**RETURN TO THE STONE AGE**

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If humanity does not go extinct, humanity will return to the Stone Age in the very near future. And by the Stone Age I mean become Hunter/Gathers living in very small groups that periodically move from place to place to obtain food and any other resources that are necessary for the existence of the group. The extinction of humanity most likely will occur due to wars with weapons of mass destruction, caused by the inability of the earth to provide the resources necessary to support the ever-growing human population and the ever-growing economy.

Neither the population nor the economy can continue to grow forever on the finite earth. Every action that can be taken by humanity, including new technologies, will not change that fact. The earth and 1 acre of land are the same—both are finite in size and both can only provide finite and limited resources to humanity. No action taken by humanity will permit 1 acre of land to support 100 million people and for exactly the same reasons the number of people the earth can support is limited.

Both the population and the economy of the earth grow in a compound manner and compound growth is the most powerful force in the universe. If either were to grow at the annual rate of 1%, it would double every 70 years-- in 70 years it would be twice as large as when it began, in 140 years it would be four times as large, and in 700 years it would be over 1,000 times as large. Both must cease growth in less than 700 years as the earth cannot and will not provide the resources that are necessary for either of them to grow by a factor over 1,000.

To be more realistic, both will cease in less than 105 years----an annual growth rate of 2% causes a doubling time of 35 years and in 105 years would result in a growth factor of 8—2,4,8.

Sixteen thousand years is a very short period of time compared to the 160 million years that dinosaurs ruled the world—160 million years is 10,000 times longer than 16,000 years. About August or September 2022 the UN released its prediction/estimation/projection (use whatever word you want) that the world’s population will reach 8 billion in 2022, 10.4 billion in 2080 and remain at that level until at least the year 2100. Those numbers represent a growth of a little over 2.4 billion or a growth of a little over 30% in just 58 years. That growth will cause every major problem presently faced by humanity to become more difficult, if not impossible to solve. That growth combined with an increase in the worldwide average per capita usage of resources that will happen between now and the year 2080 will drive humanity deeper into overshoot. Humanity has been in overshoot for a number of years (according to the Global Footprint Network) and any species that remains in overshoot must suffer a violent, horrible, uncontrolled, and massive decline in population. While no one knows when overshoot will cause the collapse of civilization and the violent decline in the human population, a very strong argument can be made that it will occur prior to the year 2100.

Anyone who takes the position that voluntary population control will reduce the human population in time to prevent the collapse of civilization must understand that voluntary population control cannot commence, based upon the UN’s prediction, prior to the year 2100 and can only commence when the predicted level is 10.4 billion compared to commencing today and at population of about 8 billion. No one has written (and in my opinion, no one can write) a paper proving, with at least 50% certainty, that voluntary population control will reduce the human population combined with a reduction in per capita usage of resources, in time to prevent the collapse of civilization with the deaths of billions.

The earth provides to humanity resources that range in use from one usage (fossil fuels can only be used once) to items that theoretically can be used forever into the future (the human catches a fish and eats it and the ocean provides additional fish to be eaten forever into the future). However, the word “theoretically” must be emphasized in the previous sentence. Humanity is presently using theoretically renewable resources at such a rate that most, if not all, of them cannot be replenished by natural processes and for all practical purposes must be considered nonrenewable. For example—underground aquifers are used to irrigate land such that crops can be grown upon the land and those aquifers are refilled by rain--- however humans are using the water in the aquifers faster than rain can refill them and therefore, they are in reality, nonrenewable. Another example--- humans catch certain species of fish and do not leave enough fish in the ocean to produce next-generations-- that species of fish is nonrenewable.

Every mineral used by humanity is finite and limited. Most, if not all, of the minerals can be recycled a number of times. However, no recycling of any mineral can be 100% efficient. A little math with some highly unrealistic optimistic assumptions--- assume that a mineral is used in the production an item and that item lasts one hundred years and that item can be recycled with 95% (0.95) efficiency,--- based on those assumptions it would be recycled 160 times in the 16,000 years referred to above-- based on those assumptions at the end of 16,000 years the amount of usable mineral would be 0.95 times 0.95 for 160 times (or 0.95 to the 160th power) or essentially zero.

Almost every action that a human performs supports the proposition that humanity will return to the Stone Age in the very near future. A person in the city of New York eats corn grown in Iowa. After eating the corn his feces are flushed down the toilet and earth’s resources used to grow the corn in Iowa are not returned to Iowa to be again used in the production of corn. Of course, fertilizer can be applied to the soil in Iowa, but fertilizer is limited, and not infinite in amount, and sometime in the future will not be available. A person builds a house with lumber obtained from the trees in Canada or from states in the USA and after 100 years the house is torn down, the lumber is not returned to where trees were grown and eventually the soil is depleted and no longer will be able to support trees necessary for the production of lumber in the future. Assume that on average each person on the earth uses just one blouse or shirt per year. For many reasons I will not discuss here, it is highly unlikely that the shirt or blouse will be recycled. Based on those very reasonable assumptions and the assumption that population will remain at 8 billion into the future, the number of shirts or blouses that will be used in just 16,000 years is 8 billion times 16,000 (1.280,000,000,000,000). The resources that were used to produce the shirts and blouses will not be used again and the earth will have to process the same number of shirts and blouses as garbage. A similar calculation can be applied to everything used by humanity. In plain and simple terms, humanity must and will return to the Stone Age in some very short period of time compared to the time that dinosaurs ruled the world.

Humanity produces billions (if not trillions) of tons of garbage each year. Garbage being defined as resources that almost certainly cannot and will not be recycled such that it can be used again by humanity. Go visit a garbage dump outside of any city of more than 50 or 100,000 people and you will see tons of garbage being placed in the garbage dump every year.

Everything produced by humanity (except perhaps the pyramids and other things made of stone) has a finite and limited time it can be used and has to be replaced at the end of that time. Replacement cannot be 100% efficient, as indicated above, and, therefore, humanity must return to the Stone Age. The only question is--- when will humanity return to the Stone Age?

While no one knows the number of human beings that can be supported when humanity returns to the Stone Age, the number will be substantially less than the current population of about 8 billion. My guess (and admittedly it is a guess) is the number is substantially less than 100 million. No matter what actions are taken by humanity and no matter what new technology is developed, sometime in the future the human population will be substantially less than 8 billion. Only question is--- how will that reduction in population be achieved? And the answer to that question is very simple--- it will be achieved either by the stupidity or the intelligence of humanity.