

## **The Final Empire**

### **Part 3**

## **THE EXHAUSTION OF THE INDUSTRIAL EMPIRE**

### **CHAPTER 8**

## **POPULATION, POISONS AND RESOURCES**

### **The Human Population Disaster**

There is no such thing as unlimited growth of numbers in the natural world. The populations of organic beings in the web of the natural world do not press constantly against their food supply. For several million years humans maintained a stable population with respect to their environment. The idea that there is something inevitable about human population expansion is wrong. Historically, population explosions have only happened within the human culture that we know as civilization. The idea of linear increase of population was popularized by Thomas R. Malthus and picked up by Charles Darwin in his theory of evolution. Population increase was the basis of the biological dynamics of Darwin's model. Darwin says that, "A struggle for existence inevitably follows from the high rate at which all organic beings tend to increase." Here is one of the grim assumptions that are typical of Darwin's era.

Darwin's concept of population increase fits with the reality perspective of empire culture. In Darwin's scheme organic life is a grim struggle of competition, violence and "survival of the fittest."

The reading of the social values of empire culture into biology is not accurate:

"No species strives to increase without limit, any more than an individual tends to grow to infinity. And animal populations are limited not by struggle, starvation, and death, but by restricting the number of breeders in various ways and by varying the number of offspring produced at a time by each female. Biologist V. C. Wynne-Edward's comments on Darwin's assumption that every living thing strives to increase its numbers geometrically.

" This intuitive assumption of a universal resurgent pressure from within held down by hostile forces from without has dominated the thinking of biologists on matters of population regulation, and on the nature of the struggle for existence, right down to the present day.

"Setting all preconceptions aside, however, and returning to a detached assessment of the facts revealed by modern observation and experiment, it becomes almost immediately evident that a very large part of the regulation of numbers depends not on Darwin's hostile forces but on the initiative taken by the animals themselves; that is to say, to an important extent it is an intrinsic phenomenon." <sup>1</sup>

Self-regulation of populations occurs in natural, undisturbed ecosystems but once those ecosystems are disturbed, populations fluctuate wildly. The apologists of empire will attempt to say that there has been a "social" evolution (linear increase) and that this has progressed since "man the toolmaker" first chipped a rock for use as a tool. This is social ideology, not reality. The human family remained stable for millions of years until the recent inversion to empire. It was only at that point that the "linear increase" of population began. Anthropologist, John H. Bodley states that; "In practice, various cultural controls helped maintain population well below any theoretical maximum carrying capacity based on the ultimate limits of food production." <sup>2</sup> It appears that with the human and other species, population levels are quite elastic. Much evidence in the field of biology suggests that, "A wide range of animals vary their litter size and clutch size according to the amount of food available." <sup>3</sup> This means that in years when the traditional foodstuffs of a species is not abundant, they limit reproduction or do not breed at all. <sup>4</sup> This picture of self-regulation of population by species is contrary to cultural ideology (which is why it took researchers so long to focus on the question) but it agrees with what we know of ecology. The life of the earth is not some mindless, random event. The more modern society learns of the natural world and its ecology, the more we see that life is an extremely complex, balanced, cooperative, intelligent and self-regulating organism.

Once the natural culture of the human family was destroyed by conquest and forced acculturation, the natural wisdom was gone and the lid came off human population. With natural culture, which lived in conscious balance with the surrounding life, the cultural motive was to limit human population. When culture inverted with empire, the cultural motive of linear increase resulted in increased population as the patriarchs had conscious motive to increase family size for economic reasons as well as patriarchal pride. With empire agriculture, more human labor was needed because they did not gather, they "worked" the land and needed the labor of more sons and daughters. More people were needed for agriculture and more people were needed for militaries. As this increase in the number of people occurred, further pressure existed to then increase food production.

When the balance was exceeded, the compounding effect of the exponential increase began. If two people have three children and those three have three and this occurs among millions, the compounding of numbers becomes a rush. Now, in present day reality we have the unnatural Malthusian spectacle of population increase in exponential amounts- just like the rabbits that were turned loose in Australia where there were no adequate predators.

As imperial culture's development of techniques to extort fertility from the earth progressed, there were surges in population that correlated with surges in food supply. Fritz M. Heichelheim, Professor of Greek and Roman History at the University of Toronto, describes the change that occurred when the Romans invented the steel bottom plow:

"When the heavy soils, the most fertile of our globe, were taken under the plow for the first time in human history, enormous population increases outside of Egypt, Babylonia, and other territories of 'hydraulic' civilizations were the consequence."<sup>3</sup>

Finally, when the mercantilist-industrialist elite of the industrial revolution succeeded in finally breaking the last vestiges of culture inherited from tribal Europe, which existed then in the form of self-supporting, subsistence-agriculture peasantry. Population, which had been creeping upward, began another compounding surge that we now see worldwide. The relatively stable, landed peasant culture was broken, their lands confiscated and the peasants were forced into the cities to become a growing labor pool.

### **The European Population Explosion**

By 1650, the explosion of population in Europe fueled major colonization efforts. By improved technical ability to extort fertility and materials from the earth, plus the increased efficiency of the newly invented weapons allowing conquest of colonies, a massive increase was financed. Scholarship reveals that the increase in the population of European settlements outside of Europe went from 113 million in 1650, to 935 million in 1950. In that same period of time the population of Europe itself (Europe and Asiatic U.S.S.R.) went from 103 million to 594 million.

The population of Europeans increased much more rapidly than the other parts of the world at the time. Armed with extractive technologies, the Europeans spilled into "rich" ecosystems still undamaged by the march of empire. Experts estimate that world population stood at approximately 545 million in 1650. By 1950 the world population had increased to 2,406 million, an almost 2 billion increase in 300 years.<sup>6</sup> The doubling time of world population from 1 AD to 1800 AD was somewhere between five and seven hundred years. As the exponential increase began to gain momentum the doubling time had shortened to one hundred and twenty years in 1800. In 1988 the world population doubling time stood at 40 years. Since 1900, most of the increase, of the increase, of world population has happened in the Third World nations.

The projected future increase in human population appears very grim, according to the World Resources Institute:

"Africa's projected growth rate is the highest of all regions, increasing from 555 million in 1985 to almost 2.6 billion in 2100. Latin America and the Caribbean are expected to grow from 405 million in 1985 to 1.2 billion in 2100. Asia is projected to add the largest number of people, growing from 2.7 billion to 4.9 billion. Developed regions are expected to follow a low-growth pattern; by 2100 they are expected to account for only 14.1 percent of the total population, compared to 24.4 percent today."

World population will never reach those projected numbers. At some point the population begins to completely eliminate their survival systems and major die-offs will begin. The world rate of death from starvation now stands at 40 million per year, but this is not yet because of massive die-offs of whole regions.<sup>7</sup>

Lester Brown of Worldwatch Institute describes a three-stage decline to disaster. In the first stage the population of a region is well within its ecological support systems. In the second stage it begins to eat up its survival systems (by such things as burning up fuel wood faster than it grows or destroying the soils). In the third stage the biological support systems collapse and a population die-off follows.<sup>8</sup>

Many Third World countries have now passed the threshold of increased food per person and are now sliding backward, as population outpaces food supply. Brown states that there are now some 40 countries where per capita grain production is going down.<sup>9</sup>

At the same time as these preconditions of starvation develop; the age structure of the populations of dozens of Third World countries grows younger. Now, in the early 1990's, 40-50 percent of the population of many Third World countries is under the age of 15. This means that the age of child bearing is just beginning and that another surge is on its way.

