the war relatively unscathed. The United States, formerly an isolationist country, stepped hesitantly onto the global stage. However, after the collapse of the Soviet Union, hesitancy was replaced by the triumphalism and aggression of the "Project For a New American Century", whose open aim was world domination through military force. Wars were explained to the American people as being necessary because of the threat of Communism, and later Terrorism.

Human history as cultural history

Cultural history can be seen as an antidote for nationalism. It allows us to take a wider view of the world, where cooperation is more important than conflict, and where the contributions of all nations, cultures and ethnic groups are recognized.

We need to reform our teaching of history so that the emphasis will be placed on the gradual growth of human culture and knowledge, a growth to which all nations and ethnic groups have contributed. In fact, the millennia-long accumulation of knowledge and culture is a much more important part of human history than the wars and power struggles of rulers and national governments.

Other books on global problems

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Chapter 1

FROM TRIBALISM TO NATIONALISM

1.1 Abolition of war: Insights from the biological sciences

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 on *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*

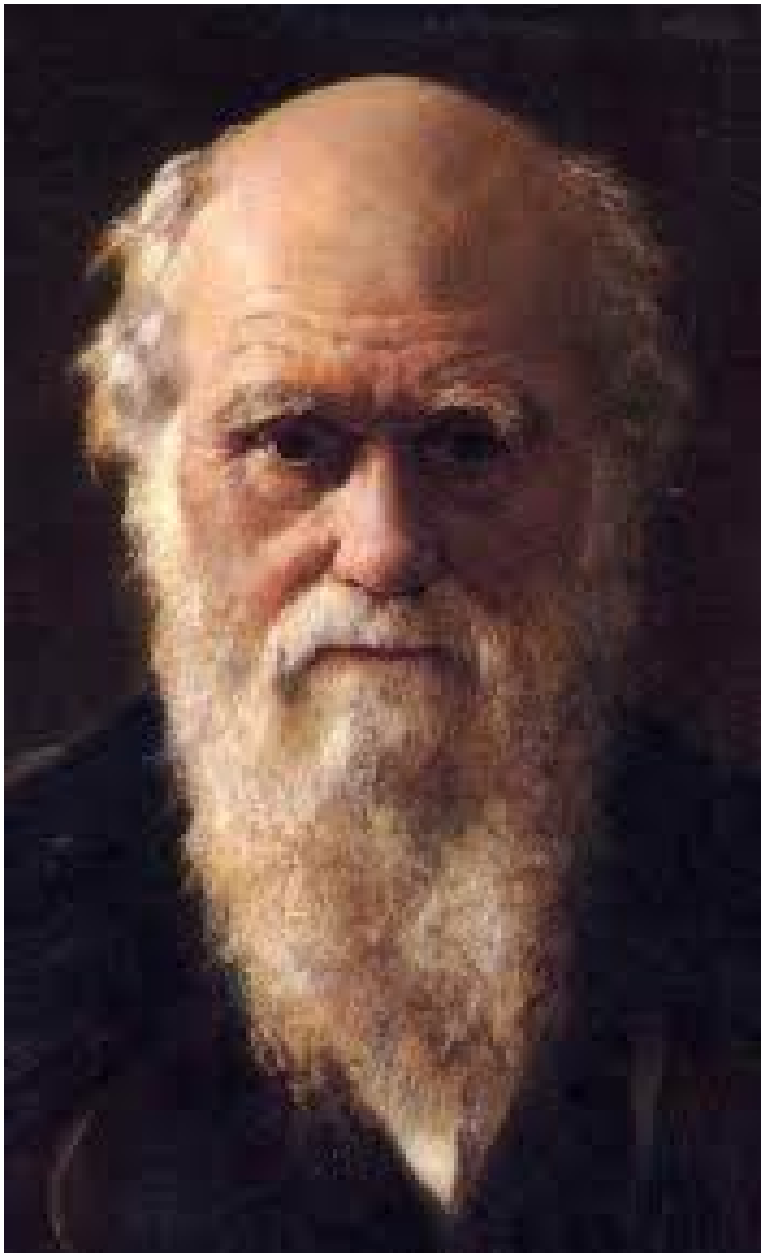

Figure 1.1: **Because of Charles Darwin's book "The Expression of Emotions in Man and Animals", he is considered to be the founder of the field of Ethology, the study of inherited behavior patterns.**

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 kennel men 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 of his book, *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 colour 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.

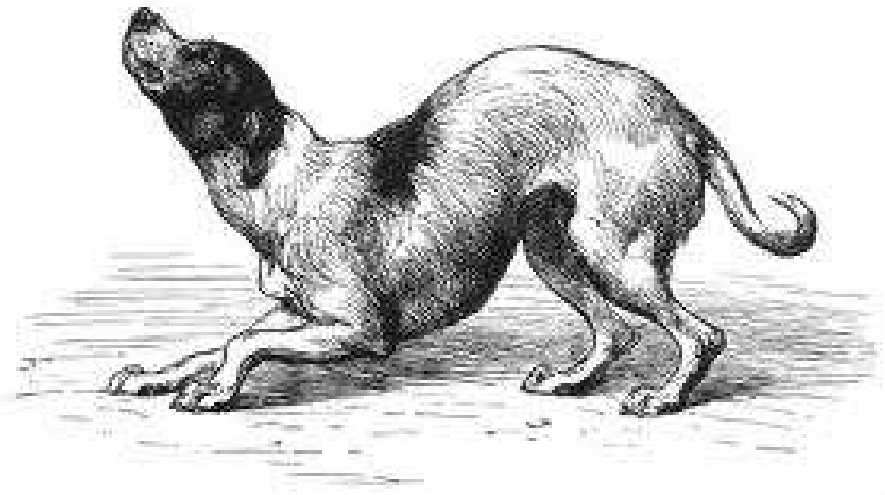

Figure 1.2: **A dog expressing affection towards its master.**

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 a Nobel Prize in Medicine and Physiology in 1973.

Karl von Frisch, the first of the three ethologists who shared the 1973 prize, 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 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 invariable 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 tells us, can easily be trained to

[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".

Figure 1.3: **The red spot on the beak of the parent gull proved to be the crucial signal needed to activate the instinctive response of the chick.**

Figure 1.4: **Nikolaas Tinbergen (1907-1988) on the left, with Konrad Lorenz (1903-1989). Together with Karl von Frisch (1886-1982) they shared the 1973 Nobel Prize in Physiology and Medicine for their pioneering work in Ethology.**

Figure 1.5: **Konrad Lorenz with geese who consider him to be their mother.**

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 bonding behavior 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]

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,

[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 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.

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 noble 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 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 his book *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, crit-

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

icisms, 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 Ukrainian 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.

1.2 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. Fischer, and more recently it has been discussed by W.D. Hamilton and E.O. Wilson.

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.

Figure 1.6: **Sir Ronald Aylmer Fischer (1890-1962). Together with J.B.S Haldane he pioneered the theory of population genetics. Recent contributions to this theory have been made by W.D. Hamilton and E.O. Wilson.**

1.3 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.

1.4 Religion and ethnic identity

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.

An acceleration of human cultural development seems to have begun approximately 70,000 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,[4] 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 70,000 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

[4]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.

our hunter-gatherer ancestors of 70,000 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. Since religions, like languages, are closely associated with particular cultures, they serve as marks of ethnic identity.

1.5 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, he pointed out, the two groups function as though they were separate species, although from a biological standpoint this is nonsense. When two such groups are competing for the same land, the same water, the same resources, and the same jobs, the conflicts between them can become very bitter indeed. Each group regards the other as being "not truly human".

In his book *The Biology of War and Peace*, Eibl-Eibesfeldt discusses the "tribal markings" used by groups of humans to underline their own identity and to clearly mark the boundary between themselves and other groups. One of the illustrations in the book shows the marks left by ritual scarification on the faces of the members of certain African tribes. These scars would be hard to counterfeit, and they help to establish and strengthen tribal identity. Seeing a photograph of the marks left by ritual scarification on the faces of African tribesmen, it is impossible not to be reminded of the dueling scars that Prussian army officers once used to distinguish their caste from outsiders.

Surveying the human scene, one can find endless examples of signs that mark the bearer as a member of a particular group - signs that can be thought of as "tribal markings": tattoos; piercing; bones through the nose or ears; elongated necks or ears; filed teeth; Chinese binding of feet; circumcision, both male and female; unique hair styles; decorations of the tongue, nose, or naval; peculiarities of dress, fashions, 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;

Figure 1.7: **Scars help to establish tribal identity**

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 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 Doolittle 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.

Figure 1.8: **An example of the dueling scars that Prussian army officers once used to distinguish their caste from outsiders.**

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 so 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 in many aggressive wars, for example in the Crusades, in the European conquest of the New World, in European colonial conquests in Africa and Asia, and in the wars between Catholics and Protestants within Europe. 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.

Human history seems to be saturated with blood. It would be impossible to enumerate the conflicts with which the story of humankind is stained. Many of the atrocities of history 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.

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.

1.6 The mystery of self-sacrifice in war

Warfare involves not only a high degree of aggression, but also an extremely high degree of altruism. Soldiers kill, but they also sacrifice their own lives. Thus patriotism and duty are as essential to war as the willingness to kill.

Tribalism involves passionate attachment to one's own group, self-sacrifice for the sake of the group, willingness both to die and to kill if necessary to defend the group from its enemies, and belief that in case of a conflict, one's own group is always in the right. Unfortunately these emotions make war possible; and today a Third World War might lead to the destruction of civilization.

At first sight, the willingness of humans to die defending their social groups seems hard to explain from the standpoint of Darwinian natural selection. After the heroic death of such a human, he or she will be unable to produce more children, or to care for those already born.Therefore one might at first suppose that natural selection would work strongly to eliminate the trait of self-sacrifice from human nature. However, the theory of population genetics and group selection can explain both the willingness of humans to sacrifice themselves for their own group, and also the terrible aggression that they sometimes exhibit towards competing groups. It can explain both intra-group altruism and inter-group aggression.

1.7 Fischer, Haldane, Hamilton and Wilson

The idea of group selection in evolution was proposed in the 1930's by J.B.S. Haldane and R.A. Fischer, and more recently it has been discussed by W.D. Hamilton and E.O. Wilson.

If we examine altruism and aggression in humans, we notice that members of our species exhibit great altruism towards their own children. Kindness towards close relatives is also characteristic of human behavior, and the closer the biological relationship is between two humans, the greater is the altruism they tend to show towards each other. This profile of altruism is easy to explain on the basis of Darwinian natural selection since two closely related individuals share many genes and, if they cooperate, the genes will be more effectively propagated.

To explain from an evolutionary point of view the communal defense mechanism - the willingness of humans to kill and be killed in defense of their communities - we have only to imagine that our ancestors lived in small tribes and that marriage was likely to take place within a tribe rather than across tribal boundaries. Under these circumstances, each tribe would tend to consist of genetically similar individuals. The tribe itself, rather than the individual, would be the unit on which the evolutionary forces of natural selection would act.

According to the group selection model, a tribe whose members showed altruism towards each other would be more likely to survive than a tribe whose members cooperated less effectively. Since several tribes might be in competition for the same territory, suc-

cessful aggression against a neighboring group could increase the chances for survival of one's own tribe. Thus, on the basis of the group selection model, one would expect humans to be kind and cooperative towards members of their own group, but at the same time to sometimes exhibit aggression towards members of other groups, especially in conflicts over territory. One would also expect intergroup conflicts to be most severe in cases where the boundaries between groups are sharpest - where marriage is forbidden across the boundaries.

1.8 Cooperation in groups of animals and human groups

The social behavior of groups of animals, flocks of birds and communities of social insects involves cooperation as well as rudimentary forms of language. Various forms of language, including chemical signals, postures and vocal signals, are important tools for orchestrating cooperative behavior.

The highly developed language of humans made possible an entirely new form of evolution. In cultural evolution (as opposed to genetic evolution), information is passed between generations not in the form of a genetic code, but in the form of linguistic symbols. With the invention of writing, and later the invention of printing, the speed of human cultural evolution greatly increased. Cooperation is central to this new form of evolution. Cultural advances can be shared by all humans.

1.9 Trading in primitive societies

Although primitive societies engaged in frequent wars, they also cooperated through trade. Peter Watson, an English historian of ideas, believes that long-distance trade took place as early as 150,000 before the present. There is evidence that extensive trade in obsidian and flint took place during the stone age. Evidence for wide ranging prehistoric obsidian and flint trading networks has been found in North America. Ancient burial sites in Southeast Asia show that there too, prehistoric trading took place across very large distances. Analysis of jade jewelry from the Philippines, Thailand, Malaysia and Vietnam shows that the jade originated in Taiwan.

The invention of writing was prompted by the necessities of trade. In prehistoric Mesopotamia, clay tokens marked with simple symbols were used for accounting as early as 8,000 BC. Often these tokens were kept in clay jars, and symbols on the outside of the jars indicated the contents. About 3,500 BC, the use of such tokens and markings led to the development of pictographic writing in Mesopotamia, and this was soon followed by the cuneiform script, still using soft clay as a medium. The clay tablets were later dried and baked to ensure permanency. The invention of writing led to a great acceleration of human cultural evolution. Since ideas could now be exchanged and preserved with great ease through writing, new advances in technique could be shared by an ever larger cooperating community of humans. Our species became more and more successful as its genius

for cooperation developed.

Early religions tended to be centered on particular tribes, and the ethics associated with them were usually tribal in nature. However, the more cosmopolitan societies that began to form after the Neolithic agricultural revolution required a more universal code of ethics. It is interesting to notice that many of the great ethical teachers of human history, for example Moses, Socrates, Plato, Aristotle, Lao-Tzu, Confucius, Buddha, and Jesus, lived at the time when the change to larger social units was taking place. Tribalism was no longer appropriate. A wider ethic was needed.

Today the size of the social unit is again being enlarged, this time enlarged to include the entire world. Narrow loyalties have become inappropriate and there is an urgent need for a new ethic - a global ethic. Loyalty to one's nation needs to be supplemented by a higher loyalty to humanity as a whole.

1.10 Interdependence in modern human society

The enormous success of humans as a species is due to their genius for cooperation. The success of humans is a success of cultural evolution, a new form of evolution in which information is passed between generations, not in the form of DNA sequences but in the form of speech, writing, printing and finally electronic signals. Cultural evolution is built on cooperation, and has reached great heights of success as the cooperating community has become larger and larger, ultimately including the entire world.

Without large-scale cooperation, modern science would never have evolved. It developed as a consequence of the invention of printing, which allowed painfully gained detailed knowledge to be widely shared. Science derives its great power from concentration. Attention and resources are brought to bear on a limited problem until all aspects of it are understood. It would make no sense to proceed in this way if knowledge were not permanent, and if the results of scientific research were not widely shared. But today the printed word and the electronic word spread the results of research freely to the entire world. The whole human community is the repository of shared knowledge.

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

1.11 Two sides of human nature

Looking at human nature, both from the standpoint of evolution and from that of everyday experience, we see the two faces of Janus; one face shines radiantly; the other is dark and menacing. Two souls occupy the human breast, one warm and friendly, the other

murderous. Humans have developed a genius for cooperation, the basis for culture and civilization; but they are also capable of genocide; they were capable of massacres during the Crusades, capable of genocidal wars against the Amerinds, capable of the Holocaust, of Hiroshima, of the killing-fields of Cambodia, of Rwanda, and of Darfur

As an example of the two sides of human nature, we can think of Scandinavia. The Vikings were once feared throughout Europe. The Book of Common Prayer in England contains the phrase "Protect us from the fury of the Northmen!". Today the same people are so peaceful and law-abiding that they can be taken as an example for how we would like a future world to look. Human nature has the possibility for both kinds of behavior depending on the circumstances. This being so, there are strong reasons to enlist the help of education and religion to make the bright side of human nature win over the dark side. Today, the mass media are an important component of education, and thus the mass media have a great responsibility for encouraging the cooperative and constructive side of human nature rather than the dark and destructive side.

1.12 Tribalism and agreed-upon lies

Members of tribelike groups throughout history have marked their identity by adhering to irrational systems of belief. Like the ritual scarification which is sometimes used by primitive tribes as a mark of identity, irrational systems of belief are also a mark of tribal identity. We parade these beliefs to demonstrate that we belong to a special group and that we are proud of it. The more irrational the belief is, the better it serves this purpose. When you and I tell each other that we believe the same nonsense, a bond is forged between us. The worse the nonsense is, the stronger the bond.

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

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

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

1.13 From tribalism to nationalism

70,000 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 canons 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.

1.14 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, Provencaux, 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 cord 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 Alter be erected in each commune with the inscription, "The citizen is born, lives and dies for *la patrie*." The idea of a "Fatherland Alter" 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.

Figure 1.9: **A portrait of Napoleon (as he liked to see himself).**

Figure 1.10: **A romantic figure representing Germany**

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 Totali-

tarianism, 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 disdain.
> 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 leaves 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 alters 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

Figure 1.11: **Celebration of the "German May" at Hambrach Castle**

faith, and responses between the leader and the congregation.[5]

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. At one point in the play, Hermann is told of a Roman soldier

[5] 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, Rosicrutians, the Knights Templars and other esoteric societies.

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 heros 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

Figure 1.12: **Wagner's dramas were part of the quasi-religious cult of German nationalism.**

Figure 1.13: **A painting from Francisco de Goya's series on the *Disasters of War*.**

Figure 1.14: **Y no hay remedio (And it cannot be helped). Prisoners executed by firing squads, reminiscent of The Third of May 1808, from Goya's series on the *Disasters of War*.**

Figure 1.15: **Goya's Enterrar y callar (Bury them and keep quiet). Atrocities, starvation and human degradation.**

Figure 1.16: **One of a series of prints which the German artist Käthe Kollwitz (1867-1945) made as a protest against the atrocities of World War I.**

Figure 1.17: **Another anti-war print by Käthe Kollwitz.**

Figure 1.18: ***Never Again War*** **by Käthe Kollwitz.**

Figure 1.19: ***Never Again War*** **(poster) by Käthe Kollwitz.**

Figure 1.20: ***About Mothers and Children*** **by Käthe Kollwitz.**

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."

Suggestions for further reading

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Chapter 2

THE THREATS AND COSTS OF WAR

2.1 The training of soldiers

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

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

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

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

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

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

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

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

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

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

2.2 Killing civilians

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

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

Figure 2.1: **Contemporary Danish painting of the bombardment at night.**

Figure 2.2: **An illustration by Eckersberg of the Church of Our Lady being bombarded.**

Figure 2.3: ***The Most Terrible Night.*** **View of Kongens Nytorv in Copenhagen During the English Bombardment of Copenhagen at Night between 4 and 5 September 1807.**

The erosion of ethical principles during World War II

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

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

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

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

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

The result was a firestorm that did, if fact, lead to the total destruction of the city. One airman recalled, that "As far as I could see was one mass of fire. 'A sea of flame' has been the description, and that's an understatement. It was so bright that I could read the target maps and adjust the bomb-sight." Another pilot was "...amazed at the awe-inspiring sight of the target area. It seemed as though the whole of Hamburg was on fire from one

Figure 2.4: **Picasso's famous painting *Guernica* was a protest following the Nazi bombing of civilians in a Basque town,**

end to the other and a huge column of smoke was towering well above us - and we were on 20,000 feet! It all seemed almost incredible and, when I realized that I was looking at a city with a population of two millions, or about that, it became almost frightening to think of what must be going on down there in Hamburg."

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

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

Hiroshima and Nagasaki

On August 6, 1945, at 8.15 in the morning, a nuclear fission bomb was exploded in the air over the civilian population of Hiroshima in an already virtually defeated Japan. The force of the explosion was equivalent to fifteen thousand tons of TNT. Out of a city of two hundred and fifty thousand, one hundred thousand were killed immediately, and another

hundred thousand were hurt. Many of the injured died later from radiation sickness. A few days later, Nagasaki was similarly destroyed.

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

In March, 1954, the US tested a thermonuclear bomb at Bikini Atoll in the Pacific Ocean. It was 1000 times more powerful than the Hiroshima bomb. The Japanese fishing boat, Lucky Dragon, was 135 kilometers from the Bikini explosion, but radioactive fallout

from the explosion killed one crew member and made all the others seriously ill. The distance to the Marshall Islands was equally large, but even today, islanders continue to suffer from the effects of fallout from the test, for example frequent birth defects.

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

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

Today, however, many thoughtful people realize that the problem of nuclear weapons has by no means disappeared, and in some ways it is even more serious now than it was during the Cold War. There are still over 15,000 nuclear weapons in the world, many of them hydrogen bombs, many on hair-trigger alert, ready to be fired with only a few minutes warning. The world has frequently come extremely close to accidental nuclear war. If nuclear weapons are allowed to exist for a long period of time, the probability for such a catastrophic accident to happen will grow into a certainty.

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

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

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

2.3 The direct and indirect costs of war

The costs of war, both direct and indirect, are so enormous that they are almost beyond comprehension. We face a direct threat because a thermonuclear war may destroy human civilization and much of the biosphere, and an indirect threat because 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 2. trillion (i.e. 1.7 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 antimalarial program on as large a scale as would be desirable, but the entire program could be financed for less than our military establishments spend in a single day. Five hours of world arms spending is equivalent to the total cost of the 20-year WHO campaign that resulted in the eradication of smallpox. For every 100,000 people in the world, there are 556 soldiers, but only 85 doctors. Every soldier costs an average of $20,000 per year, while the average spent on education is only $380 per school-aged child. With a diversion of funds consumed by three weeks of military spending, the world could create a sanitary water supply for all its people, thus eliminating the cause of almost half of all human illness.

A new drug-resistant form of tuberculosis has recently become widespread in Asia and in the former Soviet Union. In order to combat this new and highly dangerous form of tuberculosis and to prevent its spread, WHO needs $500 million, an amount equivalent to 1.2 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 $6.5 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.

2.4 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 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.[1]

2.5 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.[2]

2.6 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, Eritrea, 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

[1] http://www.cadmusjournal.org/article/volume-2/issue-2-part-3/lessons-world-war-i
http://www.truth-out.org/opinion/item/27201-the-leading-terrorist-state

[2] http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2080482/

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.[3]

2.7 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 1.7 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.[4]

2.8 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

[3] https://www.hrw.org/topic/refugees

[4] https://www.wsws.org/en/articles/2002/11/iraq-n04.html
http://www.globalresearch.ca/crimes-against-humanity-the-destruction-of-iraqs-electricity-infrastructure-the-social-economic-and-environmental-impacts/5355665
http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/00157630-EN-ERP-48.PDF

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. 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. 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[5]

2.9 Links between poverty and war

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

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

Today's military spending of almost two trillion US dollars per year would be more than enough to finance safe drinking water for the entire world, and to bring primary health care and family planning advice to all. If used constructively, the money now wasted (or worse

[5]http://www.dailymail.co.uk/news/article-2401378/Agent-Orange-Vietnamese-children-suffering-effects-herbicide-sprayed-US-Army-40-years-ago.html

than wasted) on the institution of war could also help the world to make the transition from fossil fuel use to renewable energy systems.

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

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

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

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

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

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

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

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

2.10 The threat of nuclear war

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. There are today roughly 16,000 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 500,000 Hiroshima bombs.

To multiply the tragedy of Hiroshima by a factor of half 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.

For a victim of severe radiation exposure, the symptoms during the first week are nausea, vomiting, fever, apathy, delirium, diarrhoea, 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... 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.

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."

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, 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% 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 °C, while the surface temperatures would fall, perhaps by as much a 50 °C.

The temperature inversion produced in this way would lead to superstability, 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 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 temperatures 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."[6]

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[6]http://www.voanews.com/content/pope-francis-calls-for-nuclear-weapons-ban/2909357.html
http://www.cadmusjournal.org/article/issue-4/flaws-concept-nuclear-deterrence
http://www.countercurrents.org/avery300713.htm
https://www.wagingpeace.org/author/john-avery/
http://www.commondreams.org/news/2015/08/06/70-years-after-bombing-hiroshima-calls-abolish-nuclear-weapons
http://www.informationclearinghouse.info/article42488.htm
http://www.informationclearinghouse.info/article42492.htm
http://www.commondreams.org/views/2015/08/06/hiroshima-and-nagasaki-remembering-power
http://human-wrongs-watch.net/2015/07/22/israel-iran-and-the-nuclear-non-proliferation-treaty/

Speaking to the Conference on Disarmament at the U.N. complex in Geneva, Guterres said many states still wrongly thought that nuclear weapons made the world safer.

"There is great and justified anxiety around the world about the threat of nuclear war," he said.

"Countries persist in clinging to the fallacious idea that nuclear arms make the world safer ... At the global level, we must work towards forging a new momentum on eliminating nuclear weapons."

World War II: a continuation of World War I

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

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

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http://human-wrongs-watch.net/2015/06/25/militarisms-hostages/
http://human-wrongs-watch.net/2015/05/24/the-path-to-zero-dialogues-on-nuclear-dangers-by-richard-falk-and-david-krieger/
http://human-wrongs-watch.net/2015/03/30/europe-must-not-be-forced-into-a-nuclear-war-with-russia/
http://www.truth-out.org/opinion/item/32073-the-us-should-eliminate-its-nuclear-arsenal-not-modernize-it
http://www.cadmusjournal.org/article/issue-4/flaws-concept-nuclear-deterrance
http://www.cadmusjournal.org/article/issue-6/arms-trade-treaty-opens-new-possibilities-u
http://eruditio.worldacademy.org/issue-6/article/remember-your-humanity
http://www.informationclearinghouse.info/article42568.htm
https://firstlook.org/theintercept/2014/09/23/nobel-peace-prize-fact-day-syria-7th-country-bombed-obama/
http://www.informationclearinghouse.info/article42577.htm
http://www.informationclearinghouse.info/article42580.htm
http://human-wrongs-watch.net/2015/08/06/us-unleashing-of-atomic-weapons-against-civilian-populations-was-a-criminal-act-of-the-first-order/
http://human-wrongs-watch.net/2015/08/06/hiroshima-and-nagasaki-remembering-the-power-of-peace/
http://human-wrongs-watch.net/2015/08/04/atomic-bombing-hear-the-story-setsuko-thurlow/
http://human-wrongs-watch.net/2015/08/04/atomic-bombing-hear-the-story-yasuaki-yamashita/
http://human-wrongs-watch.net/2015/08/03/why-nuclear-weapons/

statements also reminds one of Kaiser Wilhelm's monumentally unrealistic words to his departing troops: "You will be home before the leaves are off the trees."

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

Today, because the technology of killing has continued to develop, the danger of a catastrophic war with hydrogen bombs hangs like a dark cloud over the future of human civilization. The total explosive power of today's weapons is equivalent to roughly half a million Hiroshima bombs. To multiply the tragedy of Hiroshima and Nagasaki by a factor of half a million changes the danger qualitatively. What is threatened today is the complete breakdown of human society.

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

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

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

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

The First World War was a colossal mistake. Today, the world stands on the threshold of an equally enormous disaster. Must we again be lead into a world-destroying war by a

few blind individuals who do not have the slightest idea of what such a war would be like?

2.11 Atoms for peace?

"Atoms for Peace", the title of U.S. President Dwight D. Eisenhower's 1953 speech to the U.N. General Assembly, may be regarded by future generations as being tragically self-contradictory. Nuclear power generation has led not only to dangerous proliferation of nuclear weapons, but also to disasters which have made large areas of the world permanently uninhabitable because of long-lived radioactive contamination.

According to Wikipedia, "...Under Atoms for Peace related programs, the US exported 25 tons of highly enriched uranium to 30 countries, mostly to fuel research reactors....The Soviet Union also exported 11 tons of HEU under a similar program." This enormous quantity of loose weapons-usable highly enriched uranium, is now regarded as very worrying because of proliferation and terrorism risks.

A recent article in "The Examiner" (http://www.examiner.com/article/nuclear-security-u-s-fails-to-protect-its-nuclear-materials-overseas) pointed out that "...NRC and DOE could not account for the current location and disposition of U.S. HEW overseas in response to

a 1992 congressional mandate. U.S. agencies, in a 1993 report produced in response to the mandate, were able to verify the location of only 1.160 kilograms out of 17,500 kilograms of U.S. HEW estimated to have been exported."

The dangers of nuclear power generation are exemplified by the Chernobyl disaster: On the 26th of April, 1986, during the small hours of the morning, the staff of the Chernobyl nuclear reactor in Ukraine turned off several safety systems in order to perform a test. The result was a core meltdown in Reactor 4, causing a chemical explosion that blew off the reactor's 1,000-ton steel and concrete lid. 190 tons of highly radioactive uranium and graphite were hurled into the atmosphere.

The resulting radioactive fallout was 200 times greater than that caused by the nuclear bombs that destroyed Hiroshima and Nagasaki. The radioactive cloud spread over Belarus, Ukraine, Russia, Finland, Sweden and Eastern Europe, exposing the populations of these regions to levels of radiation 100 times the normal background. Ultimately, the radioactive cloud reached as far as Greenland and parts of Asia.

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

The more recent disaster of 11 March, 2011, may prove to be very much worse than Chernobyl. According to an article by Harvey Wasserman
(http://www.commondreams.org/view/2014/02/03-3),
the ongoing fallout from the Fukushima catastrophe is already far in excess of that from Chernobyl. Ecosystems of the entire Pacific ocean are being contaminated by the 300 tons of radioactive water from Fukushima.that continue to pour into the Pacific every day.

Meanwhile, the increasingly militaristic government of Japan's Prime Minister Shinzo Abe has passed a State Secrets Act that makes it an offense punishable by 5 year's imprisonment for journalists to report on the situation. Under this cloak of secrecy, attempts are being made to remove highly radioactive used fuel rods balanced precariously in a partially destroyed container hanging in the air above the stricken Unit Four. If an accident should occur, the released radioactivity could dwarf previous disasters.

Public opinion turned against nuclear power generation as a result of the Chernobyl and Fukushima catastrophes. Nevertheless, many governments insist on pushing forward their plans for opening new nuclear power plants, despite popular opposition. Nuclear power could never compete in price with solar energy or wind energy if it were not heavily subsidized by governments. Furthermore, if a careful accounting is made of the CO2 released in the construction of nuclear power plants, the mining, refining and transportation of uranium ore, and the final decommissioning of the plants, the amount of CO2 released is seen to be similar to that of coal-fired plants.

There are three basic reasons why nuclear power generation is is one of the worst ideas ever conceived: First is the danger of proliferation of nuclear weapons, which will be

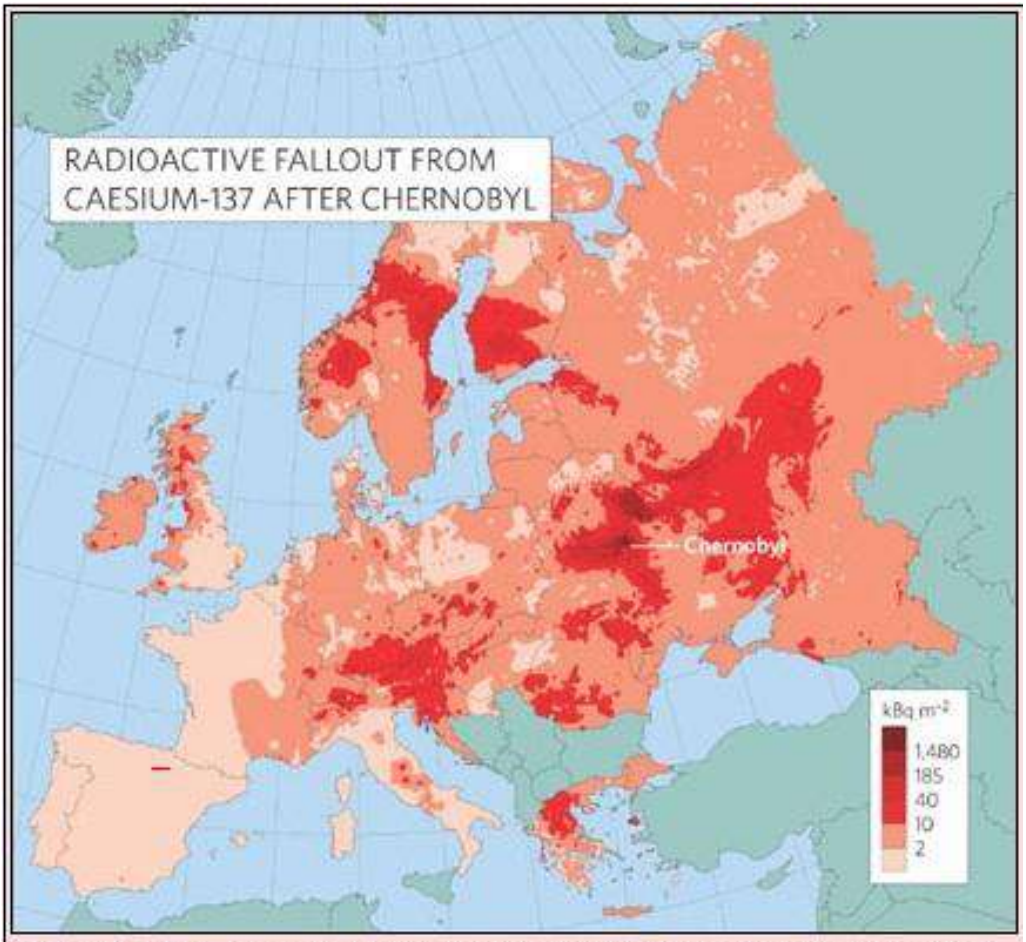
discussed in detail below. Secondly, there is the danger of catastrophic accidents, such as the ones that occurred at Chernobyl and Fukushima. Finally, the problem of how to safely dispose of or store used fuel rods has not been solved.

In thinking about the dangers posed by radioactive waste, we should remember that many of the dangerous radioisotopes involved have half-lives of hundreds of thousands of years. Thus, it is not sufficient to seal them in containers that will last for a century, or even a millennium. We must find containers that will last for a hundred thousand years or more, longer than any human structure has ever lasted.

Of the two bombs that destroyed Hiroshima and Nagasaki, one made use of the rare isotope of uranium, U-235, while the other used plutonium. Both of these materials can be made by a nation with a nuclear power generation program.

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. Notice that 92+143=235, while 92+146=238. The number written after the name of an element to specify a particular isotope is the number of neutrons plus the number of protons. This is called the "nucleon number", and the weight of an isotope is roughly proportional to it. 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. In natural uranium, the amount of the rare isotope U-235 is only 0.7 percent.

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,



J. SMITH & N. A. BERESFORD CHERNOBYL: CATASTROPHE AND CONSEQUENCES (PRAXIS, CHICHESTER, 2005)

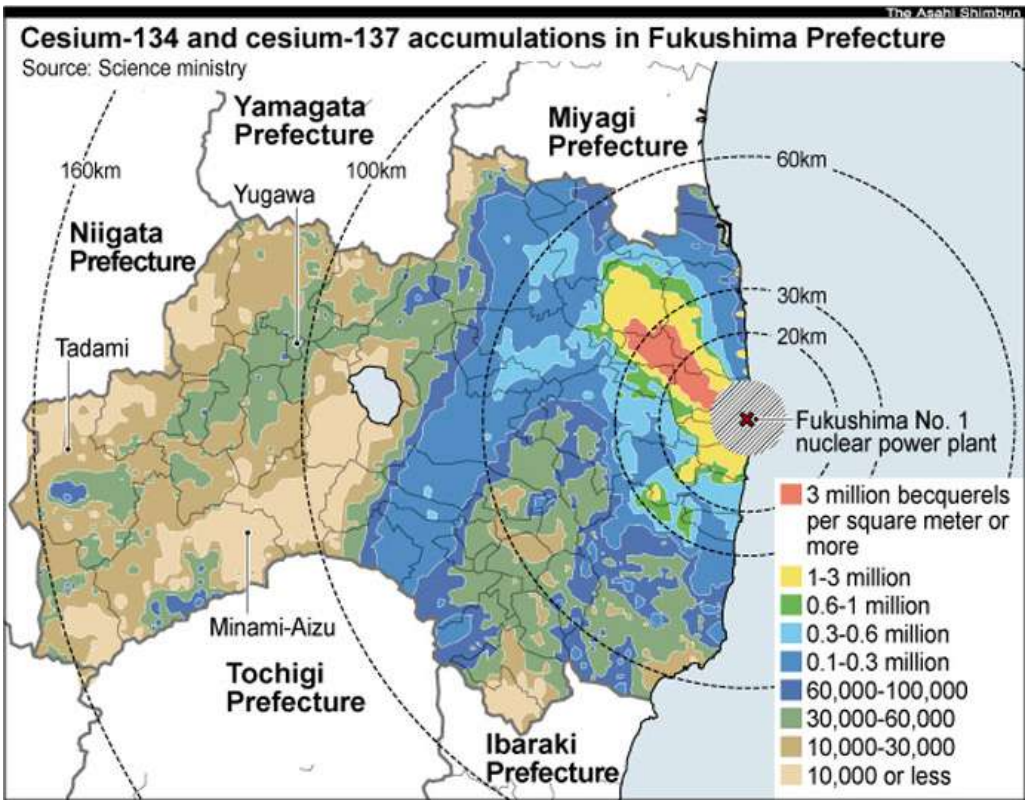


Figure 2.5: **People evacuated from the region near to Fukushima wonder when they will be able to return to their homes. The honest answer is "never".**

they pointed out, if enough highly enriched U-235 could be isolated from the more common isotope, U-238 Calculations later performed in England by Otto Frisch and Rudolf Peierls showed that the "critical mass" of highly enriched uranium needed is quite small: only a few kilograms.

The Bohr-Wheeler theory also predicted that an isotope of plutonium, Pu-239, should be just as fissionable as U-235. Both U-235 and Pu-239 have odd nucleon numbers. When U-235 absorbs a neutron, it becomes U-236, while when Pu-239 absorbs a neutron it becomes Pu-240. In other words, absorption of a neutron converts both these species to nuclei with even nucleon numbers.

According to the Bohr-Wheeler theory, nuclei with even nucleon numbers are especially tightly-bound. Thus absorption of a neutron converts U-235 to a highly-excited state of U-236, while Pu-239 is similarly converted to a highly excited state of Pu-240. The excitation energy distorts the nuclei to such an extent that fission becomes possible. 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.

