



Essay: The Rise and Fall of Civilizations

*As the world reforms,
procreation escalates,
the innate response
to death—
close your eyes
and multiply—
an unlimited supply.*

I recently attended a lecture on the UCSD campus entitled “The Rise and Fall of Civilizations.” The speaker was Parker Havron, a multidisciplinary scholar of archeology and sociology. He pointed out that throughout the history of mankind, civilizations have repeatedly been built in fertile areas where community growth was fueled by the availability of ample resources. In each case, as the civilization grew, a point was reached where resources were used faster than they could be replenished. If the society continued to grow, producing a population “overshoot,” one or more essential resources eventually disappeared, leading to economic and societal collapse.

Parker suggested that our current human population is already substantially in excess of our planet’s carrying capacity. We are rapidly depleting the world’s resources, unwittingly exterminating thousands of living species every year, polluting the soil, oceans and atmosphere, chopping down and burning the planet’s forests, causing irreversible climatic change and destroying the agricultural potential of huge tracts of land. Thus, he argued that we are eroding the Earth’s resource base. Just as has been documented for many past civilizations, the inevitable consequences of our current lifestyles will be societal collapse accompanied by tremendous human suffering. The difference between past civilizations and ours is only quantitative: this time, resource depletion is occurring on a global scale.

Parker argued that the best way to avoid such a global disaster is to learn from the mistakes of the past and act accordingly. One and only one rational solution appears available; namely, to reduce the human population before it is brought to its knees by disease and devastation. He selected three examples of past civilizations that thrived while using up their resources before collapsing. These civilizations were the Polynesian inhabitants of Easter Island, the Anasazi, a Native-American tribe, and Petra, an ancient city of the Middle East. Many of his arguments are documented in Jared Diamond’s book “The Rise and Fall of the Third Chimpanzee.”

The first example discussed was Easter Island, a civilization that arose far from any current human hub. It lies in the South Pacific Ocean, some 2,300 miles west of Chile, making it one of the most isolated sites on Earth. The Dutch explorer, Admiral Jakob Roggeveen, “discovered” it and its Polynesian inhabitants on Easter day, 1722. Roggeveen named the island accordingly.

Archeological evidence suggests that Polynesians first settled on the island around 400 A.D. Subsequently, an impressive but enigmatic culture developed. The islanders possessed the only known written language in Oceania, created elaborate rock and wood carvings, and entertained themselves with complicated music and dance. Most impressive, however, were the hundreds of giant statues lining the shore, weighing up to eighty-five tons each and standing over 36 feet high. They were carved from island volcanic quarries,

transported several miles, and raised to the upright position on platforms by people who lacked metal tools or wheels, and had no source of power other than human muscle. More statues were discovered unfinished in the quarries or were found finished but abandoned between the quarries and platforms. It would appear as if the creators, engaged in some fervent religious rite, suddenly abandoned their creative efforts for some unexplained reason. Whatever the reason, all this took place before Roggeveen arrived in 1722. The natives were the only ones who knew how the islanders had transported the statues to the coastline. Logs had been used as rollers and then as levers to erect them. This fact, related by the islanders themselves, proved surprising to Roggeveen because no trees could be found on Easter Island at all!

Archeological digs revealed that when Polynesians settled there, palm forests covered the island. These forests were gradually cleared to provide agricultural fields for raising crops, to obtain logs for canoes, used for fishing, and for transporting the massive statues. By 1500 A.D., the population on this 500 square mile island reached about 10,000. The people had carved about a thousand statues but erected less than 400. Why? Because the means of transport disappeared; the forests were gone. Not a single tree survived either for statue transport or for canoe construction.

Ecological and societal collapse was the ultimate consequence. Deforestation caused extensive soil erosion, reducing crop yields, and fishing without canoes was nearly impossible. The archeological findings revealed that just as the forests disappeared, the once advanced island society degenerated into warring factions; a spear-toting warrior class replaced the previously artistic and peace-loving society. The defeated were either enslaved or eaten. Rival clans pulled down each other's statues, and people abandoned their open homes, taking to cave dwelling for the purpose of self-preservation. The once thriving island society, boasting of one of the world's most advanced civilizations, was eventually reduced to 1% of its peak value, just slightly over one hundred people. The island never recovered. It is still a barren grassland littered with fallen statues.

Our second well-documented example of societal collapse caused by resource depletion involves one of the most advanced Native-American civilizations in North America. When Spanish explorers reached what is now the Southwestern United States, they discovered ruins of huge multistoried pueblos in the mid-

dle of chaparral deserts. A 650 room five-story high dwelling was found and is now a Chaco Canyon National Monument in New Mexico. It was the largest building ever constructed in North America before the industrial revolution, built by an ancient people whom the Navajos referred to as the Anasazi, which translates to "the ancient ones."