### **The Industrial Poisons**

There was never a poison problem with the natural human family. Pollution, garbage, and industrial poisons are specific to empire culture. Any refuse or debris of natural culture would simply biodegrade, but with a culture that is out of balance with the cosmos, there is no integrated flow and the garbage simply backs up into giant mountains or is dumped in the backyard of others. No one really knows what to do with it.

The question of industrial poisons must be considered in the context of the whole of civilization, which itself is out of balance with planetary life. It is not just the matter of industrial poisons, which do not fit with the web of life; they are simply a more recent manifestation of a cultural system that has been fundamentally injurious to life since it began.

Industrial poisons now pervade the planet Earth. Many of the chemical formulations produced by industrial processes have never existed on the earth before. No one really knows what their long term effect will be, either individually or in any of the millions of possible mixtures they could assume in the environment. The count stands now at 70,000 artificially produced chemicals, with at least 1,000 new ones produced each year. The industry dominated Environmental Protection Agency of the U. S. government classifies 35,000 of these as harmful or potentially harmful; the actual count is no doubt much larger.

The poisoning of the planet by toxic chemicals is not a static problem. It is a problem that is exploding. Recent statistics from the U.S. shows the trend worldwide. According to a current report: "U.S. production of organic chemicals grew from 4.75 million tonnes [5.3 million tons] in 1967 to 7.9 million tonnes [8.48 million tons] in 1977- an increase of 67 per cent."<sup>10</sup> Only a handful of the more popularly known toxins have been thoroughly tested for their carcinogenic, tetragenic (producing deformities of the fetus) or mutagenic properties (producing physical mutations that

travel down the generations). The process of testing toxins is long and expensive. The testing process itself can also be corrupt as seen with the case of International Biotech Laboratories in the U.S. whose actual faking of tests called into question approximately 500 compounds that had been approved based on their work. Several of those company executives were sent to federal prison but the system that produced them was not changed nor were the chemicals in question pulled off the market.

Most toxins that have been approved for use by the U.S. Environmental Protection Agency have not been tested for their cancer causing or birth defect causing properties. Years ago the U.S. congress ordered the agency to begin testing already approved compounds for these additional dangers but by 1990, only six of those chemicals had been thoroughly tested.

The U.S. National Academy of Sciences, National Research Council states that enough studies and tests have been done to make complete health hazard assessments possible on 10 per cent of the pesticides produced, 2 per cent of cosmetics, 18 per cent of drugs and drug excipients (binders) and 5 per cent of food additives. In all, we can get this complete information on only between 10 - 12 per cent of the chemicals used by commerce.<sup>11</sup>

Even if the impossible could be achieved and all seventy thousand plus the one thousand new compounds per year could be thoroughly tested, there is the matter of what compounds are created when these substances are indiscriminately mixed together. Agricultural poisons are often mixed before they are applied. The substances are mixed in waste dumps. The substances mix in the industrial production process itself. The substances also mix when they escape into the environment. Even non-toxic chemicals when mixed, can become toxic at times. If we have 70,000 substances and we calculate the number of possible mixtures, we then see the absurdity of guaranteeing any safety.

The production of many of the furnishings of the industrial lifestyle produces toxins. 70 per cent of hazardous waste comes from the chemical and petrochemical industries. Production of such necessities of the industrial lifestyle as plastics, soap, synthetic rubber, fertilizers, synthetic fibers, medicines, detergents, cosmetics, paints, pigments, adhesives, explosives, pesticides, and herbicides produce toxic byproducts, are toxic themselves, or both.

The U.S. leads the world in production of heavy metals and toxic chemicals. In 1981 the estimate was that the U.S. alone was producing 320.7 million tons of hazardous waste.<sup>12</sup> World totals are not precisely known but informed estimates for that year run between 363.73 and 551.15 million tons.

There is no compelling motive for industry to devote much money or attention to the determination of the exact volume or the effects of the poisons they are producing. The motive for obvious reasons is to hide the numbers. Industrial society gropes in the dark when this entire question of heavy metals, industrial chemicals or radiation poisoning is raised. The public has no way of knowing the facts unless they are given by industry or government. It is in the interest of industry not to do studies, as it only furnishes ammunition for their opposition and often government is in complicity with industry, directly or indirectly. In actual fact the humans and the environment are the

guinea pigs. Historically it usually has not been until human cancers, birth defects or die-off occur, that the discovery of poisoning has been made and any legislative or administrative action is taken.

As we saw with the case of Agent Orange and the Vietnam veterans, establishing absolute proof of the connection between toxic chemical or radiation and resulting health effects is very difficult. When ordinary citizens are poisoned they are faced with the producers and users raising every possible objection from their position of power, wealth and ownership of the media. Cancers from radiation exposure appear typically twenty to thirty years after exposure and effects from toxic chemicals often have a similar time lag. In addition, these poisons trigger malfunctions in the body (such as damage to the auto-immune system) and it is difficult to prove in a court of law, the direct link- that one caused the other- especially when there are a number of possibilities.

In one particularly clear and unique case, that of the Navajo Uranium miners on the Navajo Reservation in the Southwestern U.S., the connection was inescapable. A large number of miners lived in the same area under similar conditions-and a preponderance of them developed lung and other cancers while the surrounding people did not. Most of these cancers did not begin to develop for twenty to twenty-five years.

With the transience of modern society, it would be difficult to say what toxic field, ingested substance, or water borne chemical one may have been exposed to twenty years ago! Because the absolute proof is so difficult, killers -mass murderers- go right on killing life (people included), wreaking damage upon the earth and her forms. It is only because of the heavy mental conditioning that the public does not react to their own poisoning. When the government approves a substance that causes only one cancer death per one million people, this is hundreds of people who will die out of a population of several hundred million people. Without the twisting of words and reality the public would ordinarily call this mass murder. The industrialists find it more profitable to dump their poisonous excrement on the public than to figure out what to do with it themselves. In one recent "toxic incident" during the summer of 1988, 730,000 gallons of diesel fuel were, according to those responsible, accidentally allowed to enter the Ohio River near Pittsburgh, Pennsylvania. Several days after the crisis began, workers found that quantities of other unrelated chemicals were appearing in the water. They found high concentrations of chloroform, methylene chloride, and 1,1,1-trichloromethane, all proven cancer causing substances. The consideration for the environment and other people is so low that other industries were using the crisis as a cover to dump their own poisons in the river!

Poisoning of the planetary waters is extremely serious. Industrial toxins are also poisoning underground aquifers, where it is permanent. This is done by deliberate injection of waste into wells, a common industrial practice; by percolation down from the surface; seepage from common municipal landfills; from hazardous waste landfills and from nuclear installations. Agricultural chemicals also poison underground aquifers.

