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THE LESSONS OF EASTER ISLAND

Easter Island is one of the most remote, inhabited places on earth. Only some 150 square miles in area, it lies in the Pacific Ocean, 2,000 miles off the west coast of South America and 1,250 miles from the nearest inhabitable land of Pitcairn Island. At its peak the population was only about 7,000. Yet, despite its superficial insignificance, the history of Easter Island is a grim warning to the world.

The Dutch Admiral Roggeveen, onboard the *Arena*, was the first European to visit the island on Easter Sunday 1722. He found a society in a primitive state with about 3,000 people living in squalid reed huts or caves, engaged in almost perpetual warfare and resorting to cannibalism in a desperate attempt to supplement the meagre food supplies available on the island. During the next European visit in 1770 the Spanish nominally annexed the island but it was so remote, underpopulated and lacking in resources that no formal colonial occupation ever took place. There were a few more brief visits in the late eighteenth century, including one by Captain Cook in 1774. An American ship stayed long enough to carry off twenty-two inhabitants to work as slaves killing seals on Masafuera Island off the Chilean coast. The population continued to decline and conditions on the island worsened: in 1877 the Peruvians removed and enslaved all but 110 old people and children. Eventually the island was taken over by Chile and turned into a giant ranch for 40,000 sheep run by a British company, with the few remaining inhabitants confined to one small village.

What amazed and intrigued the first European visitors was the evidence, amongst all the squalor and barbarism, of a once flourishing and advanced society. Scattered across the island were over 600 massive stone statues, on average over twenty feet high. When anthropologists began to consider the history and culture of Easter Island early in the twentieth century they agreed on one thing. The primitive people living in such poverty-stricken and backward conditions when the Europeans

first visited the island could not have been responsible for such a socially advanced and technologically complex task as carving, transporting and erecting the statues. Easter Island therefore became a 'mystery' and a wide variety of theories were advanced to explain its history. Some of the more fantastic ideas involved visits by spacemen or lost civilisations on continents that had sunk into the Pacific leaving Easter Island as a remnant. The Norwegian archaeologist Thor Heyerdahl, in his popular book *Aku-Aku* written in the 1950s, emphasises the strange aspects of the island and the mysteries that lay hidden in its history. He argued that the island was first settled from South America and that from there the people inherited a tradition of monumental sculpture and stone work (similar to the great Inca achievements). To account for the decline he introduced the idea that at a late stage other settlers arrived from the west and began a series of wars between the so-called 'long-ears' and the 'short-ears' that destroyed the complex society on the island. While this theory is less extravagant than some of the others that have been put forward it has never been generally accepted by other archaeologists.

The history of Easter Island is not one of lost civilisations and esoteric knowledge. Rather it is a striking example of the dependence of human societies on their environment and of the consequences of irreversibly damaging that environment. It is the story of a people who, starting from an extremely limited resource base, constructed one of the most advanced societies in the world for the technology they had available. However, the demands placed on the environment of the island by this development were immense. When it could no longer withstand the pressure, the society that had been painfully built up over the previous thousand years fell with it.

The colonisation of Easter Island belongs to the last phase in the long-drawn-out movement of human settlement across the globe. The first people arrived sometime in the fifth century at a period when the Roman empire was collapsing in western Europe, China was still in chaos following the fall of the Han empire two hundred years earlier, India saw the end of the short-lived Gupta empire and the great city of Teotihuacan dominated most of Mesoamerica. They were Polynesians and part of a great process of exploration and settlement across the vast expanse of the Pacific Ocean. The original Polynesians came from south-east Asia and they reached the islands of Tonga and Samoa about 1000 BC. From there they moved further east to the Marquesas Islands about 300 AD and then in two directions, south-east to Easter Island and north to Hawaii in the fifth century. The last phases of the movement

were to the Society Islands about 600 and from there to New Zealand about 800. When this settlement was complete, the Polynesians were the most widely spread people on earth encompassing a huge triangle from Hawaii in the north to New Zealand in the south-west and Easter Island in the south-east – an area twice the size of the present continental United States. Their long voyages were made in double canoes, joined together by a broad central platform to transport and shelter people, plants, animals and food. These were deliberate colonisation missions and they represented considerable feats of navigation and seamanship since the prevailing currents and winds in the Pacific are against west to east travel.

