

# VIA EGNATIA : FROM THE ANCIENT ROAD TO THE MODERN MOTORWAY

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## ABSTRACT

In the Balkan Peninsula, the 2<sup>nd</sup> century BC was marked by the decline of the Macedonia Empire and the expansion of Roman power and authority. In 146 BC, Gaius Egnatius, Roman consul, envisioned a technical project of great importance, away from Italian peninsula, destined to establish communication bonds between the capital of the Roman Empire and the oriental provinces. The most glorious period of Egnatia road was the one of Byzantine Emperor Justinian (527-564 AD). During this period, many guard posts were constructed or separated along the road and renovation operations of major importance. The road was damaged and abandoned during the Middle Age and the period of the Ottoman occupation of Illyria. In the period after World War II, land transport along the axis Adriatic Sea-Euxine Sea was of minor importance. Most commercial vehicles heading to Minor Asia and Middle East would prefer the more convenient way through former Yugoslavia republic. Along the itinerary of the great route of the past, a dense national road network was built to serve for local rather than international transport purposes.

In the 1990s, construction began on a modern Egnatia in Greece, also known as National Road 2 or Egnatia Odos. The 670 km Egnatia Odos is widely accepted as one of the largest and most ambitious civil engineering projects in Europe at the current time.

## 1. INTRODUCTION

The Macedonian kings had built roads of a kind (steles and milestones have been found near Philippi). The Romans had learned the art of road building from Greeks and Etruscans, but the engineers of ancient Rome built an unparalleled network of roads in the ancient world. Approximately 53,000 miles (85,300 km) of roads, which they called *viae* (plural of singular *via*), spanned the Roman empire, containing about 372 links, spreading its legions, culture and immense influence throughout the known world. *Viae* were always intended primarily as carriage roads, the means of carrying material from one location to another. The old saying "all roads lead to Rome", simply couldn't have been truer. Rome was the hub of commerce, trade, politics, and military might in the Mediterranean. The roads were essential for the growth of their empire, for commercial and political reasons. They were designed to hinder provinces organising resistance against the Empire maintaining its stability and its expansion. But their original functionality was mainly designed for military exploitation.

Roman law defined the right to use a road as a *servitus*, or claim. The *jus eundi* ("right of going") established a claim to use an *iter*, or footpath, across private land; the *ius agendi* ("right of driving"), an *actus*, or carriage track. A *via* combined both types of *servitutes*, provided it was of the proper width, which was determined by an *arbiter*. The default width was the *latitudo legitima* of 8 feet. In these rather dry laws we can see the prevalence of the public domain over the private, which characterized the republic. With the conquest of Italy prepared *viae* were extended from Rome and its vicinity to outlying municipalities,

sometimes overlying earlier roads. Building viae was a military responsibility and thus came under the jurisdiction of a consul. The process had a military name, *viam munire*, as though the via was a fortification. Municipalities, however, were responsible for their own roads, which the Romans called *viae vicinales*. A via connected two cities. Some links in the network were as long as 55 miles. The builders always aimed at a regulation width, but actual widths have been measured at between 3' 9" and 24'.

Via Egnatia, the Egnatia Way, was the Roman road which route ran from the eastern Adriatic coast across the Balkan Peninsula to Byzantium, ensuring thus communications from East to West. In this paper, the strategic importance and the technical characteristics of this route are examined. Moreover, the new Egnatia Odos motorway is presented, as it is one of the largest and most ambitious civil engineering projects in Europe.

## 2. VIA EGNATIA

Via Egnatia began from Apollonia and Dyrrhachium in Illyria, passed into Macedonia as far as the river Nestos, entered Thrace and so continued to the Hellespont and Byzantium (Figure 1). Strabo, the Greek (63BC-21AD), who wrote in the first century, bears witness that, at its western end, on the Adriatic coast, this road started from the town of Apollonia. A road coming from Epidamnos (Dyrrachium) joined Via Egnatia in a point that, according to Strabo, was equidistant from the two above mentioned towns. After the two roads met in a single route, the latter crossed some highlands until the the Lychnidos lake region (Orhrida lake, lakes of Prespa and Mikra Prespa).



Figure 1 – Ancient Via Egnatia route

From there, the road went on towards the mountain passes along which ran the border between Illyricum and Macedonia. The route touched then Edessa and thus, after crossing the Macedonia plain, it reached Thessalonica through Pella. The Way passed along the south side of Lake Langada and reached Amphipolis. The monument “The Lion of Amphipolis” stands by the side of the Way facing the site of the ancient city. It is a reconstructin of the pieces of the original statue discovered in 1912 (Figure 2a,b). The Anghistis valley links the Strymon valley with the plain of Philippi, and the Way followed it to Philippi (Figure 2c,d,e), Neapolis (known today as Kavala) (Figure 2f,g,h), Maximianopolis and Cipsela on the Hebro.