In the U.S., at least 30 states have been found to have more than 50 different pesticides in their underground waters. One quarter of the people of Iowa drink

pesticide contaminated water.<sup>13</sup> So far, 200 substances have been identified in U.S. underground aquifers, this includes 175 organic chemicals, many already known to cause cancer or birth defects. A vague estimate of the U.S. EPA is that 2 per cent of the underground aquifers of the U.S. are contaminated.<sup>14</sup> Nearly 20 per cent of the wells surveyed in the U.S. by the U.S. Geological Survey in 1985 were found to be contaminated with nitrates used in industrial agriculture.<sup>15</sup> The world's rivers suffer the fate of being the dumping ground of many industries.

The Rhine of Europe, for example, drains 150,000 square miles of the most industrialized and populated region on earth. The Rhine discharges into the North Sea each year, 10,000 tons of toxic chemicals and heavy metals. Its waters are fifty times above normal background levels for cadmium and twenty times the normal background level for lead and mercury.<sup>16</sup> "The Rhine, Elbe and Weser carry more than 450,000 tons of phosphates and nitrates into the sea. The concentrations of these nutrients, which contribute to the lethal alga blooms, have increased four-fold over the last 20-30 years adding five to ten times the nutrients that derive from natural sources. Coupled with the industrial inputs of the Ems and Scheldt, these rivers annually channel some 50 tons of cadmium, 20 tons of mercury, 12 tons of copper, 10 tons of lead, 7,000 tons of zinc, 300 tons of arsenic, and 22.5 million tons of sewage and other human detritus into the sea."<sup>17</sup>

The Thames River, on Britain's East Coast, contributes an annual load of 150 pounds of the pesticide Lindane, 225 pounds of DDT, plus about five million tons of partially treated sewage. On the coasts of Norway and Sweden, mines, mining dumps, logging operations and paper mills, dump and leach a host of pollutants into the sea. Emissions from cars, power plants and factories contribute up to 50 per cent of the heavy metals absorbed by the North Sea, plus tons of sulfur and nitrogen.<sup>18</sup> This is only a partial accounting of the total toxic load dumped into the North and Baltic seas annually from Europe and the British Isles. As these poisons constantly grow in volume and accumulate, we are seeing the actual death of the whole ecology in the North Sea and Baltic Sea areas. The die-off of seals and fish populations in these two areas, many scientists are calling late symptoms of eco-death. The North and the Baltic seas are in the advanced stages of where many other ocean areas are rapidly headed. It must be kept in mind that these chemicals are tested on animals to determine their cancer causing properties. These poisons are not just a threat to humans; they are a threat to every organism in the ecosystem.

There are four considerations in the subject of industrial poisons (toxic chemicals, heavy metals and radiation). The first issue is the low-level dispersion throughout the planetary environment. The second issue is the contact with these substances from simply being in the normal artificially created environments of civilization and eating the commercial food. The third issue is the waste produced by industry. The fourth and by far the most important issue is that there is now no known method, that scientific opinion agrees upon, of disposing of this waste and until this disposal is created, the material continues to contaminate the planet.

Researchers say that the body of every person in the world contains some DDT and some PCB's. The contamination by chemical toxins is so great that in some areas of the U.S., nursing mothers are advised to cease breast-feeding. The amounts of toxic chemicals in some mothers are so high that mini-seizures are caused in the infants

from the poisonous milk. In the Netherlands, contamination is so heavy that human mother's milk contains even polychlorinated dibenzodioxin and polychlorinated dibenzofurans, which are produced and spewed out into the environment by the incineration of waste.<sup>19</sup>

Toxins come to us in the water, the air and in our food. During the period 1982-1985, several studies detected 110 different pesticides in fruits and vegetables commercially sold in the U.S. "Of the twenty-five pesticides detected most frequently, nine have been identified by EPA to cause cancer (captan, chlorothalonil, permethrin, acephate, DDT, parathion, dieldrin, methomyl, and folpet)."<sup>20</sup> Many toxins are airborne and researchers have found that water droplets of fog concentrate poisons. In a study released in 1987, U.S. Department of Agriculture researchers Louis A. Liljedahl and Dwight E. Glotfelty and James N. Seiber of the University of California at Davis report that they found 16 pesticide compounds in fog. These substances came up off of agricultural areas. The poisons occasionally reach very high concentrations relative to reported rainwater concentrations of these same poisons.<sup>21</sup>

It is one thing to examine particular poisons such as radiation, many chemicals and heavy metals that can't be seen, tasted or smelled. It is another to view the gross contamination of industrial societies. Poland shows a good example of what the outlines of the future are for the whole of industrial culture.

### **The Case of Poland**

Poland is a mid-range European industrial country. There, the citizens were finally prompted by industrial pollution to organize into the Polish Ecological Club (and this caused the government to create a tame, government controlled environmental group). The PEC has been successful in bringing the problems to the attention of the government. The government has made some plans for clean up but it is very expensive and it remains to be seen if it can be accomplished.

Airborne poisons are so strong in the Polish industrial area of Krakow that they corrode the railway tracks, forcing a speed limit of forty miles per hour for railway trains in the summertime. Don Hinrichsen, an environmental writer says: "Strolling around Krakow on a windless day is like walking through a coal yard. The 'Pearl of Poland' is under siege from an unusually virulent mixture of pollutants ranging from coal dust and carbon monoxide to airborne lead, hydrocarbons, and corrosive acid rain."<sup>22</sup> He says that in the town of Zabrze, near Krakow, there is a, "15 percent higher incidence of circulatory illness, a 47 percent higher rate of respiratory ailments, and 30 percent more cancers than the rest of the Polish population."<sup>23</sup> The rise in mental retardation among Polish children is related to lead poisoning. A survey in the Katowice area found 35 percent of the children had lead poisoning. In that same city, the soil was found to be contaminated with lead, cadmium, copper and zinc. Garden vegetables had lead and cadmium 30-70 per cent higher than World Health Organization standards.<sup>24</sup> The Vistula; the river that drains most of Poland is so poisoned that in most areas it cannot be used even for industrial purposes. Yearly, the Vistula pours 90,000 tons of nitrogen, 5,000 tons of phosphorus and 80 tons of mercury, cadmium, zinc, lead, copper, phenol, and chlorinated hydrocarbons into the bay at Gdansk, where the beaches have been closed for years.<sup>25</sup> One-fourth of the agricultural land of Poland is so contaminated that it is unfit to grow human food and

only one percent of the water is safe to drink. The industrial elites make no provision for the people, the forests or the rest of the life of the area. Like all empire cultures, the population of Poland exists simply as a productive mechanism to increase the power of the elite. Because of this, the land, water and people continue to be abused. Twenty percent of the food products from one poisoned area were classified as hazardous to public health by the corrupt government's own inadequate standards. Vegetables contained 220 times the limit for cadmium, 165 for zinc, 134 for lead, 34 for fluorine and 2.5 times for uranium.<sup>26</sup> In Poland's worst ecological disaster areas, even Polish law says the people should be evacuated, but there are 11 million of them (30 per cent of the population) and there is no where for them to go.<sup>27</sup> "...Life expectancy for men between 40 and 60 years old has fallen back to the level of 1952. Thirteen million of the country's 40 million residents are expected to acquire at least one environmentally induced illness- respiratory disease, cancer, skin disease, or afflictions of the central nervous system."<sup>28</sup>

The direct annual cost of environmental deterioration in Poland may now equal half of the government's annual budget. The government has created some ambitious plans to clean up the country, which it uses as propaganda to placate and confuse the people, but like other industrial countries little has been done. The Polish economy has been in a state of depression for years. It is mortgaged to the hilt to the International Bankers and there is little money left over for such "frills" as environmental clean up. The U.S. also has said that it will clean up its toxic waste dumps and nuclear leakage but they say too, that it will cost billions of dollars- hundreds of billions- and so far little has been done.