Archeologists have reconstructed the history of the Anasazi. They discovered that in 900 A.D., when the pueblos were first constructed, the area boasted lush woodlands of pinyon, ponderosa pine and juniper. These forests supported a burgeoning population that cleared the forests for building purposes and firewood. Eventually, the region became the treeless wasteland that the Spanish explorers discovered, and it remains so today. With the surrounding forests gone, the Indians had to travel over 50 miles to get the wood they needed. Elaborate road systems were developed to bring fir and spruce logs from nearby mountainous slopes. Systems of irrigation were also constructed to allow temporary agricultural exploitation of the increasingly eroded farms. Gradually though, the scarcity of wood and eventual destruction of the land for crop growth forced the people to abandon their dwellings and migrate to new areas where plentiful resources were available.

Further illustration of the ramifications of resource exploitation can be found in the ruins of the once wealthy "lost city" of Petra, which lies in present-day Southern Jordan. Caught in a bleak and desolate wasteland, modern travelers wonder how and why such an elegant city was ever built there. However, Petra has one of the oldest and most colorful histories of all cities in the world, past or present. Excavations have revealed the presence of a flourishing Neolithic village, occupied primarily by farmers and herdsmen, as early as 7000 B.C. Petra later became the capital of the Nabataean Kingdom, the domain of a Bedouin tribe from North Arabia. It then prospered as a center of commerce, controlling trade between the Orient, Arabia and Europe. It continued to grow and thrive under Roman and Byzantine control but subsequently was abandoned and completely forgotten. Its remarkable ruins were rediscovered in 1812.

Originally, Petra was situated in a lush forested region with a preponderance of oak and pistachio trees. Trees persisted through most of the Nabataean era, but gradually they were felled. Already during the Roman rule, low-lying shrubs and grasses replaced the dense forests. These served to feed herds of goats and sheep. Overgrazing yielded the desert environment that now

surrounds the ruins of Petra. The eventual demise of Petra was forestalled by the construction of elaborate systems of channels, pipes and cisterns. These were used for the transport and storage of the increasingly scarce water necessary for agriculture and the maintenance of city life. When these sources were depleted, there was no alternative but to leave. The once lush orchards were abandoned and the population crashed. Any tourist visiting the lost city of Petra would find it difficult to believe that Petra had ever been a thriving city that had influenced commerce throughout the Western world.

Are the three historical narratives described above isolated examples or representative of many past civilizations that have risen in opulence only to fall into a subsequent state of miserable decay? All of the great Western empires of the past—Persia, Athens, Rome—now lie in ruins in the middle of comparative desolate wastelands. Other examples of probable eco-disasters include the collapse of the Mayan Empire in Central America and of the Harappan civilization in India's Indus Valley. In all of these cases overexpansion of the human population caused destruction of the environment with a consequential societal crash. While tyranny, war and human exploitation are frequently considered to be the downfall of a civilization, erosion due to deforestation and agricultural abuse may have been far more important factors in shaping the course of human destiny.

Are the examples cited above applicable to our present day societies? Can we learn from the past, and thereby avoid the type of disaster that has caused so many great civilizations of the past to fall into a state of decay? In concluding his lecture, Parker Havron expressed hope that today's people can find rational solutions to the immense problems that face us.

For the first time in history, human society has attained global proportions. The human population is now in excess of 6,000,000,000, and resources re-

quired by a wealthy nation can be transported and utilized even if available only from another country located on the other side of the globe. In fact, the United States, with about 5% of the world population, consumes nearly one-third of the world's resources and contributes about one-third of the world's pollution. The tropical rainforests are disappearing at a rate of 2.5% per year, and at that rate, they will be gone in a mere 40 years. Our oceans are nearly empty of commercially important sea life, and living species are going extinct at an estimated rate of 50,000 per year. Thus, we are irreversibly destroying the ecosystem that supports us.

In spite of this deplorable situation, our population continues to increase at a rate of 250,000 people per day! With this exponential population explosion continuing unabated, Parker concluded that an international crash is inevitable. Drastic measures must be taken if we are to prevent suffering and bloodshed. We must decrease our numbers and take pains to care for our environment. Instead of destroying our forests, we must plant new ones, replacing those we have already lost. Instead of over-fishing the sparse remaining sea life out of the world's oceans, we must preserve and reseed them so they can once again support an extensive diversity of life forms. Instead of continuing to destroy and pollute the Earth's ecosystem, we must strive to fit into nature unobtrusively and nondestructively.

Milton Saier

References

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