Thus in 1942, when Enrico Fermi and his coworkers at the University of Chicago produced the world's first controlled chain reaction within a pile of cans containing ordinary (nonenriched) uranium powder, separated by blocks of very pure graphite, the chain-reacting pile had a double significance: It represented a new source of energy, but it also had a sinister meaning. 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 bomb dropped on Hiroshima in 1945 used U-235, while the Nagasaki bomb used Pu-239.

By reprocessing spent nuclear fuel rods, using ordinary chemical means, a nation with a power reactor can obtain weapons-usable Pu-239. Even when such reprocessing is performed under international control, the uncertainty as to the amount of Pu-239 obtained is large enough so that the operation might superficially seem to conform to regulations while still supplying enough Pu-239 to make many bombs.

The enrichment of uranium, i.e. production of uranium with a higher percentage of U-235 than is found in natural uranium is also linked to reactor use. Many reactors of modern design make use of low enriched uranium (LEU) as a fuel. Nations operating such a reactor may claim that they need a program for uranium enrichment in order to produce LEU for fuel rods. However, by operating their ultracentrifuges a little longer, they can easily produce highly enriched uranium (HEU), i.e. uranium containing a high percentage of the rare isotope U-235, and therefore usable in weapons.

Nuclear power generation is not a solution to the problem of obtaining energy without producing dangerous climate change: Known reserves of uranium are only sufficient for the generation of about 25 terawatt-years of electrical energy (Craig, J.R., Vaugn, D.J. and Skinner, B.J., "Resources of the Earth: Origin, Use and Environmental Impact, Third Edition", page 210). This can be compared with the world's current rate of energy use of over 14 terrawatts. Thus, if all of our energy were obtained from nuclear power, existing reserves of uranium would only be sufficient for about 2 years.

It is sometimes argued that a larger amount of electricity could be obtained from the

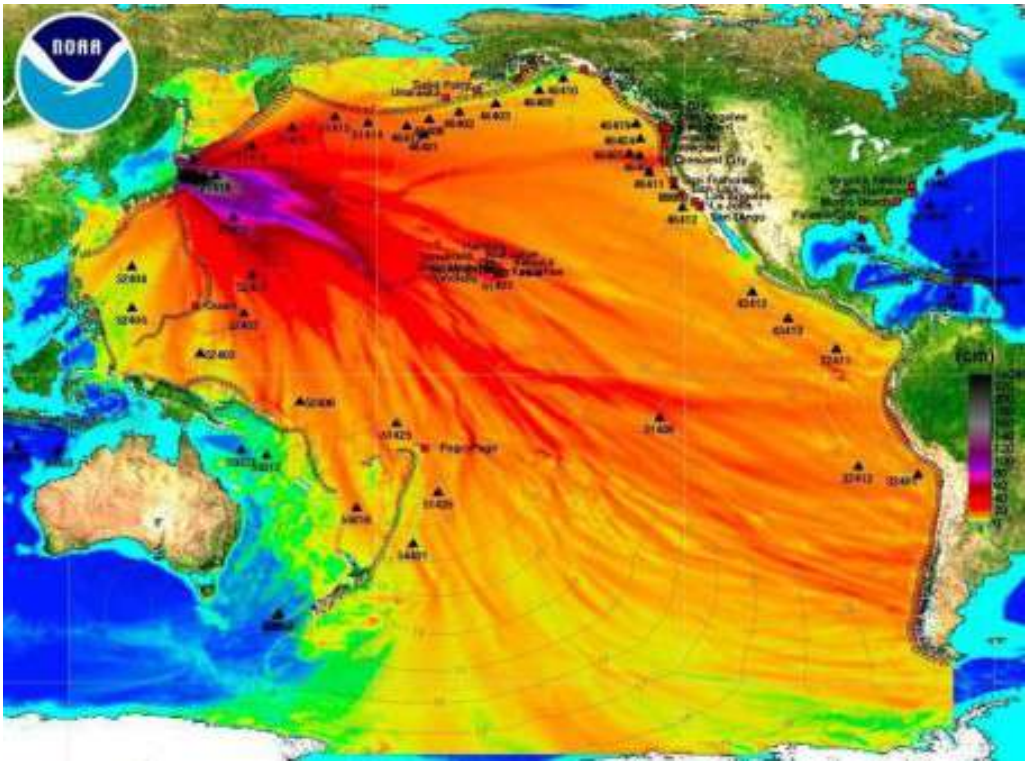


Figure 2.6: **Radioactive contamination from the Fukushima disaster is spreading through the food chain of marine life throughout the Pacific region.**

same amount of uranium through the use of fast breeder reactors, but this would involve totally unacceptable proliferation risks. In fast breeder reactors, the fuel rods consist of highly enriched uranium. Around the core, is an envelope of natural uranium. The flux of fast neutrons from the core is sufficient to convert a part of the U-238 in the envelope into Pu-239, a fissionable isotope of plutonium.

Fast breeder reactors are prohibitively dangerous from the standpoint of nuclear proliferation because both the highly enriched uranium from the fuel rods and the Pu-239 from the envelope are directly weapons-usable. It would be impossible, from the standpoint of equity, to maintain that some nations have the right to use fast breeder reactors, while others do not. If all nations used fast breeder reactors, the number of nuclear weapons states would increase drastically.

It is interesting to review the way in which Israel, South Africa, Pakistan, India and North Korea obtained their nuclear weapons, since in all these cases the weapons were constructed under the guise of "atoms for peace", a phrase that future generations may someday regard as being tragically self-contradictory.

Israel began producing nuclear weapons in the late 1960's (with the help of a "peaceful" nuclear reactor 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.


THE SUNDAY TIMES

Revealed: the secrets of Israel's nuclear arsenal

Figure 2.7: **The Israeli nuclear technician and whistleblower Mordechai Vanunu called public attention to Israel's nuclear weapons while on a trip to England. He was lured to Italy by a Mossad "honey trap", where he was drugged, kidnapped and transported to Israel by Mossad.**

Figure 2.8: **Vanunu was imprisoned for 18 years, during 11 of which he was held in solitary confinement and subjected to psychological torture, such as not being allowed to sleep for long periods.**

South Africa, with the help of Israel and France, also weaponized its civil nuclear program, and it tested nuclear weapons in the Indian Ocean in 1979. In 1991 however, South Africa destroyed its nuclear weapons and signed the Nuclear Non-Proliferation Treaty.

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". 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 ultracentrifuges 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 weapons 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 (1 February, 2004) Pervez 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..." 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 Libya, Iran and North Korea, and that he had contacts with Al Qaeda. However, observers considered that it was unlikely that Khan would be tried, since a trial might implicate Pakistan's army as well as two of its former prime ministers.

There is a danger that Pakistan's unpopular government may be overthrown, and that the revolutionists might give Pakistan's nuclear weapons to a subnational organization. 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 criminals or terrorists.

There is also a possibility that poorly-guarded fissionable material could fall into the hands of subnational groups, who would then succeed in constructing their own nuclear weapons. Given a critical mass of highly-enriched uranium, a terrorist group, or an organized criminal (Mafia) group, could easily construct a crude gun-type nuclear explosive device. Pu-239 is more difficult to use since it is highly radioactive, but the physicist Frank Barnaby believes that a subnational group could nevertheless construct a crude nuclear

bomb (of the Nagasaki type) from this material.

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, or by organized criminals for the purpose of extortion. 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 criminals or 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.

Finally we must remember that if the number of nations possessing nuclear weapons becomes very large, there will be a greatly increased chance that these weapons will be used in conflicts between nations, either by accident or through irresponsible political decisions.

The slogan "Atoms for Peace" has proved to be such a misnomer that it would be laughable if it were not so tragic. Nuclear power generation has been a terrible mistake. We must stop before we turn our beautiful earth into a radioactive wasteland.

2.12 Cancer threat from radioactive leaks at Hanford

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

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

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

"A huge volume of water from the Columbia River was required to dissipate the heat produced by Hanford's nuclear reactors. From 1944 to 1971, pump systems drew cooling water from the river and, after treating this water for use by the reactors, returned it to the river. Before being released back into the river, the used water was held in large tanks known as retention basins for up to six hours. Longer-lived isotopes were not affected by this retention, and several tetrabecquerels entered the river every day. These releases were kept secret by the federal government. Radiation was later measured downstream as far west as the Washington and Oregon coasts."

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

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

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

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

In thinking about the dangers posed by leakage of radioactive waste, we should remember that many of the dangerous radioisotopes involved have half-lives of hundreds of

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

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

2.13 An accident waiting to happen

In Stanley Kubrick's film, "Dr. Strangelove", a paranoid ultra-nationalist brigadier general, Jack D. Ripper, orders a nuclear attack on the Soviet Union because he believes that the Soviets are using water fluoridation as a means to rob Americans of their "precious bodily fluids". Efforts are made to recall the US bombers, but this proves to be impossible, and the attack triggers the Soviet "Doomsday Machine". The world is destroyed.

Kubrick's film is a black comedy, and we all laugh at it, especially because of the brilliant performance of Peter Sellers in multiple roles. Unfortunately, however, the film comes uncomfortably close to reality. An all-destroying nuclear war could very easily be started by an insane or incompetent person whose hand happens to be on the red button.

This possibility (or probability) has recently come to public attention through newspaper articles revealing that 11 of the officers responsible for launching US nuclear missiles have been fired because of drug addiction. Furthermore, a larger number of missile launch officers were found to be cheating on competence examinations. Three dozen officers were involved in the cheating ring, and some reports state that an equal number of others may have known about it., and remained silent. Finally, it was shown that safety rules were being deliberately ignored. The men involved, were said to be "burned out".

According to an article in The Guardian (Wednesday, 15 January, 2014), "Revelations of misconduct and incompetence in the nuclear missile program go back at least to 2007, when six nuclear-tipped cruise missiles were accidentally loaded onto a B-52 bomber in Minot, North Dakota, and flown to a base in Louisiana."

"Last March, military inspectors gave officers at the ICBM base in Minot the equivalent of a 'D' grade for launch mastery. Â A month later, 17 officers were stripped of their authority to launch the missiles."

"In October, a senior air force officer in charge of 450 ICBM's, major general Michael Carey, was fired after accusations of drunken misconduct during a summer trip to Moscow.

Figure 2.9: **Peter Sellers (left) listens while Brigadier General Jack D. Ripper tells him about the Soviet conspiracy to steal his "precious bodily fluids".**

An internal investigation Â found Â that Carey drank heavily, cavorted with two foreign women and visited a nightclub called La Cantina, where Maj. Gen. Carey had alcohol and kept trying to get the band to let him play with them."

The possibility that a catastrophic nuclear war could be triggered by a madman gains force from the recent statements of Benjamin Netanyahu, who has said repeatedly that, with or without US help, Israel intends to attack Iran. Such an attack, besides being a war crime, would be literally insane.

If Netanyahu believes that a war with Iran would be short or limited, he is ignoring several very obvious dangers. Such a war would most probably escalate into a widespread general war in the Middle East. It could cause a revolution in Pakistan, and the new revolutionary government of Pakistan would be likely to enter the war on the side of Iran, bringing with it Pakistan's nuclear weapons. Russia and China, both staunch allies of Iran, might be drawn into the conflict. There is a danger that the conflict could escalate into a Third World War, where nuclear weapons might easily be used, either by accident or intentionally. .

China could do grave economic damage to the United States through its large dollar holdings. Much of the world's supply of petroleum passes through the Straits of Hormuz, and a war in the region could greatly raise the price of oil, triggering a depression that might rival or surpass the Great Depression of the 1920's and 1930's. Â

The probability of a catastrophic nuclear war occurring by accident is made greater by the fact that several thousand nuclear weapons are kept on "hair-trigger alert" with a quasi-automatic reaction time measured in minutes. There is a constant danger that a nuclear war will be triggered by an error in evaluating a signal on a radar screen.

Figure 2.10: **Peter Sellers as Dr. Strangelove. He has to restrain his black-gloved crippled hand, which keeps trying to give a Nazi salute.**

Figure 2.11: **General Buck Turgidson (George C. Scott) struggles with the Russian Ambassador. Peter Sellers (right) playing the US President, rebukes them for fighting in the War Room.**

Figure 2.12: **Major T. "King" Kong rides a nuclear bomb on its way down, where it will trigger the Soviet Doomsday Machine and ultimately destroy the world.**

Figure 2.13: **Benjamin Netanyahu has stated repeatedly that, with or without US support, Israel will attack Iran, an action that could escalate uncontrollably into World War III.**

2.14 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 ethical principles of every major religion. Retaliation is especially contrary to the central commandment of Christianity which tells us to love our neighbor, even if he or she is far away from us, belonging to a different ethnic or political group, and even if our distant neighbor has seriously injured us. This principle has a fundamental place not only in in Christianity but also 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 estimates of the number of deaths that would follow a US nuclear strike against Russia: Several hundred million deaths. These horrifying estimates shock us not only because of the enormous magnitude of the expected mortality, but also because the victims would include people of every kind: women, men, old people, children and infants, completely irrespective of any degree of guilt that they might have. As a result of such an attack, many millions of people in neutral countries would also die. This type of killing has to be classified as genocide.

When a suspected criminal is tried for a wrongdoing, great efforts are devoted to clarifying the question of guilt or innocence. Punishment only follows if guilt can be proved beyond any reasonable doubt. Contrast this with the totally indiscriminate mass slaughter that results from a nuclear attack!

It might be objected that disregard for the guilt or innocence of victims is a universal characteristic of modern war, since statistics show that, with time, a larger and larger percentage of the victims have been civilians, 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 in 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. However 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 Courts 1996 advisory Opinion unquestionably also represents the opinion of the majority of the worlds peoples. Although no formal plebiscite has been taken, the votes in numerous resolutions of the UN General Assembly speak very clearly on this question. For example the New Agenda Resolution (53/77Y) was adopted by the General Assembly on 4 December 1998 by a massively affirmative vote, in which only 18 out of the 170 member states voted against the resolution.[7] 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 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) have expressed concern about the danger of accidental nuclear war. Colin S. Grey[8] 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[9] has written, "In my opinion a general war will grow through a series of political miscalculations and accidents rather than through any deliberate attack by either side." Bruce G. Blair[10] 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."

[7]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.

[8]Chairman, National Institute for Public Policy

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

[10]Brookings Institute

Today, the system that is supposed to give us security is called Mutually Assured Destruction, appropriately abbreviated as MAD. It is based on the idea of deterrence, which maintains that because of the threat of massive retaliation, no sane leader would start a nuclear war.

Before discussing other defects in the concept of deterrence, it must be said very clearly that the idea of "massive nuclear retaliation" is a form of genocide and is completely unacceptable from an ethical point of view. It violates not only the principles of common human decency and common sense, but also the ethical principles of every major religion.

Having said this, we can now turn to some of the other faults 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, or by terrorism. 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 "hair-trigger 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.

Incidents in which global disaster is avoided by a hair's breadth are constantly occurring.

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, will 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.

No one alive today asked to be born at a time of crisis, but history has given each of us an enormous responsibility. Of course we have our ordinary jobs, which we need to do in order to stay alive; but besides that, each of us has a second job, the duty to devote both time and effort to solving the serious problems that face civilization during the 21st century. We cannot rely on our politicians to do this for us. Many politicians are under the influence of powerful lobbies. Others are waiting for a clear expression of popular will. It is the people of the world themselves who must choose their own future and work hard to build it.

No single person can achieve the changes that we need, but together we can do it. 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 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. These institutions need to be greatly strengthened and reformed. 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. Tipping points in public opinion can occur suddenly. We can think, for example, of the Civil Rights Movement, or the rapid fall of the Berlin Wall,

or the sudden change that turned public opinion against smoking, or the sudden movement for freedom and democracy in the Arab world. A similar sudden change can occur soon regarding war and nuclear weapons.

We know that war is madness. We know that it is responsible for much of the suffering that humans experience. We know that war pollutes our planet and that the almost unimaginable sums wasted on war prevent the happiness and prosperity of mankind. We know that nuclear weapons are insane, and that the precariously balanced deterrence system can break down at any time through human error or computer errors or through terrorist actions, and that it definitely will break down within our lifetimes unless we abolish it. We know that nuclear war threatens to destroy civilization and much of the biosphere.

The logic is there. We must translate into popular action which will put an end to the undemocratic, money-driven, power-lust-driven war machine. The peoples of the world must say very clearly that nuclear weapons are an absolute evil; that their possession does not increase anyone's security; that their continued existence is a threat to the life of every person on the planet; and that these genocidal and potentially omnicidal weapons have no place in a civilized society.

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 humankind. We must embrace all other humans as our brothers and sisters. More than that, we must feel that all of nature is part of the same sacred family; meadow flowers, blowing winds, rocks, trees, birds, animals, and other humans, all these are our brothers and sisters, deserving our care and protection. Only in this way can we survive together. Only in this way can we build a happy future.

"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.

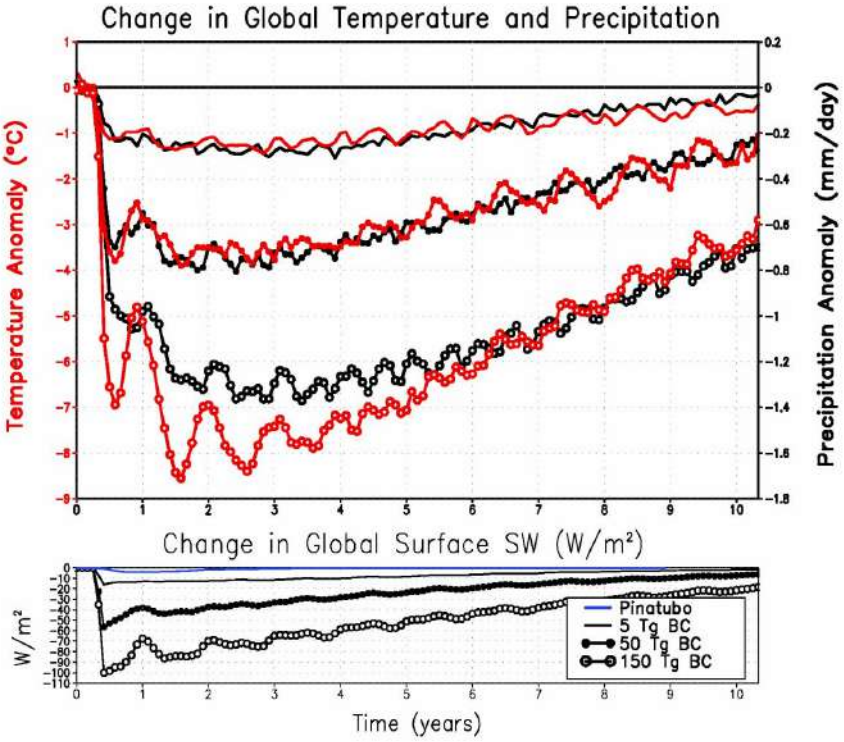


Figure 2.14: *Recent studies by atmospheric scientists have shown that the smoke from burning cities produced by even a limited nuclear war would have a devastating effect on global agriculture. The studies show that the smoke would rise to the stratosphere, where it would spread globally and remain for a decade, blocking sunlight and destroying the ozone layer. Because of the devastating effect on global agriculture, darkness from even a small nuclear war (e.g. between India and Pakistan) would result in an estimated billion deaths from famine.* (O. Toon, A. Robock and R. Turco, "The Environmental Consequences of Nuclear War", Physics Today, vol. 61, No. 12, 2008, p. 37-42)

On November 3, 2003, Mohamed ElBaradei, Director General of the International Atomic Energy Agency, made a speech to the United Nations in which he called for "limiting the processing of weapons-usable material (separated plutonium and high enriched uranium) in civilian nuclear programmes - as well as the production of new material through reprocessing and enrichment - by agreeing to restrict these operations to facilities exclusively under international control." It is almost incredible, considering the dangers of nuclear proliferation and nuclear terrorism, that such restrictions were not imposed long ago. Nuclear reactors used for "peaceful" purposes unfortunately also generate fissionable isotopes of plutonium, neptunium and americium. Thus all nuclear reactors must be regarded as ambiguous in function, and all must be put under strict international control. One might ask, in fact, whether globally widespread use of nuclear energy is worth the danger that it entails.

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 subcritical 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.

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

2.15 Nuclear weapons are criminal! Every war is a crime!

War was always madness, always immoral, always the cause of unspeakable suffering, economic waste and widespread destruction, and always a source of poverty, hate, barbarism and endless cycles of revenge and counter-revenge. It has always been a crime for soldiers to kill people, just as it is a crime for murderers in civil society to kill people. No flag has ever been wide enough to cover up atrocities.

But today, the development of all-destroying modern weapons has put war completely beyond the bounds of sanity and elementary humanity.

Can we not rid ourselves of both nuclear weapons and the institution of war itself? We must act quickly and resolutely before our beautiful world and everything that we love are reduced to radioactive ashes.

Suggestions for further reading

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Chapter 3

WARS OF THE UNITED STATES

3.1 McNamara's Evil Lives On

Here are some quotations from an article by Robert Sheer entitled *McNamara's Evil Lives On*, published in The Nation on July 8, 2008.[1]

Why not speak ill of the dead?

Robert McNamara, who died this week, was a complex man - charming even, in a blustery way, and someone I found quite thoughtful when I interviewed him. In the third act of his life he was often an advocate for enlightened positions on world poverty and the dangers of the nuclear arms race. But whatever his better nature, it was the stark evil he perpetrated as secretary of defense that must indelibly frame our memory of him.

To not speak out fully because of respect for the deceased would be to mock the memory of the millions of innocent people McNamara caused to be maimed and killed in a war that he later freely admitted never made any sense. Much has been made of the fact that he recanted his support for the war, but that came 20 years after the holocaust he visited upon Vietnam was over.

Is holocaust too emotionally charged a word? How many millions of dead innocent civilians does it take to qualify labels like holocaust, genocide or terrorism? How many of the limbless victims of his fragmentation bombs and land mines whom I saw in Vietnam during and after the war? Or are America's leaders always to be exempted from such questions? Perhaps if McNamara had been held legally accountable for his actions, the architects of the Iraq debacle might have paused.

Instead, McNamara was honored with the Medal of Freedom by President Lyndon Johnson, to whom he had written a private memo nine months earlier offering this assessment of their Vietnam carnage: 'The picture of the world's greatest superpower killing or seriously injuring 1,000 noncombatants a week,

[1] https://www.thenation.com/article/archive/mcnamaras-evil-lives/

while trying to pound a tiny backward nation into submission on an issue whose merits are hotly disputed, is not a pretty one.'

He knew it then, and, give him this, the dimensions of that horror never left him. When I interviewed him for the Los Angeles Times in 1995, after the publication of his confessional memoir, his assessment of the madness he had unleashed was all too clear:

'Look, we dropped three to four times the tonnage on that tiny little area as were dropped by the Allies in all of the theaters in World War II over a period of five years. It was unbelievable. We killed - there were killed - 3,200,000 Vietnamese, excluding the South Vietnamese military. My God! The killing, the tonnage - it was fantastic. The problem was that we were trying to do something that was militarily impossible - we were trying to break the will; I don't think we can break the will by bombing short of genocide.'

We - no, he - couldn't break their will because their fight was for national independence. They had defeated the French and would defeat the Americans who took over when French colonialists gave up the ghost. The war was a lie from the first. It never had anything to do with the freedom of the Vietnamese (we installed one tyrant after another in power), but instead had to do with our irrational cold war obsession with 'international communism.' Irrational, as President Richard Nixon acknowledged when he embraced detente with the Soviet communists, toasted China's fierce communist Mao Tse-tung and then escalated the war against 'communist' Vietnam and neutral Cambodia.

It was always a lie and our leaders knew it, but that did not give them pause. Both Johnson and Nixon make it quite clear on their White House tapes that the mindless killing, McNamara's infamous body count, was about domestic politics and never security.

The lies are clearly revealed in the Pentagon Papers study that McNamara commissioned, but they were made public only through the bravery of Daniel Ellsberg. Yet when Ellsberg, a former Marine who had worked for McNamara in the Pentagon, was in the docket facing the full wrath of Nixon's Justice Department, McNamara would lift not a finger in his defense. Worse, as Ellsberg reminded me this week, McNamara threatened that if subpoenaed to testify at the trial by Ellsberg's defense team, 'I would hurt your client badly.'

Not as badly as those he killed or severely wounded. Not as badly as the almost 59,000 American soldiers killed and the many more horribly hurt. One of them was the writer and activist Ron Kovic, who as a kid from Long Island was seduced by McNamara's lies into volunteering for two tours in Vietnam. Eventually, struggling with his mostly paralyzed body, he spoke out against the war in the hope that others would not have to suffer as he did (and still does). Meanwhile, McNamara maintained his golden silence, even as Richard Nixon managed to kill and maim millions more. What McNamara did was evil - deeply so.

3.2 The Pentagon Papers

Wikipedia states that:

The Pentagon Papers, officially titled *Report of the Office of the Secretary of Defense Vietnam Task Force*, is a United States Department of Defense history of the United States' political and military involvement in Vietnam from 1945 to 1967. The papers were released by Daniel Ellsberg, who had worked on the study; they were first brought to the attention of the public on the front page of The New York Times in 1971.A 1996 article in The New York Times said that the Pentagon Papers had demonstrated, among other things, that the Johnson Administration 'systematically lied, not only to the public but also to Congress.'

More specifically, the papers revealed that the U.S. had secretly enlarged the scope of its actions in the Vietnam War with the bombings of nearby Cambodia and Laos, coastal raids on North Vietnam, as well as Marine Corps attacks, none of which were reported in the mainstream media. For his disclosure of the Pentagon Papers, Ellsberg was initially charged with conspiracy, espionage, and theft of government property, but the charges were later dismissed after prosecutors investigating the Watergate scandal discovered that the staff members in the Nixon White House had ordered the so-called White House Plumbers to engage in unlawful efforts to discredit Ellsberg...

To ensure the possibility of public debate about the papers' content, on June 29, US Senator Mike Gravel, an Alaska Democrat, entered 4,100 pages of the papers into the record of his Subcommittee on Public Buildings and Grounds. These portions of the papers, which were edited for Gravel by Howard Zinn and Noam Chomsky, were subsequently published by Beacon Press, the publishing arm of the Unitarian Universalist Association of Congregations. A federal grand jury was subsequently empaneled to investigate possible violations of federal law in the release of the report. Leonard Rodberg, a Gravel aide, was subpoenaed to testify about his role in obtaining and arranging for publication of the Pentagon Papers. Gravel asked the court (in Gravel v. United States) to quash the subpoena on the basis of the Speech or Debate Clause in Article I, Section 6 of the United States Constitution.

Daniel Ellsberg believed that when U.S. citizens discovered that the Vietnam War was based on lies, the war would end. However, it continued for many more years.

Figure 3.1: **Victems of the Mai Lai Massacre.**

Figure 3.2: **Napalm burn victims during the war being treated at the 67th Combat Support Hospital. 1967-1968 Innocent children become burn victims in the Vietnam War.**

Figure 3.3: **Frightened children flee from an air attack in Vietnam.**

3.3 Effects of Agent Orange

Wikipedia states that:

"Up to four million people in Vietnam were exposed to the defoliant. The government of Vietnam says as many as three million people have suffered illness because of Agent Orange,[4] and the Red Cross of Vietnam estimates that up to one million people are disabled or have health problems as a result of Agent Orange contamination.The United States government has described these figures as unreliable, while documenting higher cases of leukemia, Hodgkin's lymphoma, and various kinds of cancer in exposed US military veterans. An epidemiological study done by the Centers for Disease Control and Prevention showed that there was an increase in the rate of birth defects of the children of military personnel as a result of Agent Orange. Agent Orange has also caused enormous environmental damage in Vietnam. Over 3,100,000 hectares (31,000 km2 or 11,969 mi2) of forest were defoliated. Defoliants eroded tree cover and seedling forest stock, making reforestation difficult in numerous areas. Animal species diversity sharply reduced in contrast with unsprayed areas."

Figure 3.4: **Nguyen Xuan Minh lies in a crib at the Tu Du Hospital May 2, 2005 in Ho Chi Minh City, Vietnam.**

Figure 3.5: **A disabled and malformed victim of foliant Agent Orange, begs on the streets of Saigon to make a living, 1996.**

3.4 Bombing of Cambodia and Laos

According to an article by Jessica Pearce Rotondi entitled *Why Laos Has Been Bombed More Than Any Other Country*[2],

"The U.S. bombing of Laos (1964-1973) was part of a covert attempt by the CIA to wrest power from the communist Pathet Lao, a group allied with North Vietnam and the Soviet Union during the Vietnam War.

"The officially neutral country became a battleground in the Cold War between the United States and Soviet Union, with American bombers dropping over two million tons of cluster bombs over Laos - more than all the bombs dropped during WWII combined. Today, Laos is the most heavily bombed nation in history. Here are facts about the so-called secret war in Laos.

"Laos is a landlocked country bordered by China and Myanmar to the North, Vietnam to the East, Cambodia to the South and Thailand and the Mekong River to the West.

"Its proximity to Mao Zedong's China made it critical to Dwight D. Eisenhower's Domino Theory of keeping communism at bay. 'If Laos were lost, the rest of Southeast Asia would follow,' Eisenhower told his National Security Council. On the day of his farewell address in 1961, President Eisenhower approved the CIA's training of anti-communist forces in the mountains of Laos. Their mission: To disrupt communist supply routes across the Ho Chi Minh Trail to Vietnam.

"Eisenhower's successors in the White House: John F. Kennedy, Lyndon B. Johnson and Richard Nixon, all approved escalating air support for the guerrilla fighters, but not publicly. The 1962 International Agreement on the Neutrality of Laos, signed by China, the Soviet Union, Vietnam, the United States and 10 other countries, forbid signers from directly invading Laos or establishing military bases there. The secret war in Laos had begun...

"In Laos, the legacy of U.S. bombs continues to wreak havoc. Since 1964, more than 50,000 Lao have been killed or injured by U.S. bombs, 98 percent of them civilians. An estimated 30 percent of the bombs dropped on Laos failed to explode upon impact, and in the years since the bombing ended, 20,000 people have been killed or maimed by the estimated 80 million bombs left behind."

By 1975, one tenth of the population of Laos had been killed by the bombs, and a quarter of the population were refugees.

[2]https://www.history.com/news/laos-most-bombed-country-vietnam-war

Cambodia

Here are some quotations from an article by Maximilian Wechsler entitled *America's 'Secret War' and the Bombing of Southeast Asia*[3]:

"On March 18, 1969, USAF Strategic Air Command (SAC) B-52 bombers began carpet bombing Cambodia on the order of President Nixon. The overall covert operation was code-named 'Operation Menu', with various phases named 'Breakfast', 'Lunch', 'Dinner', 'Snack', 'Supper' and 'Dessert'.

"President Nixon ordered the campaign without consulting Congress and even kept it secret from top military officials. Five members of Congress were informed several months after the start of Operation Menu, but it was kept secret from the American people until The New York Times broke the story in May 1969. Henry Kissinger, President Nixon's National Security Adviser, was reportedly outraged over the leaked information in the story and ordered the FBI to wiretap the phones of top White House aides and reporters to find the source.

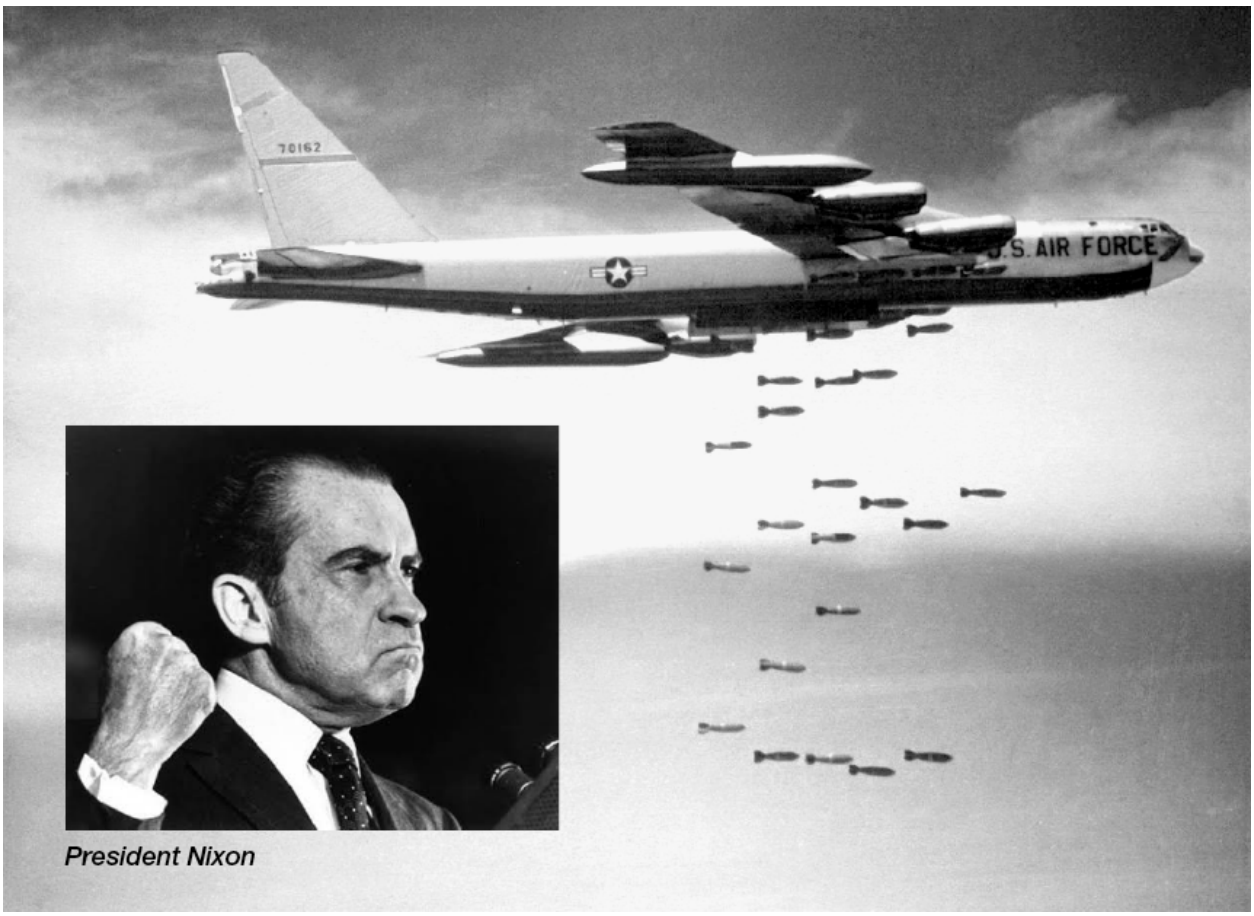
"More reports of the secret bombing campaign surfaced in the press and records of Congressional proceedings, but it was not until 2000 that official the USAF records of US bombing activity over Indochina from 1964 to 1973 were declassified by President Bill Clinton.

"Some sources say that during the first phase of the bombings lasting until April 1970, 'Operation Breakfast', the SAC conducted 3,630 sorties and dropped 110,000 tons of bombs and that in the entire four-year campaign the US dropped about 540,000 tons of bombs. In the book Bombs Over Cambodia, historians Ben Kiernan and Taylor Owen state that, based on their analysis of the declassified documents, 2,756,941 tons of ordnance was dropped during Operation Menu, more than the US dropped on Japan during World War II.

"The authors also say that US planes flew 230,516 sorties over 113,716 sites. Estimates of casualties vary widely as well, but it is believed that somewhere between 100,000 and 600,000 civilians died in the bombing and two million became homeless. Some sources say that hundreds of thousands more Cambodians died from the effects of displacement, illness or starvation as a direct result of the bombings.

"The carpet bombing of Cambodia lasted until August 1973. It devastated the countryside and the chaos and upheaval it unleashed played a big part in the installation of the genocidal Khmer Rouge regime led by Pol Pot. The Khmer Rouge was responsible for the deaths of up to two million Cambodians through executions, forced labour and starvation."

[3]https://www.thebigchilli.com/feature-stories/americas-secret-war-and-the-bombing-of-southeast-asia



President Nixon

3.5 Perpetual war

The military-industrial complex needs enemies. Without them it would wither. Thus at the end of the Second World War, this vast power complex was faced with a crisis, but it was saved by the discovery of a new enemy: communism. However, at the end of the Cold War there was another terrible crisis for the military establishment, the arms manufacturers and their supporters in research, government and the mass media. People spoke of the "peace dividend", i.e., constructive use of the trillion dollars that the world wastes each year on armaments. However, just in time, the military-industrial complex was saved from the nightmare of the "peace dividend" by the September 11 attacks on New York and Washington.

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

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

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

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

The collapse of Building 7 (which was not hit by any aircraft) is particularly suspicious. Larry Silverstein, the leaseholder of the World Trade Center, said shortly afterwards in a PBS interview: "I remember getting a call from the fire department commander telling me that they were not sure that they would be able to contain the fire..." (and he said that) "I think that the smartest thing to do is to pull it." The phrase "pull it" is one used to speak of controlled demolition, and the subsequent free-falling collapse of Building 7 had all the earmarks of this process.

Architects and Engineers for 9/11 Truth, an organization of more than a thousand accredited architects and engineers, have produced a two hour documentary film pointing to evidence that the collapse of the World Trade Center buildings was due to explosive charges of thermite rather than to fire or the impact of airplanes [4]

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

3.6 Are we being driven like cattle?

As we stand in line for security checks at airports, we may have the distinct feeling that we are being herded like cattle. Air travel has changed, and has become much less pleasant, since the fear of terrorism replaced the fear of communism as the excuse that governments give for diverting colossal sums of money from desperately needed social goals into the bottomless pit of war. Innocent grandmothers, and their grandchildren, are required to remove their shoes and belts. Everyone is treated like a criminal. It is a humiliating experience. We may well feel like dumb driven cattle; and the purpose of the charade is not so much to prevent airliners from being sabotaged as it is to keep the idea of terrorism fresh in our minds.

Is the threat of terrorism real? Or is it like the barking of a dog driving a herd? The threat of climate change is very real indeed. The threat to future global food security is real too. Already 11 million children die every year from malnutrition and poverty-related causes. The threat to human civilization and the biosphere posed by a possible Third World War is real. The threat of exhaustion of non-renewable resources and economic collapse is real. The dangers associated with our unstable fractional reserve banking system are also real. Beside these all too real threats to our future, the threat of terrorism is negligible.

Millions starve. Millions die yearly from preventable diseases. Millions die as a consequence of wars. Compared with these numbers, the total count of terrorist victims is vanishingly small. It is even invisible compared with the number of people killed yearly in automobile accidents.