In the World War II era in the U.S., one in thirty people died of cancer. Now, between one in four and one in five die of cancer. The rate of birth defects has doubled since 1950. Cancer is a problem of the autoimmune system as are many other maladies such as asthma, AIDS, candida albicans and allergies. It is known that toxins shock and affect the autoimmune system.

The medical establishment may replace war as the central industry and source of profits for the elite of civilization- and toxins alone could put an end to civilization if somehow it continued indefinitely. Now, in the U.S., the medical establishment is the third largest industry. How can it be that the scientist/technologists surge ahead with their creations, oblivious to any harm to others or the environment? In his profound work, *The Technological Society*, Jacques Ellul points out that technique and technology have their own internal logic. What is most efficient and profitable will be done and this has little to do with side effects or long term effects. Ellul makes the point that instead of technology serving people, technology has now taken over the whole of human culture and is conditioning the conditioning agent of industrial culture itself. The human culture is molded to the needs of the machine process.<sup>29</sup> After Oppenheimer and the gang at the nuclear bomb factory in Los Alamos, New Mexico had developed the first nuclear device, they still did not know if it would set off a nuclear chain reaction that would blow up the entire planet or if it would be a limited reaction and just explode the bomb. In fact the scientists facetiously placed bets on the outcome of the first test. Here we have the culture of empire. After a huge social effort by thousands of people and the investment of hundreds of millions of dollars, finally a device is created, but there is danger involved. A choice exists between extinction and power, glory, promotions and more research grants for the

makers. The well-known choice was made and fortunately the test was only a limited chain reaction. But, now we have nuclear energy with all of its dangers. This choice between individual and institutional gain versus the life of the earth is made throughout civilization every day.

### **Modern Living Environments are Toxic**

This is the reason that we live in toxic environments. The social considerations of power and profit for the emperors of the corporate mini-empires are stronger than consideration for living things. Because of this, even the average house in civilization is an ecological sink of poisons. Aerosol sprays, asbestos, fiberglass, building materials of various types, dry cleaning fluids, spot removers, rug and upholstery cleaners, fabric finishes and cements, antistatic agents and fabric softeners, shoe-care products, spray starch, flame retardant, furniture and floor products, detergent soaps, lead soldered pipes, gasoline, oven cleaners, drain cleaners, bleaches, toilet bowl cleaners, window cleaners, scouring powders, plastics of various types and many more common household products may injure or kill.<sup>30</sup>

A typical example is polyvinyl chloride (PVC), a plastic used in many products including food packaging and water pipes. Vinyl chloride is used in its formulation and during manufacture. This substance often leaches out into the environment. Vinyl chloride is a proven cancer causing substance. After tremendous energy and effort, citizens groups have forced the government to pay attention to vinyl chloride (with a limit of one part per million). But even so, the plastic product PVC, from which vinyl chloride leaches, is not controlled. It exists in building construction materials, household furnishings, consumer goods, electrical uses, packaging, vehicle parts and even in some commercial mouthwashes.<sup>31</sup> There is so much PVC in the interiors of modern aircraft for example, that if one is not killed by a plane crash, one will certainly die from the poisons as the interior burns.

If there is any doubt about the morality of the industrial elite, one need only look at the fact that one-quarter of the pesticides exported from the U.S. each year are either severely restricted or banned for use in the U.S. DDT was banned for use in the U.S. in 1972 but 18 million kg is still produced in the U.S. each year for export to the Third World.<sup>32</sup> Actually a whole range of dangerous products are dumped on the Third World. Massive citizen lawsuits finally stopped the sale of the birth control device; the Dalkon shield in the U.S. but it is still sold throughout the Third World with impunity.

The link between one specific poison and a specific cancer in a specific person may not always be demonstrable but we can certainly discover the connection of pollution rates and illness rates. New Orleans for example, exists at the final outflow of the Mississippi River, which drains the poisons from much of the east central U.S. In a test concluded in 1969, the over-all cancer rate there was found to be 32 per cent higher than the national rate. For specific cancers, the New Orleans rate was three times higher than Atlanta or Birmingham, which do not drink Mississippi River water.<sup>33</sup>

## **Municipal Waste**

Eutrophication occurs when an excess of nutrients enters a waterway, the life activities of plants are speeded up and the oxygen suddenly is used up, creating a dead area. While nutrients are good for plants, nutrients in unnatural amounts are harmful. Eutrophication does not normally happen in the natural world, it is a function of the culture that is not resonant with the order of the cosmos. Municipal landfills create a similar situation-even if it were just biodegradable household garbage put all in one place. If we add the poisonous articles of household garbage and the other poisonous items produced in municipalities we have a toxic waste dump of considerable proportions. Even if only moderately toxic, there are so many of them and the volume is so large that municipal landfills themselves pose a serious threat to the water tables and waterways of industrial countries. Municipal landfills leach carbon dioxide, hydrogen sulfide, chrome, zinc, lead, iron and other poisons into water tables. Poisonous garbage is dumped into municipal landfills by small businesses and industry with little or no monitoring and dumpers often slip extremely toxic waste into municipal landfills.

## **Toxic Industrial Waste**

As if the matter of slowly leaking municipal landfills that are spread ubiquitously over the industrial countries were not enough, there are the dumps that society defines as "hazardous waste sites." One indication of how serious this exploding problem of poisons in the environment is can be seen by the fact that so little is known about them other than that they exist. Because of the control of information and its deliberate falsification, we can only see the broad outlines of the problem, but what we do know indicates disaster. The disaster is compounded by the fact that the profits and power of the elites are seriously hindered by the proper disposal of industrial poisons. Proper disposal is extremely expensive and the motives on the part of the industrial elites to continue "free dumping" are compelling. The estimate of annual world production of 551.15 million tons is only an educated guess. There are very few countries where the public is informed of toxic waste being produced by factories. Nor are they told who is producing it, in what quantities and exactly what chemical or metal it is. Germany, for example, has a cradle to grave tracking system but this only functions within the country. Shipments of toxic waste that cross borders, are becoming commonplace, and these shipments disappear from the system. It is estimated that Europe exports 500,000 tons of toxic waste each year (usually to Third World countries). Exactly where this waste goes and under what conditions it is disposed of no one knows.

