

ANCIENT GREECE - INNOVATIONS

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Background Ancient Greece is a large concept, lasting from Mycenaean times until the end of the Hellenistic period, and though we remember those Greeks, especially of the classical age (fifth century B.C.E.) largely for their cultural productions, we also know that the culture rested on a steadily developing technological base, a base of major achievements in everything from urban planning to the niceties of domestic life. A few notes follow, on that technological development.

Natural conditions Every culture must make the most of the natural environment given it. The environment of ancient Greece provided two gross natural conditions which demanded attention and provided opportunity: the land, famous for its *stenochoria*, or stinginess, and the sea, surrounding Greece on all sides, and providing a water way to the rest of the world. These dominating natural features provoked the basic drives of ancient Greek technology.

Agriculture 80 % of the Greek population worked the land, while only 20 % of the land was arable . This meant that the Greek farmer needed to generate techniques to make the most of his soil. Over the centuries, from Homer's time on, farmers learned what crops to prioritize—olive trees and vineyards worked best, in the dry, rocky soil—what animals to maintain, goats and sheep, that could live successfully on an exiguous vegetation nibbled between the rocks, and how to rotate crops in order to make the most of the available land. The Greek farmers learned to rotate their crops twice a year—although they experimented with a third rotation—how to plow weeds back into the land for fertilizer, how to surround their trees with water filled trenches, and for that matter how to manage the limited water supply, through careful irrigation. Hard work, against hard conditions, generated these technologies of successful agriculture.

Shipbuilding From Minoan times on, Greek seafarers and ship builders had been looking for the most effective ways to use their water encircled mainland, and islands. It was a long haul from the earliest vessels—simple dugouts and craft made of papyrus strips fastened together—to the military triremes first created in the 8th century B.C.E., with their two rows of twenty oarsmen on each side, and a large bronze ram on the prow, for decimating enemy ships. These fighting ships, which repelled the Persian invasions and provided the defence of Athens in the Peloponnesian War, were products of centuries of technological innovation.

Water management A precious commodity to the Greeks, in their often dry land with few lakes and rivers, was their domestic water supply. The inhabitants made many advances in handling that not abundant supply. By the sixth century B.C.E. the mainland Greeks had made major achievements in water management: their domestic living standards were clean and hygienic; they had developed advanced techniques for water transportation; flood control had been mastered in the plains of northern Greece; clean water for bathing was available everywhere from wells; dams were constructed; and, as in the brilliant work of the architect Eupalinos on the island of Samos, aqueducts still considered world masterpieces were constructed.

Pottery From the earliest times the Greeks relied on pottery vessels for drinking, ceremonial observances, and as tribute. In order to bring this skill to its aesthetic glory, the red and black figured painted vases of the fifth century B.C.E., Greek potters required centuries of learning and experimentation. That learning began with the processes of washing clay, so that it was free of rocks and pebbles, innovating more effective potters' wheels, mastering the optimum stages of the firing procedure, and preparation of the dyes suitable for painting on clay. As in rural Mediterranean and Latin American environments, today, it was true in ancient Greece that the technologies of pottery making were the indispensable foundation of domestic life.

Readings

Hodges, H., *Technology in the Ancient World*, New York, 1992

Humphrey, J.W., *Ancient Technology*, Westport, 2006.

Discussion questions

Does the development of ancient Greek technological skill relate closely to the growth of Greek trade? In what ways do you see trade and technology inter relating?

Mesopotamian, Egyptian, and Roman architectures all gravitated toward monumental structures. Why did the ancient Greeks not build such structures?

The ancient Greeks, from the earliest times, used trial and error to determine the best kinds of wheat or barley to grow on their distinctive soils. Do you think the development of technologies in Greece generally depended on trial and error, or on acts of individual insight and genius?