

# The Role of Wood in World History

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The destruction of the world's forests is a major concern in our age. According to the UN about 40 percent of Central America's forests were destroyed between 1950 and 1980 and during the same period Africa lost about 23 percent of its forests. A whole range of environmental problems is associated with deforestation, among them severe flooding, accelerated loss of soil, encroaching deserts and declining soil productivity<sup>1</sup>. Sometimes we get the impression that these problems are unique to our time, but vast areas of surface of the earth were stripped of their tree cover well before the modern period.

## The ancient Middle East

Today it is hard to believe that in antiquity vast forests were growing in the Middle East. However, during the early part of the third millennium BCE, the mountain slopes of this region were covered with massive cedar forests. These forests disappeared in the millennia before Christ's birth about two thousand years ago. The destruction of the cedar forests of the Middle East is told in the oldest known, surviving written story in the world: *The epic of Gilgamesh*. The epic was written in Mesopotamia sometime during the 3rd millennium BCE. The second episode of the epic is known as "The forest Journey" and is the story of deforestation in the Middle East<sup>2</sup>.



*Humbaba*

The forests of the ancient Near East were the resource for the construction of temples and palaces in the kingdoms and empires in the Fertile Crescent. The rulers of these kingdoms and empires undertook massive building programmes to display their power and wealth. In doing so they needed large amounts of, mainly, cedar timber. The story of Gilgamesh is the story of the ruler of the city-state of Uruk, in what is present-day Iraq. Gilgamesh wished to make for himself "a name that endures" by building "walls, a great rampart and the temple of blessed Eanna"<sup>3</sup>. To realise his ambitious construction programme he needed large amounts of timber and, fortunately for Gilgamesh, the natural forests of Mesopotamia remained almost untouched at that time. But it was not an easy task for Gilgamesh to enter the forests and cut down the trees he needed for his temples. The cedar forests were the gardens of the Mesopotamian gods and it was protected against humanity's need for timber by a guard named Humbaba. The gods understood very well that

human beings never recognised the limits of their needs and their resources. Therefore the chief Sumerian deity appointed a guard, Humbaba, to prevent humans to enter the forests. But Gilgamesh was determined to get his hands on the timber and went “to the land where the cedar is felled”<sup>4</sup>. When Gilgamesh and his companions arrived at the forests a fight with the formidable Enlil for control over the forests followed. After a heavy struggle Humbaba was killed by the king of Uruk:

Then there followed confusion; for this was the guardian of the forest whom they had struck to the ground: he at whose words Hermon and Lebanon were used to tremble. Now the mountains were moved, the ranges of the hills were moved, for the guardian of the cedar lay dead.

The author of the epic knew that once humans started to exploit the forests, nothing could stop them from cutting down all the trees:

So Gilgamesh felled the trees of the forests and Endiku cleared their roots as far as the bank of Euphrates.<sup>5</sup>

Gilgamesh and Enkidu cut down the cedar forest and in particular the tallest of the cedar trees to make a great cedar gate for the city of Uruk. They build a raft out of the cedar and floated down the Euphrates River to the city.

The fate of the cedar forests was sealed. The Phoenicians, one of the oldest sea-trading nations in the world, needed timbers for their ships and used the cedars of Lebanon to construct them. Writers such as Homer,

Pliny, and Plato, along with the Old Testament provide us with well-documented descriptions of the once richly forested mountains of Lebanon. The Bible also vividly describes the practice of rulers in the Ancient Middle East to fell cedar trees to build massive monuments. The account of the construction of the first temple in Jerusalem tells us that king Solomon sends a message to the king of Tyre with the request to provide him with timber: “so give orders that cedars of Lebanon be cut for me”. What follows is a detailed account of how the trees are taken down from the mountains of the Lebanon and floated in rafts by the sea to Israel<sup>6</sup>. All these stories, myths and histories from the ancient world confirm that civilisations of the ancient world were destroying forest resources.