What we do know is that there is not now any competent method of disposal of toxic waste. Toxic waste is dumped on the ground, injected into wells, dumped into municipal sewage systems, loaded into "approved" toxic waste dumps, dumped into rivers, dumped into oceans and incinerated by low technology and high technology methods which themselves produce toxic waste. Much toxic waste is clandestinely dumped on backroads, back lots and in various bodies of water. Industrialists will pay substantial but still cut-rate amounts for shadowy figures to come to their plants and make their problems disappear. It is well established that Organized Crime (in the U.S. at least) is now well entrenched in this, yet another, super-profit business.<sup>34</sup>

In the U.S., government agencies have begun to estimate the number of toxic waste sites. So far the estimates of the number of sites seem to correlate with the exposure of each agency to industry influence. The Government Accounting Office, which is possibly the most independent, estimates the number of priority sites at more than 4,000, with the clean-up cost, estimated to be \$40 billion. Other sites, which are not classed as "priority," the Environmental Protection Agency says numbers 20,000 and they are not scheduled for clean up at this time. The U.S. congress set up a Superfund for clean-up of especially hazardous sites, but after five years, only 13 sites have been "cleaned up" and there remains disagreement whether these sites themselves were adequately sanitized.<sup>35</sup> The joke is that they simply scoop up the poison along with the contaminated dirt and move it to another landfill that will eventually leak or incinerate it, spewing poisons out into the atmosphere.

Just as the medical industry generates huge profits from environmentally induced cancers, a large, powerful and profitable industry has grown up around garbage and toxic waste. Like the medical industry that does not point the finger at the actual source of the profitable cancers, the waste industry generates public relations propaganda about recycling but resists source reduction of waste. The most recent "technological fix" that has been waved in front of the public and the politicians, is the very expensive (and profitable) practice of incineration. It is yet to be conclusively demonstrated that any of these plants can be operated without emitting poisons- especially the deadly dioxins-into the atmosphere. There is also no answer to the question of where to put the toxic ash from the plants. In March of 1987 a Norwegian freighter docked in Guinea on the West Coast of Africa. It was hauling incinerator ash from a garbage incinerator (not a toxic waste incinerator) in Philadelphia. Bulkhandling, the name of the Norwegian company, had contracted to haul away 250,000 tons of ash laced with heavy metals and dioxin. Some of the waste had fraudulently been sold to a cement company in Guinea to use as a brickmaking material. Fortunately the environmental organization Greenpeace blew the whistle on the deal and the Government of Guinea ordered the shipment out of the country. Greenpeace earlier had notified Panama that a deal had been made to dump the same ash in a pristine Panamanian wetlands area inhabited by the endangered manatee and other rare wildlife. When Panama refused to accept the poisoned waste, the contract with Philadelphia fell through but Bulkhandling was stuck with 30,000 tons of ash. An Ohio landfill was used to dump 15,000 tons and the rest, they tried to send to Guinea.<sup>36</sup> This is only a small example of the mysterious ways in which much toxic waste disappears.

### **Radioactive Waste**

In the period 1970-1985 alone, commercial, electricity generating nuclear reactors in the non-communist countries generated 65,697 tons of radioactive waste. This does not count shutdown reactors or military reactors in those countries.<sup>37</sup> This is an inconceivably large amount of bulk material and it does not include low level waste, medical or military generated waste. It also does not include the statistics from the socialist world. The figures on total world radioactive waste are not available but the above figure indicates the enormity of the problem. In the almost fifty years since radioactive substances began to be produced there is still no acceptable method for the disposal of the waste. It sits in landfills, ponds and other makeshift sites, often leaking into the ground or air with no solution in site.

The human family has never before dealt with anything as dangerous as nuclear radiation. It can cause immediate death, burns, cancers, birth defects, mutations and many other maladies. A study done by the U.S. Council on Economic Priorities of 50 commercial reactors and 175 nearby counties indicates that the nuclear power plants are causing 8957 extra premature deaths per year. 2113 of these were infant deaths and 6532 of these were cancer deaths.<sup>38</sup> The radiation already produced must be isolated from the life of the earth for the duration of its toxicity. In releasing this monster, the elites of imperial society are assuming that organized society will endure for an unimaginable length of time and that the society will have the means and the will to guard the deposits of poison. Uranium 238 has a half-life of 4.5 million years. Plutonium 239 has a half-life of 240,000 years.<sup>39</sup> Other radioactive elements have shorter lives but they are nonetheless toxic until they expire. Researchers state that little more than one curie of radiation can cause genetic abnormalities. By 1984, the U.S. alone had accumulated 16,200,000,000 curies of radioactive waste. Projections are that the U.S. will accumulate 42,000,000,000 by the year 2000.

Although the elites blithely continue to increase their production of this waste year after year, there is not yet any satisfactory method to deal with it. The only underground depository created so far, the Waste Isolation Pilot Project, a deep cavern dug in a salt formation near Carlsbad, New Mexico has already been found to be leaking water. The Project was created, "for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States."<sup>40</sup> In 1987, a group of scientists from the University of New Mexico found, after a study of the site, that the salt formation contained much more water than the builders had anticipated and they concluded that, "over time, a liquid mixture of brine and nuclear waste could form and eventually reach the environment through unintentional human intrusion or fractures in repository shaft and tunnel plugs and seals." The scientists then explained a factor that would make any underground or undersea depository problematical. Concentrated nuclear waste is not moribund, but continues to, "bubble and boil." The scientists stated that migration would occur, "because of pressurization of waste rooms resulting from gases generated within TRU [transuranic] waste drums and the gradual closing of the waste emplacement rooms due to the creeping action of the surrounding salt."<sup>41</sup> There is not now a solution at the end of the nuclear cycle and the beginning of the nuclear cycle is marked by similar industrial incompetence. On the Navajo Reservation alone there are roughly 80 million tons of uranium mine tailings exposed to the atmosphere. On that reservation..."At Shiprock, New Mexico, uranium mine tailings are within one mile of the public school, a housing development, the business center, and a daycare center." Lora Mangum Shields and Alan Goodman, using a March of Dimes grant, investigated the outcome of 13,300 Navajo Births from 1964 to 1974 born at the Shiprock Indian Health Service hospital:

"Birth defect rates two to eight times higher than averages of the nation or other Indian tribes was found in this high radiation exposure period at Shiprock. In 1975, coincident with a number of reductions in the [atmospheric] radiation exposure, birth defect rates fell decisively towards normal."<sup>42</sup>

On that same reservation, another example of the dangers of the mining portion of the nuclear fuel cycle occurred. On July 16, 1979, ninety-four million gallons of effluent from a uranium mine tailings pond near Churchrock, New Mexico, owned by United

Nuclear Corporation, spilled into a local stream, the Rio Puerco. The Rio Puerco is on the watershed of the Colorado River. This spill spread more radiation than did the accident at Three Mile Island. In 1985, the Rio Puerco, at Chambers, Arizona, from which Navajos drink and water their sheep, still tested over the EPA limit by a factor of 50, for gross alpha and beta radiation.

Further along the fuel cycle we have the example of Rocky Flats Nuclear Arsenal, near Denver. This installation, which produces parts for nuclear bombs, has spread plutonium and other isotopes into the surrounding suburbs and into the water supply causing a rise in the cancer rates.