Terrorism is an invented threat. Our military industrial complex invented it to take the place of the threat of communism after the end of the Cold War. They invented it so that they would be able to continue spending 1,700,000,000,000 dollars each year on armaments, an amount almost too large to be imagined.

So the people, the driven cattle, have been made to fear terrorism. How was this done? It was easy after 9/11. Could it be that the purpose of the 9/11 disaster was to make people fear terrorism, so that they could be more easily manipulated, more easily deprived of their civil rights, more easily driven into a war against Iraq? There is strong evidence that many highly placed governmental figures knew well in advanced that the World Trade Center would be attacked, and that they made the disaster much worse than it otherwise

[4] https://topdocumentaryfilms.com/911-explosive-evidence-experts-speak-out/

Figure 3.6: **Passengers waiting to be examined before boarding their flights.**

Figure 3.7: **Are we being driven like cattle? Is the true purpose of excessive security checks to make people believe that terrorism is a major danger?**

Figure 3.8: **Building 7 was not hit by any airplane. Suddenly, six hours after the collapse twin towers, it collapsed in what experts have testified to be a classic example of controlled demolition.**

would have been. This evidence is available on the Internet. [5]

[5]http://www.transcend.org/tms/2013/12/911-explosive-evidence-experts-speak-out/
https://www.youtube.com/watch?v=7OE3Adu4l0g
http://www.youtube.com/watch?v=e-wXcJA-et0

Figure 3.9: **Molten steel pouring from one of the twin towers before its collapse.**

Figure 3.10: **The heat of an ordinary fire is far below the temperature needed to melt steel.**

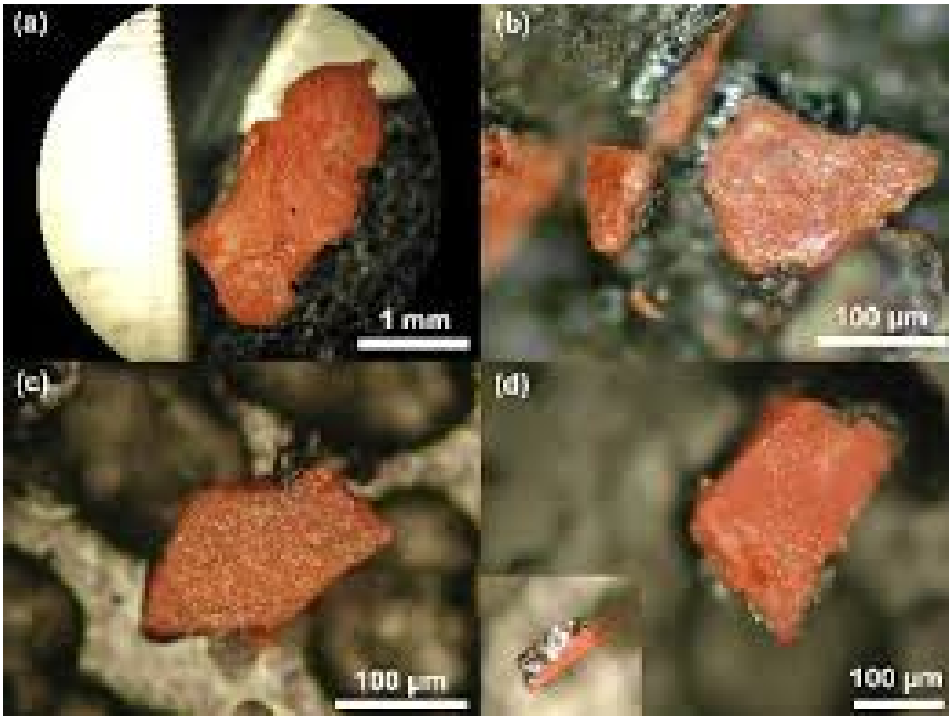


Figure 3.11: **Many samples of dust were collected after the collapse of the World Trade Center buildings. In all of these samples, traces of nanothermite were found. Nanothermite is compound that produces intense heat when it is burned, and it can be used for melting steel.**

3.7 Media exaggeration of attacks in Paris

For more than a week after the terrorist attacks in Paris on 13 November, 2015, every television news program of any kind was completely dominated by non-stop day-and-night coverage of the "breaking news". The attacks, in which 130 people were killed and 80-99 seriously injured, were presented by our mass media with such a concentration of hysteria that they blotted out every other type of news from the public consciousness. The rather small number of people killed or injured by the attackers did not seem to matter. Our corporate-controlled mass media succeeded in robbing us of our sense of proportion.

With the extremely important Climate Conference COP21 starting in the same city, Paris, on 30 November, we urgently need to regain our lost sense of proportion. Is terrorism a great danger to human civilization and the biosphere? Or is it something very small, that has been blow up to a completely disproportionate size by our perfidious mass media in order to sell wars, sell weapons, to undermine civil liberties, and to disenfranchise ordinary citizens?

Comparing terrorism with other risks

What are the real dangers? What is their comparative size, in terms of numbers of people involved? Science is unanimous in telling us that out-of-control climate change, thermonuclear war, and large-scale famine are the real threats.

Consider what would happen if the change from fossil fuels to 100% renewable energy is not completed within a few decades: We know from the geological record that there have been 5 mass extinction events during each of which more that half of all living organisms became extinct. The largest of these was the Permian-Triassic event, during which 96% of all marine species became extinct, together with 70% of all terrestrial vertebrates.

If we do not quickly shift from fossil fuels to renewable energy, we will be in danger of passing a tipping point, beyond which human efforts to control climate change will be useless because feed-back loops such as the albedo effect and the methane-hydrate feedback loop will have taken over. If we do not act quickly and globally to change from fossil fuels to renewable energy, there is a danger of a human-caused 6th mass extinction. The human species might survive such an event by moving to polar or high mountainous regions, but the global population would then be measured in millions rather than in billions. The family trees of most humans living today would die out. Added to this tragedy, would be the tragic loss of most of the animal and plant species which we value today and strive to protect.

Is a shift from fossil fuels to 100% renewable energy possible? Such a shift must come within a century or so because of the exhaustion of coal, oil and gas resources. However, it is vitally important that the change should come quickly, within a very few decades, to avoid a tipping point beyond which climate change would become uncontrollable. Hope that this energy revolution is indeed technically possible comes especially from the current extremely high rates of growth of wind and solar power. If these growth rates are maintained, the transition to renewable energy can be accomplished within two decades.

It is important that the governmental subsidies that are currently paid to fossil fuel corporations should be discussed at COP21. In 2011, these subsidies amounted to more than $500 billion globally, compared with only $88 billion given to support renewable energy initiatives. These proportions must be reversed. In fact, subsidies to fossil fuel corporations ought to be abolished entirely. Given a more level playing field, renewable energy can win simply by being cheaper than fossil fuels.

Let us turn next to the danger of thermonuclear war. Unless nuclear weapons are completely abolished, there will be a continual danger that a catastrophic war of this type may occur by accident or miscalculation. In any given year, this danger is finite, but over a long period of time, the chance that a disaster will not occur becomes vanishingly small. Such a war would be an environmental catastrophe, affecting neutral countries as well as belligerents. Agriculture might be damaged to such an extent that the resulting global famine could involve a large fraction of the world's human population.

Finally, we must consider the threat of a global famine partly due to climate change, but also due to explosively growing human populations and the end of fossil fuels, on which modern high-yield agriculture depends.

3.8 Driven towards war by fake threats

Are we being driven like cattle into another war, by another fake threat? Is Iran really a threat? It is a country which has not attacked any of its neighbors for a century, although it has frequently itself been attacked. Israel has 300 nuclear weapons, and the US has many thousands, yet they claim that Iran's civilian nuclear program is a threat. Is it a real threat, or are we being driven, like cattle, by a false threat.

The precipice towards which we are being driven is very dangerous indeed. There is a real danger that a military attack on Iran could escalate uncontrollably into World War III. As we approach the 100th anniversary of the start of World War I, we should remember that this catastrophic conflagration was started as a limited operation by Austria to punish the Serbian nationalists, but it escalated uncontrollably.

The Middle East is already a deeply troubled region, and it is a region in which the US and Israel cannot be said to be universally popular. Might not an attack on Iran initiate a revolution in Pakistan, thus throwing Pakistan's nuclear weapons into the conflict on the side of Iran? Furthermore, both China and Russia are staunch allies of Iran. Perhaps they would be drawn into the war. At the very least, China would certainly do economic damage to the US by means of its large dollar holdings. Furthermore, much of the world's supply of oil flows through the Straits Hormuz. A conflict in the region would probably stop this flow and send petroleum prices through the roof. The economic consequences would be disastrous.

Let us stop being driven like cattle by invented threats. Let us instead look at the very real dangers that threaten human civilization, and do our utmost to avoid them.

3.9 The role of the media

Throughout history, art was commissioned by rulers to communicate, and exaggerate, their power, glory, absolute rightness etc, to the populace. The pyramids gave visual support to the power of the Pharaoh; portraits of rulers are a traditional form of propaganda supporting monarchies; and palaces were built as symbols of power.

Modern powerholders are also aware of the importance of propaganda. Thus the media are a battleground where reformers struggle for attention, but are defeated with great regularity by the wealth and power of the establishment. This is a tragedy because today there is an urgent need to make public opinion aware of the serious problems facing civilization, and the steps that are needed to solve these problems. The mass media could potentially be a great force for public education, but often their role is not only unhelpful - it is negative.

It is certainly possible to find a few television programs and newspaper articles that present the facts about climate change in a realistic way. For example *The Guardian* gives outstanding climate change coverage. However, the mass media could do very much more. One has to conclude that the media are neglecting their great responsibilities at a time of acute crisis for human civilization and the biosphere. The same can be said of our educational systems at both both the primary and advanced levels. We urgently need much more public education about the severe dangers that we face today.

3.10 Television as a part of our educational system

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 education 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 acutely 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.

3.11 The mass media have failed us

The predicament of humanity today has been called "a race between education and catastrophe": How do the media fulfil this life-or-death responsibility? Do they give us insight? No, they give us pop music. Do they give us an understanding of the sweep of evolution and history? No, they give us sport. Do they give us an understanding of the ecological catastrophes that threaten our planet because of unrestricted growth of population and industries? No, they give us sit-coms and soap operas. Do they give us unbiased news? No, they give us news that has been edited to conform with the interests of powerful lobbys. Do they present us with the urgent need to leave fossil fuels in the ground? No, they do not, because this would offend the powerholders. Do they tell of the danger of passing tipping points after which human efforts to prevent catastrophic climate change will be useless? No, they give us programs about gardening and making food.

A consumer who subscribes to the "package" of broadcasts sold by a cable company can often search through all 95 channels without finding a single program that offers insight into the various problems that are facing the world today. What the viewer finds instead is a mixture of pro-establishment propaganda and entertainment. Meanwhile the neglected global problems are becoming progressively more severe.

In general, the mass media behave as though their role is to prevent the peoples of the world from joining hands and working to change the world and to save it from thermonuclear war, environmental catastrophes and threatened global famine. The television viewer sits slumped in a chair, passive, isolated, disempowered and stupefied. The future of the world hangs in the balance, the fate of children and grandchildren hangs in the balance, but the television viewer feels no impulse to work actively to change the world or to save it. The Roman emperors gave their people bread and circuses to numb them into political inactivity. The modern mass media seem to be playing a similar role.

3.12 Alternative media

Luckily, the mass media do not have a complete monopoly on public information. With a little effort, citizens who are concerned about the future can find alternative media. These include a large number of independent on-line news services that are supported by

subscriber donations rather than by corporate sponsors. *YouTube* videos also represent an extremely important source of public information. Below we discuss a few outstanding people who have made extremely important *YouTube* videos on climate change.

3.13 The War in Ukraine

The Ukraine War and Nuclear Weapons

After his illegal and brutal invasion of Ukraine, Vladimir Putin put Russia's nuclear forces on high alert, thus threatening the world with an all-destroying nuclear war. The threat brought back memories of the Cuban Missile Crisis, when the world was balanced on the edge of a suicidal and genocidal nuclear war. We are once again reminded of the urgent need for the world to rid itself of nuclear weapons.

The Danger of Nuclear War

War was always madness, always immoral, always the cause of unspeakable suffering, economic waste and widespread destruction, and always a source of poverty, hate, barbarism and endless cycles of revenge and counter-revenge. It has always been a crime for soldiers to kill people, just as it is a crime for murderers in civil society to kill people. No flag has ever been wide enough to cover up the atrocities of war.

But today, the development of all-destroying thermonuclear weapons has put war completely beyond the bounds of sanity and elementary humanity.

Today, the existing nuclear weapons have half a million times the power of the bombs that devastated Hiroshima and Nagasaki. A thermonuclear war would destroy human civilization, together with most of the plants and animals with which we share the gift of life.

Research has shown that fire-storms produced by a nuclear war would send vast quantities of smoke into the atmosphere, blocking sunlight, and blocking the hydrological cycle. The climate would become very cold for a period of about ten years. Human agriculture would fail. Plants and animals would also be killed by the nuclear winter.

Can we not rid ourselves of both nuclear weapons and the institution of war itself?

We must act quickly and resolutely before our beautiful world is reduced to radioactive ashes, together with everything that we love.

The Invasion of Ukraine cannot be called Unprovoked

To understand how Russians feel about having western weapons and troops poured into a position on their nation's borders, we should imagine how the United States would react if large numbers of Russian weapons and troops were stationed in Mexico or Canada.

In 1991, after the breakup of the Soviet Union, George H.W. Bush and his Secretary of State, James Baker, promised Mikhail Gorbachev that if he agreed to the unification of

Germany, NATO would not expand eastward, toward Russia, "not one inch". The promise was broken almost immediately by Bill Clinton, who helped to bring the Czech Republic, Hungary and Poland into NATO. Russians saw this not only as a betrayal, but also as an act of aggression.

The Monroe Doctrine

There is no document more fundamental to the foreign policy of the United States than the Monroe Doctrine. It states that interference in the Western Hemisphere by European powers would be interpreted as an attack on the United States, and would be opposed by the United States. The Monroe Doctrine has been used to justify U.S. interventions in Central America and in the Caribbean. Understandably, the United States wishes to have its backyard secure. Why should Russia not have the same wish?

The U.S. should stop threatening Russia

Because Russia's fears are legitimate and based on historical suffering, the U.S and its allies should stop threatening Russia. Nuclear missiles should be removed from positions near the Russian border, and the eastward expansion of NATO should be halted.

A Diplomatic Solution to the Conflict is the only way to end it

UN Secretary General António Guterres has urged Russia and Ukraine to negotiate an immediate cease-fire and a mutually agreeable settlement to end the conflict. However, this rational solution is opposed by politicians in the United States and elsewhere, who are influenced by money from giant arms corporations. Thus, more and more heavy weapons are sent to Ukraine, pouring oil onto the flames, and enriching the merchants of death. This must stop, and a diplomatic solution must be found under Secretary General Guterres' wise leadership.

Washington's motive: To Weaken Russia

The reason why the United States opposes a diplomatic solution to the Ukraine War, is that the aggressive Biden Administration wants to weaken Russia. Thus, instead of supporting a rational diplomatic solution, they send massive amounts of modern armaments to Ukraine, where the U.S. is fighting a proxy war against Russia.

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Chapter 4

AGAINST THE INSTITUTION OF WAR

4.1 Science and technology are double-edged

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

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

4.2 A crisis of civilization

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

In the long run, because of the enormously destructive weapons, which have been produced through the misuse of science, the survival of civilization can only be insured if

we are able to abolish the institution of war.

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

4.3 Civilians victems of war

Since the Second World War, despite the best efforts of the U. N., there have been over 150 armed conflicts; and, if civil wars are included, there are on any given day an average of 12 wars somewhere in the world. In the conflicts in Indo-China, the proportion of civilian victims was between 80% 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, which would be preventable in normal circumstances. Because of the social disruption caused by war, normal supplies of food, safe water and medicine are interrupted, so that populations become vulnerable to famine and epidemics. In the event of a catastrophic nuclear war, starvation and disease would add greatly to the loss of life caused by the direct effects of nuclear weapons.

4.4 Indirect costs of war

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

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

A new and drug-resistant form of tuberculosis has recently become widespread, and is increasing rapidly in the former Soviet Union. In order to combat this new form of tuberculosis, and in order to prevent its spread to Western Europe, WHO needs 450 mil-

Figure 4.1: **The World Health Organization could carry out its vitally important work much more effectively if it were given more money.**

lion US dollars, an amount equivalent to 4 hours of world arms spending. By using this money to combat tuberculosis in the former Soviet Union, WHO would be making a far greater contribution to global peace and stability than is made by spending the money on armaments.

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

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

4.5 War as an institution

Because the world spends 1.8 thousand billion dollars each year on armaments, it follows that very many people make their living from war. This is the reason why it is correct to speak of war as a social institution, and also the reason why war persists, although everyone realizes that it is the cause of much of the suffering that inflicts humanity. We know that war is madness, but it persists. We know that it threatens the future survival of our species, but it persists, entrenched in the attitudes of historians, newspaper editors and television producers, entrenched in the methods by which politicians finance their campaigns, and entrenched in the financial power of arms manufacturers, entrenched also in the ponderous and costly hardware of war, the fleets of warships, bombers, tanks, nuclear missiles and so

on.

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

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

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

4.6 Poverty, disease and war

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

poverty, disease and war.

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

Scandinavia was once a region that was famous for its violence. Today, war within Scandinavia would be unthinkable. This fact demonstrates the maliability of human nature. Under changed circumstances, and with changed education, people who were once extremely violent have become very peaceful. Scandinavia's low birth-rate has contributed to this transition.

4.7 International governance

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

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

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

Similarly, when India achieved independence from England, a great problem arose in the regions where Hindus and Moslems lived side by side; and even Gandhi was unable to

prevent terrible violence from taking place between the two communities. This problem is still present, and it has been made extremely dangerous by the acquisition of nuclear weapons by India and Pakistan.

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

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

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

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

Figure 4.2: **Today, the existence of all-destroying modern weapons makes war prohibitively dangerous. If human civilization is to survive, the institution of war must be abolished. This will require effective governance at the global level. The United Nations must be strengthened and given many times the amount of money that it presently has. The UN must also be given the power to make laws that are binding on individuals.**

4.8 The success of federations

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

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

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

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

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

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

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

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

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

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

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

1. "A policeman operates within a framework of organized government having legislative, executive and judicial authority operating on individuals. His actions are guided by a clearly stated criminal code that has the legislative sanction of the community. Should he abuse the authority vested in him, he is subject to discipline and court restraint."

2. "A policeman seeing a fight between two men does not attempt to determine which of them is in the right and then help him beat up the one he considers wrong. His function is to restrain violence by both, to bring them before a judge who has authority to determine the rights of the dispute, and to see that the court's decision is carried out."

3. "In carrying out his duties, the policeman must apprehend the suspected individual without jeopardizing either the property or the lives of the community where the suspect is to be arrested. And not only is the community safeguarded against destruction of property and loss of life but the rights of the suspect are also carefully protected by an elaborate network of judicial safeguards."

Edith Wynner also discusses the original union of the thirteen American colonies, which was a confederation, analogous to the present United Nations. This confederation was found to be too weak, and after eleven years it was replaced by a federation, one of whose key powers was the power to make and enforce laws which acted on individuals. George Mason, one of the architects of the federal constitution of the United States, believed that "such a government was necessary as could directly operate on individuals, and would

punish those only whose guilt required it", while James Madison (another drafter of the U. S. federal constitution) remarked that the more he reflected on the use of force, the more he doubted "the practicability, the justice and the efficacy of it when applied to people collectively, and not individually". Finally, Alexander Hamilton, in his "Federalist Papers", discussed the confederation with the following words: "To coerce the states is one of the maddest projects that was ever devised... Can any reasonable man be well disposed towards a government, which makes war and carnage the only means of supporting itself - a government that can exist only by the sword? Every such war must involve the innocent with the guilty. This single consideration should be enough to dispose every peaceable citizen against such a government... What is the cure for this great evil? Nothing, but to enable the... laws to operate on individuals, in the same manner as those of states do."

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

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

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

Figure 4.3: **This painting shows a debate during the drafting of the Constitution of the United States. After achieving independence from England, the 13 former colonies became a confederation. However, this proved to be too weak, and in 1788, a federal constitution was ratified. Under the Federal Constitution of the United States, Congress has the power to make laws that are binding on individuals. This is th most important power of federations, and the reason why they are so successful.**

4.9 A new global ethic

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

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

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

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

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

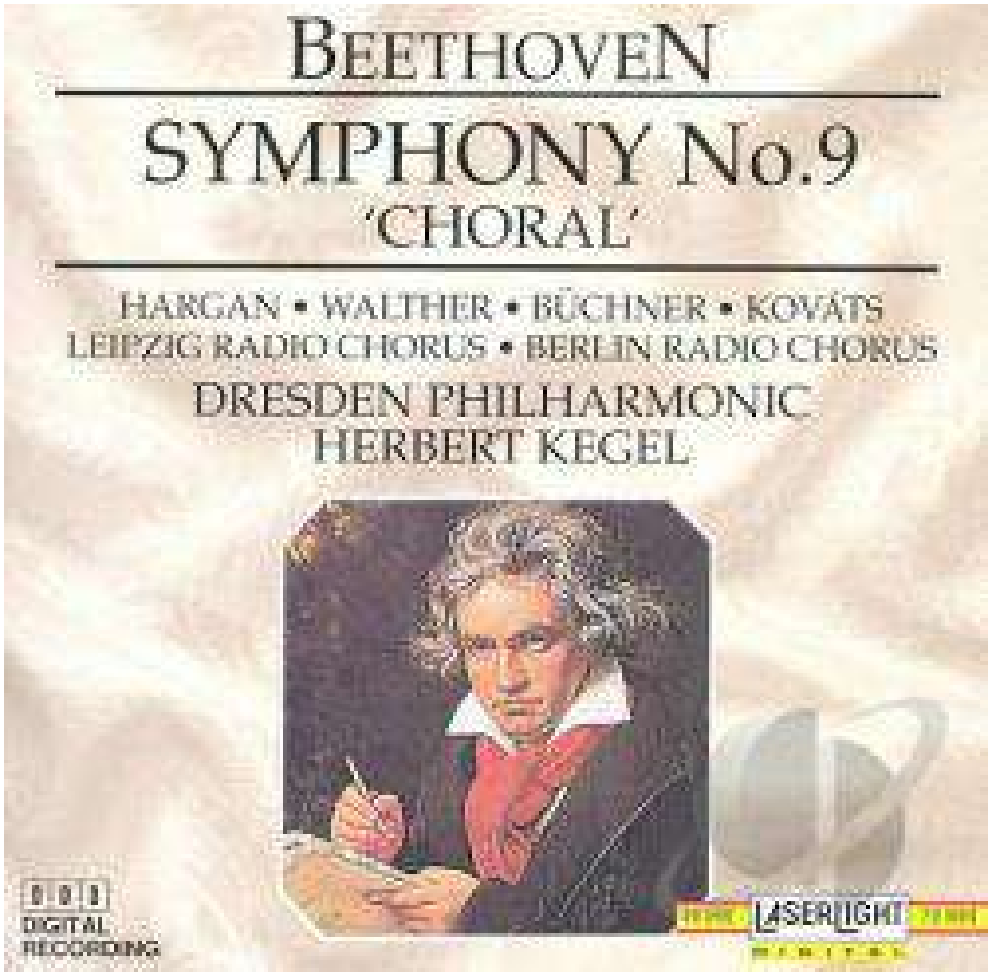

Figure 4.4: **Beethoven's 9th symphony is almost a national anthem of humanity, All people belong to a great family. Not just some. ALL!.**

4.10 Love your enemies

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

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

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

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

As everyone knows, Gandhi successfully applied the principle of non-violence to the civil rights struggle in South Africa, and later to the political movement, which gave India its freedom and independence. The principle of non-violence was also successfully applied by Martin Luther King, and by Nelson Mandela. It is perhaps worthwhile to consider Gandhi's comment on the question of whether the end justifies the means: "The means may be likened to a seed", Gandhi wrote, "and the end to a tree; and there is the same

Figure 4.5: **Count Leo Tolstoy said "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."**

inviolable connection between the means and the end as there is between the seed and the tree." In other words, a dirty method produces a dirty result; killing produces more killing; hate leads to more hate. Everyone who reads the newspapers knows that this is true. But there are positive feedback loops as well as negative ones. A kind act produces a kind response; a generous gesture is returned; hospitality results in reflected hospitality. Buddhists call this principle of reciprocity "the law of karma".

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

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

Today we look with horror at drawings of slave ships, where human beings were packed together like cord-wood; and we are amazed that such cruelty could have been possible. Can we not hope for a time when our descendants, reading descriptions of the wars of the twentieth century, will be equally amazed that such cruelty could have been possible? If we use them constructively, the vast resources now wasted on war can initiate a new era of happiness and prosperity for the family of man. It is within our power to let this happen. The example of the men and women who worked to rid the world of slavery can give us courage as we strive for a time when war will exist only as a dark memory fading into the past.

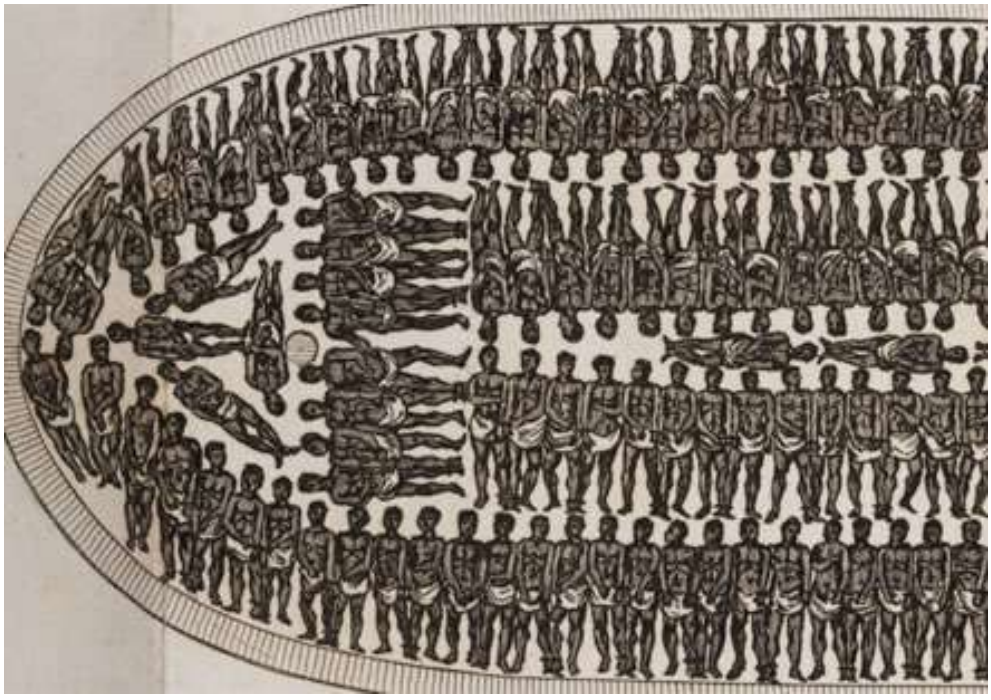

Figure 4.6: **Diagram of a slave shop. We can hope and work for a time when war, like slavery, will exist only as a dark memory, fading into the past.**

Suggestions for further reading

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Chapter 5

EDUCATION FOR PEACE, NOT NATIONALISM

5.1 Traditional school systems aim at indoctrination in nationalism

School systems have traditionally aimed at producing nationalism in their students. Within the Roman Empire, students were taught the motto "Dulce et decorum est pro patria mori" (It is sweet and noble to die for one's country). In the era when the sun never set on the British Empire, schoolboys in England were taught the same motto, and the Roman Empire was held up as an ideal. One said the "The battle of Waterloo was won on the playing fields of Eton".

If the reader will excuse a personal note, I can remember attending elementary schools in the United States where every morning we pledged allegiance to the US flag. With hands on our hearts, we students repeated "I pledge allegiance to the flag of the United States of America, and to the Republic for which it stands - one nation, indivisible, with liberty and justice for all." I believe that with small changes in wording, this ceremony is repeated every day today in all American schools.

I can also remember, later on, my great surprise in learning that many of the wars conducted by the United States have been aggressive and unjust. There had been no hint of that in the history lessons of US schools. I believe that the situation is the same in every country. History lessons are an indoctrination in nationalism. In history, as it is taught, one's own country is always heroic and in the right.

Today, in an era of instantaneous communication, global economic and cultural interdependence, and all-destroying modern weapons, the absolutely sovereign nation-state has become a dangerous anachronism. Blind nationalism too, has become a dangerous anachronism. Therefore we need to reform our school systems, but the process of making the needed changes is slowed the habits of teachers and administrators, and by shelves full of nationalistic history books.

5.2 The urgent need for peace education

Since modern war has become prohibitively dangerous, there is an urgent need for peace education. Why do we pay colossal sums for war, which we know is the source of so much human suffering, and which threatens to destroy human civilization? Why not instead support peace and peace education?

In this section, we will see that many groups and individuals are already working for this goal. With even a little more support, they would be much more effective.

5.3 The growth of global consciousness

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

5.4 Reformed teaching of history

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

accomplished. 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.

5.5 Reformed education of economists and businessmen

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.

The economic impact of war and preparation for war should be included in the training of economists. Both direct and indirect costs should be studied. An example of an indirect cost of war is the effect of unimaginably enormous military budgets in reducing the amount of money available for solving the serious problems facing the world today.

5.6 Law for a united world

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 Nuremberg Principles. They should study the United Nations Charter (especially the articles making war illegal) and the Universal Declaration of Human Rights, as well as the Rome Treaty and the foundation 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.

[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 boundaries, 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.

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.

5.7 Teaching global ethics

Professors of theology should emphasize three absolutely central components 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 boundaries between ethnic groups, to contribute to interreligious understanding, and to make marriage across racial and religious boundaries more easy and frequent.

5.8 The social responsibility of scientists

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 environment.

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; but in connection with modern historical developments such as the industrial revolution, the global population explosion, the development of nuclear weapons, genetic engineering, and information technology, some discussion of social impact of science 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 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 revisions at the university level.

5.9 Large nations compared with global government

The problem of achieving internal peace over a large geographical area is not insoluble. It has already been solved. There exist today many nations or regions within each of which there is internal peace, and some of these are so large that they are almost worlds in themselves. One thinks of China, India, Brazil, Australia, the Russian Federation, the United States, and the European Union. Many of these enormous societies contain a variety of ethnic groups, a variety of religions and a variety of languages, as well as striking contrasts between wealth and poverty. If these great land areas have been forged into peaceful and cooperative societies, cannot the same methods of government be applied globally?

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

[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.

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 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 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.

5.10 Culture, education and human solidarity

Cultural and educational activities have a small ecological footprint, and therefore are more sustainable than pollution-producing, fossil-fuel-using jobs in industry. Furthermore, since culture and knowledge are shared among all nations, work in culture and education leads societies naturally towards internationalism and peace.

Economies based on a high level of consumption of material goods are unsustainable and will have to be abandoned by a future world that renounces the use of fossil fuels in order to avoid catastrophic climate change, a world where non-renewable resources such as metals will become increasingly rare and expensive. How then can full employment be maintained?

The creation of renewable energy infrastructure will provide work for a large number of people; but in addition, sustainable economies of the future will need to shift many workers from jobs in industry to jobs in the service sector. Within the service sector, jobs in culture and education are particularly valuable because they will help to avoid the disastrous wars that are currently producing enormous human suffering and millions of refugees, wars that threaten to escalate into an all-destroying global thermonuclear war.[4]

[4]http://www.fredsakademiet.dk/library/need.pdf
http://eruditio.worldacademy.org/issue-5/article/urgent-need-renewable-energy

Figure 5.1: **Cultural exchanges lead to human solidarity** (Public domain)

Human nature has two sides: It has a dark side, to which nationalism and militarism appeal; but our species also has a genius for cooperation, which we can see in the growth of culture. Our modern civilization has been built up by means of a worldwide exchange of ideas and inventions. It 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, chilli peppers, and quinine are gifts from the American Indians.[5]

We need to reform our educational systems, particularly the teaching of history. As it is taught today, history is a chronicle of power struggles and war, told from a biased national standpoint. We are taught that 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 credit to all who have contributed. When we teach history, it should not be about power struggles. It should be about how human culture was gradually built up over thousands of years by the patient work of millions of hands and minds. Our common global culture, the music, science, literature and art that all of us share, should be presented as a precious heritage - far too precious to be risked in a thermonuclear war.

We have to extend our loyalty to the whole of the human race, and to work for a world not only free from nuclear weapons, but free from war. A war-free world is not utopian but very practical, and not only practical but necessary. It is something that we can achieve and must achieve. Today their are large regions, such as the European Union, where war would be inconceivable. What is needed is to extend these.

Nor is a truly sustainable economic system utopian or impossible. To achieve it, we

[5]http://eruditio.worldacademy.org/article/evolution-cooperation

should begin by shifting jobs to the creation of renewable energy infrastructure, and to the fields of culture and education. By so doing we will support human solidarity and avoid the twin disasters of catastrophic war and climate change.

5.11 The Danish National Group of Pugwash Conferences

In March, 1954, the US tested a hydrogen bomb at the Bikini Atoll in the Pacific Ocean. It was 1000 times more powerful than the Hiroshima bomb. The Japanese fishing boat, Lucky Dragon, was 130 kilometers from the Bikini explosion, but radioactive fallout from the test killed one crew member and made all the others seriously ill.

Concerned about the effects of a large-scale war fought with such bombs, or even larger ones, Albert Einstein and Bertrand Russell published a manifesto containing the words: "Here then is the problem that we present to you, stark and dreadful and inescapable: Shall we put an end to the human race, or shall mankind renounce war?... There lies before us, if we choose, continual progress in happiness, knowledge and wisdom. Shall we, instead, choose death because we cannot forget our quarrels? We appeal as human beings to human beings: Remember your humanity, and forget the rest. If you can do so, the way lies open to a new Paradise; if you cannot, there lies before you the risk of universal death."

The Russell-Einstein Manifesto called for a meeting of scientists from both sides of the Cold War to try to minimize the danger of a thermonuclear conflict. The first meeting took place in 1957 at the summer home of the Canadian philanthropist Cyrus Eaton at the small village of Pugwash, Nova Scotia.

From this small beginning, a series of conferences developed, in which scientists, especially physicists, attempted to work for peace, and tried to address urgent problems related to science. These conferences were called Pugwash Conferences on Science and World Affairs, taking their name from the small village in Nova Scotia where the first meeting was held. From the start, the main aim of the meetings was to reduce the danger that civilization would be destroyed in a thermonuclear war.

Many countries have local Pugwash groups, and the Danish National Pugwash Group is one of these. Our activities include conferences at the Danish Parliament, aimed at influencing decision-makers, but other activities are aimed influencing public opinion. Peace education activities include the award of student peace prizes on United Nations Day.

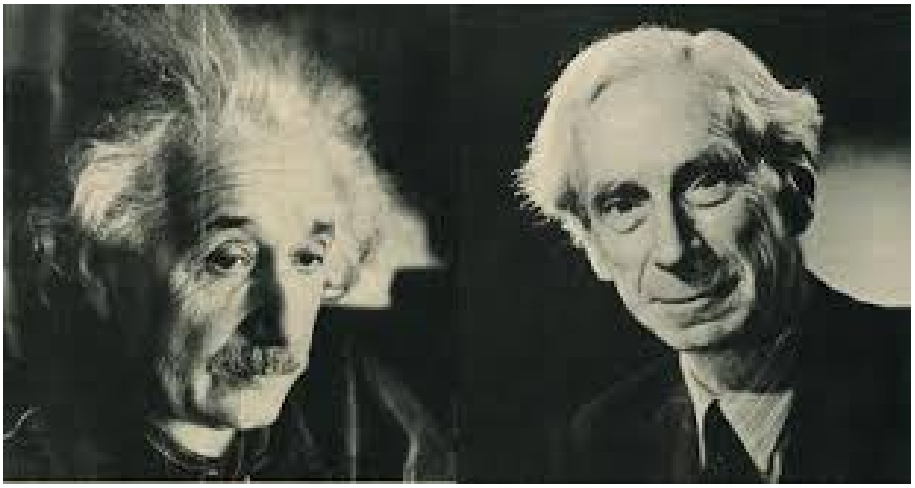

Figure 5.2: **The Russell-Einstein Manifesto: "Shall we put an end to the human race, or shall mankind renounce war?"** (Pugwash Conferences)

5.12 United Nations Day Student Peace Prizes

In collaboration with the Danish Peace Academy, and with the help of the Hermod Lannung Foundation the Danish National Group of Pugwash Conferences on Science and World Affairs has offered prizes each year to students at 10 Danish gymnasiums for projects related to global problems and their solutions and to the United Nations.

These projects are essays, dramatic sketches, videos, websites, posters, etc., and they were judged on UN Day, before large audiences of students. The background for this project is as follows: In 2007, in collaboration with several other NGO's, we arranged a visit to Copenhagen by Dr. Tadatoshi Akiba, the Mayor of Hiroshima. In connection with his visit, we arranged a Peace Education Conference at the University of Copenhagen.

In connection with Dr. Akiba's visit, we also arranged a day of peace education at Copenhagen's Open Gymnasium. About 15 people from various branches of Denmark's peace movement arrived at the gymnasium at 7.00 a.m., and between 8.00 and 10.00 they talked to 15 groups of about 25-50 students about topics related to peace. At 10.30, all 500 students assembled in a large hall, where Dr. Akiba gave an address on abolition of nuclear weapons. A chorus from the gymnasium sang, and finally there was a panel discussion.

The students were extremely enthusiastic about the whole program. The success of our 2007 effort made us want to do something similar in 2008, and perhaps to broaden the scope. Therefore we wrote to the Minister of Education, and proposed that October 24, United Nations Day, should be a theme day in all Danish schools and gymnasiums, a day devoted to the discussion of global problems and their solutions. We received the very kind reply. The Minister said that he thought our idea was a good one, but that he did not have the power to dictate the curricula to schools. We needed to contact the individual schools, gymnasiums and municipalities.