## The Hellenic period

According to Perlin most of the Ancient Middle East lost its forests by the end of the third millennium BCE. He argues that this removed one of the fundamentals under the ancient civilisations in the Middle East and as a consequence the centre of trade and power in the Mediterranean shifted to areas that still had sufficient reserves of timber: Crete and the Greek world. The kingdoms and empires in the Middle East started to import wood for timber, fuel and bronze from the island of Crete but in the long run this was not sustainable. In the early second millennium BCE, the Minoan civilisations developed on Crete and its economy was based on the abundant availability of wood. This was used for fuel in the copper furnaces for the production of bronze, the major export of Crete at that time. The Minoan civilisations flourished for about 600 years, but by 1450 BCE it suddenly collapsed almost entirely. Perlin attributes this solely to

the massive deforestation of the island. That is very unlikely because the collapse of the Minoan civilisation was caused by the massive **eruption of the Thera Volcano**. This buried Crete under a layer of ash and large Tsunamis destroyed coastal areas. It is likely that the eruption caused a temporary massive loss of woodlands on the island and as a result the Minoans had to turn to Greece for its timber and fuel supplies and soon the centre of gravity moved to the Greek world <sup>7</sup>.

In the millennium that followed the Greek world developed into one of the major power centres of the Mediterranean. Two conditions were important for the growing influence of this region: the first is the long coastline of Asia Minor and Greece and the many islands scattered along these coasts; secondly the availability of timber. The first condition made communication by sea easy and the availability of timber made this communication possible because it allowed the construction of ships. Because of this, the forests of Asia Minor, the Greek peninsula and of Macedonia were one of the main sources of the power and wealth of this region. The availability of wood turned the different civilisations that developed in Greece and Asia Minor into formidable maritime and trading powers. It is not surprising that when Rome conquered Macedonia in 167 BC they prohibited the Macedonians from cutting timber. The Romans were aware of the role that wood had played in its rise as a great power. The prohibition was a precautionary measure to prevent Macedonia from developing into a maritime power that might rival Rome's and of course to satisfy its own timber needs<sup>8</sup>.

## The Roman period

For the Romans, as for other civilisations before, wood played an

important role in their economy. The importance of wood is reflected in Pliny's *Natural History*. He devoted books XII to XVI of this work entirely to trees and recognised the importance of forests for human existence:

...the trees and forests were supposed to be the supreme gift bestowed by her on man. These first provided him with food, their foliage carpeted his cave and their bark served him for aliment.<sup>9</sup>



*Roman soldiers felling trees for construction purposes. Detail Trajan's Column.*  
Source: [Wikimedia commons](#)

In Pliny's time Italy was almost completely stripped of its forest cover. For this reason the Romans had to import most of the timber from all parts of the Empire and metallurgic industries, which depended heavily on charcoal, moved out of Italy. The centres of mining and metal smelting became the most deforested areas of the Roman Empire. Pliny must have realised that human industry and activities put forests at risk of

destruction. In a world where trees were a scarce resource it is not surprising that Pliny wrote with awe about the massive forests in Germany:

In the northern region is the vast expanse of the Hercynian Oak Forest, untouched by the ages and coeval with the world, which

surpasses all marvels by its almost immortal destiny.<sup>10</sup>

But it was not just awe that inspired Pliny because the Romans realised that these forests were an important resource for their industries. Faced with wood shortages, Rome increasingly turned to northern Europe for their wood supplies. Unfortunately for them they never succeeded in conquering the areas east of the Rhine and they had to turn elsewhere for timber, in particular to the Mediterranean. The Roman Empire's expansion into Syria had very harmful effects on the remaining cedar forests in the mountains. It was not until the Emperor Hadrian introduced protective measures and declared the cedar forests of Lebanon his Imperial Domain, that the destruction of the forests was slowed.<sup>11</sup>

## China and Venice

Now that we have explored the importance of wood and forests of antiquity, we make a big jump forward in time to examine the importance of wood in the rise of the West. Without the abundant availability of wood, Europe would never have been able to undertake the exploration of the world's oceans that led to the great geographic discoveries. This development had become very difficult in the Middle East, where the ancient forests were had largely disappeared during antiquity.