When the first people found Easter Island, they discovered a world with few resources. The island was volcanic in origin, but its three volcanoes had been extinct for at least 400 years before the Polynesian settlers arrived. Both temperatures and humidity were high and, although the soil was adequate, drainage was very bad and there were no permanent streams on the island; the only fresh water available was from lakes inside the extinct volcanoes. Because of its remoteness the island had only a few species of plants and animals. There were thirty indigenous species of flora, no mammals, a few insects and two types of small lizard. The waters around the island contained very few fish. The arrival of the first humans did little to improve the situation. The Polynesians in their home islands depended on a very limited range of plants and animals for subsistence: their only domesticated animals were chickens, pigs, dogs and the Polynesian rat and the main crops were yam, taro, breadfruit, banana, coconut and sweet potato. The settlers on Easter Island brought only chickens and rats with them and they soon found that the climate was too severe for semi-tropical plants such as breadfruit and coconut and extremely marginal for the usual mainstays of their diet, taro and yam. The inhabitants were, therefore, restricted to a diet based mainly on sweet potatoes and chickens. The only advantage of this monotonous, though nutritionally adequate, diet was that cultivation of the sweet potato was not very demanding and left plenty of time for other activities.

It is not known how many settlers arrived in the fifth century but they probably numbered no more than twenty or thirty at most. As the population slowly increased the forms of social organisation familiar in the rest of Polynesia were adopted. The basic social unit was the extended family, which jointly owned and cultivated the land. Closely related households formed lineages and clans, each of which had its own centre for religious and ceremonial activity. Each clan was headed by a

chief who was able to organise and direct activities and act as a focal point for the redistribution of food and other essentials within the clan. It was this form of organisation and the competition (and probably conflict) between the clans that produced both the major achievements of Easter Island society and ultimately its collapse.

Settlements were scattered across the island in small clusters of peasant huts with crops grown in open fields. Social activities were centred around separate ceremonial centres, which were occupied for part of the year. The chief monuments were large stone platforms, similar to those found in other parts of Polynesia and known as *ahu*, which were used for burials, ancestor worship and to commemorate past clan chiefs. What made Easter Island different was that crop production took very little effort and therefore there was plenty of free time which the clan chiefs were able to direct into ceremonial activities. The result was the creation of the most advanced of all the Polynesian societies and one of the most complex in the world for its limited resource base. The Easter Islanders engaged in elaborate rituals and monument construction. Some of the ceremonies involved recitation from the only known Polynesian form of writing called *rongorongo*, which was probably less a true script and more a series of mnemonic devices. One set of elaborate rituals was based on the bird cult at Orongo, where there are the remains of forty-seven special houses together with numerous platforms and a series of high-relief rock carvings. The crucial centres of ceremonial activity were the *ahu*. Over 300 of these platforms were constructed on the island, mainly near the coast. The level of intellectual achievement of at least some parts of Easter Island society can be judged by the fact that a number of these *ahu* have sophisticated astronomical alignments, usually towards one of the solstices or the equinox. At each site they erected between one and fifteen of the huge stone statues that survive today as a unique memorial to the vanished Easter Island society. It is these statues which took up immense amounts of peasant labour. The statues were carved, using only obsidian stone tools, at the quarry at Rano Raraku. They were fashioned to represent in a highly stylised form a male head and torso. On top of the head was placed a 'topknot' of red stone weighing about ten tons from another quarry. The carving was a time-consuming rather than a complex task. The most challenging problem was to transport the statues, each some twenty feet in length and weighing several tens of tons, across the island and then erect them on top of the *ahu*.

The Easter Islanders' solution to the problem of transport provides

the key to the subsequent fate of their whole society. Lacking any draught animals they had to rely on human power to drag the statues across the island using tree trunks as rollers. The population of the island grew steadily from the original small group in the fifth century to about 7,000 at its peak in 1550. Over time the number of clan groups would have increased and also the competition between them. By the sixteenth century hundreds of *ahu* had been constructed and with them over 600 of the huge stone statues. Then, when the society was at its peak, it suddenly collapsed leaving over half the statues only partially completed around Rano Raraku quarry. The cause of the collapse and the key to understanding the 'mysteries' of Easter Island was massive environmental degradation brought on by deforestation of the whole island.