Covered by the characteristic secrecy, little had been known about the military reactors that are spread around the U.S. until the incompetence of the operators became so great that radiation began leaking off site. Investigations were begun, some military nuclear plants were shut down and the controversy is whether to spend the tens of billions of dollars to clean up the areas or simply to close them up and leave them set... slowly leaking out onto the earth.

An example of the dangerous irresponsibility of the bureaucratic hierarchies that control radioactive waste is that of the inactive, temporary, waste sites under the control of the U.S. Department of Energy (military only), the contamination that has been allowed will require \$60 billion to clean up. This figure is for old inactive sites alone and does not include any other sites.<sup>43</sup>

Managers of the military weapons plants have been criminally irresponsible. Investigators state that: "Billions of gallons of radioactive wastes from making bomb-grade material have been dumped directly into soil and groundwater. Millions more gallons of concentrated waste have been stored in tanks, many of which have leaked. These wastes are now beginning to contaminate public water supplies. The wastes also form explosive gases that could rip the tanks open and spew the material over a large area, creating a Chernobyl-scale accident." This statement is from investigators, Robert Alvarez and Arjun Makhijani, writing in *Technology Review*.<sup>44</sup> DOE estimates now, before the cost-over-runs have begun, that \$100 billion will be required to clean up all its weapons plants.

There is now, no answer to where the final resting-place will be of radioactive materials from decommissioned reactors. "Expert" opinion is that the cost of decommissioning will be between tens of millions of dollars and a billion dollars per reactor.<sup>45</sup> DOE is presently decommissioning the Shippingport plant at an estimated cost of \$98.3 million, before cost over-runs. There were in 1981, more than 250 electricity generating reactors, in 22 countries.<sup>46</sup> The irresponsibility of going ahead with this energy system without considering or revealing these huge costs to the public and going ahead without even knowing where the waste could be safely placed, demonstrates the dire danger the planet is in, simply because of the immaturity and corruption of the people in control of these dangerous substances.

### **The Profits and Losses of Empire**

The costs to society of the killing, maiming and deforming humans by industrial poisoning is tremendous and as this cost grows it will be an important factor in the

final implosion of civilization. The negative feedback of industrial poisons could themselves, ultimately drag it down. Other sources of radiation are medical x-rays. "Probably most cancers of childhood and even some of those during the puberty period are contracted during pregnancy," because of x-rays of the mother. X-rays have been implicated in causing cancer in adults and they have been shown to increase the rates of heart disease in adult males.<sup>47</sup> Public health researchers calculate that cutting the exposure of the U.S. population to radiation by 50 per cent would save \$53.2 billion at current prices. The social costs of learning disabilities and birth defects they set at \$4.3 billion and added that diseases of the aging process cost \$48.9 billion. This cost is calculated for the exposure to x-rays during pregnancy, x-ray exposure to the general population, and fallout from nuclear plants and bomb testing.

The same sources calculate that heavy metals pollution results in \$9.6 billion costs in birth defects and learning disabilities and more than \$10.2 billion in autoimmune system damage, cancers and early senility in the general population. Chlorinated chemicals and dioxin are calculated to cost the society \$1.5 billion in birth defects and learning disabilities and there is no estimate yet available for the general population. Simply halting the use of prescription therapeutic drugs during pregnancy could save the society \$3.4 billion in the cost of special programs, medical attention, and etc. for the birth defected and the learning disabled.<sup>48</sup>

A 1984 study in Australia further points out the negative feedback problem of the "quick fix." Rather than feed the soil and nurture the health of the soil community to help it produce human food, the industrial society uses artificial fertilizers which are more profitable to industry and agriculture. This practice pollutes underground waters with nitrate compounds (among other things) wherever industrial agriculture has spread. The Australian study found that drinking well water contaminated with nitrate compounds, rather than rainwater, increased the occurrence of neural tube, oral-alimentary tract, and muscle-skeleton birth defects 2.8 times. (The same effects were found in laboratory animals.) A complete inventory of all poisonings and costs in industrial society would fill volumes but the above examples illustrate the trend. The quick fix, the rapid extortion of energy from the system, can temporarily finance higher population and more "wealth" but ultimately there comes the time of the balancing of the account books, the period the Hopis call "The Great Purification." The actual heavy metals behind these numbers, many chemicals and many atomic isotopes do not go away, they continue to accumulate.

### **Poison and the Morality of Empire**

Certainly, if we could strip away the Public Information Officers, the media consultants and the psychological-operations groups and question one of the handful of human beings of the elite, they would respond that they are seeing the "big picture." The response would be that it is they who are making the "hard decisions" for the whole people, not just for the "special interests," such as the consumers who eat poisoned food, the workers who are poisoned on the job, the farmers suffering pesticide poisoning, the urbanites breathing poison air, the parents complaining of deformed babies or the youth who ask for a future. Like the villages that were bombed in Vietnam to save them, we must industrially produce our way out of our problems, even if it kills us.

The industrial poisoners now pose a grave threat to the entire earth. It is their strategy to confuse, obfuscate and lie to conceal their criminality. A long-haired hippie with a protest sign or an aggrieved black man with a gun gets a lot of attention from the elite controlled media but elite groups who kill, maim and deform millions with their poisons are seldom exposed. In the few cases that have been exposed, we find that the asbestos manufacturers knew of the danger of their products long before the citizens exposed and stopped them. The manufacturers of Agent Orange, which was dumped on Vietnam, knew that it contained dioxin long before it was stopped. The U.S. military also knew, long before they banned it. The examples are profuse of industrialists who will dump injurious articles, pharmaceutical drugs and poisons on their earth and their fellow human beings in order to increase their financial power.

The automatic response of the elite when exposed is to deny, lie and cover-up. The first response of the elite after the accident at Three Mile Island was to issue a press release stating that there had been no accident. The British nuclear disaster at Windscale in 1957 was simply covered up and the facts leaked out slowly over the years. In the Soviet nuclear disaster at Chernobyl, the elite was silent for three days until the Scandinavians began to monitor the severity of the crisis and expose it. Other governments, heavily invested in nuclear technology, began damage control of the Chernobyl crisis by putting out the line, "Yes, but it couldn't happen here because...." Over 20 countries received doses of airborne poisons from Chernobyl. The response of many of these countries that are nuclear invested, was to minimize the danger so as not to alarm the people about the nuclear question. Elites in Italy, United Kingdom and France especially, maneuvered to downplay the threat. The French government even falsified a weather map shown on national TV to show that the toxic cloud that in fact came over France went somewhere else. The childish irresponsibility and deficient morality of the bureaucratic hierarchies puts the whole earth in danger when substances such as toxic poisons, heavy metals, nuclear radiation, the genetic tinkering of biotechnology, and radiological, chemical and biological warfare are involved. Just having these substances under the control of irresponsible bureaucracies is dangerous. Contractors have demonstrated this time and again in the construction of nuclear plants for example. It has been amply demonstrated that it is not possible to operate such dangerous devices without massive cheating on the safety of the workers in the plants or the public outside. Civilization as presently constituted simply does not have the moral necessities to avoid it's own suicide simply because the social institutions set up to guard against these dangers such as toxins and radiation are so morally corrupt that they can't function so as to guard the public safety.