In the autumn of 2008 we arranged a United Nations Day program on October 24 at

Figure 5.3: **A painting representing the work of the United Nations. It won first prize at a UN Day Student Peace Prize competition.** (Danish National Pugwash Group)

Sankt Annæ Gymnasium with the cooperation of Nørre Gymnasium. We offered prizes to drama students at the two gymnasiums for the best peace-related dramatic sketch, a condition being that the sketches should be performed and judged before a large audience. Our judges were the famous actress Mia Luhne, Johan Olsen, the lead singer of a popular rock group, and the dramatist Steen Haakon Hansen. The students' sketches and the judges speeches about the meaning of peace were very strong and moving. Everyone was very enthusiastic about the day. The judges have said that they would be willing to work with us again on peace-related cultural events.

Our successes in 2007 and 2008 have made us wish to continue and possibly expand the idea of making United Nations Day a theme day in Danish schools and gymnasiums, a day for discussion of global problems and their solutions, with special emphasis on the role of the United Nations. The Hermod Lannung Foundation supported our project for extending this idea to 10 Danish gymnasiums from 2010 until the present.

5.13 The Grundtvigian Peoples' Colleges

A unique feature of the Danish educational system is the adult education that is available at about a hundred Folkehøjskole (Peoples' Colleges). This tradition of adult education dates back to the Danish poet-bishop N.F.S. Grundtvig (1783-1872). Besides writing more than half of the hymns presently used in Danish churches, Grundtvig also introduced farmers' cooperatives into Denmark and founded a system of adult education.

At the time when Grundtvig 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). Grundtvig realized that it would be to the advantage of small-scale Danish farmers 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. He organized the small farmers into cooperatives, and in order to give the farmers enough knowledge and confidence to run the cooperatives, Grundtvig created a system of adult education: the Peoples' Colleges. The cooperatives and the adult education system contributed strongly to making Denmark a prosperous and democratic country.

Of the hundred or so Grundtvigian Peoples' Colleges 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 government 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 by representatives of Amnesty International and the Center for Rehabilitation of Torture Victims.

In discussing Danish peace education initiatives, we must not fail to mention Holger Terp's enormous and popular Danish Peace Academy website[6]. Despite serious health problems, which include almost complete loss of vision and multiple heart bypass operations, Holger Terp singlehandedly established a unique website devoted to peace education. The Danish Peace Academy website contains more than 99,000 files in Danish, English and German. The website is visited by many thousands of students from around the world.

5.14 The World Conference of Religions for Peace

Other powerful voices for peace have been raised by the World Conference of Religions for Peace, which met for the first time in October 1970 in Kyoto, Japan.[7] At this meeting, more than 1000 religious leaders gathered to discuss the grave dangers posed by modern

[6] www.fredsakademiet.dk

[7] 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).

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, Shiite 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 of a mortal social illness rather than part of the disease - part of the answer rather than of part of the problem.

5.15 The Hiroshima Peace Committee and the last remaining hibakushas

In Japanese the survivors of injuries from the nuclear bombing of Hiroshima and Nagasaki are called "hibakushas". Over the years, the Soka Gakkai Hiroshima Peace Committee has published many books containing their testimonies. The most recent of these books, "A Silence Broken", contains the testimonies of 14 men, now all in their late 70's or in their 80's, who are among the last few remaining hibakushas. All 14 of these men have kept silent until now because of the prejudices against hibakushas in Japan, where they and their children are thought to be unsuitable as marriage partners because of the effects of radiation. But now, for various reasons, they have chosen to break their silence. Many have chosen to speak now because of the Fukushima disaster.

The testimonies of the hibakushas give a vivid picture of the hell-like horrors of the nuclear attack on the civilian population of Hiroshima, both in the short term and in the long term. For example, Shigeru Nonoyama, who was 15 at the time of the attack, says: "People crawling out from crumbled houses started to flee. We decided to escape to a safe place on the hill. We saw people with melted ears stuck to their cheeks, chins glued to

their shoulders, heads facing in awkward positions, arms stuck to bodies, five fingers joined together and grab nothing. Those were the people fleeing. Not merely a hundred or two, The whole town was in chaos."

"I saw the noodle shop's wife leg was caught under a fallen pole, and a fire was approaching. She was screaming, 'Help me!Help me!' There were no soldiers, no firefighters. I later heard that her husband had cut off his wife's leg with a hatchet to save her."

"Each and every scene was hell itself. I couldn't tell the difference between the men and the women. Everybody had scorched hair, burned hair, and terrible burns. I thought I saw a doll floating in a fire cistern, but it was a baby. A wife trapped under her fallen house was crying, 'Dear, please help me, help me!' Her husband had no choice but to leave her in tears."

5.16 The Catholic Church

An outstanding example of religious leadership in addressing global problems was given by H.H. Pope John Paul II. In his Christmas address on 25 December, 2002, the Pope said that efforts for peace were urgently needed "in the Middle East, to extinguish the ominous smouldering of a conflict which, with the joint efforts of all, can be avoided."

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 IV 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".

In his Apostolic Exhortation, "Evangelii Gaudium", Pope Francis said: "In our time humanity is experiencing a turning-point in its history, as we can see from the advances being made in so many fields. We can only praise the steps being taken to improve people's welfare in areas such as health care, education and communications. At the same time we have to remember that the majority of our contemporaries are barely living from day to day, with dire consequences. A number of diseases are spreading. The hearts of many people are gripped by fear and desperation, even in the so-called rich countries. The joy of living frequently fades, lack of respect for others and violence are on the rise, and inequality is increasingly evident. It is a struggle to live and, often, to live with precious little dignity."

"This epochal change has been set in motion by the enormous qualitative, quantitative, rapid and cumulative advances occurring in the sciences and in technology, and by their instant application in different areas of nature and of life. We are in an age of knowledge and information, which has led to new and often anonymous kinds of power."

"Just as the commandment 'Thou shalt not kill' sets a clear limit in order to safeguard the value of human life, today we also have to say 'thou shalt not' to an economy of exclusion and inequality. Such an economy kills. How can it be that it is not a news item

when an elderly homeless person dies of exposure, but it is news when the stock market loses two points? This is a case of exclusion. Can we continue to stand by when food is thrown away while people are starving? This is a case of inequality. Today everything comes under the laws of competition and the survival of the fittest, where the powerful feed upon the powerless. As a consequence, masses of people find themselves excluded and marginalized: without work, without possibilities, without any means of escape."

"In this context, some people continue to defend trickle-down theories which assume that economic growth, encouraged by a free market, will inevitably succeed in bringing about greater justice and inclusiveness in the world. This opinion, which has never been confirmed by the facts, expresses a crude and naive trust in the goodness of those wielding economic power and in the sacralized workings of the prevailing economic system. Meanwhile, the excluded are still waiting."

5.17 The Dalai Lama

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."

5.18 Unfulfilled responsibilities of the mainstream media

Throughout history, art was commissioned by rulers to communicate, and exaggerate, their power, glory, absolute rightness etc, to the populace. The pyramids gave visual support to the power of the Pharaoh; portraits of rulers are a traditional form of propaganda supporting monarchies; and palaces were built as symbols of power. Modern powerholders are also aware of the importance of propaganda. Thus the media are a battleground where reformers struggle for attention, but are defeated with great regularity by the wealth and power of the establishment. This is a tragedy because today there is an urgent need to make public opinion aware of the serious problems facing civilization, and the steps that are needed to solve these problems. The mass media could potentially be a great force for public education, but in general their role is not only unhelpful - it is often negative. War and conflict are blatantly advertised by television and newspapers. Meanwhile the peace movement has almost no access to the mainstream media.

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.

The predicament of humanity today has been called "a race between education and catastrophe": Human emotions have not changed much during the last 40,000 years, and human nature still contains an element of tribalism to which nationalistic politicians successfully appeal. The completely sovereign nation-state is still the basis of our global political system. The danger in this situation is due to the fact that modern science has given us incredibly destructive weapons. Because of these weapons, the tribal tendencies in human nature and the politically fragmented structure of our world have both become dangerous anachronisms.

After the tragedies of Hiroshima and Nagasaki, Albert Einstein said, "The unleashed power of the atom has changed everything except our way of thinking, and thus we drift towards unparalleled catastrophes." We have to learn to think in a new way. Will we learn this in time to prevent disaster? When we consider the almost miraculous power of our modern electronic media, we can be optimistic. Cannot our marvelous global communication network be used to change anachronistic ways of thought and anachronistic social and political institutions in time, so that the system will not self-destruct as science and technology revolutionize our world? If they were properly used, our instantaneous global communications could give us hope.

The success of our species is built on cultural evolution, the central element of which is cooperation. Thus human nature has two sides, tribal emotions are present, but they are balanced by the human genius for cooperation. The case of Scandinavia - once war-torn, now cooperative - shows that education is able to bring out either the kind and cooperative side of human nature, or the xenophobic and violent side. Which of these shall it be? It is

up to our educational systems to decide, and the mass media are an extremely important part of education. Hence the great responsibility that is now in the hands of the media.

How do the media fulfill this life-or-death responsibility? Do they give us insight? No, they give us pop music. Do they give us an understanding of the sweep of evolution and history? No, they give us sport. Do they give us an understanding of need for strengthening the United Nations, and the ways that it could be strengthened? No, they give us sit-coms and soap operas. Do they give us unbiased news? No, they give us news that has been edited to conform with the interests of the military-industrial complex and other powerful lobbys. Do they present us with the need for a just system of international law that acts on individuals? On the whole, the subject is neglected. Do they tell of of the essentially genocidal nature of nuclear weapons, and the need for their complete abolition? No, they give us programs about gardening and making food.

A consumer who subscribes to the "package" of broadcasts sold by a cable company can often search through all 35 or 45 channels without finding a single program that offers insight into the various problems that are facing the world today. What the viewer finds instead is a mixture of pro-establishment propaganda and entertainment. Meanwhile the neglected global problems are becoming progressively more severe.

In general, the mass media behave as though their role is to prevent the peoples of the world from joining hands and working to change the world and to save it from thermonuclear and environmental catastrophes. The television viewer sits slumped in a chair, passive, isolated, disempowered and stupefied. The future of the world hangs in the balance, the fate of children and grandchildren hang in the balance, but the television viewer feels no impulse to work actively to change the world or to save it. The Roman emperors gave their people bread and circuses to numb them into political inactivity. The modern mass media seem to be playing a similar role.

5.19 The alternative media

Luckily, there are alternatives to the mainstream media, available primarily on the Internet, but also to a certain extent on radio and television and in films. One can think of such alternative media figures as Thom Hartmann, Leonardo DiCaprio, Amy Goodman and Oliver Stone, or Internet sites such as Common Dreams, EcoWatch, Truthout, Countercurrents, the Danish Peace Academy website and TMS Weekly Digest. Interestingly, Bob Dylan, a longtime counterculture hero, has recently been awarded the Nobel Prize in Literature.

5.20 Johan Galtung

One of the founders of Peace Studies and Conflict Resolution as academic disciplines, is Professor Johan Galtung (1930 -). He is the author of more than a thousand articles and over a hundred books in these fields. He was also the main founder of the Peace

Research Institute Oslo in 1959, and he served as its first director until 1970. Prof. Galtung established the *Journal of Peace Research* in 1964. A few years later. in 1969, he was appointed to the world's first chair in peace and conflict studies at the University of Oslo. Dr. Jan Øberg, a student of Prof. Galtung, went on to found the influential Transnational Foundation for Peace and Future Research in Lund, Sweden.

5.21 Universities Offering Peace Studies Degrees

Among the American universities and colleges offering degrees in Peace Studies and Conflict Resolution[8], one can mention the University of Notre Dame, the University of California, Berkeley, Georgetown University, Swarthmore College, Tufts University, Wellesley College. the University of North Carolina at Chapel Hill, Colgate University, Brandeis University, the University of Texas at Austin, George Washington University, DePauw University, Smith College, Syracuse University, Southern Methodist University, Saint Johns University, American University, Marquette University, College of Saint Benedict. University of San Diego, Creighton University, Willamette University, University of Denver, Duquesne University, John Caroll University, Earlham College, George Mason University, Juniata College, University of Utah and Manhattan College. A degree program in Peace Studies is also offered by Clark University[9].

In Costa Rica, the University for Peace (UPEACE)[10] offers a wide variety of courses. The departments of UPEACE include Environment and Development, International Law and Human Rights, and Peace and Conflict Studies. UPEACE also offers online education[11].

The many educational institutions founded by Soka Gakkai International offer courses in peace studies. Among these are Soka University Japan, the Toda Institute for Global Peace, and Soka University of America.

Masters courses in peace studies and conflict resolution[12] are also offered at Universitat Oberta de Catallunya, University of Malta, Durham University, Trinity College Dublin, Alice Salimon University of Applied Sciences Berlin, University of Nicosia, Australian National University, Middlebury Institute of International Studies at Monterey, Swansea University, Aarhus University, Utrecht University, University of Kent, CIFE, University of Technology Sidney, University of Bridgeport, Duquesne University, SOAS University of London, Chapman University, SIT Graduate Institute, Kings College London, Goethe University Frankfurt, Joan B. Kroc School of Peace Studies, Johns Hopkins University School of Advanced International Studies, University of Bradford Faculty of Social and International Studies, and University of East Anglia Faculty of Social Sciences.

[8] http://colleges.startclass.com/d/o/Peace-Studies-and-Conflict-Resolution

[9] https://www2.clarku.edu/departments/peacestudies/gradprograms.cfm

[10] https://www.upeace.org/academic/academic-departments/peace-and-conflict-studies/peace-education

[11] http://www.elearning.upeace.org/

[12] http://www.masterstudies.com/Masters-Degree/Political-Science/Peace-and-Conflict-Studies/

5.22 Jakob von Uexküll and The World Future Council

Jakob von Uexküll belongs to a brilliant family. His grandfather was a famous Baltic-German physiologist who founded the discipline of Biosemiotics. Besides being a former Member of the European Parliament and a leader of the German Green Party, von Uexküll himself founded both the Right Livelihood Award (sometimes called the Alternative Nobel Prize) and also the World Future Council. [13]

A few outstanding voices

The greatest threats facing the world today are catastrophic climate change and thermonuclear war, but a large-scale global famine also has to be considered.

We give our children loving care, but it makes no sense do so and at the same time to neglect to do all that is within our power to ensure that they and their descendants will inherit an earth in which they can survive. We also have a responsibility to all the other living organisms with which we share the gift of life.

Inaction is not an option. We have to act with courage and dedication, even if the odds are against success, because the stakes are so high.

The mass media could mobilize us to action, but they have failed in their duty.

Our educational system could also wake us up and make us act, but it too has failed us. The battle to save the earth from human greed and folly has to be fought in the alternative media.

It is impossible to list all of the many thousands of brave, dedicated and eloquent people who write for the alternative media, or the equally brave and dedicated editors who publish these articles. But here are pictures of a few famous names that come to mind:

[13] http://www.rightlivelihood.org/
http://www.worldfuturecouncil.org/
http://www.worldfuturecouncil.org/gpact/

Figure 5.4: **The Norwegian mathematician and sociologist Johan Galtung (born 1930), pioneer of the discipline Conflict Resolution. He also founded the Peace Research Institute, Oslo and the Journal of Peace Research. He has published over 1000 articles and more than 100 books.**

Figure 5.5: **Jan Øberg (born 1951), co-founder and Director of the Transnational Foundation for Peace and Future Research, and editor of The Transnational. Born in Denmark, Dr. Øberg was formerly the leader of the Lund Peace Research Institute.**

Figure 5.6: **Mrs. Fumiko Galtung, Transcend Media Service Weekly Digest editor Antonio C.S. Rosa, and Johan Galtung in Norway, 2007.**

Figure 5.7: **Binu Mathew is the heroic and dedicated editor of the Internet journal "Countercurrents". He lives in the Kerala Provence of India, which has recently been hit by enormous floods, despite which he continues to publish his vitally important journal every day.**

Figure 5.8: **John Pilger (born in Australia in 1939). His outstanding documentary films on global problems have won a BAFTA award. He is a critic of American, British and Australian foreign policy, which he considers to be driven by an imperialist agenda.**

Figure 5.9: **The American film maker Oliver Stone (born 1946) has won three Academy Awards for his work, and he has been nominated for very many other Oscars. His Vietnam War trilogy "Platoon", "Born on the Fourth of July", and "Heaven and Earth" have won critical acclaim, as have his films "Salvador", "Wall Street", "Money Never Sleeps", "JFK", "Nixon", "W", and "Snowdon".**

Figure 5.10: **Born in 1957. Amy Goodman co-founded Democracy Now: The War and Peace Report in 1996. She credits the great success of the program, broadcast on radio, television and the Internet, with the deficiencies of the mainstream media which leave a huge niche for alternative reporting. Amy Goodman has received dozens of awards for her work, including the Right Livelihood Award, sometimes called "The Alternative Nobel Prize", and the Gandhi Peace Award for making "a significant contribution to the promotion of an enduring international peace".**

Figure 5.11: **Thom Hartmann (born in 1951) is the host of the daily radio and television show "The Big Picture". As a writer, he has published more than twenty books. His book "Last Hours of Ancient Sunlight" inspired Leonardo DiCaprio's documentary "Before the Flood". Together with the DiCaprio family, Hartmann helped to produce an important short video "Last Hours", which is available at https://www.youtube.com/watch?v=2bRrg96UtMc . The video discusses the mass extinctions that can be observed in the geological record, and warns that anthropogenic climate change might cause an extinction comparable to the largest one, the Permian-Triassic event, by initiating a methane hydrate feedback loop.**

Figure 5.12: **Born in 1928, Institute Professor Emeritus Noam Chomsky of MIT and the University of Arizona is considered to be one of the greatest public intellectuals in the world. As a linguist and cognitive scientist, he revolutionized our ideas of the inherited universal grammar of humans. He is also a philosopher and historian, and has written more than 100 important books, many of which criticize the the mass media and US government policies. Professor Chomsky has stated that because of its climate change denial, the US Republican Party is the most dangerous organization in history, since its actions may lead to catastrophic climate change and perhaps the extinction of the human species.**

Figure 5.13: **Pulitzer Prize winning author Chris Hedges (born in 1956) worked for 15 years as a foreign correspondent for the New York Times, before resigning in 2005. He is the author of many important anti-war and anti-fascist books, including "War is a Force That Gives Us Meaning" (2002), "Empire of Illusion: The End of Literacy and the Triumph of Spectacle" (2009), "Death of the Liberal Class" (2010), "Days of Destruction, Days of Revolt" (2012), "Wages of Rebellion: The Moral Imperative of Revolt" (2015) and "America. The Farewell Tour" (2018). In a 2013 interview, Hedges said that "the left has been destroyed, especially the radical left, quite consciously in the whole name of anti-communism", and "we have allowed ourselves to embrace an ideology which, at its core, states that all governance is about maximizing corporate profit at the expense of the citizenry. For what do we have structures of government, for what do we have institutions of state, if not to hold up all the citizenry, and especially the most vulnerable?".**

Figure 5.14: **Award-winning author Naomi Klein was born in 1970 into a Canadian family of prominent peace activists. As a teenager, she felt embarrassed by her family's politics, and she reacted by becoming a mall-junkie, addicted to consumerism. Later, however, she became (in her own words) "less of a brat", and she wholeheartedly adopted her family's reformist traditions. Her first book, "No Logo: Taking Aim at the Brand Bullies" was published in 1999, shortly after the Seattle WTO protests, and it quickly became a highly-influential best-seller. Her famous book "The Shock Doctrine" (2007) argues that neoliberal politicians take advantage of disasters, when the public demands quick action, to ram through whatever changes they wish, and these are accepted uncritically by the change-demanding public, although they may have nothing to do with correcting the disaster. In another deservedly-famous book, "This Changes Everything" (2014), Naomi Klein addresses the twin threats of catastrophic climate change and thermonuclear war. She argues that environmental activists and peace activists ought to join hands and work together for system change. Partly as a result of her book, the slogan "System change not climate change!" was adopted by protest marchers both in New York and Paris.**

Figure 5.15: **The extremely distinguished scholar and author Professor Richard Falk was born in 1930, and is still very active today. He is the author of more than 20 books on international law and editor or co-editor of 20 others.**

The Eqbal Ahmed Centre For Public Education

This centre for public education (EACPE) can be reached on the link http://eacpe.org/ . It was established by the distinguished theoretical physicist Pervez Hoodbhoy and others, and it takes its name from the courageous writer, university professor and activist Eqbal Ahmed.

An article by S.M. Tatar in the Friday Times[14] states that "The late Eqbal Ahmad was an internationally known and respected Pakistani political scientist, intellectual, scholar and teacher who returned to Islamabad in the 1990's with a dream. He wanted to build Khaldunia University. Khaldunia could have been a game-changer in Pakistan's higher education system. Eqbal Ahmad taught at various US universities and was a key political voice in international affairs. He enjoyed the friendship and respect of the likes of Edward Said and Noam Chomsky - who admired his work, his independent thinking and his identification with the causes of oppressed peoples.

"Ahmad was an intellectual with roots in Pakistan, influencing thinking on major world events like the Vietnam war, Algeria's war of independence and the Palestinian tragedy. He was fully committed to his vision. He was not a desk scholar. He was part of the Algerian liberation movement in the 1960's and an active opponent of the Vietnam war. Along with others, he was charged with being part of a plot to kidnap Henry Kissinger, in an effort to end the Vietnam war. And he advised the the PLO leadership in Palestine!"

The Eqbal Ahmed Centre for Public Education states that "Knowledge translated into action is the most potent and powerful game-changer known to man. The wedding

[14]https://www.thefridaytimes.com/tft/a-dream-rudely-shattered/

of computers and telecommunications enables the transportation of ideas, the sharing of knowledge and the promotion of learning on a scale and with a speed that is near miraculous.

"The Eqbal Ahmad Centre for Public Education honours the life and work of Dr. Eqbal Ahmad, a Pakistani academic, social scientist, writer, public intellectual and activist. The Centre's web site of the same name is a rich mother lode of enlightening content for those who thirst for knowledge.They also keep adding to the content frequently, so the site is always worth a visit.

"We believe the site is a great resource for students as well. Some their content is directed at science students, particularly students of the physical sciences and mathematics. This particular section is rich in video content, and is certain to be helpful in acquiring a solid grounding in the subjects. Apart from such video lectures, there is also a great wealth of video material for those who wish to enhance their knowledge of scientific subjects in general."

Figure 5.16: **Professer Eqbal Ahmed (1933-1999).**

Figure 5.17: **Professer Pervez Hoodbhoy (born in 1950) is Zohra and Z.Z. Ahmad Distinguished Professor of Physics and Mathematics at Forman Christian College, Lahore. In 2013, he was made a member of the UN Secretary General's Advisory Board on Disarmament. Among the awards he has won are the IEEE Baker Award for Electronics (1968); the Abdus Salam Prize for Mathematics (1984); the UNESCO Kalinga Prize for the popularization of science (2003); the Joseph A. Burton Award (2010) from the American Physical Society and the Jean Meyer Award from Tufts University. In 2011, he was included in the list of 100 most influential global thinkers by Foreign Policy magazine. As the head of Mashal Books in Lahore, Prof. Hoodbhoy leads a major translation effort to produce books in Urdu that promote modern thought, human rights, and emancipation of women.**

The Danish Peace Academy

The Danish Peace Academy is an organization that was founded by Holger Terp. Holger completed his education as a librarian in 1992. In 1996, he participated in a course on "Internet and Presentation Technique" at the Academy of Fine Arts in Copenhagen. However, in 1999 he suffered a stroke, which made him blind in one eye and almost blind in the other. The stroke also affected Holger's speech, so that it was difficult to understand him when he talked. Instead of giving up, as many people would have done, Holger resolved to devote the remainder his life to the cause of world peace. Despite his severe handicap, he has achieved almost incredible results.

Holger's greatest achievement has been to found the Danish Peace Academy and to single-handedly create its enormous website. The website contains more than 90,000 files related to peace, in Danish, English and German, and it is currently visited by approximately 4,000 different people each day. Many of the visitors are from schools and universities in various parts of the world, who use the information on the website as a part of their studies.

In creating his website, Holger has used both his training as a librarian and the knowledge that he gained from the 1996 course at Copenhagen's Academy of Fine Arts. As a result, many parts of the website have great visual beauty because of the liberal use of images. For example, one can enjoy Holger's "Greenham Common Songbook", which is an account of the successful efforts of the woman's peace movement in England to prevent common land at Greenham from being used as a base for nuclear weapons. The songbook is a piece of history, illustrated not only by the songs, which the visitor to the website can hear performed by such artists as Peggy Seeger, but also by countless beautiful posters and photos from the era. Other special features of the website are numerous books, articles, poetry and song collections, a peace-related encyclopedia, and a timeline showing the history of the peace movement, from the middle ages up to the present.

Holger himself is the author or editor of numerous books, and he has translated Gandhi's autobiography into Danish. The example of Gandhi's life has always been a guide for Holger, and perhaps Holger's life can be a guide for our own efforts, as we strive to work for peace. If he could achieve so much with such a severe handicap, then the rest of us ought to be able to do something too.

Here are some quotations from the forward to Holger's autobiography. It is written in Danish, but I have made an approximate translation:

Militarism and the Military Industrial Complex have proved to be too big a mouthful for the peace movement, despite the fact that militarism has always been the main contributor to pollution and climate change. Ever since the First World War, military activities have been the largest users of fossil fuels.

Let's consider a nice little war somewhere. Besides the human and other biological costs, cities are ruined, as well as the country's administration and infrastructure. The gross national product collapses down to a tiny fraction of what it had been before the war. Military hardware is destroyed in war, and the environment is polluted with poisonous

Figure 5.18: **Holger Terp receives an award for his life-long efforts for world peace.**

byproducts of its degradation, such as heavy metals. This has always been the case with war. Furthermore, wars do not turn out as the politicians and war departments plan. Wars are unpredictable. Militarists make at least as many mistakes as the rest of us.

Therefore it cannot surprise even the most ignorant politician that war is primarily about resources and economy. The empty places in arsenals need to be refilled after a war. Governments buy from private weapons manufacturers, and a new war starts somewhere in a distant country whose policies have not given us unlimited access to cheap resources; and the mills of disaster begin to roll again, since weapon production is both resource-swallowing and environment-destroying. The more powerful weapons are, the more environmentally destructive they are, both when they are ,manufactured and when they are used....

It seems strange to me that religious fundamentalists can read in the Old Testament the commandment: "Thou shalt not kill". In other words, killing is both a sin and a crime; also when the killing is organized by governments. But soldiers do exactly the opposite of what religion requires. They go to war and kill. They do so because politicians are manipulated by the merchants of death. the arms manufacturers. One has to admire the war party's propaganda-machine. It is amazingly effective, with the result that the weapon industry's profits have grown enormously ever since the Iraq War of 2003. Soldiers and civilians are traumatized by war. Not so the politicians who start the wars, and certainly not the weapons manufacturers.

Chapter 6

CULTURAL HISTORY, AN ANTIDOTE TO NATIONALISM

6.1 The slow growth of human knowledge and culture

Human history as cultural history

We need to reform our teaching of history so that the emphasis will be placed on the gradual growth of human culture and knowledge, a growth to which all nations and ethnic groups have contributed. In fact, the millennia-long accumulation of knowledge and culture is a much more important part of human history than the wars and power struggles of rulers and national governments.

Against nationalism

Today, in an era of all-destroying nuclear weapons, instantaneous global communication and worldwide economic interdependence, nationalism has become a dangerous anachronism. History, as it is taught today, is centered on the country where it is being taught. Our own country is the most important. Our own country is always in the right, according to nationalist historians. Patriotic soldiers and generals are exalted. It is sweet and noble to die for one's country. But today, war has become prohibitively dangerous. Unless we rid the world of nuclear weapons, the end of human civilization and much of the biosphere is just around the corner.

Cultural history can be seen as an antidote for nationalism. It allows us to take a wider view of the world, where cooperation is more important than conflict, and where the contributions of all nations, cultures and ethnic groups are recognized.

Below is a list of books that I have written as examples of what might be done with this approach to the subject. All of the books may be downloaded and circulated free of charge from the following web addresses:

https://www.johnavery.info/

http://eacpe.org/about-john-scales-avery/

6.2 Lives in Prehistory

https://eacpe.org/content/uploads/2022/04/Lives-in-Prehistory-by-John-Scales-Avery.pdf

In his *Systema Naturae*, published in 1735, Carolus Linnaeus correctly classified humans as mammals associated with the anthropoid apes. However, illustrations of possible ancestors of humans in a later book by Linnaeus, showed one with a manlike head on top of a long-haired body, and another with a tail. A century later, in 1856, light was thrown on human ancestry by the discovery of some remarkable bones in a limestone cave in the valley of Neander, near Düsseldorf - a skullcap and some associated long bones. The skullcap was clearly manlike, but the forehead was low and thick, with massive ridges over the eyes. The famous pathologist Rudolf Virchow dismissed the find as a relatively recent pathological idiot. Other authorities thought that it was "one of the Cossacks who came from Russia in 1814". Darwin knew of the "Neanderthal man", but he was too ill to travel to Germany and examine the bones. However, Thomas Huxley examined them, and in his 1873 book, Zoological Evidences of Man's Place in Nature, he wrote: "Under whatever aspect we view this cranium... we meet with apelike characteristics, stamping it as the most pithecoid (apelike) of human crania yet discovered."

"In some older strata," Huxley continued, "do the fossilized bones of an ape more anthropoid, or a man more pithecoid, than any yet known await the researches of some unborn paleontologist?" Huxley's question obsessed Eugène Dubois, a young Dutch physician, who reasoned that such a find would be most likely in Africa, the home of chimpanzees and gorillas, or in the East Indies, where orang-outangs live. He was therefore happy to be appointed to a post in Sumatra in 1887. While there, Dubois heard of a site in Java where the local people had discovered many ancient fossil bones, and at this site, after much searching, he uncovered a cranium which was much too low and flat to have belonged to a modern human. On the other hand it had features which proved that it could not have belonged to an ape. Near the cranium, Dubois found a leg bone which clearly indicated upright locomotion, and which he (mistakenly) believed to belong to the same creature. In announcing his find in 1894, Dubois proposed the provocative name "Pithecanthropus erectus", i.e. "upright-walking ape-man"

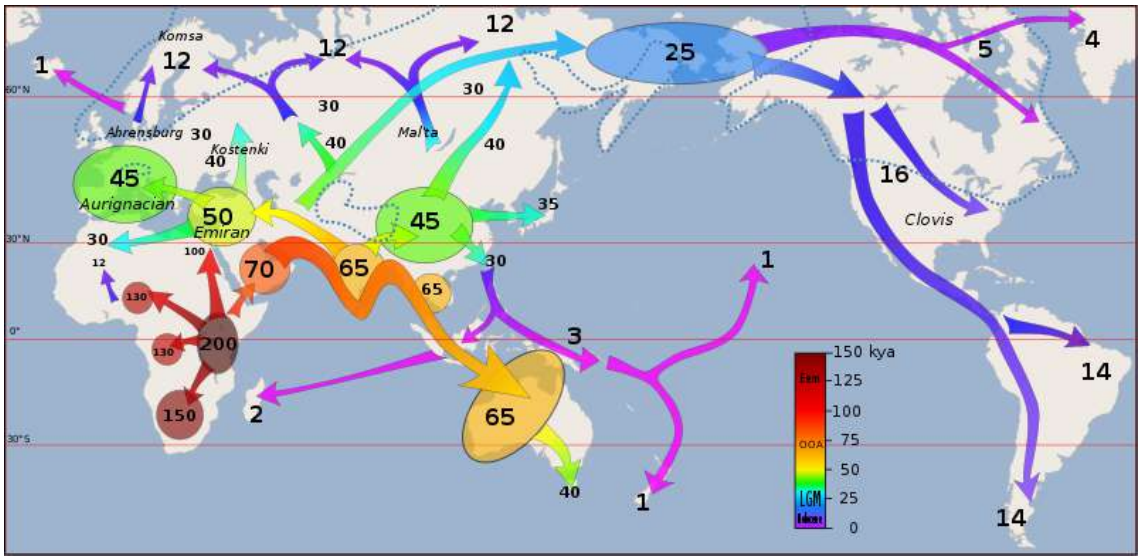

Figure 6.1: **A map showing early migrations, and the number of years, in thousands, before the present, when humans arrived at various places.**

Figure 6.2: **Homo erectus left Africa, and spread throughout Eurasia, as far as Georgia, Armenia, India, Sri Lanka, China and Indonesia.**

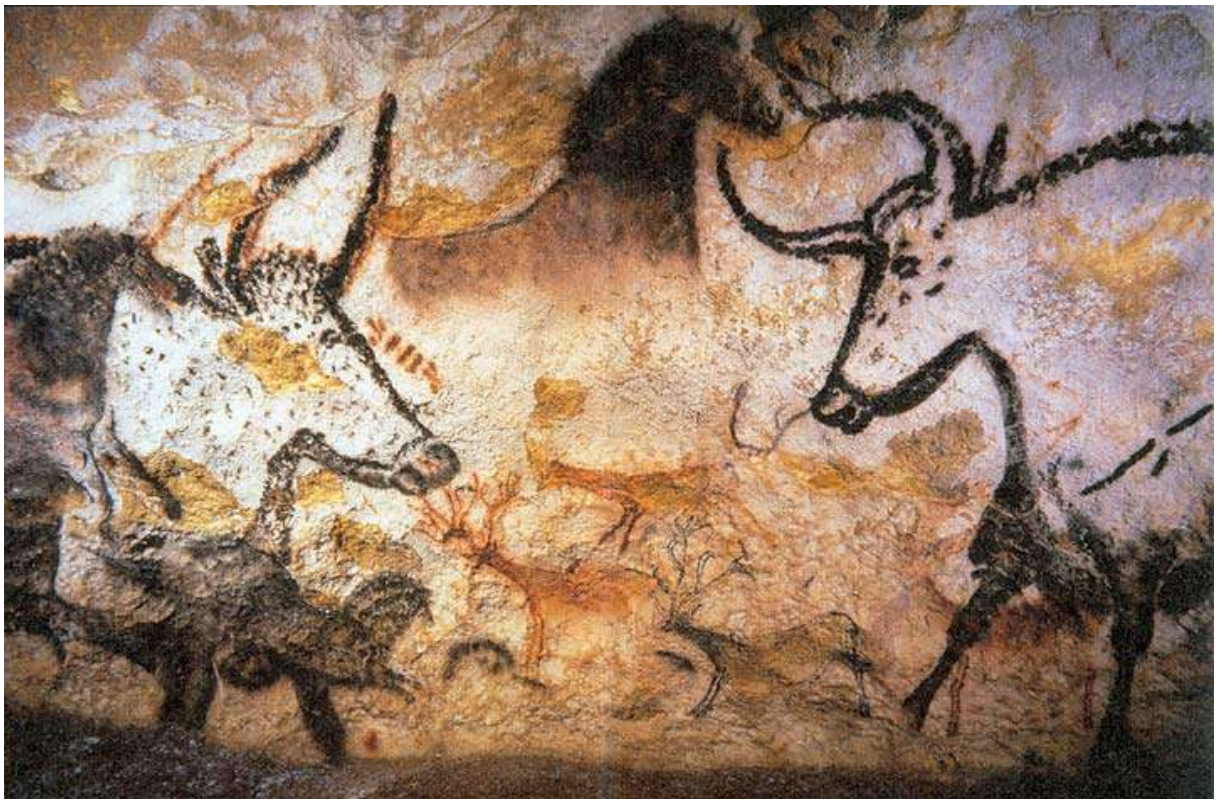

Figure 6.3: **Cave painting from the cave of Lascaux, France. The painting shows aurochs, horses and deer, and is estimated to be around 17,000 years old. Over 600 paintings cover the interior of the cave.**

6.3 Lives in the Ancient World

https://eacpe.org/content/uploads/2021/11/Lives-in-the-Ancient-World-by-John-Scales-Avery.pdf

In medicine, the Mesopotamians believed that disease was a punishment inflicted by the gods on men, both for their crimes and for their errors and omissions in the performance of religious duties. They believed that the cure for disease involved magical and religious treatment, and the diseased person was thought to be morally tainted. However, in spite of this background of superstition, Mesopotamian medicine also contained some practical remedies. For example, the prescription for urinary retention was as follows: "Crush poppy seeds in beer and make the patient drink it. Grind some myrrh, mix it with oil and blow it into his urethra with a tube of bronze. Give the patient anemone crushed in alppanu-beer."

Until recently it was believed that the Mesopotamians had no idea of hygiene and preventive medicine. However, the following remarkable text was published recently. It is a letter, written by Zimri-Lim, King of Mari, who lived about 1780 B.C., to his wife Shibtu: "I have heard that Lady Nanname has been taken ill. She has many contacts with the people of the palace. She meets many ladies in her house. Now then, give severe orders that no one should drink in the cup where she drinks. No on should sit on the seat where she sits. No one should sleep in the bed where she sleeps. She should no longer meet many ladies in her house. This disease is contagious."