When the first Europeans visited the island in the eighteenth century it was completely treeless apart from a handful of isolated specimens at the bottom of the deepest extinct volcano crater of Rano Kao. However, recent scientific work, involving the analysis of pollen types, has shown that at the time of the initial settlement Easter Island had a dense vegetation cover including extensive woods. As the population slowly increased, trees would have been cut down to provide clearings for agriculture, fuel for heating and cooking, construction material for household goods, pole and thatch houses and canoes for fishing. The most demanding requirement of all was the need to move the large number of enormously heavy statues to ceremonial sites around the island. The only way this could have been done was by large numbers of people guiding and sliding them along a form of flexible tracking made up of tree trunks spread on the ground between the quarry and the *ahu*. Prodigious quantities of timber would have been required and in increasing amounts as the competition between the clans to erect statues grew. As a result by 1600 the island was almost completely deforested and statue erection was brought to a halt leaving many stranded at the quarry.

The deforestation of the island was not only the death knell for the elaborate social and ceremonial life it also had other drastic effects on every day life for the population generally. From 1500 the shortage of trees was forcing many people to abandon building houses from timber and live in caves, and when the wood eventually ran out altogether about a century later everyone had to use the only materials left. They resorted to stone shelters dug into the hillsides or flimsy reed huts cut from the vegetation that grew round the edges of the crater lakes. Canoes could no longer be built and only reed boats incapable of long

voyages could be made. Fishing was also more difficult because nets had previously been made from the paper mulberry tree (which could also be made into cloth) and that was no longer available. Removal of the tree cover also badly affected the soil of the island, which would have already suffered from a lack of suitable animal manure to replace nutrients taken up by the crops. Increased exposure caused soil erosion and the leaching out of essential nutrients. As a result crop yields declined. The only source of food on the island unaffected by these problems was the chickens. As they became ever more important, they had to be protected from theft and the introduction of stone-built defensive chicken houses can be dated to this phase of the island's history. It became impossible to support 7,000 people on this diminishing resource base and numbers fell rapidly.

After 1600 Easter Island society went into decline and regressed to ever more primitive conditions. Without trees, and so without canoes, the islanders were trapped in their remote home, unable to escape the consequences of their self-inflicted, environmental collapse. The social and cultural impact of deforestation was equally important. The inability to erect any more statues must have had a devastating effect on the belief systems and social organisation and called into question the foundations on which that complex society had been built. There were increasing conflicts over diminishing resources resulting in a state of almost permanent warfare. Slavery became common and as the amount of protein available fell the population turned to cannibalism. One of the main aims of warfare was to destroy the *ahu* of opposing clans. A few survived as burial places but most were abandoned. The magnificent stone statues, too massive to destroy, were pulled down. The first Europeans found only a few still standing when they arrived in the eighteenth century and all had been toppled by the 1830s. When they were asked by the visitors how the statues had been moved from the quarry, the primitive islanders could no longer remember what their ancestors had achieved and could only say that the huge figures had 'walked' across the island. The Europeans, seeing a treeless landscape, could think of no logical explanation either and were equally mystified.

Against great odds the islanders painstakingly constructed, over many centuries, one of the most advanced societies of its type in the world. For a thousand years they sustained a way of life in accordance with an elaborate set of social and religious customs that enabled them not only to survive but to flourish. It was in many ways a triumph of human ingenuity and an apparent victory over a difficult environment. But in the end the increasing numbers and cultural ambitions of the

islanders proved too great for the limited resources available to them. When the environment was ruined by the pressure, the society very quickly collapsed with it leading to a state of near barbarism.

The Easter Islanders, aware that they were almost completely isolated from the rest of the world, must surely have realised that their very existence depended on the limited resources of a small island. After all it was small enough for them to walk round the entire island in a day or so and see for themselves what was happening to the forests. Yet they were unable to devise a system that allowed them to find the right balance with their environment. Instead vital resources were steadily consumed until finally none were left. Indeed, at the very time when the limitations of the island must have become starkly apparent the competition between the clans for the available timber seems to have intensified as more and more statues were carved and moved across the island in an attempt to secure prestige and status. The fact that so many were left unfinished or stranded near the quarry suggests that no account was taken of how few trees were left on the island.

The fate of Easter Island has wider implications too. Like Easter Island the earth has only limited resources to support human society and all its demands. Like the islanders, the human population of the earth has no practical means of escape. How has the environment of the world shaped human history and how have people shaped and altered the world in which they live? Have other societies fallen into the same trap as the islanders? For the last two million years humans have succeeded in obtaining more food and extracting more resources on which to sustain increasing numbers of people and increasingly complex and technologically advanced societies. But have they been any more successful than the islanders in finding a way of life that does not fatally deplete the resources that are available to them and irreversibly damage their life support system?