### **The Fuels of Empire**

Imperial culture finds it more profitable and easier to dismantle an ecosystem or suck the fluids from the earth and profit from the brief burst of energy rather than to add to the Net Photosynthetic Production and lives from the increase.

Since the beginnings of empire, fuels have been the fountain of its growth. Early, the fuels to heat buildings, cook food and smelter metal were taken from the forests. Forests were also the source of materials for building construction and ships. The course of empire can easily be charted by tracing the exhausted forests of Asia and Europe. As the forests of Europe were becoming exhausted, particularly near smelters

and ports, civilization began to depend upon coal. The utilization of coal energy spurred the development of iron and steel refining. From the energy base of coal and the material base of iron, a phase of civilization developed in which iron and steel were used as materials for many applications in society.

As the petroleum age developed, that substance also became the base of plastics, which have replaced wood and metals for many uses. Now society is as dependent upon petroleum for materials as for fuel. Since the "oil crisis" of the early 1970's many citizens have looked to other, small-scale sources of energy such as solar, wind, water and ocean power. As the threat of this development became real, the oil cartel moved to buy out the research on these new technologies and to usurp the field. Citizen action in these areas has essentially been stopped and the only plans in the field are for huge centralized technologies such as solar collectors in space. With the immense profits from the oil price rise in the early 1970's the oil cartel has moved into dominant positions in coal, uranium and now the "alternate energies" of solar, wind, etc.

The Transnational corporate elite no doubt feel that they have now positioned themselves so that they will profit by each of the shortages and exhaustion in the coming years. As petroleum runs out they will profit by the coal that they control; as coal runs out it will be discovered that they control the remaining reserves of uranium ore and if that ultimately fails, they will hold the patents and the technology of wind and solar energy.

There is no question that these fuels of civilization will become exhausted and there is no question that this will bring a massive restructuring of that same civilization. The strategy of the elites is simply to stay on top of it as it shifts, and of course it remains to be seen whether they will be successful. Capitalism and socialism are simply window dressing for the basic fact of industrialism. Neither capitalism nor socialism works if there is no industry or "resources." In the last two centuries we have seen the pristine living earth devoured by industrialism and much breast beating about the myths of efficiency and ideology. The truth is that machines and abundant primary materials- not ideology- are what has allowed the industrial revolution and it is cheap energy that has fueled its one act production. Energy will now become more and more expensive until it is finally gone.

We can expect massive catastrophe in the next several decades as the supply of petroleum runs out. As the whole of industrial society is predicated on cheap petroleum energy and we are running out of that energy with no replacement in sight, there can only be one result. Although the Transnationals have control of the coal and other energy sources, those sources are not a substitute for petroleum. They are a different energy regime and the switch cannot occur without tremendous dislocation.

The industrial society, which now exists, is a product of truly gargantuan injections of petroleum energy. The huge quantity of petroleum and the constantly growing volume of its use mean that if a switch were made to coal on an equal basis, simply the smoke from the coal plants all over the earth would asphyxiate us in a short time.

M. King Hubbert, in his book, *Energy Resources of The Earth*, points out how swift the growth in the use of fossil fuel has been. Hubbert explains:

"It is difficult for people living now who have become accustomed to steady exponential growth in the consumption of energy from fossil fuels to realize how transitory the fossil fuel epoch will prove to be when viewed over the longer span of human history.... The period that encompasses most of the production is notably brief. The 102 years from 1857 to 1959 were required to produce the first half of the cumulative production: Only the ten year period from 1959 to 1969 was required for the second half."

The volume of energy to keep the industrial society going is so great that now the discovery of large oil fields only provides a few years supply. The decline of discovery rates (barrels of oil per foot of well drilled) in the U.S., began in 1970 and continues today. Phillips Owen in his *Last Chance Energy Book* says:

"The flow from Alaska will not reverse the decline, we can anticipate arresting it for a year or two, but after that, it will resume its dismal course. The fact is that between the time the Alaskan oil fields were discovered and put into production, the other oil reserves declined by more than the total amount that had been found. We're not ahead- we're behind, because we're using oil at much faster rates now."<sup>49</sup>

The North Sea oil field of Europe is similar in size to the Alaska field. Here we see within context what these two, much publicized oil fields actually represent- only a few years of use. As a general view of the petroleum energy situation it can be said that we are extracting oil twice as fast as we are discovering it.<sup>50</sup>

In a mid-summer, 1988 interview with journalist Thomas A. Petrie, William L. Randol who heads the Oil Analyst Team of the U.S. based Transnational bank, First Boston, said that oil consumption was up 3 per cent that year. He said that gasoline was the main component of that rising demand. Further, the declining U.S. domestic output means that oil imports will rise to over 50 per cent in several years, from the 41-42 per cent in 1988. Already, Randol sees that the decline in the Alaskan, Prudhoe Bay oil field is not far off.<sup>51</sup>

In 1987, the Worldwatch Institute calculated that the U.S. energy reserves within the U.S. were 36 million barrels which was enough to propel U.S. society for 8 years at the 1987 rate of consumption- if it used only U.S. supplies.<sup>52</sup> The supply of natural gas is also declining swiftly. According to the Transnational corporation Exxon: "U.S. natural gas production peaked in 1972 and has been declining ever since. Production is not expected to recover to 1972 levels, even with production from new offshore leases and from the Alaska north slope."<sup>53</sup>

The supply of uranium ore was never abundant anywhere on the planet. The U.S. is calculated to have had the equivalent of 630,000 tons of which 270,000 tons have already been used and the rate of discovery is declining precipitously.<sup>54</sup>

World energy consumption increased 38 per cent between 1970 and 1984 even with the huge price increases of the early 1970's. If somehow the world population were able to halt the increase of usage and maintain energy use at the 1984 rate, the known global reserves of petroleum would last only 31 years, natural gas 52 years and bituminous coal 175 years.<sup>55</sup>

The increase of energy use in Third World countries has been enormous just to stay abreast of population increase. The following table describes why there is much less than 31 years worth of petroleum remaining:

**INCREASE IN ENERGY CONSUMPTION 1970 - 1984** [56](#)

<b>Location</b>	<b>Total Increase</b>	<b>Per Capita</b>
World	+38%	+6%
AFRICA	+112%	+41%
N. & CENT. AMERICA	+7%	+13%
S. AMERICA	+78%	+29%
ASIA	+106%	+55%
EUROPE	+21%	+13%
(former) USSR	+65%	+45%
OCEANIA	+58%	+25%

Caution needs to be exercised in viewing the figures that relate to petroleum and its reserves. The only people who really know how much oil there is are the companies who explore and drill. We can, none the less, use these numbers as a broad gauge of trends in the field. The number of barrels recovered per foot of exploratory well drilled gives us a good gauge and the reports of experts like M. King Hubbert who have worked inside the industry are helpful.

Another aspect of the amount of reserves is that some of the reserves in old fields are not now economical to recover. Here, as with minerals, we have the situation in which there may be oil but its recovery may be prohibitive. Thus the calculation of reserves is a function of how much energy and money we are prepared to spend to recover the oil. At the point that it requires more energy to extract a gallon of crude oil than exists in that gallon of crude oil, it won't matter what the reserves of it are.