In China, signs of wood shortages appeared in the 13th century. This was caused by a rapid growth of the population and the resulting demand on the timber supplies at that time. But this did not prevent China from building ocean-going ships. The main reason why China did not circumnavigate Cape of Good Hope is more of a political nature than a matter of resource shortages or ecology.<sup>12</sup>

At the same time at the other side of the Eurasian landmass, Europe woke up from its relative isolation of the Middle Ages. Trade and commerce started to expand and most of this trade was by sea. This was partly encouraged by its ecology because Europe has no long navigable rivers and transport by land was difficult because the massive woods, bad road conditions and extensive wetland areas which made it very difficult to transport goods over long distances over land. Luckily Europe has a long coastline and for this reason most long distance navigation took place along the coasts. As a result it was important for European powers to development seaworthy vessels that could transport bulk goods over long distances and over rough seas. The first region where new vessels were developed was in the western the Mediterranean and in particular in Venice. To leave her Muslim competitors behind and establish maritime supremacy over de Mediterranean Venice developed superior ships. The city was very successful in building large numbers of high quality ships and for a considerable time Venice was the most important maritime power in Europe. However, Venice paid a high price for its rapid expanding sea power. The first signs of timber shortages can be identified by the end of the 15th century and by 1590 Venice had to import complete ship hulls from Northern Europe. Soon Venice had to abandon its prominent position as a maritime power and the centre of maritime activity shifted for the first time since antiquity away from the Mediterranean to the Atlantic and North Sea coasts.<sup>13</sup>

## Spain

During the 15th and 16th centuries Spain was building a sea borne empire in the





Americas and the Far East. The expansion was a heritage of the struggle against the Moors in the later Middle Ages. In search for allies against their Muslim enemies the Spanish and Portuguese explored the coasts of West Africa. In doing so they discovered the Azores in 1427 and in 1497-98 the Portuguese explorer Vasco da Gama sailed around the Cape of Good Hope and reached India by sea. He brought back a cargo of spices that netted a huge profit and opened up lucrative trade routes with the Far East.



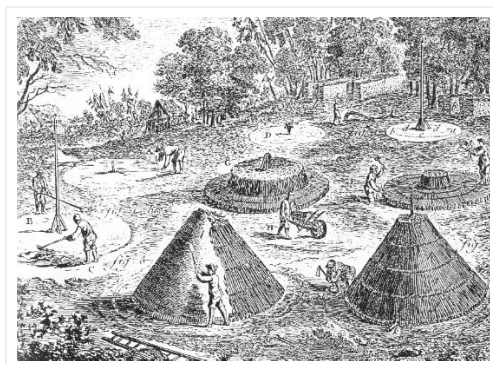
*Spanish galleon.*

Source: [Wikimedia Commons](#)

This was the start of the rapid expansion of Europe overseas. The Spanish and Portuguese were the first, but others followed soon, not in the least the English and the Dutch. English pirates were raiding Spanish ships in the Caribbean and along the African coast, and explorers such as Francis Drake traded openly in Spanish territories. This brought Spain into conflict with England and other European powers. After years of preparation Philip II ordered in 1588 The Armada to attack and invade England. The invasion failed and the Armada was destroyed. The construction of The Armada in the 1580's left large parts of Spain devoid of trees and heralded the decline of Spanish supremacy at sea. The countries around the North Sea had access to abundant forests in Scandinavia, the Baltic Sea region and in Germany. But in the south of England there were also some reserves of wood available. This availability of wood allowed England, France and Holland to build large fleets to take advantage of the opening up of the world seas.<sup>14</sup>

## The rise of Britain

Because of the relative late development, during late Middle Ages and early Modern Period, of large-scale shipping and industry around the North Sea basin, shortages of wood only appeared in the early Modern Period. In England the first signs of timber shortages were noticed during the wars against France in the 1620's. In order to obtain enough timber for its fleet, England started to import wood supplies, first from the Baltic region and Scandinavia, later from the Colonies in North America. In the middle of the 18th century Europe faced an acute shortage of wood, and as a consequence, an energy crisis. The response to the energy shortage was the increasing use of an inferior fuel: coal. The change from wood to coal as major energy source had far reaching consequences.<sup>15</sup>