Figure 6.4: **Fresco of a Mycenaean woman.**

Figure 6.5: **An ancient Egyptian doctor and patient.**

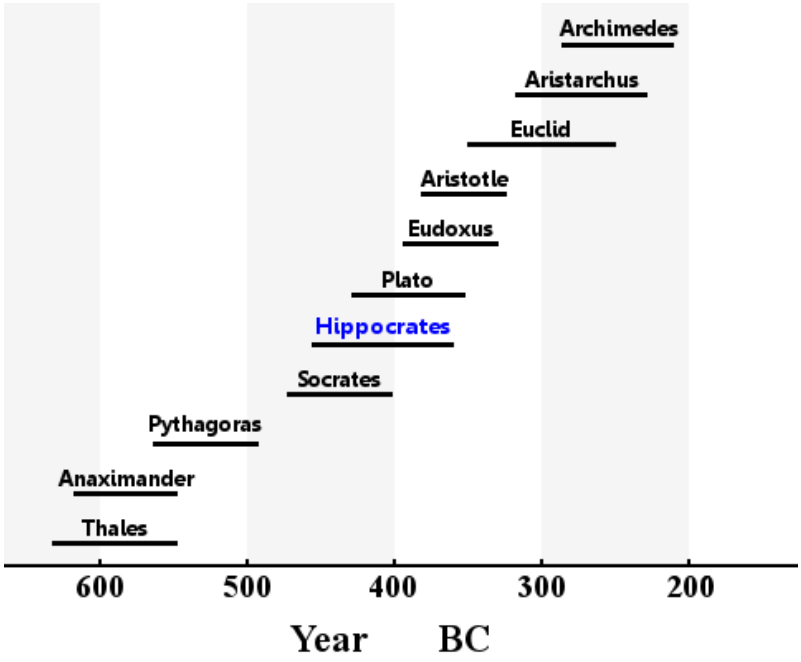

Figure 6.6: **Lifetimes of some ancient philosophers and scientists.**

6.4 Lives in the Middle Ages

https://eacpe.org/content/uploads/2022/03/Lives-in-the-Middle-Ages-by-John-Scales-Avery.pdf

Here is a list of the book's chapters:

1. Viking Explorers
2. Marko Polo
3. Saint Francis of Assisi
4. The Invention of Printing
5. Mathematicians Al-Khwarizmi and Omar Khayyam
6. Painters in China and Russia
7. Chinese and Islamic Poets
8. Education in the Middle Ages
9. Three Medieval Composers
10. Medieval Cathedral Builders

Figure 6.7: **Viking exploration routes.**

Figure 6.8: **Mosaic of Marco Polo displayed in the Palazzo Doria-Tursi, in Genoa, Italy.**

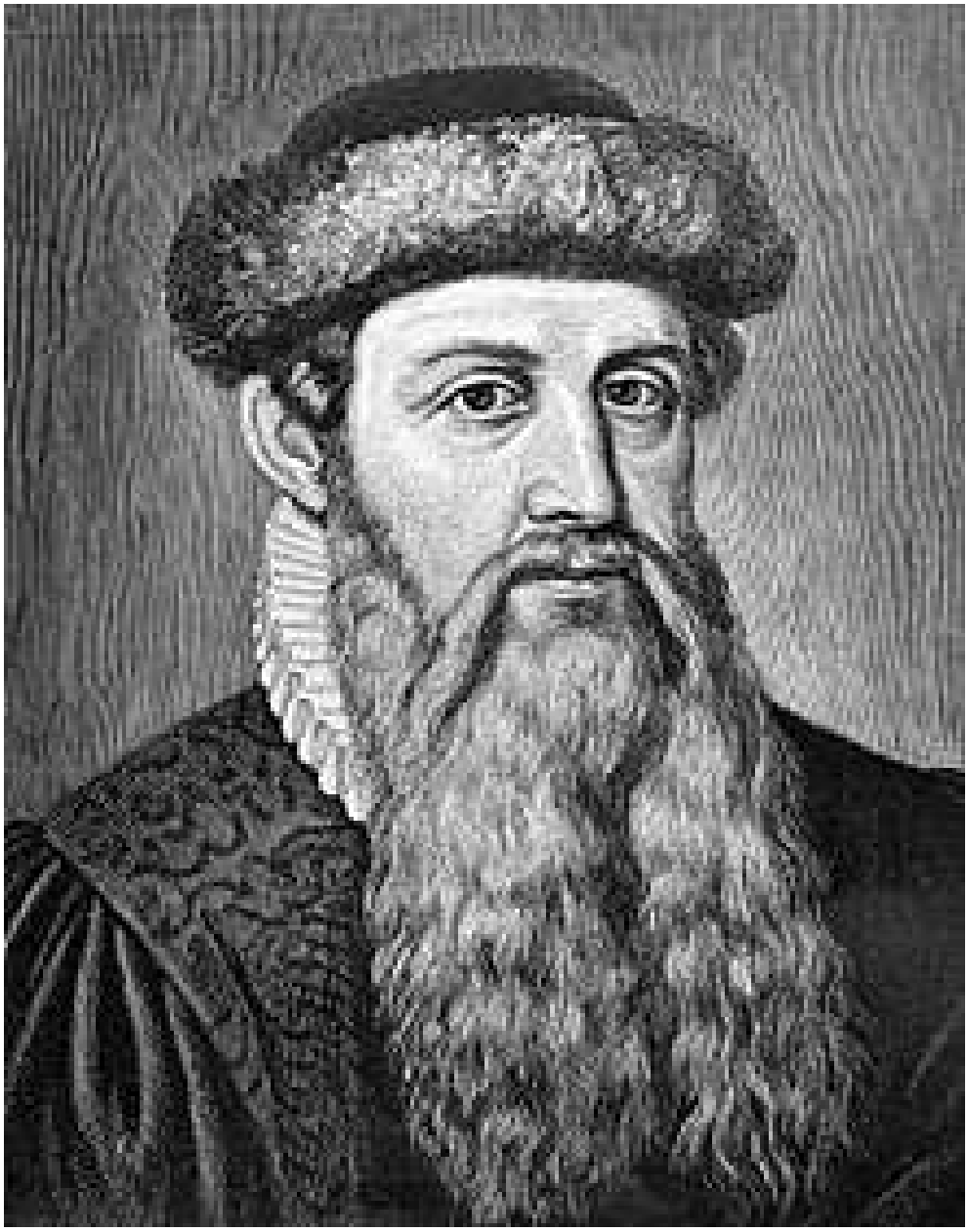

Figure 6.9: **Gutenberg is credited with introducing printing with movable type into Europe, with many improvements of technique. His inventions were a turning point in European history, and ushered in the modern era, the Reformation, the Age of Reason and the Industrial Revolution.**

6.5 Lives in the Renaissance

https://eacpe.org/content/uploads/2021/10/Lives-in-the-18th-Century-by-John-Scales-Avery.pdf

List of chapters

1. East-West Exchanges
2. The Medicis
3. Painters of the Renaissance
4. Copernicus, Brahe, Kepler and Galileo
5. Pioneers of Medicine
6. Robert Boyle and Robert Hooke
7. Lives of Renaissance Explorers
8. Poets of the Renaissance
9. Renaissance Composers
10. Descartes, Newton, Leibniz and Pascal

Figure 6.10: ***The Birth of Venus*, c. 1485, by Sandro Botticelli, Uffizi Gallery, Florence.**

Figure 6.11: **Leonardo's portrait of a lady with an ermine, painted in 1489-1490. The painting is now at the National Museum in Krakow, Poland.**

Figure 6.12: ***Self-Portrait*, by Rembrandt van Rijn.**

6.6 Lives in Molecular Biology

https://eacpe.org/content/uploads/2022/08/Lives-in-Molecular-Biology-by-John-Scales-Avery.pdf

List of chapters

Figure 6.13: **Paul Ehrlich (1854-1915). By the time that he developed a drug that could cure syphilis, he had already received the Nobel Prize for Physiology or Medicine, but to further honor Ehrlich, a street in Frankfurt was named after him**

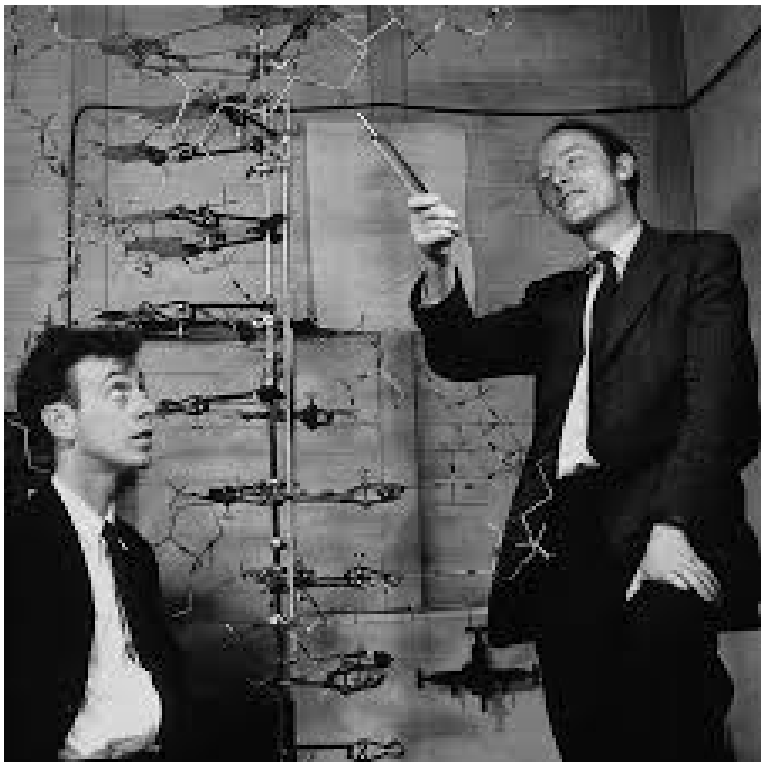

Figure 6.14: **Francis Crick (1916-2004) and James Dewey Watson (born 1928) at the Cavendish Laboratory with their model of DNA. After their discovery of the structure of DNA, it became clear that it was this molecule that carried genetic information between generations.**

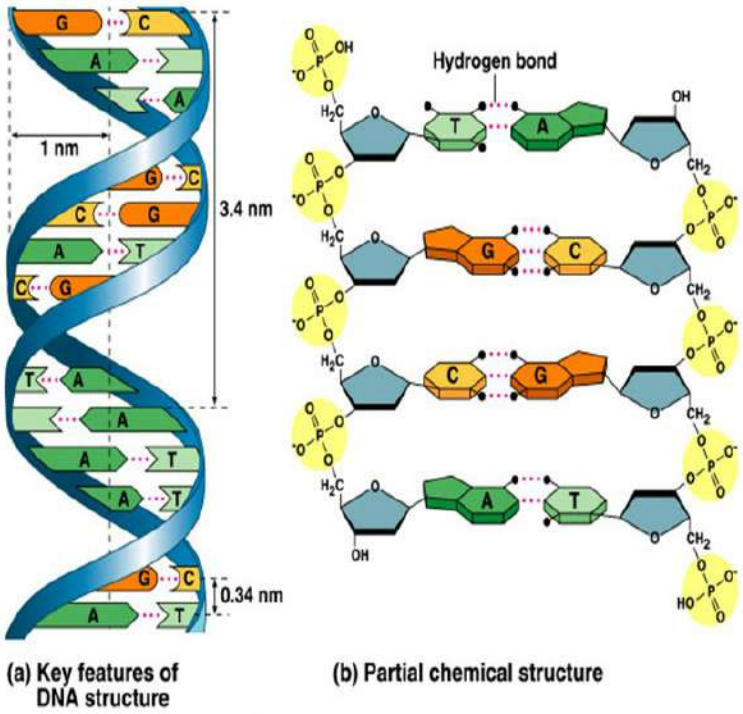

Figure 6.15: **Once the structure of DNA was known, it became clear that transgenerational information is transmitted in a chemical language based on a code with four letters, G, T, C and A.**

6.7 Lives of Some Great Novelists

https://eacpe.org/app/wp-content/uploads/2021/07/Lives-of-Some-Great-Novelists-John-Scales-Avery.pdf

List of chapters

Figure 6.16: **Richard Rothwell's portrait of Mary Shelley was shown at the Royal Academy in 1840, accompanied by lines from Percy Shelley's poem "The Revolt of Islam" calling her a "child of love and light" Mary's father was the famous reformist author and philosopher, William Godwin, and her mother, Mary Wollstonecraft, was also a famous author; but today, Mary Shelly's *Frankenstein*, conceived in a half-waking dream by herself, and written in collaboration with her husband, is perhaps known more widely than the books of her famous parents.**

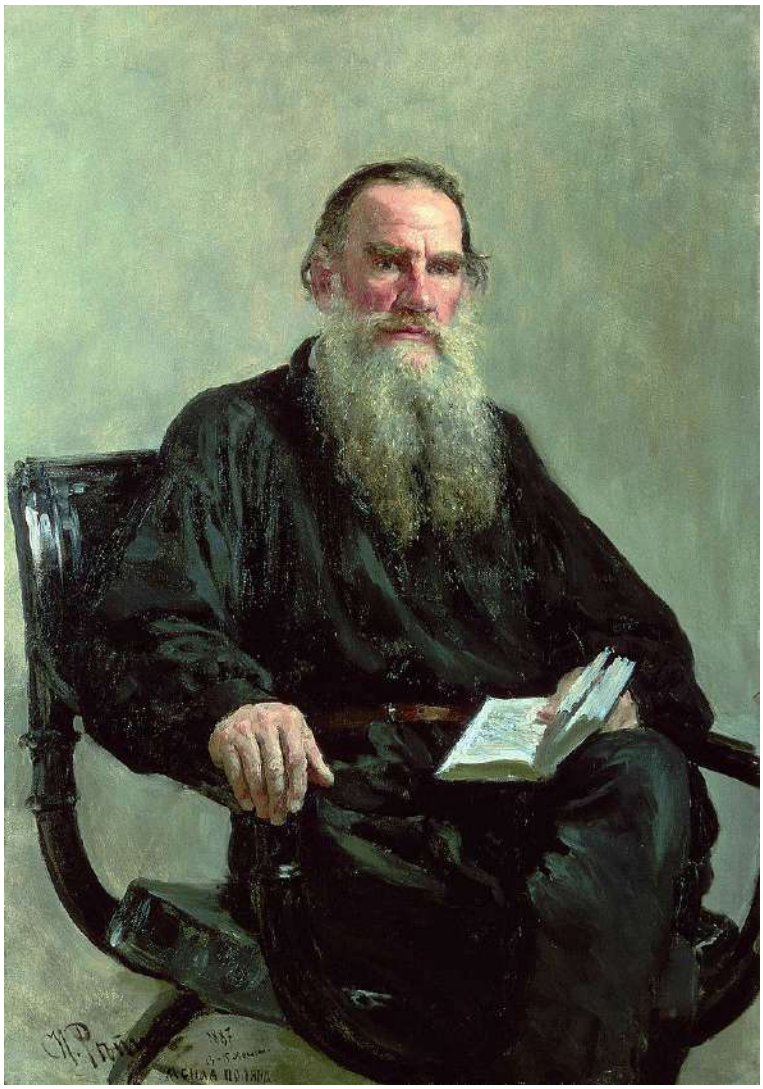

Figure 6.17: **Portrait of Count Leo Tolstoy made in 1887 by Ilia Repin.**

Figure 6.18: **A photograph of Virginia Woolf, taken in 1902.**

6.8 Lives in Mathematics

http://eacpe.org/app/wp-content/uploads/2021/02/Lives-in-Mathematics-John-Scales-Avery.pdf

List of chapters

1. Pythagoras
2. Euclid
3. Archimedes
4. Al-Khwarizmi
5. Omar Khayyam
6. René Descartes
7. Newton
8. The Bernoulli's and Euler
9. Fourier
10. Joseph-Louis Lagrange
11. Condorcet
12. Hamilton
13. Abel and Galois
14. Gauss and Riemann
15. Hilbert
16. Emmy Noether
17. Einstein

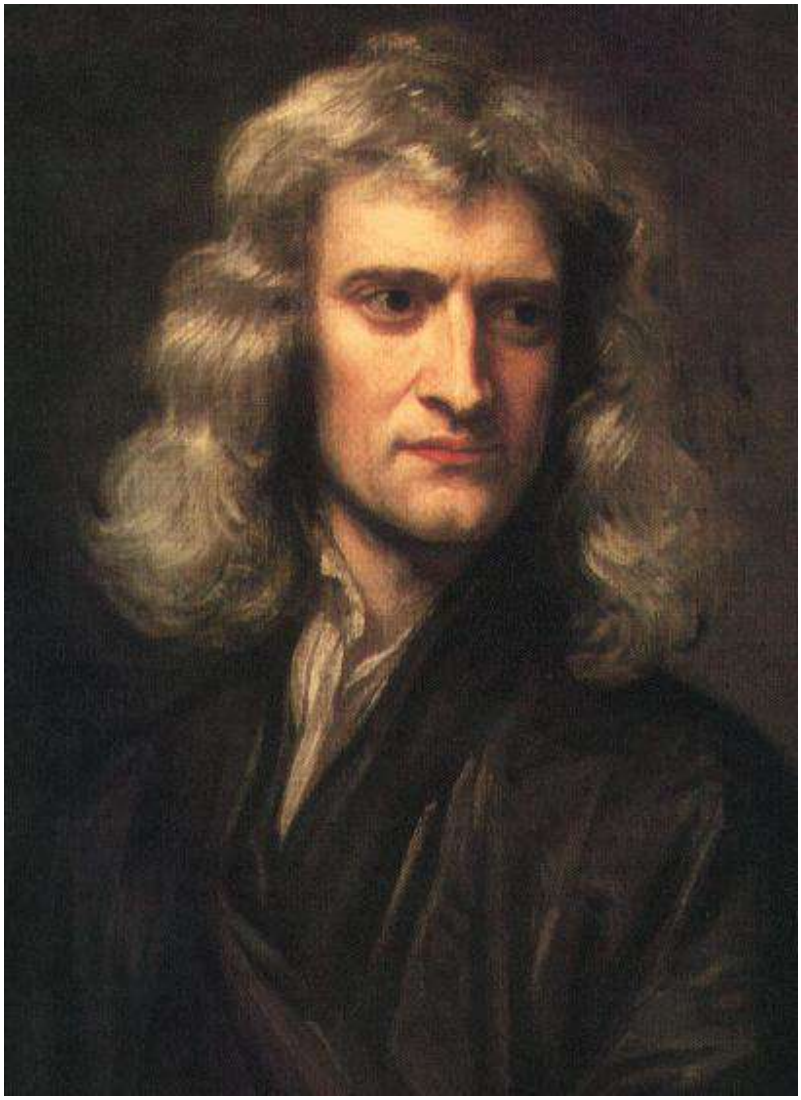

Figure 6.19: **Portrait of Isaac Newton (1642-1727) by Sir Godfrey Kneller.**

Figure 6.20: **Portrait of Carl Friedrich Gauss (1777-1855).**

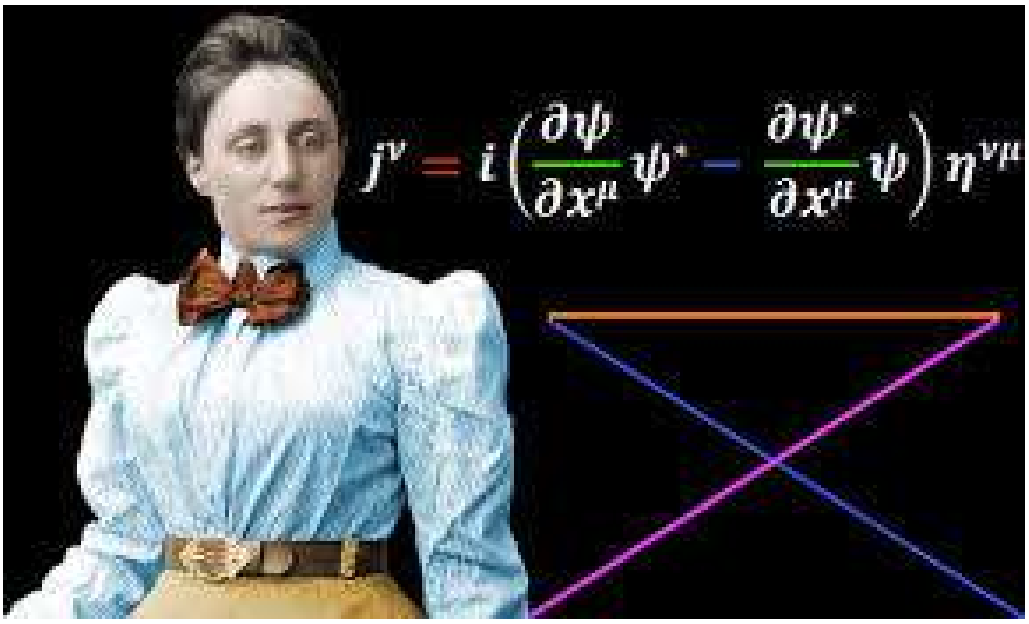

Figure 6.21: **Emmy Noether (1882-1935), the "mother of modern algebra", was described by Albert Einstein, Hermann Weyl and Norbert Wiener as the most important woman in the history of mathematics. She developed the theories of rings, fields, and algebras. In physics, Noether's first theorem explains the connection between symmetry and conservation laws. Following in her father's footsteps, Noether began her career in mathematics at the University of Erlangen. In 1915, although at the time women were largely excluded from academic positions, she was invited by Felix Klein and David Hilbert to join the world-famous mathematics department of the University of Göttingen. Her students, sometimes called "Noether's boys", spread her ideas, and ultimately her influence was enormous. Forced to leave Germany because of the Nazis, she died in the United States after an operation for an ovarian cyst.**

6.9 Lives in Exploration

http://eacpe.org/app/wp-content/uploads/2020/07/Lives-in-Exploration-John-Scales-Avery.pdf

List of chapters

1. Out of Africa
2. The First Humans in Australia
3. The First Discovery of America
4. Alexander of Macedon
5. Viking Explorers
6. Marco Polo
7. European Voyages of Discovery
8. Exploration of North America
9. The Voyage of the Beagle
10. Polar Exploration
11. Space Exploration

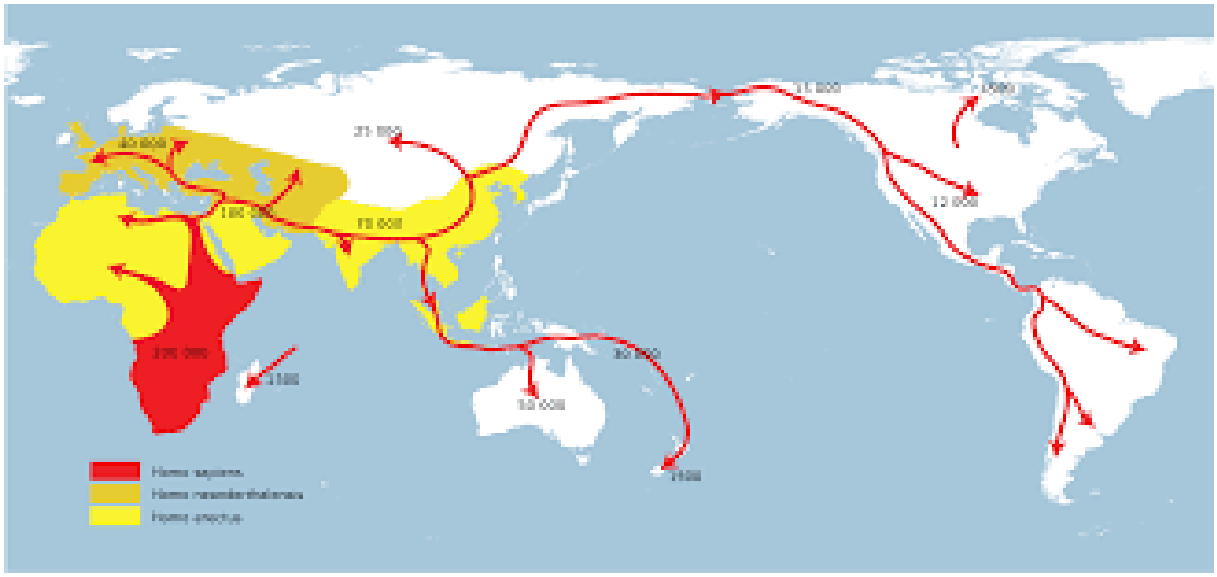

Figure 6.22: **Modern humans crossed the Bering Straits during a glacial period between 20,000 and 10,000 years before the present.**

Figure 6.23: **Sir Francis Drake, (c.1540-1596), in an oil painting by Marcus Gheeraerts the Younger.**

Figure 6.24: **A map of Drake's route around the world. The northern limit of Drake's exploration of the Pacific coast of North America is still in dispute.**

6.10 Lives in Education

http://eacpe.org/app/wp-content/uploads/2020/05/Lives-in-Education-by-John-Scales-Avery.pdf

List of chapters

1. The Academies of Plato and Aristotle
2. The Museum and the Great Library of Alexandria
3. Chinese Civil Service and Scholar-Gentry Families
4. Education in Ancient India
5. Education in the Islamic World
6. Europe's Oldest Universities
7. Woman's Education
8. The Battle Against Illiteracy
9. Mass Media and Education
10. Misuse of Education
11. Education and the Internet
12. Peace Education

Figure 6.25: **A painting of K'ung Fu-tzu (Confucius, 551 B.C.- 479 B.C.).**

Figure 6.26: **In mathematics, one of the most outstanding Arabic writers was al-Khwarizmi (c.780 - c.850), commemorated here on a Russian stamp.**

Figure 6.27: **Denis Diderot (1713-1784) was a graduate of the University of Paris. He was editor of the first encyclopedia, an effort to put all human knowledge into a single many-volume book.**

6.11 Lives in Poetry

http://eacpe.org/app/wp-content/uploads/2020/03/Lives-in-Poetry-by-John-Scales-Avery.pdf

List of chapters

1. Homer
2. Ancient Greek Poetry and Drama
3. Poets of Ancient Rome
4. The Golden Age of Chinese Poetry
5. Japanese Haiku
6. Poets of India
7. Poets of Islam
8. Poets of Continental Europe and Russia
9. English Poets
10. Some American Poets
11. Poets of Latin America

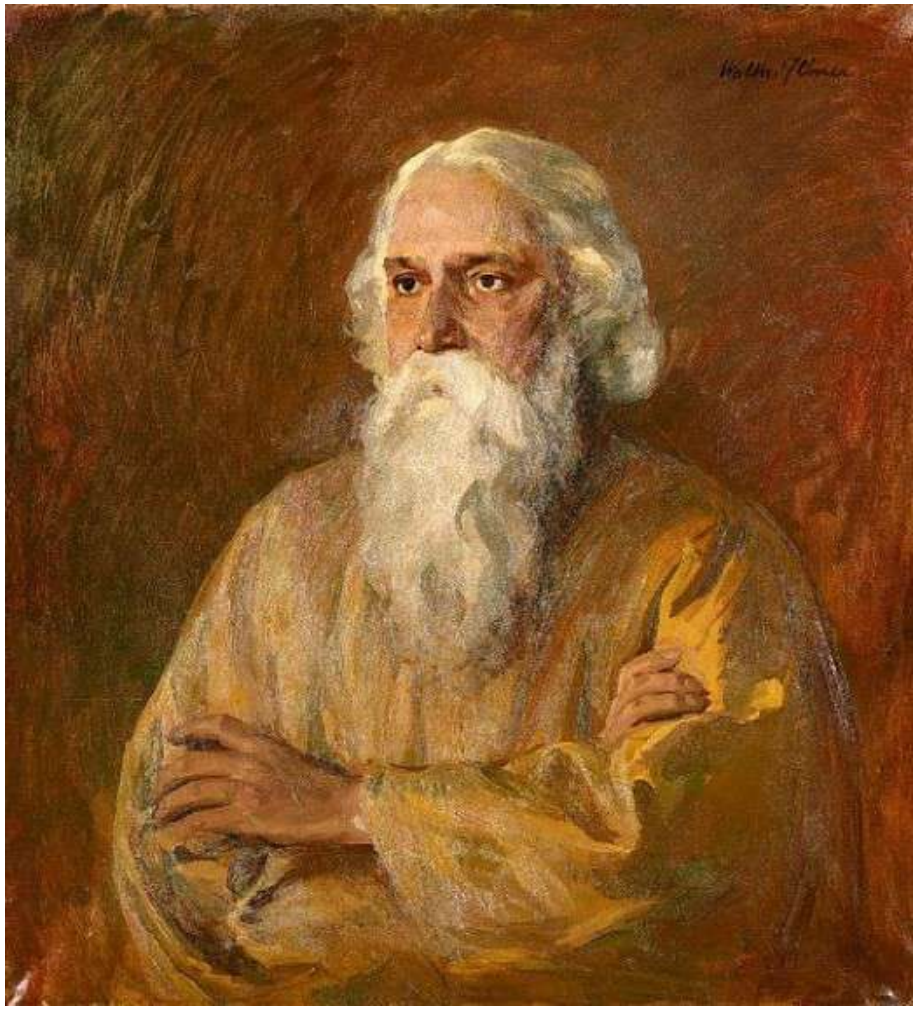

Figure 6.28: **Rabindranath Tagore was a Brahman Hindu polymath artist, musician, essayist, novelist and poet who revolutionized Bengali art and literature. He began writing poems at the age of eight, and his first book of poems. which he published at the age of sixteen under the pseudonym Bhanusimha ("Sun Lion"), were hailed by critics as classic. In 1913 Tagore was awarded the Nobel Prize in Literature. He was the first Asian to receive this honor. One of Tagore's compositions was chosen by India for its national anthem, and another by Bangladesh. The national anthem of Sri Lanka was also influenced his work.**

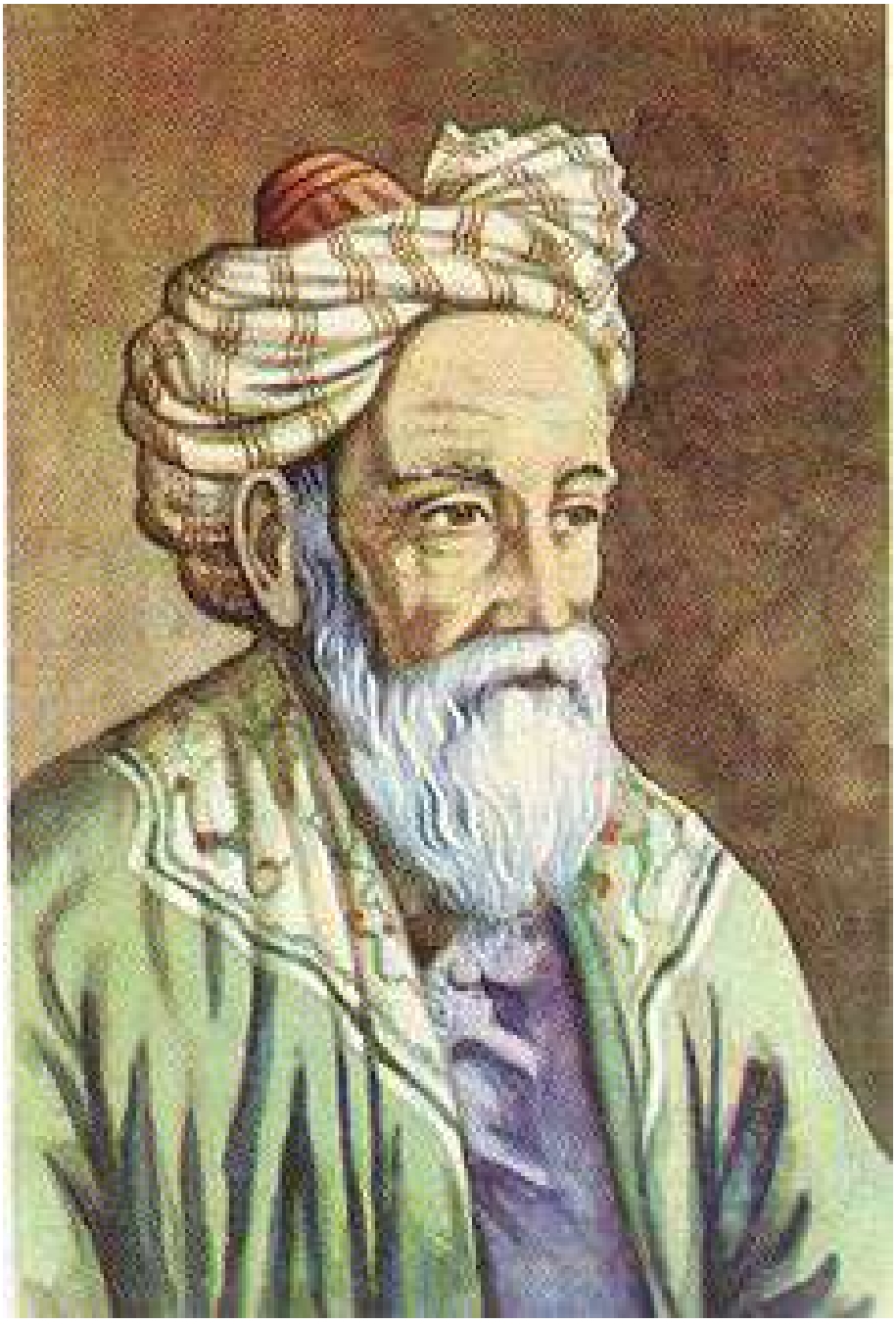

Figure 6.29: **Omar Khayyam was a Persian mathematician, astronomer and poet. His work in mathematics was notable for his solutions to cubic equations, his understanding of the binomial theorem, and his discussions of the axioms of Euclid. As an astronomer, he directed the building of an observatory to reform the Persian calendar. Omar Khayyam's long poem, *Rubaiyat*, is known to western readers through Edward Fitzgerald's brilliant translation.**

Figure 6.30: **The beautiful red-haired American poet, Edna St. Vincent Millay (1892-1950), was the daughter of a divorced, poor, but very literate, mother, Millay grew up in Maine. At 14, she won the St. Nicolas Gold Badge for poetry, and by 15, she had published her poetry in the high-profile anthology, Current Literature. She was able attend Vassar College, because her fees were paid by an admirer who was impressed by her talent. Millay often wrote sonnets, combining classic form with modern imagery, and many consider her sonnets to be the best written in the 20th century. The English novelist, Thomas Hardy, said of her, "America has two attractions: skyscrapers and Edna St. Vincent Millay".**

6.12 Lives in Painting

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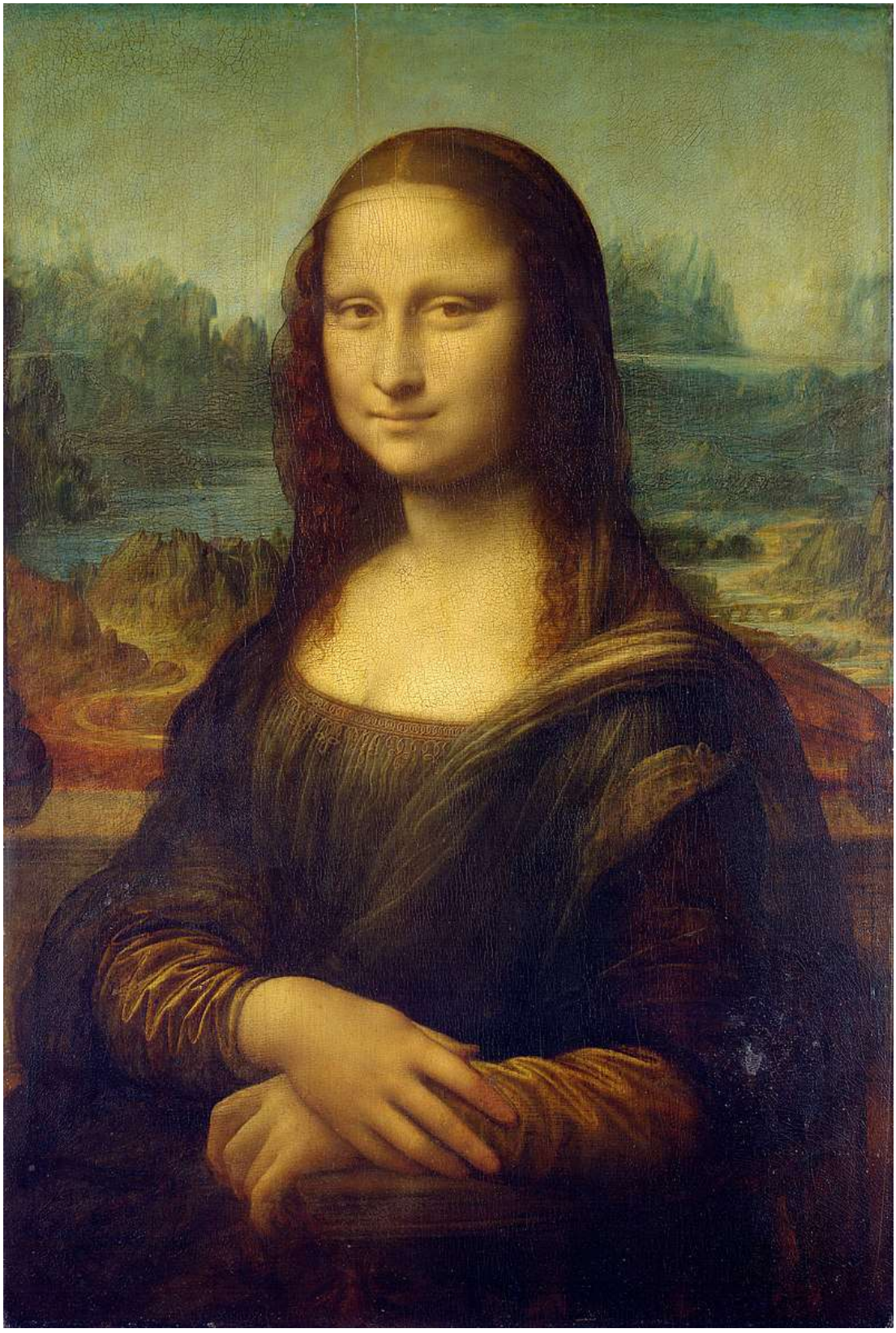

Figure 6.31: ***Mona Lisa*, 1503-1507, by Leonardo da Vinci, Louvre, Paris.**

Figure 6.32: **Katsushika Hokusai, *The Great Wave off Kanagawa*, ca. 1829-1833.**

Figure 6.33: **Picasso's *Girl Before a Mirror*, 1932, Museum of Modern Art, New York City. In the girl's face, on the left-hand side of the painting, two perspectives appear simultaneously. The girl is seen both in profile, and from the front. The use of black lines, like lines of lead between colored glass, gives the painting the luminous quality of a stained-glass window.**

6.13 Lives in Engineering

http://eacpe.org/app/wp-content/uploads/2020/01/Lives-in-Egineering-by-John-Scales-Avery.pdf

List of chapters

1. Engineering in the Ancient World
2. Leonardo as an Engineer
3. The invention of Printing
4. The Industrial Revolution
5. Canals, Railroads, Bridges and Tunnels
6. Telegraph, Radio and Telephone
7. The Internal Combustion Engine
8. The First Computers
9. Cinema and Television
10. Aviation and Space Exploration
11. Ecological Engineering
12. Society as a Superorganism