Given the massive exponential expansion of oil consumption, which must keep growing to avoid industrial collapse, a few years in the calculation of reserves, is of minor importance. The compounding of an exponential growth curve is so swift, from 1 to 2 to 4 to 16 to 1056 to 1,115,136, that only if the oceans were filled with petroleum could the supply continue. Another aspect that becomes important in these latter days is the external effect of using the substance. If by chance some new reserves were found it would only increase acid rain, the greenhouse effect, smog, the

churning of the wheels of industry, which spew out poisons and which would use up remaining resources faster.

### **The Minerals of Empire**

"... Since 1950 human beings have managed to consume more minerals than were mined in all previous history..." says Richard J. Barnet. Of the eight most important metals in world industry in the past twenty years (aluminum, copper, lead, nickel, tin, zinc, iron, steel), the U.S., Soviet Federation and Japan are the largest consumers. As a gauge of the exponential increase of consumption of minerals and specifically these eight metals, World Resources 1987 states that the increase in world consumption of the eight has been from 416.67 thousand tons in the year 1965, to 648.61 thousand tons in 1985.<sup>57</sup>

There are plenty of minerals remaining for world society. If we pulverize the crust of the earth and extract all of the minerals from the waters of the ocean there will be plenty. The problem of computing how much remains is, that even in a handful of dirt there is some percentage of minerals. The question is, how concentrated the ore and how much capital and energy it will take to extract it.

Barnet says for example:

"In 1700, typical copper ores contained 13 percent copper. 1900 had exhausted the super rich deposits but technology had improved to the point where deposits from 2.5 percent to 5 percent copper were profitable to exploit. Today copper is frequently extracted from 0.5 percent deposits."<sup>58</sup>

Just as the energy-intensiveness of the agricultural system is increasing, Barnet points out also that the energy cost of producing minerals is high. "To produce a ton of copper requires 112 million BTU's or the equivalent of 17.8 barrels of oil. The energy cost component of aluminum is twenty times higher."<sup>59</sup>

Critical shortages and steeply rising prices are the obvious future for world minerals. When more energy, more technology, more water and more capital are required to process increasingly lower grades of ore, the future can only go in one direction.

### **Elite Control of the Industrial Process**

The elites control the sources of information concerning energy and mineral resources. It is the elites that will decide on the technologies that will utilize different fuels or different metals. It is the elites also, who control the supplies and prices. In the past twenty-five years the oil cartel has been able to spread its ownership and control into all energy industries except hydro. They have even usurped the fields of solar and wind generation of energy. The decisions concerning the industrial configuration of society and the social conditions of the individual citizens of society are made by these small elites when they make broad industrial/military decisions. The decision to scuttle non-centralized energy production (solar, wind, small private hydro, wood) was made by elites who control centralized systems (oil, nuclear, electric grid, and coal). These decisions will have much to do with the fate of the earth as the primary resources become exhausted. As these finite resources become

increasingly scarce, military, industrial and technical attention and conflict will focus on the locations of the remaining resources, such as the Middle East.

One of the basic reasons that empire can generate "surpluses" from the earth is that industrial technique and the "productive masses" can be mobilized under the control of small elites. To give the general picture on a global scale, at the beginning of the last decade of the Twentieth Century, 20 per cent of the world's population were consuming 80 per cent of the world resources.<sup>60</sup> In the capitalist countries in particular, there is a further severe imbalance where a minority owns the majority of resources. The control of world industrial society has come to rest in fewer hands and its control begins with energy and minerals, the backbone of industry. In the Capitalist world, control rests with the international financial elite, people who are members of the Bilderberg group and the Trilateral Commission. Coal energy, because of the heavy investments in mining and distribution; have traditionally been under centralized control. Petroleum began to be utilized in the era of the great trusts at the beginning of the 19th. Century. Until recently, what were called the Seven Sisters; (five U.S. corporations and two British and Dutch) controlled the capitalist world oil supply. Due to mergers, there are now even fewer Transnationals that are dominant in the world oil business. It is this elite who plan the volume of production and from which area it will be produced. The minerals industry is very centralized. "The marriage of high finance-Morgans, Rothschilds, Schiffs, Bernard Baruch-and the most successful mining entrepreneurs, principally the Guggenheims, in the early years of the century laid the foundation for the minerals oligopolies that control the world market today."<sup>61</sup>

As the collapse of civilization begins to accelerate in the coming years it is these small elites who will continue to make the planning decisions. The well known diplomat and author George F. Kennan, who was known as a liberal, stated the groundwork for this contemporary era in a State Department Policy-Planning Staff paper (#23), in February 1948, when he was head of this group. He wrote:

"We have about 50 percent of the world's wealth, but only 6.3 percent of its population.... In this situation, we cannot fail to be the object of envy and resentment. Our real task in the coming period is to devise a pattern of relationships, which will permit us to maintain this position of disparity.... We need not deceive ourselves that we can afford today the luxury of altruism and world-benefaction ... We should cease to talk about vague and ... unreal objectives such as human rights, the raising of the living standards, and democratization. The day is not far off when we are going to have to deal in straight power concepts. The less we are then hampered by idealistic slogans, the better."<sup>62</sup>

It is from this perspective of muted desperation that the present structure of world society has developed. Since that time a centralized military-industrial complex has developed in the First World and the Third World has become thoroughly militarized. In 1979, \$35 billion and one-half million scientists and engineers were engaged in military research.<sup>63</sup> The military weapons industry is now the second in size in the world after the oil industry. Military spending in the Third World doubled between 1974 and 1984.<sup>64</sup>

*The profits and production of the armaments industry is so huge that all the UN, programmes for health, children, food and such could run for two centuries for the amount of money spent in one year on planetary armaments (1982 figures).<sup>65</sup>*

The concentration of power in the transnational corporation-government-military complex group has created a foreign policy of industrialism. This strategy is to maintain control of the Third World and its markets and resources by feeding and controlling its militaries and preventing any "nationalist" movement that might attempt to use these resources for the benefit of the indigenous population.

The United States produces the largest volume of military hardware and it is followed by the Soviet Union who is a remote second (in 1980 the U.S. accounted for 50 per cent of the military hardware in world trade and the U.S.S.R., 30 per cent).<sup>66</sup> Now, the world imperial system of militarism has reached into the Third World countries with the U.S. weapons industries there. "The Department of Defense has more than forty coproduction projects under which it assists other nations to become weapons producers in their own right. Private U.S. firms have another seventy-five such projects."<sup>67</sup> When we look at the world perspective from this angle we see how readily the official policy of the U.S. government- Low Intensity Conflict- fits into the overall scheme. LIC simply means controlling the geography of resources and markets as long as possible.

The internal logic of empire is toward elitism, centralization, and militarism. As the World Empire disintegrates, we will see the elite continue to draw off more energy and materials for their own purposes while strengthening their control over the increasingly impoverished masses. This will continue until the final shoot-out around the gas pump when the hegemony of the internationalist corporate-government-military elite itself begins to disintegrate.

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