*Charcoal production in the 18th century.*

*Plate from Encyclopédie by Diderot and D'Alembert, 1751 - 1772.*

The shift to coal first happened in England, where the shortage of wood was most acute. Wood was not only used for the construction of ships but also for heating and cooking as well as industrial processes. In order to provide a sufficient supply of charcoal woodlands in England were managed with a coppice rotation system but over time these woodlands could not supply enough fuel for the growing demands of domestic users and industry, in particular the iron industry. Iron was scarce and costly, and production was falling off because England's forests could not supply enough charcoal for smelting the ore. The problem was that mineral coal was useless for iron smelting so the industry desperately needed wood. However, in regions where

wood was scarce but coal abundant. Iron masters had long been experimenting with coal as a fuel for smelting. Finally the Darby family in the early 18th century, after three generations of effort, succeeded with transforming coal into coke. This processed type of coal was clean and therefore useful as a fuel to smelt iron. However, the severity of shortages differed significantly from region to region and areas with abundant wood or peat the transition to coal was slow. For example, in Sheffield, the transition to coal was not completed until the 1820s.<sup>16</sup> The knowledge how to make coke spread slowly but surely and soon the production of iron rose because of the abundant availability of the new fuel in many localities, especially Northern England and the Midlands. These developments ended the supremacy of wood as a construction material and fuel and it was replaced by steel as the chief construction material and coal as the major energy source. This process was also reinforced when the railways, also depending on coal, could transport the fuel to any part of the country making the production of iron independent of the location. The coal revolution in England made it the first country to leave the wood era, and enter the true iron age and the industrial period.<sup>17</sup>

## The present and the future

Nowadays steel and concrete are the predominant materials used to construct tall buildings and long-span bridges. But wood is still used as a major material in houses, smaller buildings, for decorative purposes and furniture. It is also a raw material for pulp-based products such as paper. Although wood is in many cases replaced by stronger and lighter materials, it is still in great demand. The present worldwide depletion of forests and reforestation of large parts of the developed world is a new

chapter in an old story. A better understanding of what happened with forests and woodlands in the past might help us to preserve forests for the future.

## Notes

- 1 Perlin, John, *A Forest Journey. The Role of Wood in the Development of Civilisation* (Cambridge, MA; London, 1989), p. 15.
- 2 Ibid., p. 35.
- 3 *The Epic of Gilgamesh*, English version by N.K. Sandars (London, 1960), p. 59.
- 4 Ibid, p. 68
- 5 Ibid., p. 82
- 6 1 Kings 4: 6-10
- 7 Perlin, *Forest Journey*, pp. 44-55.
- 8 Ibid., p. 101
- 9 Pliny, *Natural History*, edited by E.H. Warmington (Cambridge MA, 1968), Book XII . I . 2
- 10 Ibid., Book XVI . II . 6
- 11 Mikesell, Marvin W. . “The Deforestation of Mount Lebanon”, *The Geographical Review*, Volume 69, 1( 1969), p. 21; J. Donald Hughes, *The Mediterranean: An Environmental History* (Santa Barbara, CA.: ABC-CLIO, 2005), pp. 39-44, 47.
- 12 13. Ponting, Clive, *A Green History of the World* (London, 1991), p. 278.
- 13 Perlin, *Forest journey*, 145-161; Ponting, *Green History*, p. 278
- 14 Ibid., p. 278
- 15 Ibid., pp. 279-281.

16 Rotherham, Ian D & David Egan, “The Economics of Fuel Wood, Charcoal and Coal: An Interpretation of Coppice Management of British Woodlands”, in: Mauro Agnoletti, Marco Armiero, Stefania Barca and Gabriella Corona (eds.), *History and Sustainability. Third International Conference of the European Society for Environmental History: Proceedings* (Florence: University of Florence/ESEH, 2005) , pp. 100-101.

17 Perlin, *Forest Journey*, pp. 227-245

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