Figure 6.34: **The great pyramids at Giza.**

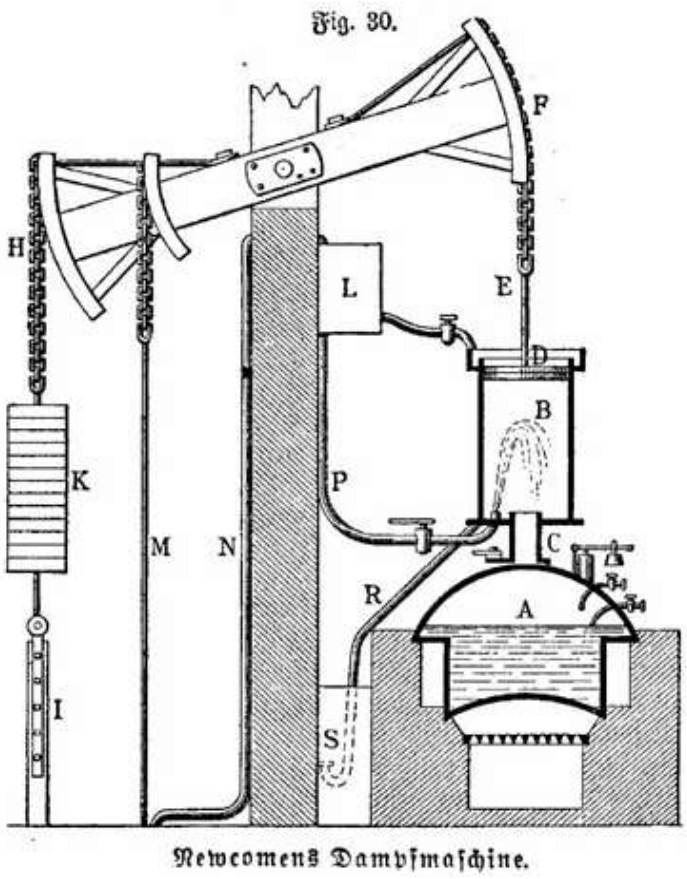

Figure 6.35: **Newcomen's steam engine.**

Figure 6.36: **An English tunnel team with their boring machine.**

6.14 Lives in Astronomy

http://eacpe.org/app/wp-content/uploads/2020/01/Lives-in-Astronomy-by-John-Scales-Avery.pdf

List of chapters

1. Early History of Astronomy
2. Copernicus, Brahe, Kepler and Galileo
3. Newton
4. Huygens, Rømer. and Maxwell
5. Einstein
6. Levitt and Hubble
7. Radio Astronomy
8. Chandrasekhar
9. Hawking, Penrse and Higgs
10. Space Exploration

Figure 6.37: **A map of the known world by Eratosthenes, surrounded by spheres on which moved the sun, moon and stars.**

Figure 6.38: **Tycho Brahe's large mural quadrant at Uranieborg.**

Figure 6.39: **A pair of interacting galaxies called Arp 273.**

6.15 Lives in Chemistry

http://eacpe.org/app/wp-content/uploads/2019/11/Lives-in-Chemistry-by-John-Scales-Avery.pdf

List of chapters

1. The Invention of Metallurgy
2. Leucippius. Democrates and Epicurus
3. Paper and Printing
4. Alchemists
5. Black, Priestley and Cavendish
6. Lavoisier
7. Dalton and Berzelius
8. Davy and Faraday
9. Boltzmann, Gibbs and Ahrrenius
10. Mendeleev
11. Quantum Theory and the Periodic Table
12. Wilkinson
13. Herschbach
14. Quantum Chemistry
15. Nanoscience

Figure 6.40: **Lavoisier explaining to his wife the results of an experiment on air, by Ernest Board.**

Figure 6.41: **Professor Sir Geoffrey Wilkinson (1921-1996).**

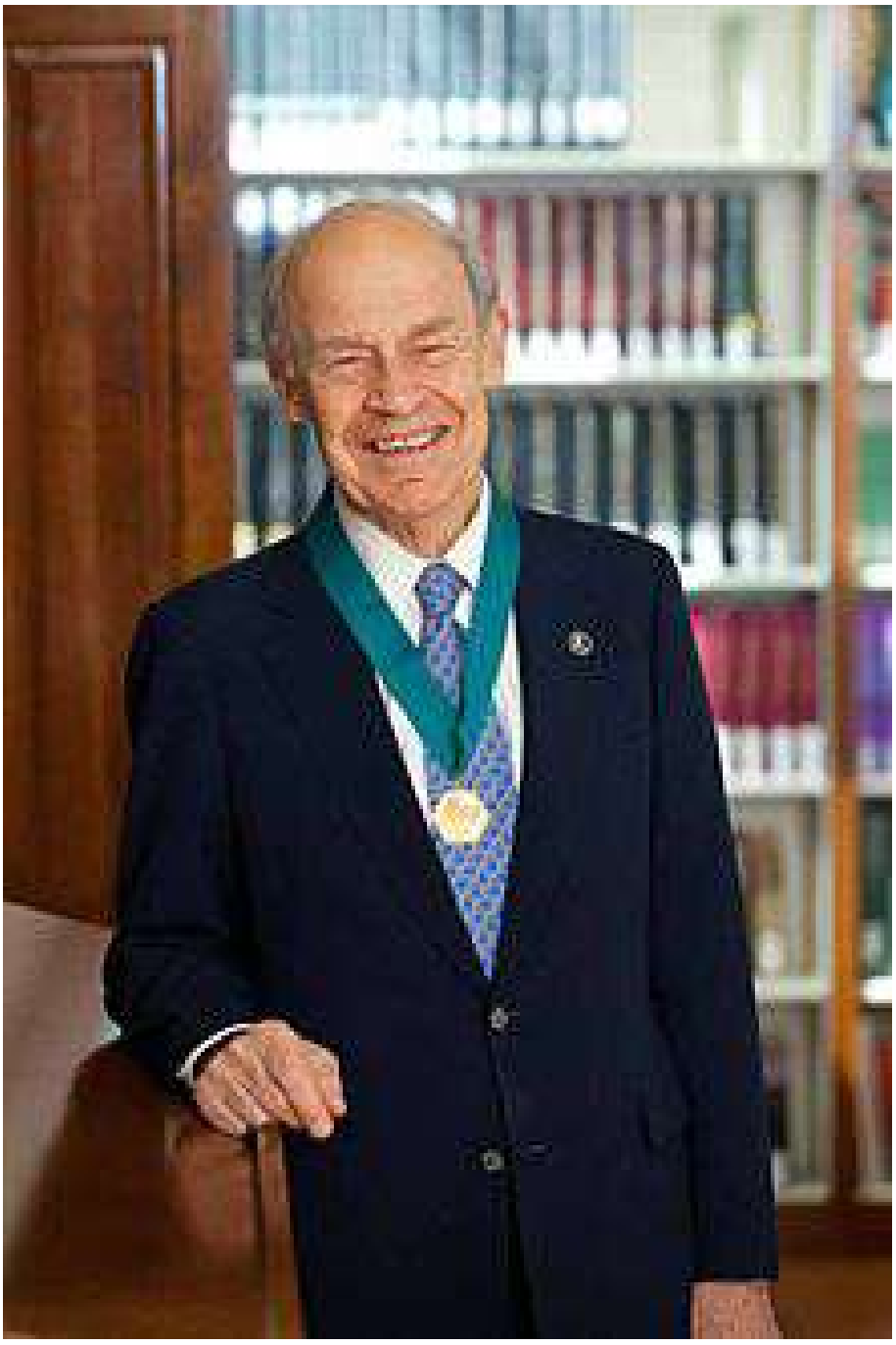

Figure 6.42: **Dudley Herschbach accepting the American Institute of Chemistry's gold medal in 2011.**

6.16 Lives in Medicine

http://eacpe.org/app/wp-content/uploads/2019/09/Lives-in-Medicine-John-Scales-Averyt.pdf

List of chapters

1. Hypocrites and Galen
2. The Bukht-Yishu Family
3. Avicenna
4. Leonardo's Anatomical Studies
5. Epidemics of Plague and Cholera
6. Jenner
7. Pasteur
8. Ehrlich, Mechnikov and Jerne
9. Flemming, Florey and Chain
10. Szent-Györgyi
11. Crick and Watson
12. The Origin of Life
13. Hodgkin, Huxley and Eccles

Figure 6.43: **Louis Pasteur in his laboratory, as painted by A. Edelfeldt.**

Figure 6.44: **Szent-Györgyi working in his laboratory.**

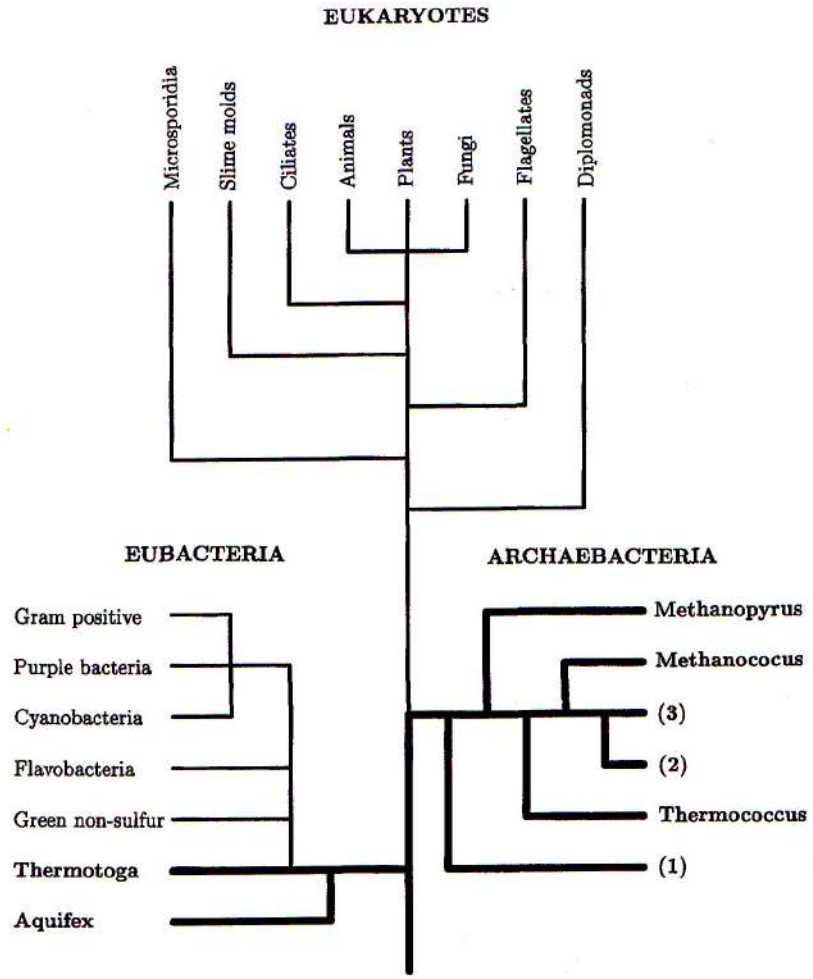

Figure 6.45: **This figure shows the universal phylogenetic tree, established by the work of Woese, Iwabe et al. Hyperthermophiles are indicated by bold lines and by bold type.**

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Figure 6.47: **Speaking at the opening ceremony of COP24, the universally loved and respected naturalist Sir David Attenborough said: "If we don't take action, the collapse of our civilizations and the extinction of much of the natural world is on the horizon."**

Figure 6.48: **Greta Thunberg on the cover of Time Magazine, The Intergovernmental Panel on Climate Change, in their October 2018 report, used strong enough language to wake up at least part of the public: the children whose future is at stake. Here is an excerpt from a speech which 16-year-old Swedish climate activist Greta Thunberg made at the Davos Economic Forum in January, 2019: "Our house is on fire. I am here to say, our house is on fire. According to the IPCC, we are less than 12 years away from not being able to undo our mistakes. In that time, unprecedented changes in all aspects of society need to have taken place, including a reduction of our CO2 emissions by at least 50%..."**

6.18 Lives in Physics

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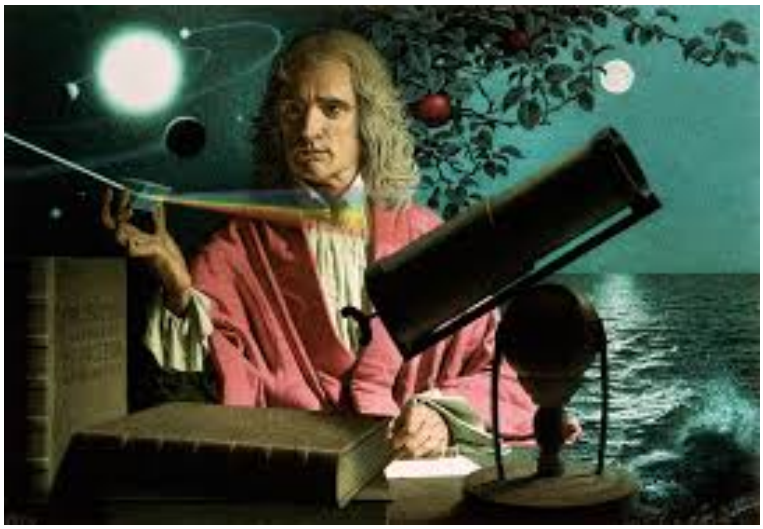

Figure 6.49: **Newton: "I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."**

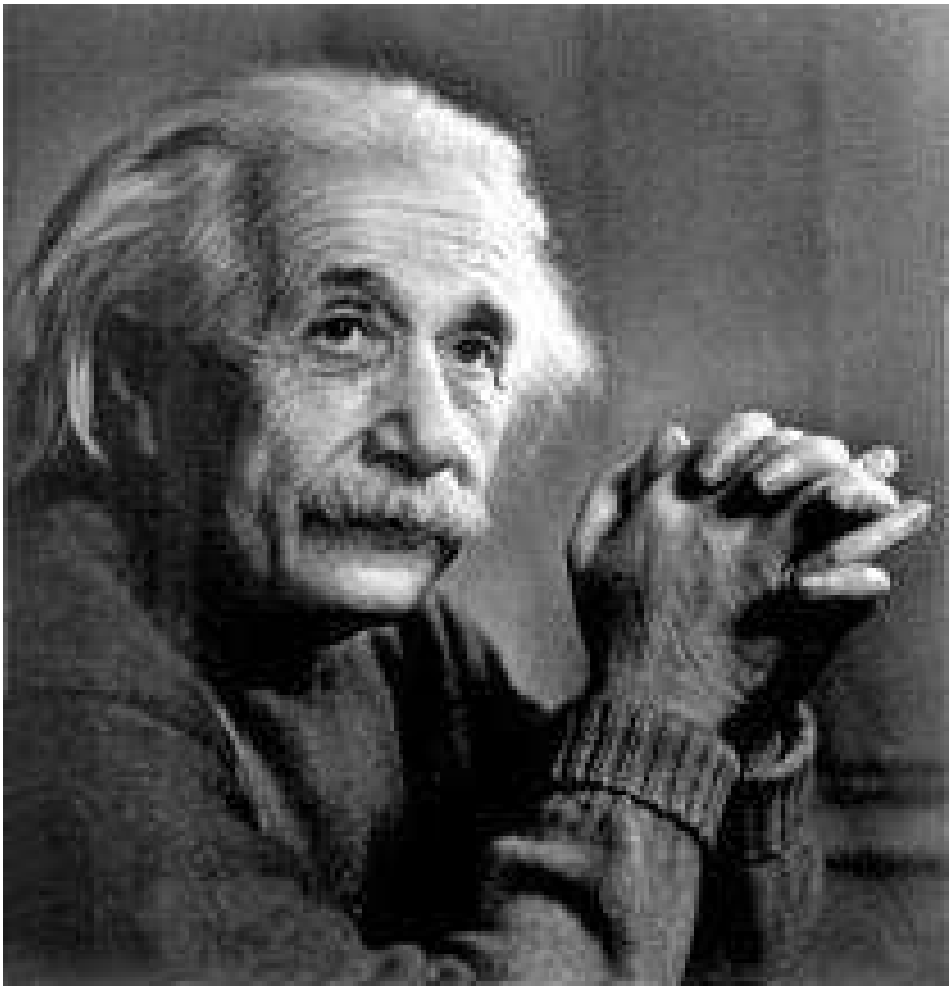

Figure 6.50: **Signing the Russell-Einstein declaration was the last public act of Einstein's life.**

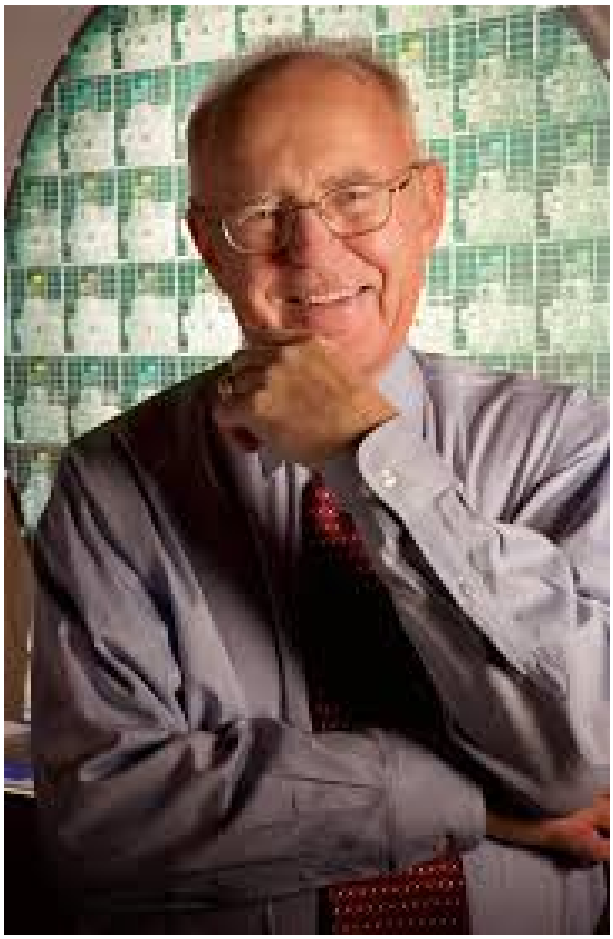

Figure 6.51: **Gordon E. Moore (born 1929), a founder of Intel and the author of Moore's Law. In 1965 he predicted that the number of components in integrated circuits would double every year for the next 10 years". In 1975 he predicted the this doubling would continue, but revised the doubling rate to "every two years. Astonishingly, Moore's Law has held much longer than he, or anyone else, anticipated.**

6.19 Lives in Economics

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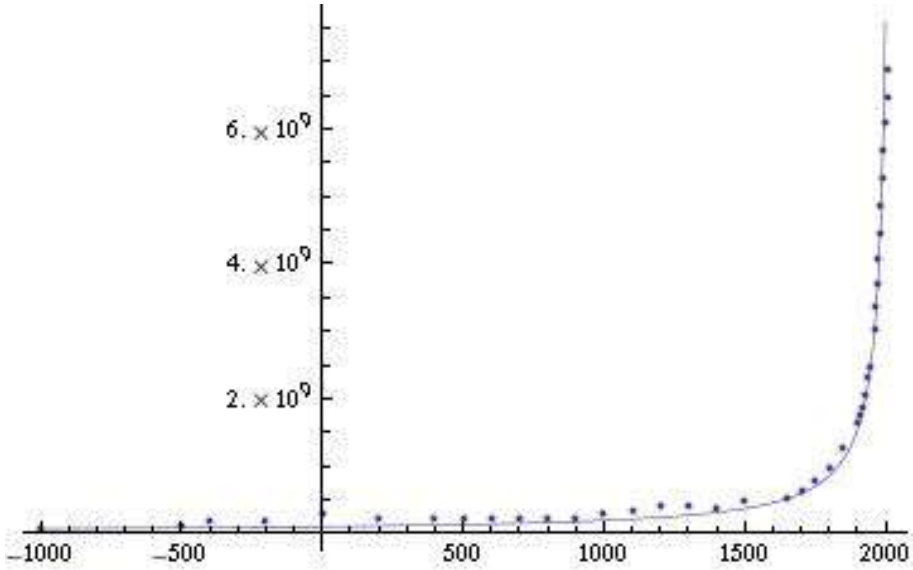

Figure 6.52: **The simple mathematical curve that fits best to human population data over the last 3,000 years is not an exponential increase, but rather a hyperbola of the form P=C/(2025-t). Here P represents population, C=190,000,000,000 and t is the year. The curve goes to infinity at t=2025 (only a few years away), which is of course impossible. Global population has already started to fall away from the hyperbolic trajectory. Will it level off, or will it crash disastrously? Because of the enormous amount of human suffering that would be involved in a population crash, the question has great importance.**

Figure 6.53: **The Utilitarian philosopher and economist James Mill (1773-1836) was an early advocate of birth control. (He was the father of John Stuart Mill.)**

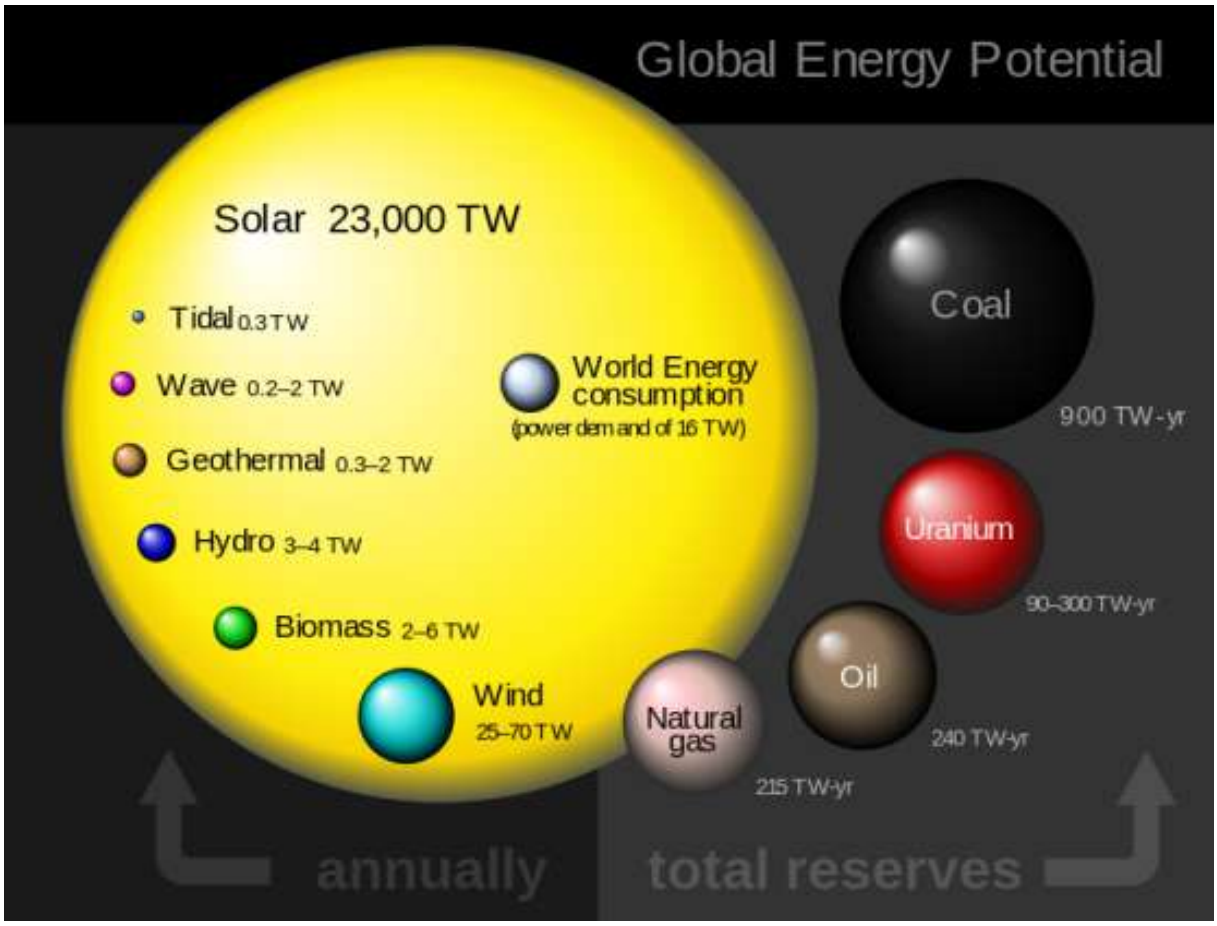

Figure 6.54: **Global energy potential. Comparison of renewable and conventional planetary energy reserves and sources. While renewables display their power potential in terawatts (TW) with the corresponding annual amount of energy, conventional sources display their total recoverable energy reserves in terawatt-years (TW-yr). Author: Rfassbind, Wikimedia Commons**

6.20 Lives in the Peace Movement

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Figure 6.56: **Lord Russell devoted much of the remainder of his life to working for the abolition of nuclear weapons. Here he is seen in 1962 in Trafalgar Square, London, addressing a meeting of the Campaign for Nuclear Disarmament.**

Figure 6.57: **In 1957, before a cheering audience of 50,000 young Soka Gakkai members, Josei Toda declared nuclear weapons to be an absolute evil. He said that their possession is criminal under all circumstances, and he called on the young people present to work untiringly to rid the world of all nuclear weapons. Source: SGI International**

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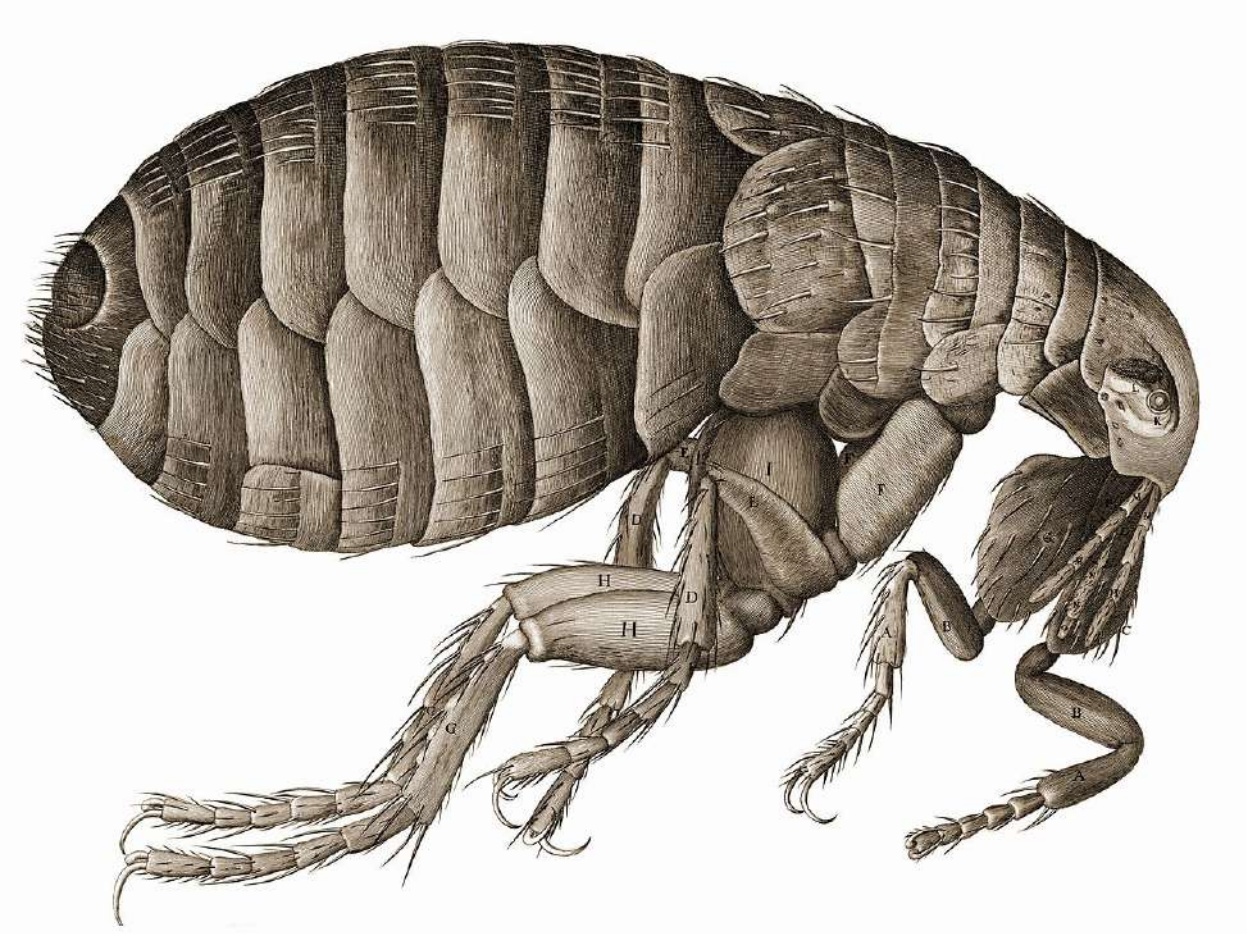

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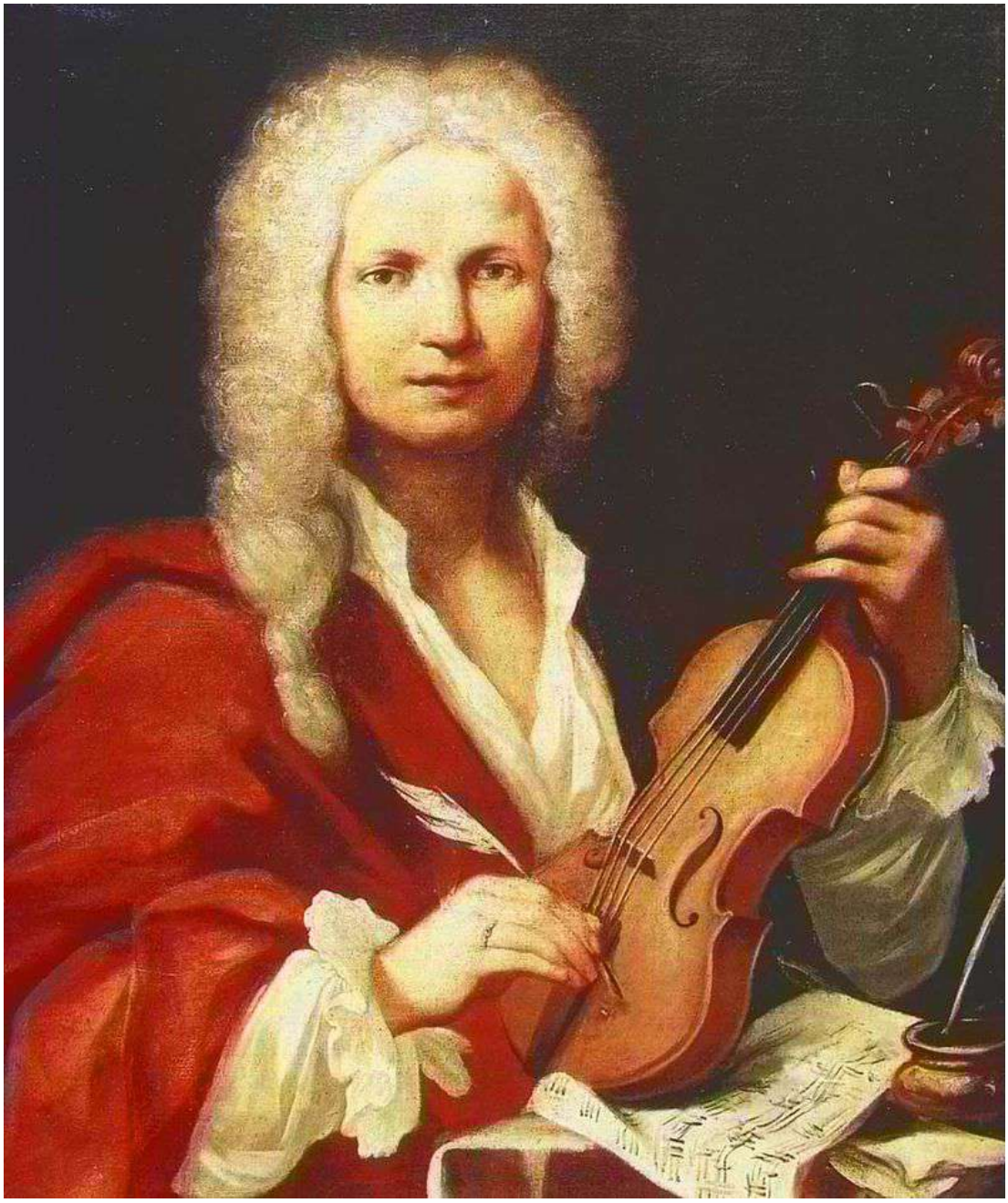

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Figure 6.62: **Captain James Cook, FRS (1728-1779). According to Cook, the native New Zealanders practiced both ceaseless war and cannibalism; and population pressure provided a motive for both practices. Malthus based his description of hunter-gatherer societies on the writings of explorers such as Cook and Vancouver.**

Figure 6.63: **An old, disheveled and completely deaf Beethoven, conducting his great 9th Symphony. The ideals of the Enlightenment remain to inspire us today. In Beethoven's choral symphony, his great music combined with Schiller's words give today's world an anthem of universal human solidarity: All men and women are brothers and sisters! Not just some but all! All!**

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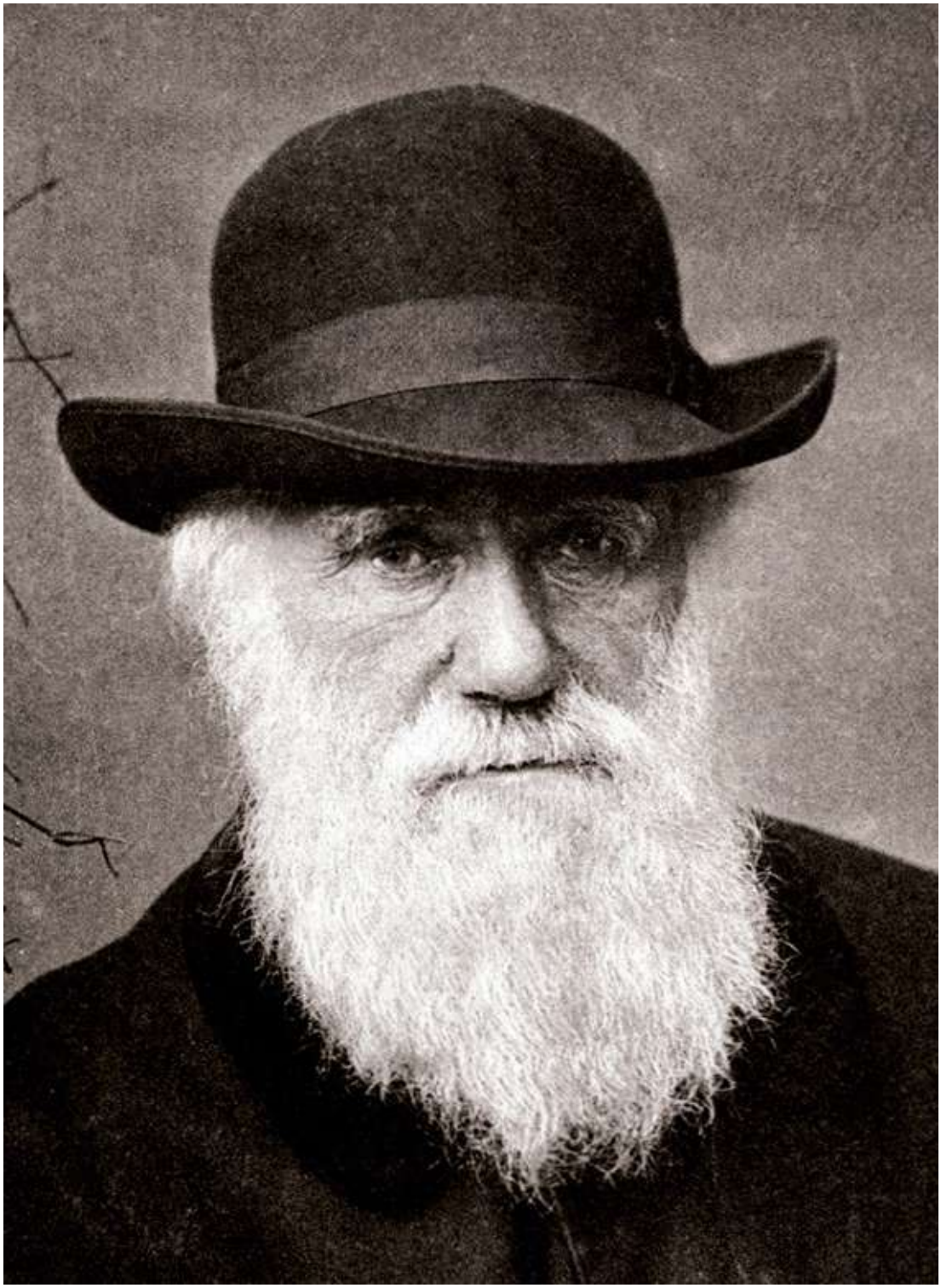

