

Roman Roads: Building, Linking, and Defending the Empire

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Overview

The Roman Empire was, until the peak of the British Empire, the mightiest empire the world had ever known. At its peak it dominated virtually all of Europe, part of Africa, and most of the Middle East. One of the factors that made it possible to build, administer, and defend the Roman Empire was its intricate system of roads, which were so well designed and well constructed that they were still in use a millennium after they were first built. As the saying went, "All roads lead to Rome," and it was upon its roads that the Roman Empire extended and controlled its vast expanses.

Background

Roads have existed in some form for nearly 4,000 years. They were mostly used for trade and, in general, were no more than frequently followed paths with some sort of improvements at river crossings, swamps, and other difficult stretches. In some cases, branches and logs were laid on the ground to ease walking or horse-riding, but little more than this was standard. Different cultures made their own unique contributions to road building: the Egyptians were master surveyors, the Greeks excelled at masonry, the Etruscans developed cement-making and paving, and the Cretans were also skilled at paving. The Roman contribution was twofold: they first built drainage ditches alongside their early roads to help maintain them in passable condition in any weather conditions, and they recognized the advances of others. This second contribution was the most important; the Romans were not above borrowing technology from others, and they were the first to incorporate all the technological innovations noted above into a single network of roads. By doing so, and adding their own innovations as time went on, the Romans were able to construct a system of roads that remained unequalled for centuries.

The first Roman road was the Via Appia (the Appian Way) built in about 334 B.C. In the following few centuries, over 53,000 mi (85,295 km) of Roman roads ran to all corners of their empire. Twenty-nine of these roads were military roads, designed to rapidly convey the Roman legions to the frontier for offense or defense. And there is no doubt that these roads were a strategic advantage that helped Rome to build and to hold its empire. In fact, the Roman road system constituted the world's first integrated highway system.

Perhaps the chief innovation, however, lay in the roads' design, in particular the military roads. Made to last for centuries, the roads were usually wide, well drained, and built of several layers of rock, gravel, and concrete. In fact, not only did the roads allow travel at up to 75 mi (121 km) per day, but they lasted for over a millennium and served as Europe's roads during the Renaissance.

Impact

The Roman system of highways was instrumental in shaping the destiny of the Roman Empire. They also set new standards for road design and technology, and they were to serve Europe for centuries after the fall of the Roman Empire.

First, and most importantly, in many ways the Roman roads *were* the empire. The Romans understood that controlling a far-flung empire depended on rapid and efficient travel, and it was to that end that they built their highway system. Not only did this facilitate trade throughout the empire, the roads also made rapid communications possible, and they carried the Roman armies to trouble spots with dispatch.

Earlier roads, such as the Amber Road, could more accurately be considered routes--there were improvements in difficult spots, but they were generally simply paths or more-traveled areas linking these improvements. Travel was usually slow, and many travelers became bogged down in bad weather. Travelers took months or years to reach their destinations, and messages took as long. For an empire the size of Rome's, this was not acceptable.

What the Romans did was to speed this travel. In a sense, the roads were the first "information superhighway," moving at walking speeds rather than electronic speeds. Nonetheless, it was the most rapid transportation available. This came into play primarily in the area of administering the empire, particularly by means of the Roman *cursus publicus*, or postal system.

With today's rapid communications, it is difficult to conceive of a time in which information traveled at the speed of a walking man or a walking horse. In such a world, where a good day's travel was usually less than 20 mi (32.2 km), carrying on the business of empire could be a slow matter. In the case of Rome, the business of empire included waging war, negotiating treaties, conducting diplomacy, sending orders to army generals, collecting taxes, distributing imperial decrees, receiving reports from emissaries abroad, and more. To have all of these vital functions and communications take place at a walking pace could be nearly intolerable.

The construction of high-quality highways was a tremendous advantage, for it sped up the pace of communications considerably. For example, a courier on a Roman road could travel at speeds of up to 75 mi (121 km) daily. Although it may be tempting to decry a rate of 75 mi (121 km) per day as still being slow, especially compared to travel today, making such a comparison is not appropriate because at that time there were no airplanes or automobiles. Instead, consider today's exploration of the Solar System. Today's space probes take months to reach Mars and years to reach the outer planets. These travel times are comparable to those needed to travel around the Roman Empire in the absence of the Roman highway system. Now, consider how revolutionary we would view a new spacecraft propulsion system that would let us reach Mars in a week and the outer planets in a month or so. What would this do to the way we view our solar system? What a revolution to be able to send people easily to visit or colonize Mars or to study Jupiter! The advent of the Roman roads opened up travel through the empire in a similar way.

Of course, the same roads that led from Rome also led *to* Rome, and information was carried in both directions. In most cases, this simply facilitated receiving news and taxes from distant parts of the empire. However, Christianity spread along these roads, too, traveling easily to Rome and throughout the empire. There is, of course, no way to know how far, or how fast Christianity would have spread in the absence of these roads, but there can be little doubt that much of the new religion's early success was owed to the speed with which its adherents could spread their message through the empire.

In addition to the administrative advantages, the Roman roads were used as a military weapon. Just as the roads could be used to speed information to the far corners of the empire, they could also be used to

speed armies to defend the borders, or to expand the borders through further conquest. In addition, the roads were easily used to provision armies, to send reinforcements to the battlefield, to deliver orders to the generals, or to bring reports from the front back to Rome.

This lesson was not lost on history, even during the twentieth century. Hitler used the German autobahn to move his troops to the front, North Vietnamese troops moved equipment on the Ho Chi Min Trail, and even the American interstate highway system was built with an eye towards moving troops rapidly. In fact, this highway system was designed to provide a number of straight stretches long enough to serve as emergency runways for warplanes, giving it dual wartime functionality. Incidentally, Swedish and Swiss highways are also designed for similar uses during wartime.

From the standpoint of civil engineering, Roman roads were similarly impressive. The typical Roman road was flanked by drainage ditches that helped to keep it dry during heavy rains or during the Spring snowmelt. Soil taken from the ditches was used to elevate the roadbed at least three feet above the surrounding terrain, further helping to keep the road dry. On top of that were spread layers of gravel, sand, concrete, and paving stones. The entire road might be as much as 4.5 ft (1.4 m) thick. All of this made the roads smooth, dry, and exceptionally durable. These roads might be as wide as 15 ft (4.6 m), allowing two-way horse and chariot traffic, and they would be heavily crowned (i.e., raised in the center to let rain drain to the side). On the sides were curbs up to 2 ft (0.6 m) wide, and auxiliary side lanes up to 7 ft (2.1 m) wide on either side of the road. The total width might be as much as 35 ft (10.7 m) across on a fully developed, heavily traveled road. The roads also usually ran straight across swamps, plains, lakes, ravines, and (as much as possible) mountains.

This construction led to the longest lasting impact of the Roman roads--their continued use for centuries after the fall of the Roman Empire. Even a millennium after Rome fell, the roads remained in use, in many cases as the only decent roads in parts of Europe. Thus, as late as the Renaissance, roads that were 1,000 years old were still in use, facilitating trade and travel, and serving Rome's successor states just as they had served Roman legions and couriers centuries before.

Roman roads were one of the major tools of the Roman Empire. They helped Rome build, maintain, and administer its empire, and they served future nations equally well. Early Christians used these roads to spread their gospel through the ancient world, and later generations moved pilgrims, armies, and goods. Whatever their faults, the Romans built well and built to last. They set the standard, too, for future generations of architects and civil engineers to aspire to.

- [Remains of Roman road in Carthage ruins](#)

Further Readings

Further Reading

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