Figure 6.64: **Charles Darwin in 1880. The photograph is by Elliott and Fry.**

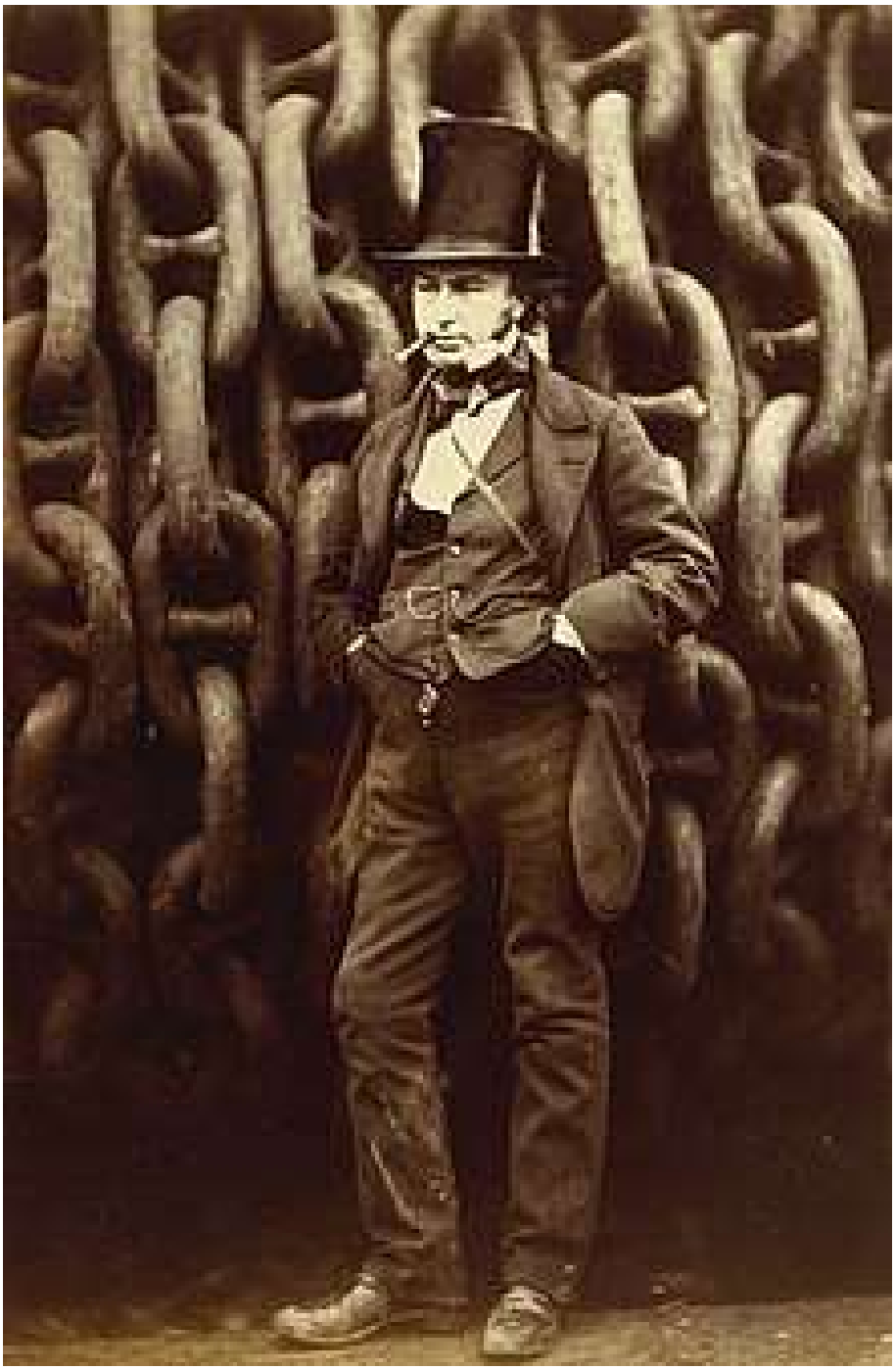

Figure 6.65: **The great 19th century engineer, Isambard Kingdom Brunel (1806-1959), beside the launching chain of the Great Eastern.**

Figure 6.66: ***Self-Portrait*, by Vincent van Gogh, 1887, Art Institute of Chicago.**

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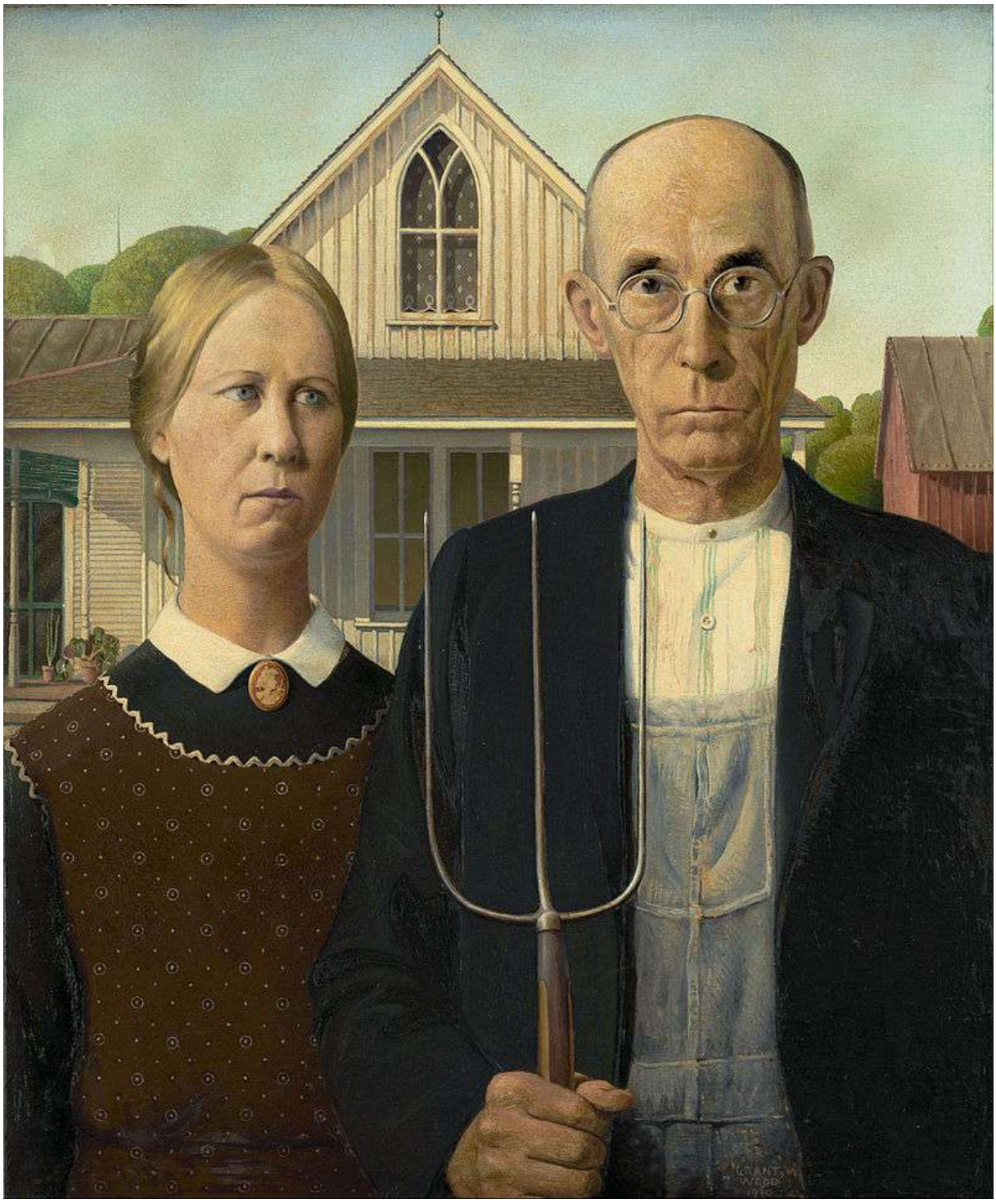

Figure 6.67: ***American Gothic*, 1930, by Grant Wood, Art Institute of Chicago.**

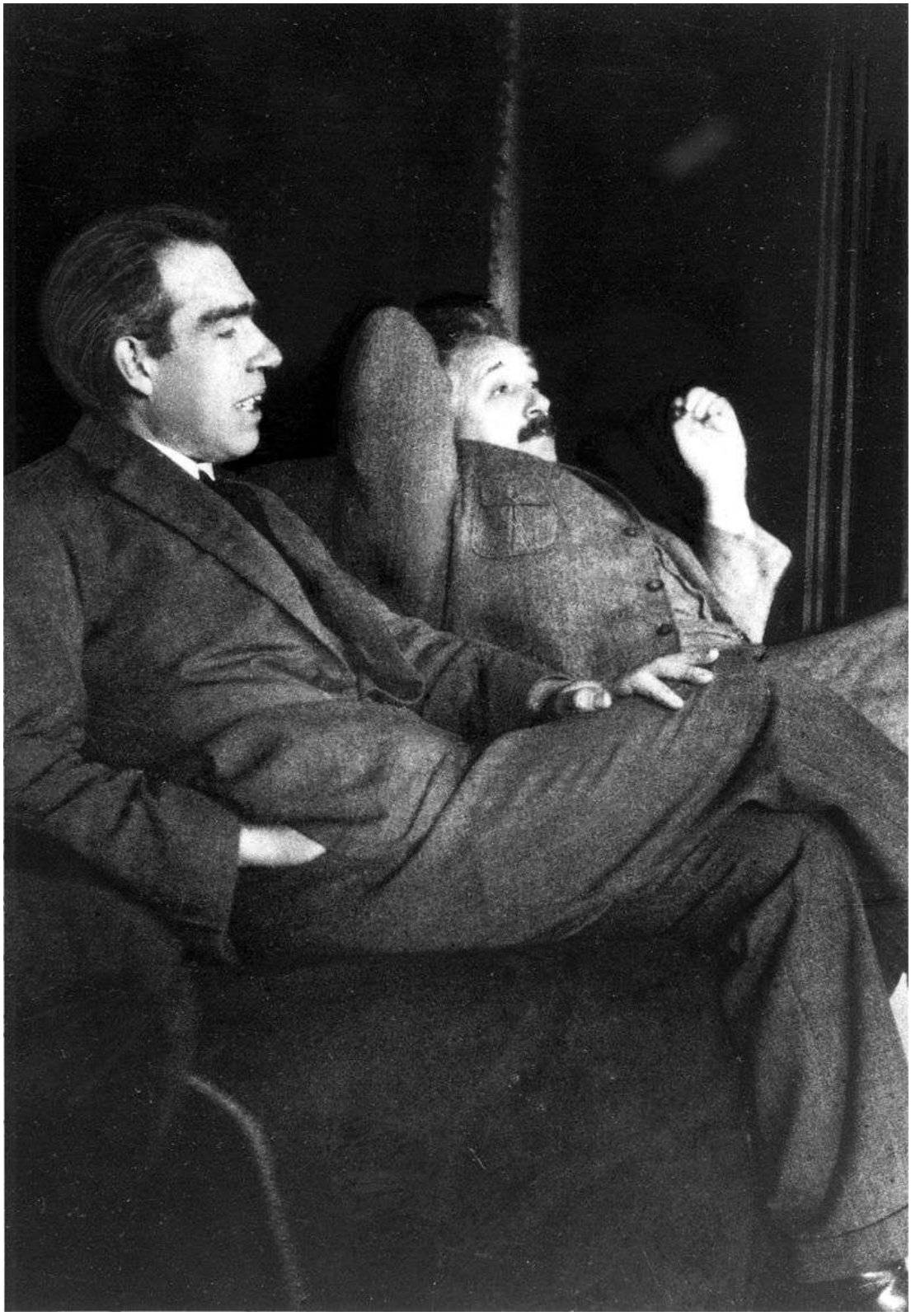

Figure 6.68: **Einstein and Niels Bohr, 1925.**

Figure 6.69: **Martin Luther King Jr. speaking in Washington. Source: American Civil Liberties Union of Virginia, acluva.org**

Chapter 7

ETHICS FOR THE FUTURE

Science investigates, religion interprets. Science gives man knowledge, which is power; religion gives man wisdom, which is control. Science deals mainly with facts; religion deals mainly with values. The two are not rivals. Martin Luther King Jr.

7.1 Some goals for the future

History has given all of us living today an enormous responsibility, and several daunting tasks: If civilization is to survive, we must not only stabilize the global population and avoid catastrophic climate, but also, even more importantly, we must eliminate the institution of war.

We face these difficult 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.

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.

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.

In the words of the great Hungarian-American biochemist Albert Szent-Györgyi, "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."

The Russell-Einstein Manifesto of 1955, which led to the founding of Pugwash Conferences on Science and World Affairs, contains the following words: "There lies before us, if we choose, continual progress in happiness, knowledge, and wisdom. Shall we, instead, choose death, because we cannot forget our quarrels? We appeal as human beings to human beings: Remember your humanity, and forget the rest."

Strengthening the United Nations

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 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.

When we ask how very large and heterogeneous states achieve internal peace and security, we find that they do so by means of laws that act directly on individual citizens. Thus, the International Criminal Court is an extremely important first step towards the globalization of the methods of governance used by large states. The power to make and enforce laws which act directly on individuals is one of the key powers of successful federations.

An extremely important first step towards strengthening the United Nations would be to give the U.N. a greatly enlarged and reliable source of income. The amount of money available to the U.N., and its member organizations such as UNESCO, WHO and FAO, should be increased by a factor of at least 50. The beneficial services rendered by expanded agencies such as WHO would give the U.N. *de facto* power and prestige that could be used in situations where conflict resolution is needed.

Various sources of increased income have been proposed:

- Dues paid to the U.N. by member states. These should be compulsory in the sense that member states would lose their voting rights if they did not pay their dues.
- Revenues from resources belonging to the international community, for example seabed resources.
- A tax on multinational corporations for the service of regulating international agreements.
- The Tobin tax, i.e. a tax of between 0.1% and 1% on international currency transactions.

12 European countries favor the Tobin tax. These include France and Germany, although not the U.K.

Tobin taxes are in place in some of the world's fastest-growing financial centers - Hong Kong, Mumbai, Seoul, Johannesburg and Taipei - where they are said to collectively raise 12 billion U.K. pounds a year.

The volume of international currency transactions is so enormous that a universally imposed Tobin tax of only 0.5% would raise between $100 billion and $300 billion per year. In 2015 the total UN budget was only $5.6 billion, an absurdly small sum, considering the enormous importance of global governance, or the fact that the world spends $2 trillion each year on armaments..

7.2 The ethics of Mahatma Gandhi

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

Avoiding escalation of conflicts

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

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

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

The power of truth

Gandhi was trained as a lawyer, and when he began to practice in South Africa, in his first case, he was able to solve a conflict by proposing a compromise that satisfied both parties. Of this result he said, "My joy was boundless. I had learnt the true practice of law. I had learnt to find out the better side of human nature and to enter men's hearts. I realized that the true function of a lawyer was to unite parties riven asunder." When Gandhi became involved with the struggle for civil rights of the Indian minority in South Africa, his background as a lawyer once more helped him. This time his jury was public

Figure 7.1: **Mahatma Gandhi firmly rejected the insidious doctrine that "the end justifies the means".**

opinion in England. When Gandhi lead the struggle for reform, he insisted that the means of protest used by his followers should be non-violent, even though violence was frequently used against them. In this way they won their case in the court of public opinion. Gandhi called this method of protest "satyagraha", a Sanskrit word meaning "the power of truth". In today's struggles for justice and peace, the moral force of truth and nonviolence can win victories in the court of world public opinion.

Harmony between religious groups

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

Solidarity with the poor

Today's world is characterized by intolerable economic inequalities, both between nations and within nations. 8 million children die each year from poverty-related causes. 1.3 billion people live on less than 1.25 dollars a day. Gandhi's concern for the poor can serve as an example to us today, as we work to achieve a more equal world. He said, "There is enough for every man's need, but not for every man's greed."

Voluntary reduction of consumption

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

Gandhian economics

In his autobiography, Mahatma 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).

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 re-acquaint himself with conditions in India, he travelled 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).

Disturbed by the spectacle of unemployment and poverty in the villages, Gandhi urged the people of India to stop buying imported goods, especially cloth, and to make their own. He advocated the re-introduction of the spinning wheel into village life, and he often spent some hours spinning himself. The spinning wheel became a symbol of the Indian independence movement, and was later incorporated into the Indian flag.

The movement for boycotting British goods was called the "Swadeshi movement". The word Swadeshi derives from two Sanskrit roots: Swa, meaning self, and Desh, meaning country. Gandhi described Swadeshi as "a call to the consumer to be aware of the violence he is causing by supporting those industries that result in poverty, harm to the workers and to humans or other creatures."

Gandhi tried to reconstruct the crafts and self-reliance of village life that he felt had been destroyed by the colonial system. "I would say that if the village perishes, India will perish too", he wrote, "India will be no more India. Her own mission in the world will get lost. The revival of the village is only possible when it is no more exploited. Industrialization on a mass scale will necessarily lead to passive or active exploitation of the villagers as problems of competition and marketing come in. Therefore we have to concentrate on the village being self-contained, manufacturing mainly for use. Provided this character of the village industry is maintained, there would be no objection to villagers using even the modern machines that they can make and can afford to use. Only they should not be used as a means of exploitation by others."

"You cannot build nonviolence on a factory civilization, but it can be built on self-contained villages... Rural economy as I have conceived it, eschews exploitation altogether, and exploitation is the essence of violence... We have to make a choice between India of the villages that are as ancient as herself and India of the cities which are a creation of foreign domination..."

"Machinery has its place; it has come to stay. But it must not be allowed to displace necessary human labour. An improved plow is a good thing. But if by some chances, one man could plow up, by some mechanical invention of his, the whole of the land of India, and control all the agricultural produce, and if the millions had no other occupation, they would starve, and being idle, they would become dunces, as many have already become. There is hourly danger of many being reduced to that unenviable state."

In these passages we see Gandhi not merely as a pioneer of nonviolence; we see him also as an economist. Faced with misery and unemployment produced by machines, Gandhi tells us that social goals must take precedence over blind market mechanisms. If machines are causing unemployment, we can, if we wish, use labor-intensive methods instead. With Gandhi, the free market is not sacred; we can do as we wish, and maximize human happiness, rather than maximizing production and profits.

Mahatma Gandhi was assassinated by a Hindu extremist on January 30, 1948. After

his death, someone collected and photographed all his worldly goods. These consisted of a pair of glasses, a pair of sandals, a pocket watch and a white homespun loincloth. Here, as in the Swadeshi movement, we see Gandhi as a pioneer of economics. He deliberately reduced his possessions to an absolute minimum in order to demonstrate that there is no connection between personal merit and material goods. Like Veblen, Mahatma Gandhi told us that we must stop using material goods as a means of social competition. We must start to judge people not by what they have, but by what they are.

7.3 The ethics of Albert Einstein

Besides being one of the greatest physicists of all time, Albert Einstein was a lifelong pacifist, and his thoughts on peace can speak eloquently to us today. We need his wisdom today, when the search for peace has become vital to our survival as a species.

Einstein's letter to Freud: Why war?

Because of his fame, Einstein was asked to make several speeches at the Reichstag. and in all these speeches he condemned violence and nationalism, urging that these be replaced by and international cooperation and law under an effective international authority. He also wrote many letters and articles pleading for peace and for the renunciation of militarism and violence.

Einstein believed that the production of armaments is damaging, not only economically, but also spiritually. In 1930 he signed a manifesto for world disarmament sponsored by the Womens International League for Peace and Freedom. In December of the same year, he made his famous statement in New York that if two percent of those called for military service were to refuse to fight, governments would become powerless, since they could not imprison that many people. He also argued strongly against compulsory military service and urged that conscientious objectors should be protected by the international community. He argued that peace, freedom of individuals, and security of societies could only be achieved through disarmament, the alternative being "slavery of the individual and annihilation of civilization".

In letters, and articles, Einstein wrote that the welfare of humanity as a whole must take precedence over the goals of individual nations, and that we cannot wait until leaders give up their preparations for war. Civil society, and especially public figures, must take the lead. He asked how decent and self-respecting people can wage war, knowing how many innocent people will be killed.

In 1931, the International Institute for Intellectual Cooperation invited Albert Einstein to enter correspondence with a prominent person of his own choosing on a subject of importance to society. The Institute planned to publish a collection of such dialogues. Einstein accepted at once, and decided to write to Sigmund Freud to ask his opinion about

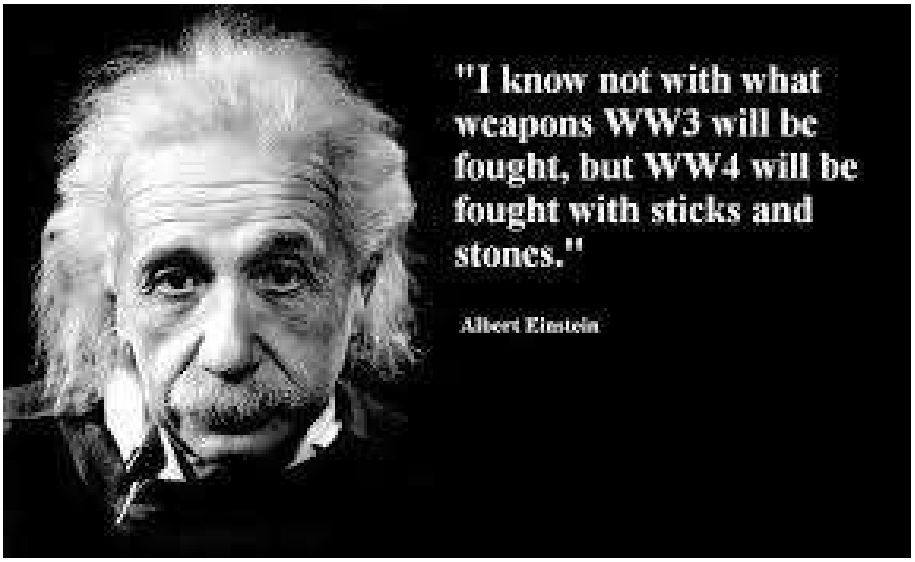

Figure 7.2:

how humanity could free itself from the curse of war. A translation from German of part of the long letter that he wrote to Freud is as follows:

"Dear Professor Freud, The proposal of the League of Nations and its International Institute of Intellectual Cooperation at Paris that I should invite a person to be chosen by myself to a frank exchange of views on any problem that I might select affords me a very welcome opportunity of conferring with you upon a question which, as things are now, seems the most important and insistent of all problems civilization has to face. This is the problem: Is there any way of delivering mankind from the menace of war? It is common knowledge that, with the advance of modern science, this issue has come to mean a matter of life or death to civilization as we know it; nevertheless, for all the zeal displayed, every attempt at its solution has ended in a lamentable breakdown."

"I believe, moreover, that those whose duty it is to tackle the problem professionally and practically are growing only too aware of their impotence to deal with it, and have now a very lively desire to learn the views of men who, absorbed in the pursuit of science, can see world-problems in the perspective distance lends. As for me, the normal objective of my thoughts affords no insight into the dark places of human will and feeling. Thus in the enquiry now proposed, I can do little more than seek to clarify the question at issue and, clearing the ground of the more obvious solutions, enable you to bring the light of your far-reaching knowledge of man's instinctive life upon the problem.."

"As one immune from nationalist bias, I personally see a simple way of dealing with the superficial (i.e. administrative) aspect of the problem: the setting up, by international consent, of a legislative and judicial body to settle every conflict arising between nations... But here, at the outset, I come up against a difficulty; a tribunal is a human institution which, in proportion as the power at its disposal is... prone to suffer these to be deflected by extrajudicial pressure..."

Freud replied with a long and thoughtful letter in which he said that a tendency towards conflict is an intrinsic part of human emotional nature, but that emotions can be overridden by rationality, and that rational behavior is the only hope for humankind.

The fateful letter to Roosevelt

Albert Einstein's famous relativistic formula, relating energy to mass, soon yielded an understanding of the enormous amounts of energy released in radioactive decay. Marie and Pierre Curie had noticed that radium maintains itself at a temperature higher than its surroundings. Their measurements and calculations showed that a gram of radium produces roughly 100 gram-calories of heat per hour. This did not seem like much energy until Rutherford found that radium has a half-life of about 1,000 years. In other words, after a thousand years, a gram of radium will still be producing heat, its radioactivity only reduced to one-half its original value. During a thousand years, a gram of radium produces about a million kilocalories, an enormous amount of energy in relation to the tiny size of its source! Where did this huge amount of energy come from? Conservation of energy was one of the most basic principles of physics. Would it have to be abandoned?

The source of the almost-unbelievable amounts of energy released in radioactive decay could be understood through Einstein's formula equating the energy of a system to its mass multiplied by the square of the velocity of light, and through accurate measurements of atomic weights. Einstein's formula asserted that mass and energy are equivalent. It was realized that in radioactive decay, neither mass nor energy is conserved, but only a quantity more general than both, of which mass and energy are particular forms. Scientists in several parts of the world realized that Einstein's discovery of the relationship between mass and energy, together with the discovery of fission of the heavy element uranium meant that it might be possible to construct a uranium-fission bomb of immense power.

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 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 desperate 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 Hindenburg. 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 Italian physicist 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 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 of 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 a port, might very well destroy

the whole port, together with some of the surrounding territory.."

The letter also called Roosevelt's attention to the fact that Germany had already stopped the export of uranium from the Czech mines under German control. After making a few corrections, Einstein signed it. 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 Szilard's letter to Roosevelt. He said repeatedly that signing the letter was the greatest mistake of his life, and his remorse was extreme.

Throughout the remainder of his life, in addition to his scientific work, Einstein worked tirelessly for peace, international understanding and nuclear disarmament. His last public act, only a few days before his death in 1955, was to sign the Russell-Einstein Manifesto, warning humankind of the catastrophic consequences that would follow from a war with nuclear weapons.

A few more things that Einstein said about peace:

We cannot solve our problems with the same thinking that we used when we created them.

It has become appallingly obvious that our technology has exceeded our humanity.

Peace cannot be kept by force; it can only be achieved by understanding.

The world is a dangerous place to live; not because of the people who are evil, but because of the people who don't do anything about it.

Insanity: doing the same thing over and over again and expecting to get different results.

Nothing will end war unless the people themselves refuse to go to war.

Past thinking and methods did not prevent world wars. Future thinking must prevent war.

You cannot simultaneously prevent and prepare for war.

Never do anything against conscience, even if the state demands it.

Taken as a whole, I would believe that Gandhi's views were the most enlightened of all political men of our time.

Without ethical culture, there is no salvation for humanity.

War seems to me to be a mean, contemptible thing: I would rather be hacked in pieces than take part in such an abominable business. And yet so high, in spite of everything, is my opinion of the human race that I believe this bogey would have disappeared long ago, had the sound sense of the nations not been systematically corrupted by commercial and political interests acting through the schools and the Press.

7.4 The ethics of Saint Francis

The life of Saint Francis

Saint Francis of Assisi was born in 1181 in the Italian hilltop town of Assisi. His father, Pietro di Bernardone, was a prosperous silk merchant, and his mother Pica de Bourlemont, was a noblewoman from Provence. Saint Francis was originally called Giovanni, but his father later renamed him Francesco because of his successful business dealings in France and his admiration for all things French.

After leading the ordinary (somewhat dissolute) life of a wealthy young man of that period, Saint Francis underwent a religious conversion, following which he renounced his inheritance and embraced a life of poverty. Although not ordained as a priest, he began teaching what he believed to be the true Christian message. He soon acquired a small group of followers, and he traveled with them to Rome to ask Pope Innocent III for permission to found a new religious order. During his life, Saint Francis founded three religious orders.

Saint Francis continued to preach, and is even said to have preached to birds and animals, whom he regarded as his sisters and brothers. His attitude towards nature can be seen in his "Canticle of the Sun":

Canticle of the Sun

Most High, all powerful, good Lord,
Yours are the praises, the glory, the honor,
and all blessing.

To You alone, Most High, do they belong,
and no man is worthy to mention Your name.

Be praised, my Lord, through all your creatures,
especially through my lord Brother Sun,
who brings the day; and you give light through him.

Figure 7.3: **Saint Francis**

And he is beautiful and radiant in all his splendor!
Of you, Most High, he bears the likeness.

Praise be You, my Lord, through Sister Moon
and the stars, in heaven you formed them
clear and precious and beautiful.

Praised be You, my Lord, through Brother Wind,
and through the air, cloudy and serene,
and every kind of weather through which
You give sustenance to Your creatures.

Praised be You, my Lord, through Sister Water,
which is very useful and humble and precious and chaste.

Praised be You, my Lord, through Brother Fire,
through whom you light the night and he is beautiful
and playful and robust and strong.

Praised be You, my Lord, through Sister Mother Earth,
who sustains us and governs us and who produces
varied fruits with colored flowers and herbs.

Praised be You, my Lord,
through those who give pardon for Your love,
and bear infirmity and tribulation.

Blessed are those who endure in peace
for by You, Most High, they shall be crowned.

Praised be You, my Lord,
through our Sister Bodily Death,
from whom no living man can escape.

Woe to those who die in mortal sin.
Blessed are those whom death will
find in Your most holy will,
for the second death shall do them no harm.

Praise and bless my Lord,
and give Him thanks
and serve Him with great humility.

Canonization

Pope Gregory IX canonized Francis on 16 July 1228. Along with Saint Catherine of Sienna, he was designated Patron Saint of Italy. He later became associated with patronage of animals and the natural environment, and it became customary for Catholic and Anglican churches to hold ceremonies blessing animals on his feast day of 4 October.

A prayer of Saint Francis

Blessed is he who loves and does not therefore desire to be loved;
Blessed is he who fears and does not therefore desire to be feared;
Blessed is he who serves and does not therefore desire to be served;
Blessed is he who behaves well toward others and does not desire that others behave well toward him;

7.5 The ethics of Pope Francis

Despite the worrying nature of the threats that we are facing, there are reasons for hope. One of the greatest of these is the beautiful, profound and powerful encyclical that has just been released by Pope Francis.

When he accepted the responsibility for leading the world's 1.2-billion-strong Catholic Church, Cardinal Bergoglio of Argentina adopted the name Francis, after the universally loved Saint Francis of Assisi, whose life of simplicity, love for the poor, and love of nature he chose as the model for his Papacy. The Pope's inspiring encyclical letter "Laudato Si' " takes its name from a canticle of Saint Francis, that begins with the words "Praise be to you, my Lord, through our sister, mother Earth, who sustains and governs us..."

We can remember that Saint Francis regarded birds and animals as his brothers and sisters. He even thought of the sun, moon, clouds, rain and water as brothers and sisters. Like his chosen namesake, Pope Francis stresses the unity of all of nature, and our kinship with all of creation. Francis appeals to love. We can be saved through love.

His encyclical is addressed not only to Catholics, but also to all men and women of good will, and almost all of its 102 pages appeal to moral sensibilities and rational arguments that can be shared by all of us. Pope Francis stresses that the natural world that sustains us is in grave danger from our ruthless exploitation and greed-driven destruction of all the beauty and life that it contains: animals, forests, soil, and air.

Pope Francis tells us that the dictates of today's economists are not sacred: In the future, if we are to survive, economics must be given both a social conscience and an ecological conscience. Nor are private property and profits sacred. They must be subordinated to the common good, and the preservation of our global commons.

Less focus on material goods need not make us less happy. The quality of our lives can be increased, not decreased, if we give up our restless chase after power and wealth, and derive more of our pleasures from art, music and literature, and from conversations with

Figure 7.4: **Pope Francis reminds us that Christian ethics require both respect and care for the earth and elimination of the institution of war.**

our families and friends, Please read this great encyclical in its entirety. It can give us hope and courage as we strive to make the changes that are needed to avert an ecological mega-catastrophe.

Don Joao Mamede Filho is the Bishop of the Diocesis of Umuarama, commented: " 'Laudato Si', considered by environmentalists all around the world as the Green Encyclical, has become a work read by Christians and non-Christians alike in all corners of the world. In it, Pope Francis calls on us all to take care of our 'Common Home' and all that exists in it.

"In his call, the Pope reaffirms that the planet is a common good that must be preserved and guarded. Therefore, it is our duty to refrain from any human activity that may degrade, pollute or pose any kind of threat or risk to our planet and those who inhabit it.

"'Laudato Si' also presents a strong and persisting plea for a shift towards a new energy and development model, leaving fossil fuels behind. Since these energy sources are responsible for the highest emissions of greenhouse gases, they pollute, render climate changes more intense, bring on diseases, and kill.

"It is important to remember that, at the beginning of Creation, an organic relationship between all living beings was established. All that exists is connected and coexists in a sustainable and wholesome manner. However, by choosing dirty energy sources such as fossil fuels, which leave trails of destruction behind them, we disconnect ourselves from our surroundings and ignore the harm they may cause us and to our fellow creatures."

Figure 7.5: **The message of Beethoven's Choral 9th: All humans are brothers and sisters! Not just some - All!**

7.6 All humans are brothers and sisters!

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

7.7 The ethics of Henry David Thoreau

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

and growth.

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

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

Nonviolent civil disobedience

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

In his essay, Thoreau said: "A common and natural result of an undue respect for law is that you may see a file of soldiers, colonel, captain, corporal, privates, powder-monkeys, and all marching in admirable order over hill and dale to the wars, against their wills, ay, against their common sense and consciences, which makes it very steep marching indeed, and produces a palpitation of the heart. They have no doubt that it is a damnable business in which they are concerned; they are all peaceably inclined. Now, what are they? Men at all? or small movable forts and magazines, at the service of some unscrupulous man in power?"

"Under a government that which imprisons any unjustly", Thoreau wrote, "the true place for a just man is in prison." Civil Disobedience influenced Tolstoy, Gandhi and Martin Luther King, and it anticipated the Nuremberg Principles.

Harmony with nature

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

Nathaniel Hawthorne described Thoreau in the following words: "Mr. Thorow [sic] is a keen and delicate observer of nature, a genuine observer, which, I suspect, is almost as rare a character as even an original poet; and Nature, in return for his love, seems to adopt him as her especial child, and shows him secrets which few others are allowed to witness. He is familiar with beast, fish, fowl, and reptile, and has strange stories to tell of adventures, and friendly passages with these lower brethren of mortality. Herb and flower, likewise, wherever they grow, whether in garden, or wild wood, are his familiar friends. He is also

Figure 7.6: **Thoreau, with his cabin at Walden Pond in the background.**

on intimate terms with the clouds and can tell the portents of storms. It is a characteristic trait, that he has a great regard for the memory of the Indian tribes, whose wild life would have suited him so well; and strange to say, he seldom walks over a plowed field without picking up an arrow-point, a spear-head, or other relic of the red men, as if their spirits willed him to be the inheritor of their simple wealth."

Walden, an experiment in simple living

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

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

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

Elsewhere in "Walden", Thoreau remarks, "It is never too late to give up your prejudices", and he also says, "Why should we be in such desperate haste to succeed, and in such desperate enterprises? If a man does not keep pace with his companions, perhaps it is because he hears a different drummer." Other favorite quotations from Thoreau include "Rather than love, than money, than fame, give me truth", "Beware of all enterprises that require new clothes", "Most men lead lives of quiet desperation" and "Men have become tools of their tools."

Thoreau's closeness to nature can be seen from the following passage, written by his friend Frederick Willis, who visited him at Walden Pond in 1847, together with the Alcott family: "He was talking to Mr. Alcott of the wild flowers in Walden woods when, suddenly stopping, he said: 'Keep very still and I will show you my family.' Stepping quickly outside

the cabin door, he gave a low and curious whistle; immediately a woodchuck came running towards him from a nearby burrow. With varying note, yet still low and strange, a pair of gray squirrels were summoned and approached him fearlessly. With still another note several birds, including two crows flew towards him, one of the crows nestling upon his shoulder. I remember that it was the crow resting close to his head that made the most vivid impression on me, knowing how fearful of man this bird is. He fed them all from his hand, taking food from his pocket, and petted them gently before our delighted gaze; and then dismissed them by different whistling, always strange and low and short, each wild thing departing instantly at hearing his special signal."

Thoreau's views on religion

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

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

In one of his essays, Thoreau wrote: "If a man walk in the woods for love of them half of each day, he is in danger of being regarded as a loafer; but if he spends his whole day as a speculator, shearing off those woods and making the earth bald before her time, he is esteemed an industrious and enterprising citizen."

A few more things that Thoreau said

It is the beauty within us that makes it possible for us to recognize the beauty around us. The question is not what you look at, but what you see.

Simplify your life. Don't waste the years struggling for things that are unimportant. Don't burden yourself with possessions. Keep your needs and wants simple and enjoy what you have. Don't destroy your peace of mind by looking back, worrying about the past. Live in the present. Simplify!

Go confidently in the direction of your dreams. Live the life you've imagined.

Happiness is like a butterfly; the more you chase it, the more it will elude you, but if you turn your attention to other things, it will come and sit softly on your shoulder.

Rather than love, than money, than fame, give me truth.

The mass of men lead lives of quiet desperation.

You must live in the present, launch yourself on every wave, find your eternity in each moment. Fools stand on their island of opportunities and look toward another land. There is no other land; there is no other life but this

Be not simply good, be good for something,

Books are the treasured wealth of the world and the fit inheritance of generations and nations.

If you have built castles in the air, your work need not be lost; that is where they should be. Now put the foundations under them.

If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music he hears, however measured or far away.

The greatest compliment that was ever paid me was when one asked me what I thought, and attended to my answer.

We need the tonic of wildness...At the same time that we are earnest to explore and learn all things, we require that all things be mysterious and unexplorable, that land and sea be indefinitely wild, unsurveyed and unfathomed by us because unfathomable. We can never have enough of nature.

7.8 The message of Bertha von Suttner

Early life and marriage

Baroness Bertha von Suttner (1843-1914) was born in Prague as Countess Kinsky. She was the posthumous daughter of a Field Marshall, and during the first part of her life, she accepted the military traditions of her family. Later she vigorously opposed militarism, and she became a leader of the peace movement. It was her arguments that persuaded Alfred Nobel to establish the Nobel Peace Prize, and in 1905 she became the first woman to receive the prize.

After serving as Alfred Nobel's secretary (and close friend) in Paris (1876), Bertha married Baron Arthur von Suttner. However, the von Suttner family was strongly opposed to the marriage, and the young couple left for the Caucasus where for nine years they earned a living by giving lessons in languages and music. During this period, Bertha von Suttner became a highly successful writer.

Figure 7.7: **Bertha von Suttner**

In 1885 the von Suttner family relented, and welcomed the couple back to Austria. Here Bertha von Suttner wrote most of her books, including her many novels. The couple's life was oriented almost solely toward the literary until, through a friend, they learned about the International Arbitration and Peace Association1 in London and about similar groups on the Continent, organizations that had as an actual working objective what they had now both accepted as an ideal: arbitration and peace in place of armed force.

Bertha von Suttner immediately added material on this to her second serious book, *Das Maschinenzeitalter (The Machine Age)* which, when published early in 1889. Her book was much discussed and reviewed. It criticizing many aspects of the times, and it was among the first to foretell the results of exaggerated nationalism and armaments. Her novel *Lay Down Your Arms*, published in the same year, had a huge impact.

The 1905 Nobel Peace Prize

Here are some excerpts from Bertha von Suttner's acceptance speech:

One of the eternal truths is that happiness is created and developed in peace, and one of the eternal rights is the individual's right to live. The strongest of all instincts, that of self-preservation, is an assertion of this right, affirmed and sanctified by the ancient commandment "Thou shalt not kill."

It is unnecessary for me to point out how little this right and this commandment are respected in the present state of civilization. Up to the present time, the military organization of our society has been founded upon a denial of the possibility of peace, a contempt for the value of human life, and an acceptance of the urge to kill...

It is erroneous to believe that the future will of necessity continue the trends of the past and the present. The past and present move away from us in the stream of time like the passing landscape of the riverbanks, as the vessel carrying mankind is borne inexorably by the current toward new shores...

"If you keep me in touch with developments, and if I hear that the Peace Movement is moving along the road of practical activity, then I will help it on with money." These words were spoken by that eminent Scandinavian to whom I owe this opportunity of appearing before you today, Ladies and Gentlemen. Alfred Nobel said them when my husband and I visited with him in 1892 in Bern, where a peace congress was in progress...

..although the supporters of the existing structure of society, which accepts war, come to a peace conference prepared to modify the nature of war, they are basically trying to keep the present system intact. The advocates of pacifism, inside and outside the Conference, will, however, defend their objectives and press forward... to "bring nearer the time when the sword shall not be the arbiter among nations".

A few more things the Bertha von Suttner said about peace

Strange how blind people are! They are horrified by the torture chambers of the Middle Ages, but their arsenals fill them with pride!

After the verb 'to Love', 'to Help' is the most beautiful verb in the world.

7.9 Helen Keller's message

Childhood

Helen was a normal child until the age of 19 months, when she contracted an illness which may have been scarlet fever or meningitis. It left her both deaf and blind. When Helen was 6 years old, her parents followed the advice of Alexander Graham Bell and contacted the Perkins Institute for the Blind. The Perkins Institute recommended their recent graduate Annie Sullivan, who became Helen's teacher.

Annie Sullivan, who was 20 years old at that time and also blind, began to work with Helen, spelling out words on the palm of Helen's hand. This method was unsuccessful at

Figure 7.8: **Helen Keller: Although blind, she could see injustice. Although deaf, she could hear the cries of the oppressed, and the voices of victims of war.**

first, but one day, when Annie Sullivan was spelling out "water" on one of Helen's hands while water was running over the other, Helen suddenly realized that the letters were a symbol for water. For the next many days, the child almost wore her teacher out by demanding the spelling of hundreds of other things within her experience. Annie Sullivan later became Helen's lifelong friend and companion.

Victory over a triple handicap

Starting in 1888, Helen Keller began her formal education, at first at the Perkins Institute, then at a succession of other schools. Finally, at the age of 24, with financial help from a wealthy friend of Mark Twain. Helen graduated from Radcliffe College. She was the first blind and deaf person to obtain a BA degree. On the way to this triumph, Helen had taught herself to speak normally, and she could understand what other people were saying by placing her hand on their lips.

Helen Keller quickly developed into a popular lecturer and author. She spoke and wrote to advocate many social reforms, including woman's suffrage, labour rights, socialism and antimilitarism.

The story of Helen Keller and Annie Sullivan, as told in Helen's *Autobiography*, became known to a very wide public through the drama *The Miracle Worker*, which was first produced as a radio broadcast, then as a television drams, then as a Broadway play and finally as a succession of films.

Here is a newspaper account of one of Helen Keller's lectures:

"The wonderful girl who has so brilliantly triumphed over the triple afflictions of blind-

ness, dumbness and deafness, gave a talk with her own lips on 'Happiness,' and it will be remembered always as a piece of inspired teaching by those who heard it.

"According to those who attended, Helen Keller spoke of the joy that life gave her. She was thankful for the faculties and abilities that she did possess and stated that the most productive pleasures she had were curiosity and imagination. Keller also spoke of the joy of service and the happiness that came from doing things for others ... Keller imparted that 'helping your fellow men is one's only excuse for being in this world and in the doing of things to help one's fellows lay the secret of lasting happiness.' She also told of the joys of loving work and accomplishment and the happiness of achievement. Although the entire lecture lasted only a little over an hour, the lecture had a profound impact on the audience."

A few things that Helen Keller said

Strike against war, for without you no battles can be fought! Strike against manufacturing shrapnel and gas bombs and all other tools of murder! Strike against preparedness that means death and misery to millions of human beings! Be not dumb, obedient slaves in an army of destruction! Be heroes in an army of construction.

The best and most beautiful things in the world cannot be seen or even touched - they must be felt with the heart.

Believe. No pessimist ever discovered the secrets of the stars or sailed to an uncharted land or opened a new heaven to the human spirit

Alone we can do so little. Together we can do so much!

It is for us to pray not for tasks equal to our powers, but for powers equal to our tasks, to go forward with a great desire forever beating at the door of our hearts as we travel toward our distant goal

When one door of happiness closes, another opens; but often we look so long at the closed door that we do not see the one which has been opened for us.

To keep our faces toward change, and behave like free spirits in the presence of fate, is strength undefeatable.

Self-pity is our worst enemy and if we yield to it, we can never do anything wise in the world.

Security is mostly a superstition. It does not exist in nature, nor do the children of men as a whole experience it. Avoiding danger is no safer in the long

run than outright exposure. Life is either a daring adventure or nothing

I do not want the peace that passeth understanding. I want the understanding which bringeth peace.

7.10 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 nations voted for adoption, while 8 nations abstained from voting. Not a single state voted against the Declaration. In addition, the General Assembly decided to continue work on the problem of implementing human rights. The preamble of the Declaration stated 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.

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

Many provisions of the Universal Declaration of Human Rights, for example Article 25, might be accused of being wishful thinking. In fact, Jean Kirkpatrick, former US Ambassador to the UN, called the Declaration "a letter to Santa Claus". Nevertheless, like the Millennium Development Goals, the Universal Declaration of Human Rights has great value in defining the norms towards which the world ought to be striving.

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

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

Furthermore, recent research shows that a war fought with nuclear weapons would be an ecological disaster. Smoke from burning cities would rise to the stratosphere, where it would spread globally and remain for a period of 10 years, blocking sunlight, destroying the the ozone layer, and blocking the hydrological cycle. An all-out war with thermonuclear

weapons would essentially destroy all agriculture for such a long period that most humans would die from starvation. The damage to the biosphere would also be enormous. We may ask: by what right do the nuclear nations threaten the world with a disaster of these proportions? Would not a war fought with nuclear weapons be the greatest imaginable violation of human rights? We should remember that both war in general and the use of nuclear weapons in particular violate democratic principles: The vast majority of ordinary citizens prefer peace to war, and the vast majority also long for a world without nuclear weapons.

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

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

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

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

Figure 7.9: **Eleanor Roosevelt and the Universal Declaration of Human Rights, which she helped to draft.**

7.11 The voice of Martin Luther King, Jr.

The son of a southern Baptist minister, Martin Luther King, Jr received his Ph.D. in theology from Boston University in 1955. During his studies, he had admired 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 buses. 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."

Victory in the court of public opinion

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

Welcomed to India by Nehru

In 1959, while recovering from an almost-fatal stabbing, Martin Luther King Jr. visited India at the invitation of Prime Minister Jawaharlal Nehru. Dr. King and his wife Coretta

were warmly welcomed by Nehru, who changed his schedule in order to meet them. They had an opportunity to visit a religious community or "ashram" that Gandhi had founded, and they discussed non-violence with many of Gandhi's disciples.

King is awarded the Nobel Peace Prize

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

Opposition to the Viet Nam War

In 1967, a year before his assassination, Dr. King forcefully condemned the Viet Nam war in an address at a massive peace rally in New York City. He felt that opposition to war followed naturally from his advocacy of non-violence. Speaking against the Viet Nam War, Dr. King said: "We have corrupted their women and children and killed their men. They move sadly and apathetically as we herd them off the land of their fathers into concentration camps where minimal social needs are rarely met. They know they must move on or be destroyed by our bombs ... primarily women and children and the aged watch as we poison their water, as we kill a million acres of their crops. They must weep as the bulldozers roar through their areas preparing to destroy the precious trees. They wander into the hospitals. So far we may have killed a million of them, [in Vietnam by 1967] mostly children. They wander into the towns and see thousands of the children, homeless, without clothes, running in packs on the streets like animals. They see the children degraded by our soldiers as they beg for food. They see the children selling their sisters to our soldiers, soliciting for their mothers."

Opposition to nuclear weapons

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

Assassination

On April 4, 1968, Dr. King was shot and killed. A number of people, including members of his own family, believe that he was killed because of his opposition to the Viet Nam

Figure 7.10: **Dr. Martin Luther King Jr. speaks in Washington: "I have a dream!"**

War. This conclusion is supported by the result of a 1999 trial initiated by members of the King family. Summing up the arguments to the jury, the family's lawyer said "We are dealing in conspiracy with agents of the City of Memphis and the governments of the State of Tennessee and the United States of America. We ask that you find that a conspiracy existed." After two and a half hour's deliberation, the jury found that Lloyd Jowers and "others, including governmental agencies, were parties to this conspiracy". The verdict of the jury remains judicially valid today, and it has never been overturned in a court of law, although massive efforts have been made to discredit it.

Redemptive love

Concerning the Christian principle of loving 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 by Nelson Mandela and his followers.

Here are a few more things that Martin Luther King said

I have decided to stick to love...Hate is too great a burden to bear

Faith is taking the first step even when you can't see the whole staircase.

Our lives begin to end the day we become silent about things that matter.

In the end, we will remember not the words of our enemies, but the silence of our friends.

If you can't fly then run, if you can't run then walk, if you can't walk then crawl, but whatever you do you have to keep moving forward.

Only in the darkness can you see the stars.

There comes a time when a person must take a position that is neither safe, nor politic, nor popular, but he must take it because conscience tells him it is right.

Everybody can be great...because anybody can serve. You don't have to have a college degree to serve. You don't have to make your subject and verb agree to serve. You only need a heart full of grace. A soul generated by love.

Forgiveness is not an occasional act, it is a constant attitude.

We must accept finite disappointment, but never lose infinite hope.

There is some good in the worst of us and some evil in the best of us. When we discover this, we are less prone to hate our enemies.

We must live together as brothers or perish together as fools.

Intelligence plus character - that is the goal of true education

True peace is not merely the absence of tension; it is the presence of justice.

Science investigates; religion interprets. Science gives man knowledge, which is power; religion gives man wisdom, which is control. Science deals mainly with facts; religion deals mainly with values. The two are not rivals.

The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.

We know through painful experience that freedom is never voluntarily given by the oppressor, it must be demanded by the oppressed.

Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly.

We have also come to this hallowed spot to remind America of the fierce urgency of Now. This is no time to engage in the luxury of cooling off or to take the tranquilizing drug of gradualism. Now is the time to make real the promises of democracy.

The time is always right to do what is right.

For when people get caught up with that which is right and they are willing to sacrifice for it, there is no stopping point short of victory.

All we say to America is, 'Be true to what you said on paper.' If I lived in... any totalitarian country, maybe I could understand the denial of certain basic First Amendment privileges, because they hadn't committed themselves to that over there. But somewhere I read of the freedom of assembly. Somewhere I read of the freedom of speech. Somewhere I read of the freedom of the press. Somewhere I read that the greatness of America is the right to protest for right.

We've got some difficult days ahead. But it really doesn't matter with me now because I've been to the mountaintop . . .I've looked over and I've seen the promised land. I may not get there with you. But I want you to know tonight that we as a people will get to the promised land.

7.12 ICAN wins the 2017 Nobel Peace Prize

What is ICAN?

The International Campaign to Abolish Nuclear Weapons, abbreviated ICAN, is a coalition of 468 NGO's in 101 countries. The purpose of ICAN is to change the focus in the disarmament debate to "the the humanitarian threat posed by nuclear weapons, drawing attention to their unique destructive capacity, their catastrophic health and environmental consequences, their indiscriminate targeting, the debilitating impact of a detonation on medical infrastructure and relief measures, and the long-lasting effects of radiation on the surrounding area."

ICAN was founded in 2007 by the International Physicians for the Prevention of Nuclear War, an organization which itself received a Nobel Peace Prize in 1985. IPPNW was inspired by the success of the campaign that achieved the Ottawa Treaty in 1997, a treaty which banned antipersonnel land-mines against bitter opposition from the worst offenders. Thus, from the start. ICAN envisioned a treaty passed and without the participation or signatures of the nuclear weapons states. ICAN believed that such a treaty would have the great value of unambiguously underlining the illegality, immorality and omnicidal nature of nuclear weapons. Nuclear weapons states would eventually be forced to yield to the will of the vast majority of humankind.

On July 7, 2017, the Treaty on the Prohibition of Nuclear Weapons was adopted by an overwhelming majority, 122 to 1, by the United Nations General Assembly. The adoption of the treaty, a milestone in humanity's efforts to rid itself of nuclear insanity, was to a large extent due to the efforts of ICAN's participating organizations.

On December 10, 2017 ICAN's efforts were recognized by the award of the Nobel Peace Prize. Part of the motivation for the award was the fact that the threat of a thermonuclear global catastrophe is higher today than it has been at any time since the Cuban Missile Crisis. Because of the belligerent attitudes and mental instability of Donald Trump and Kim Jong-un, the end of human civilization and much of the biosphere is, in the words of Beatrice Finn, "only a tantrum away".

Figure 7.11: **From left to right: Berit Reiss-Andersen, Chairman of the Norwegian Nobel Committee, Setsuko Thurlow, an 85-year-old survivor of the 1945 atomic bombing of Hiroshima, and ICAN Executive Director, Beatrice Finn.**

7.13 Compassion versus greed

Humans are capable of great compassion and unselfishness. Mothers and fathers make many sacrifices for the sake of their families. Kind teachers help us through childhood, and show us the right path. Doctors and nurses devote themselves to the welfare of their patients.

Sadly there is another, side to human nature, a darker side. Human history is stained with the blood of wars and genocides. Today, this dark, aggressive side of human nature threatens to plunge our civilization into an all-destroying thermonuclear war.

Humans often exhibit kindness to those who are closest to themselves, to their families and friends, to their own social group or nation. By contrast, the terrible aggression seen in wars and genocides is directed towards outsiders. Human nature seems to exhibit what might be called "tribalism": altruism towards one's own group; aggression towards outsiders. Today this tendency towards tribalism threatens both human civilization and the biosphere.

Greed, in particular the greed of corporations and billionaire oligarchs, is driving human civilization and the biosphere towards disaster.

The greed of giant fossil fuel corporations is driving us towards a tipping point after which human efforts to control climate change will be futile because feedback loops will have taken over. The greed of the military industrial complex is driving us towards a Third

World War that might develop into a catastrophic thermonuclear war. The greed of our financial institutions is also driving us towards economic collapse, as we see in the case of Greece.

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

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

The Industrial Revolution marked the start of massive human use of fossil fuels. The stored energy from several hundred million years of plant growth began to be used at roughly a million times the rate at which it had been formed. The effect on human society was like that of a narcotic. There was a euphoric (and totally unsustainable) surge of growth of both population and industrial production. Meanwhile, the carbon released into the atmosphere from the burning of fossil fuels began to duplicate the conditions which led to the 5 geologically-observed mass extinctions, during each of which more than half of all living species disappeared forever.

The Stern Review Discussion Paper of 2006 stated that "Melting of permafrost in the Arctic could lead to the release of huge quantities of methane. Dieback of the Amazon forest could mean that the region starts to emit rather than to absorb greenhouse gases. These feedbacks could lead to warming that is at least twice as fast as current high-emission projections, leading to temperatures higher than seen in the last 50 million years."

The greed of giant fossil fuel corporations has recently led them to conduct large-scale advertising campaigns to convince the public that anthropogenic climate change is not real. These corporations own vast oil, coal and gas reserves that must be kept in the ground if we are to avoid catastrophic global warming. It does not seem to bother the fossil fuel giants that if the earth is made uninhabitable, future generations of both humans and animals will perish.

When the United Nations was established in 1945, the purpose of the organization was to abolish the institution of war. This goal was built into many of the articles of the UN Charter. Accordingly, throughout the world, many War Departments were renamed and became Departments of Defense. But the very name is a lie. In an age of nuclear threats and counter-threats, populations are by no means protected. Ordinary citizens are just hostages in a game for power and money. It is all about greed.

Why is war continually threatened? Why is Russia threatened? Why is war with Iran threatened? Why fan the flames of conflict with China? Is it to "protect" civilians?

Absolutely not! In a thermonuclear war, hundreds of millions of civilians would die horribly everywhere in the world, also in neutral countries. What is really being protected are the profits of arms manufacturers. As long as there are tensions; as long as there is a threat of war, military budgets are safe; and the profits of arms makers are safe. The people in several "democracies", for example the United States, do not rule at the moment. Greed rules.

Greed and lack of ethics are built into the structure of corporations. By law, the Chief Executive Officer of a corporation must be entirely motivated by the collective greed of the stockholders. He must maximize profits. Nothing must count except the bottom line. If the CEO abandons this single-minded chase after corporate profits for ethical reasons, or for the sake of humanity or the biosphere or the future, he (or she) must, by law, be fired and replaced.

Occasionally, for the sake of their public image, corporations seem to do something for other motives than their own bottom line, but it is usually window dressing. For example, Shell claims to be supporting research on renewable energy. Perhaps there is indeed a small renewable energy laboratory somewhere in that vast corporation; but the real interest of the organization is somewhere else. Shell is sending equipment on a large scale to drill for more and more environment-destroying oil in the Arctic.

What does Christianity say about greed? Wikipedia states that "The seven deadly sins, also known as capital vices or cardinal sins, is a classification of vices (part of Christian ethics) that has been used since early Christian times to educate and instruct Christians concerning fallen humanity's tendency to sin. In the currently recognized version, the sins are usually given as wrath, greed, sloth, pride, lust, envy and gluttony. Each is a form of Idolatry-of-Self wherein the subjective reigns over the objective."

Saint Thomas Aquinas wrote: "Greed is a sin against God, just as all mortal sins, in as much as man condemns things eternal for the sake of temporal things".

In the New Testament, we can find many passages condemning greed, for example:

"For the love of money is the root of all evil: which while some coveted after, they have erred from the faith, and pierced themselves through with many sorrows." Timothy 6:10

"Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal." Mathew 6:19

In his encyclical Laudato Si', and on his recent visit to South America, Pope Francis has spoken strongly against economic activity that lacks both social and environmental ethics.

Much depends on whether we are able to break the power that corporations and extremely rich oligarchs now hold over our governments and our mass media. Pope Francis has shown by example what a world leader of courage and honesty can do. Most of us are not in such a position, but each person can do his or her best to restore democracy where it has been lost to corporate money and greed. If the mass media have sold themselves to the highest bidder, we can make our own media. If most politicians are corrupt, we can make our own political movements. As Shelly said, "We are many, they are few".

We need your voice today

Saint Francis said:

**"Blessed is he who loves and does not therefore desire to be loved;
Blessed is he who fears and does not therefore desire to be feared;
Blessed is he who serves and does not therefore desire to be served;
Blessed is he who behaves well toward others and does not desire that others behave well toward him."**

William Blake said:

**"Every Night & every Morn
Some to Misery are Born
Every Morn and every Night
Some are Born to sweet delight
Some are Born to sweet delight
Some are Born to Endless Night."**

Thomas Paine said:

"It is a perversion of terms to say that a charter gives rights. It operates by a contrary effect: that of taking rights away. Rights are inherently in all the inhabitants; but charters, by annulling those rights, in the majority, leave the right, by exclusion, in the hands of a few... They... consequently are instruments of injustice ... The fact, therefore, must be that the individuals, themselves, each, in his own personal and sovereign right, entered into a contract with each other to produce a government: and this is the only mode in which governments have a right to arise, and the only principle on which they have a right to exist."

Thomas Jefferson said:

"I know of no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them but to inform their discretion."

Mary Wollstonecraft said:

"I entreat (men) to assist to emancipate their companion, to make her a help meet for them! Would men but generously snap our chains, and be content with rational fellowship instead of slavish obedience, they would find us more

observant daughters, more affectionate sisters, more faithful wives, more reasonable mothers: in a word, better citizens."

William Godwin said:

"To whom does any article, suppose a loaf of bread, justly belong? I have an hundred loaves in my possession, and in the next street there is a poor man expiring with hunger, to whom one of these loaves would be a means of preserving his life. If I withhold this loaf from him, am I not unjust? If I impart it, am I not complying with what justice demands?"

The Marquis de Condorcet said:

"Any person who has contributed to the progress of mankind to the best of his ability becomes immune to personal disaster and suffering. He knows that human progress is inevitable and can take comfort and courage from his inner picture of the epic march of mankind, through history, towards a better future."

Thomas Robert Malthus said:

"That population cannot increase without the means of subsistence is a proposition so evident that it needs no illustration. That population does invariably increase, where there are means of subsistence, the history of every people who have ever existed will abundantly prove. And that the superior power cannot be checked without producing misery and vice, the ample portion of these two bitter ingredients in the cup of human life, and the continuance of the physical causes that seem to have produced them, bear too convincing a testimony. (He later modified this opinion and made it less pessimistic by allowing for the effect of preventive checks such as late marriage. Malthus considered birth control to be a form of vice, but today it is accepted as the most humane method of avoiding the grim Malthusian forces, famine, disease and war.")

Percy Bysshe Shelley said:

"Rise, like lions after slumber
In unvanquishable number!
Shake your chains to earth like dew
Which in sleep had fallen on you:
Ye are many, they are few!"

Robert Owen said:

"I know that society may be formed so as to exist without crime, without

poverty, with health greatly improved, with little, if any, misery. and with intelligence and happiness increased a hundredfold; and no obstacle whatsoever intervenes at this moment except ignorance to prevent such a state of society from becoming universal."

John Stuart Mill said:

"The only purpose for which power can be rightfully exercised over any member of a civilized community, against his will, is to prevent harm to others."

Henry David Thoreau said:

"Simplify your life. Don't waste the years struggling for things that are unimportant. Don't burden yourself with possessions. Keep your needs and wants simple and enjoy what you have. Don't destroy your peace of mind by looking back, worrying about the past. Live in the present. Simplify!"

Count Leo Tolstoy said:

"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."

Mahatma Gandhi said:

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

Martin Luther King said:

"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."

Wilfred Owen said:

"If in some smothering dream, 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".

Albert Einstein said:

"The unleashed power of the atom has changed everything except our ways of thinking, and thus we drift towards unparalleled catastrophes."

Edna St. Vincent Millay said:

"Man, doughty Man, what power has brought you low,
That heaven itself in arms could not persuade
To lay aside the lever and the spade
And be as dust among the dusts that blow?
Whence, whence the broadside? Whose the heavy blade?...
Strive not to speak, poor scattered mouth; I know."

Bertha von Suttner said:

"Strange how blind people are! They are horrified by the torture chambers of the Middle Ages, but their arsenals fill them with pride!"

George Orwell said:

"In a time of deceit telling the truth is a revolutionary act."

Helen Keller said:

"Strike against war, for without you no battles can be fought! Strike against manufacturing shrapnel and gas bombs and all other tools of murder! Strike

against preparedness that means death and misery to millions of human beings! Be not dumb, obedient slaves in an army of destruction! Be heroes in an army of construction."

Today, human civilization and the biosphere are facing a crisis. Here are the tasks which history has given to our generation:

- We must abolish the institution of war before modern weapons destroy us.
- We must replace institutionalized violence by a just, democratic and enforcible system of global governance and international law.
- We must stabilize and ultimately reduce global population to a level that can be supported by sustainable agriculture.
- We must leave fossil fuels in the ground.
- We must avoid the large-scale global famine which threatens us because of the combined effects of climate change, population growth and the end of the fossil fuel era.
- We must achieve a steady-state economic system. Limitless growth on a finite planet is a logical absurdity.
- We must decrease economic inequality, both between nations and within nations,
- We must strive for governments that are true democracies rather than oligarchies.
- And finally, we must develop a mature ethical system to match our new technology.

These are difficult tasks, but together we can overcome the difficulties. As Helen Keller said, *Alone we can do so little! Together we can do so much!*

At a time of crisis, with the future at stake, please don't be silent. We urgently need your voice today!

7.14 The fragility of our complex civilization

The rapid growth of knowledge

Cultural evolution depends on the non-genetic storage, transmission, diffusion and utilization of information. The development of human speech, the invention of writing, the development of paper and printing, and finally, in modern times, mass media, computers and the Internet: all these have been crucial steps in society's explosive accumulation of information and knowledge. Human cultural evolution proceeds at a constantly-accelerating speed, so great in fact that it threatens to shake society to pieces.

In many respects, our cultural evolution can be regarded as an enormous success. However, at the start of the 21st century, most thoughtful observers agree that civilization is entering a period of crisis. As all curves move exponentially upward, population, production, consumption, rates of scientific discovery, and so on, one can observe signs of increasing environmental stress, while the continued existence and spread of nuclear weapons threaten civilization with destruction. Thus, while the explosive growth of knowledge has brought many benefits, the problem of achieving a stable, peaceful and sustainable world remains serious, challenging and unsolved.

Our modern civilization has been built up by means of a worldwide exchange of ideas and inventions. It 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, and quinine are gifts from the American Indians.

The sharing of scientific and technological knowledge is essential to modern civilization. The great power of science is derived from an enormous concentration of attention and resources on the understanding of a tiny fragment of nature. It would make no sense to proceed in this way if knowledge were not permanent, and if it were not shared by the entire world.

Science is not competitive. It is cooperative. It is a great monument built by many thousands of hands, each adding a stone to the cairn. This is true not only of scientific knowledge but also of every aspect of our culture, history, art and literature, as well as the skills that produce everyday objects upon which our lives depend. Civilization is cooperative. It is not competitive.

Our cultural heritage is not only immensely valuable; it is also so great that no individual comprehends all of it. We are all specialists, who understand only a tiny fragment of the enormous edifice. No scientist understands all of science. Perhaps Leonardo da Vinci could come close in his day, but today it is impossible. Nor do the vast majority people who use cell phones, personal computers and television sets every day understand in detail how they work. Our health is preserved by medicines, which are made by processes that most of us do not understand, and we travel to work in automobiles and buses that we would be completely unable to construct.

The fragility of modern society

As our civilization has become more and more complex, it has become increasingly vulnerable to disasters. We see this whenever there are power cuts or transportation failures due to severe storms. If electricity should fail for a very long period of time, our complex society would cease to function. The population of the world is now so large that it is completely dependent on the high efficiency of modern agriculture. We are also very dependent on the stability of our economic system.

The fragility of modern society is particularly worrying, because, with a little thought, we can predict several future threats which will stress our civilization very severely. We will need much wisdom and solidarity to get safely through the difficulties that now loom

Figure 7.12: **The earth at night, seen from space: The thin layer of atmosphere covering the earth is vulnerable to the greenhouse gases that can cause catastrophic climate change. At night we can see the massive energy use that produces these greenhouse gases.**

ahead of us.

We can already see the the problem of famine in vulnerable parts of the world. Climate change will make this problem more severe by bringing aridity to parts of the world that are now large producers of grain, for example the Middle West of the United States. Climate change has caused the melting of glaciers in the Himalayas and the Andes. When these glaciers are completely melted, China, India and several countries in South America will be deprived of their summer water supply. Water for irrigation will also become increasingly problematic because of falling water tables. Rising sea levels will drown many rice-growing areas in South-East Asia. Finally, modern agriculture is very dependent on fossil fuels for the production of fertilizer and for driving farm machinery. In the future, high-yield agriculture will be dealt a severe blow by the rising price of fossil fuels.

Economic collapse is another threat that we will have to face in the future. Our present fractional reserve banking system is dependent on economic growth. But perpetual growth of industry on a finite planet is a logical impossibility. Thus we are faced with a period of stress, where reform of our growth-based economic system and great changes of lifestyle will both become necessary.

How will we get through the difficult period ahead? I believe that solutions to the difficult problems of the future are possible, but only if we face the problems honestly and make the adjustments which they demand. Above all, we must maintain our human solidarity.

7.15 Looking towards the future

Tensions created by the rapidity of technological change

In human cultural evolution, information transfer and storage through the language of molecular complementarity is supplemented by new forms of biological information flow and conservation - spoken language, writing, printing, and more recently electronic communication. The result has been a shift into a much higher evolutionary gear.

Because of new, self-reinforcing mechanisms of information flow and accumulation, the rate of evolutionary change has increased enormously: It took 3 billion years for the first autocatalytic systems to develop into multicellular organisms. Five hundred million years were required for multicellular organisms to rise from the level of sponges and slime molds to the degree of complexity and organization that characterizes primates and other mammals; but when a branch of the primate family developed a tool-using culture, spoken language, and an enlarged brain, only 40,000 years were required for our ancestors to change from animal-like hunter-gatherers into engineers, poets and astronomers.

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 genetic adaptation. The prolonged childhood which 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 minds are not perfectly adapted to our new way of life. They reflect more accurately 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 science and technology change so much more rapidly than institutions, laws, and attitudes, but also because human nature is not completely appropriate to our present way of life. In particular, human nature seems to contain an element of what might be called “tribalism”, because our emotions evolved during an era when our ancestors lived in small, mutually hostile tribes, competing with one an- other for territory on the grasslands of Africa.

Looking towards the future, what can we predict? Detailed predictions are very diffi-

cult, but it seems likely that information technology and biotechnology will for some time continue to be the most rapidly-developing branches of science, and that these two fields will merge. We can guess with reasonable certainty that much progress will be made in understanding the mechanism of the brain, and in duplicating its functions artificially. Scientists of the future will undoubtedly achieve greatly increased control over the process of evolution. Thus it seems probable that the rapidity of scientific and technological change will produce ethical dilemmas and social tensions even more acute than those which 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?

Can information-driven society achieve stability?

"We are living in a very special time", Murray Gell-Mann[1] remarked in a recent interview, "Historians hate to hear this, because they have heard it so many times before, but we *are* living in a very special time. One symptom of this is the fact that human population has for a long time been increasing according to a hyperbolic curve - a constant divided by 2020 minus the year."

The hyperbola has the form $P = C/(2020 - y)$, P being the population, y, the year, and C a constant. This form is at first surprising. One might have expected it to be an exponential, if the rate of increase were proportional to the population already present. The fact that the curve is instead a hyperbola can be understood in terms of the accumulation of cultural information. New techniques (for example the initial invention of agriculture, the importation of potatoes to Europe, or the introduction of high-yield wheat and rice varieties) make population growth possible. In the absence of new techniques, population is usually held in check by the painful Malthusian forces - famine, disease, and war.

Gell Mann's curve shows an explosive growth of human population, driven by an equally explosive growth of stored cultural information - especially agricultural and medical information, and the information needed for opening new land to agriculture. As Gell-Mann remarks, population cannot continue to increase in this way, 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

[1] Gell-Mann is an American physicist who was awarded a Nobel Prize in 1969 for his contributions to the theory of elementary particles.

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 which is perceived to be threatening ones own. The fact that human nature seems to contain a genetically-programmed 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."

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? The statistician R.A. Fisher and the evolutionary biologist J.B.S. Haldane considered this question in the 1920's.[2] 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 the ideas of Haldane and Fischer 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. 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 they 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 very difficult, but they must be solved if the information-driven society of the future is to achieve stability.

[2] More recently the evolution of tribal altruism and inter-tribal aggression has also been discussed by W.D. Hamilton and Richard Dawkins.

Respect for natural evolution

The avalanche of new techniques in biotechnology and information technology will soon give scientists so much power over evolution that evolutionary ethical problems will become much more acute than they are today. It is already possible to produce chimeras, i.e. transgenic animals and plants incorporating genetic information from two or more species. Will we soon produce hybrids which are partly machines and partly living organisms? What about artificial life? Will humans make themselves obsolete by allowing far more intelligent beings to evolve in cyberspace, as Thomas Ray proposes? What about modification and improvement of our own species? Is there a limit beyond which we ought not to go in constructing new organisms to suit human purposes?

Perhaps one answer to these questions can be found by thinking of the way in which evolution has operated to produce the biosphere. Driven by the flood of Gibbs free energy which the earth receives from the sun, living organisms are generated and tested by life. New generations are randomly modified by the genetic lottery, sometimes for the worse, and sometimes for the better; and the instances of improvement are kept. It would be hard to overestimate the value of this mechanism of design by random modification and empirical testing, with the preservation of what works. The organisms which are living today are all champions! They are distillations of vast quantities of experience, end products of four billion years of solar energy income.

The beautiful and complex living organisms of our planet are exquisitely adapted to survive, to live with each other, and to form harmonious ecological systems. Whatever we do in biotechnology ought to be guided by caution and by profound respect for what evolution has already achieved. We need a sense of evolutionary responsibility, and a non-anthropocentric component in our system of ethics.

Construction versus destruction

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

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

It is easier to burn down a house than to build one, easier to kill a human than to raise

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

What kind of future world do we want?

Our political and educational systems must reflect the kind of world that we want for the future - and what kind of world do we want? We want a world where war is abolished as an institution, and where the enormous resources now wasted on war are used constructively. We want a world where a stable population of moderate size lives in comfort and security, free from fear of hunger or unemployment. We want a world where peoples of all countries have equal access to resources, and an equal quality of life. We want a world with a new economic system, not designed to produce unlimited growth, but aiming instead at meeting the real needs of the human community in equilibrium with the global environment. We want a world of changed values, where extravagance and waste are regarded as morally wrong; where kindness, wisdom and beauty are admired; and where the survival of other species than our own is regarded as an end in itself, not just a means to our own ends.

In our reverence for the intricate beauty and majesty of nature, and our respect for the dignity and rights of other humans, we can feel united with the great religious and philosophical traditions of mankind, and with the traditional wisdom of our ancestors.

Pictures sent back by the astronauts show the earth as it really is - a small, fragile, beautiful planet, drifting on through the dark immensity of space - our home, where we must learn to live in harmony with nature and with each other.

7.16 Chaplin's speech: Hope

At the end of his 1940 film, **The Great Dictator**, Charlie Chaplin suddenly abandons satire and speaks to us directly with his own voice, his own idealism. In the film, the speech is given by a small Jewish barber, who looks very much like the dictator, Adenoid Henkel (Adolf Hitler). Mistaken for Henkel, the barber must address a huge expectant crowd. Here is the speech:

Hynkel: I'm sorry, but I don't want to be an Emperor - that's not my business. I don't want to rule or conquer anyone. I should like to help everyone, if possible - Jew, gentile, black man, white. We all want to help one another; human beings are like that. We want to live by each other's happiness, not by each other's misery. We don't want to hate and

despise one another. In this world there's room for everyone and the good earth is rich and can provide for everyone.

The way of life can be free and beautiful.

But we have lost the way.

Greed has poisoned men's souls, has barricaded the world with hate, has goose-stepped us into misery and bloodshed. We have developed speed but we have shut ourselves in. Machinery that gives abundance has left us in want. Our knowledge has made us cynical, our cleverness hard and unkind. We think too much and feel too little. More than machinery, we need humanity. More than cleverness, we need kindness and gentleness. Without these qualities, life will be violent and all will be lost.

The aeroplane and the radio have brought us closer together. The very nature of these inventions cries out for the goodness in men, cries out for universal brotherhood for the unity of us all. Even now my voice is reaching millions throughout the world, millions of despairing men, women, and little children, victims of a system that makes men torture and imprison innocent people.

To those who can hear me I say, "Do not despair." The misery that is now upon us is but the passing of greed, the bitterness of men who fear the way of human progress. The hate of men will pass and dictators die; and the power they took from the people will return to the people and so long as men die, liberty will never perish.

Soldiers: Don't give yourselves to brutes, men who despise you, enslave you, who regiment your lives, tell you what to do, what to think and what to feel; who drill you, diet you, treat you like cattle, use you as cannon fodder. Don't give yourselves to these unnatural men, machine men, with machine minds and machine hearts! You are not machines! You are not cattle! You are men! You have the love of humanity in your hearts. You don't hate; only the unloved hate, the unloved and the unnatural.

Soldiers: Don't fight for slavery! Fight for liberty! In the seventeenth chapter of Saint Luke it is written, "the kingdom of God is within man" - not one man, nor a group of men, but in all men, in you, you the people have the power, the power to create machines, the power to create happiness. You the people have the power to make this life free and beautiful, to make this life a wonderful adventure.

Then, in the name of democracy, let us use that power! Let us all unite!! Let us fight for a new world, a decent world that will give men a chance to work, that will give you the future and old age a security. By the promise of these things, brutes have risen to power, but they lie! They do not fulfill their promise; they never will. Dictators free themselves, but they enslave the people!! Now, let us fight to fulfill that promise!! Let us fight to free the world, to do away with national barriers, to do away with greed, with hate and intolerance. Let us fight for a world of reason, a world where science and progress will lead to all men's happiness.

Soldiers: In the name of democracy, let us all unite!!!

In Chaplin's film, Hannah is the sweetheart of the Jewish barber, and she is listening (as he hopes) to a radio broadcast of the speech. He continues his speech, talking to her:

Figure 7.13: **Look up, Hannah!**

Figure 7.14: **Alone we can do so little; together, we can do so much!**

Hannah, can you hear me? Wherever you are, look up, Hannah. The clouds are lifting. The sun is breaking through. We are coming out of the darkness into the light. We are coming into a new world, a kindlier world, where men will rise above their hate, their greed and brutality.

Look up, Hannah. The soul of man has been given wings, and at last he is beginning to fly. He is flying into the rainbow – into the light of hope, into the future, the glorious future that belongs to you, to me, and to all of us.

Look up, Hannah. Look up!

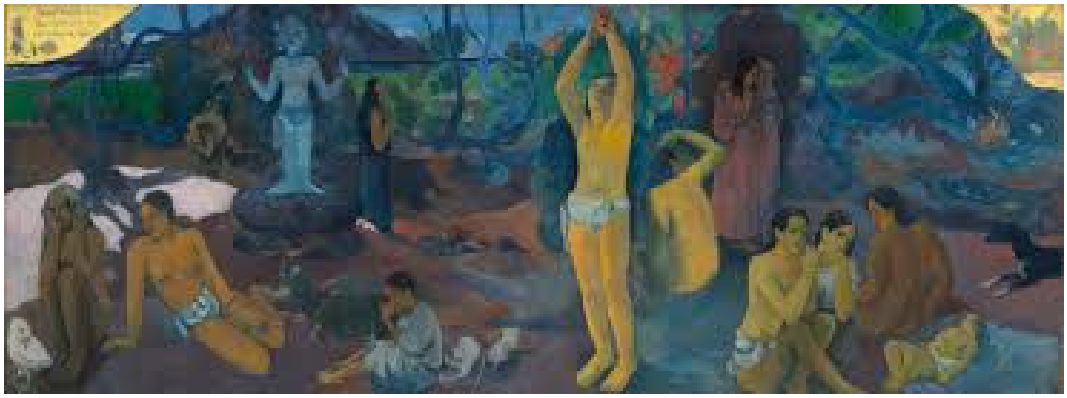

Figure 7.15: **Where do we come from? What are we? Where are we going?**

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