(a)



(b)



(c)



Section of the Via Egnatia at Philippi

(d)



(e)



The Via Egnatia at Neapolis

(f)



(g)



(h)

Figure 2 – Photos from Via Egnatia : (a), (b)=Amphipolli, (c),(d), (e)=Phillippi, (f),(g), (h)=Neapolis (Kavala)

At the Hebro the Way branched in three directions: a) southeast to the Thracian Chersonese and the Hellespont (Dardanelles), b) east to Byzantium, c) north to Adrianople. The first reference to Via Egnatia is found in Strabo's work, as well as some years before that, in 59/58 BC in Cicero's work, where an explicit reference is made to the *via militaris*

(military road) going to Thessaloniki, which the great orator used in order to visit the city. When the Apostle Paul travelled through Europe preaching the gospel, he took advantage of using Via Egnatia, from Neapoli to Thessaloniki, 40 AD. There is no exact information about the date of construction. The Via Egnatia was built between 146 and 120 BC, initially following the traces of an older, pre-Roman road running from the Adriatic to the Aegean. The name "Egnatia" was given to the entire road, in honour of the Roman proconsul Gnaeus Egnatius, a private person, who built roads under contract to the state, or the Roman commander in Macedonia. The milestone discovered in 1974 in the alluvial soils of Gallikos river, near Thessalonica bearing the name of the builder confirms such theory.

Strabo tells us that "it was measured out in Roman miles and marked with milestones as far as Cypsela and the river Hebros, a distance of 535 miles". This distance is measured from Dyrrhachium to Cypsela, and is about 750 km. The extension to Byzantium came later.

### 3. MILESTONES

Via Egnatia was divided into numbered miles by milestones (*miliaria*). The Roman mile was *milia passuum*, "one thousand of paces", which amounted to about 1620 yards, 1480 meters. A milestone, or *miliarium*, was a circular column on a solid rectangular base, set two feet into the ground, standing several feet high, 20" in diameter, weighing about 2 tons (Figure 3).

There must have been at least 500, eleven of which have been unearthed and are all from the imperial period. At the base was inscribed the number of the mile relative to the road it was and various other information about the officials who made or repaired the road and when. These milestones are valuable historical documents. In this way, huge territories take on for the first time a definite outline, permanent military and economic reference points are established and travelling times are fixed more precisely.



Figure 3 – Milestones from Via Egnatia

### 4. THE STRATEGIC IMPORTANCE OF VIA EGNATIA

The Romans initially used the road for military purposes. The constant need for quick transition of information and for effective transport of both people and entire army units

was necessary viability of this vast empire. Therefore, the Romans started constructing some basic land routes, sometimes as an extension of the routes and at some others as alternative routes or even as brand-new routes. Thus, the transfer from the Italian peninsula to Macedonia was possible by sea, but at the same time, it was always assailable to the pirates and to the unfavorable weather conditions. They, also, wanted a land route to their trading outposts in Asia Minor. Taking this into consideration, the Romans constructed one of the main land routes in the Roman Empire era, the Via Egnatia, the tracing of which the National Road Network follows along its greatest part even today. Macedonia was itself a rich acquisition. With its continental climate, it abounded in cereals, pastures, forests, fish, gold, iron and silver mines.

The Via Egnatia played an important role during Byzantine and post-Byzantine times. The significance of the Via Egnatia is tremendous not only because three Empires, the Roman, the Byzantine and the Ottoman were literally relied upon it, but also because the first forts, which were constructed in order to protect the road, developed into trade centers and later on into villages and towns. The Via Egnatia was partially repaired, rebuilt and expanded several times. It remained an important commercial and strategic route for centuries, and was one of the most important roads in the Byzantine Empire. Almost all Byzantine overland trade with western Europe travelled along the Via Egnatia. The most glorious period of Egnatia road was the one of Byzantine Emperor Justinian (527-564 AD). During this period, many guard posts were constructed or seperated along the road and renovation operations of major importance. In 1270 AD it is mentioned as the road linking Dyrrachium with Constantinople, and until the 16<sup>th</sup> century it was used principally as a trade route, carrying peoples, religions, social classes, ideologies, manners and customs, economies, concepts, ways of looking at the world. During the Crusades, armies travelling to the east by land followed the road to Constantinople before crossing into Asia Minor. In the aftermath of the 4<sup>th</sup> Crusade, control of the road was vital for the survival of the Latin Empire as well as the Byzantine successor states the Empire of Nicaea and the Despotate of Epirus. On the traces of the road one could meet chapmen or tradesmen, villagers or workers from Western Macedonia, Epirus, Thessaly etc, seeking better living conditions. There were also many builders that traveled in groups, including masons and lumberjacks. In these clusters of people one could tell the seasonal workers, but also professional beggars, the famous Cravarities. Painters and mosaic makers left Constantinople heading to all directions and will all transport means, through sea or land. Thessaloniki, especially from mid-Byzantine times on was the centre of many artistic developments and the staring point of most artistes going north, west or south.

The road was damaged and abandoned during the Middle Age and the period of the Ottoman occupation of Illyria. In the 3<sup>rd</sup> Balkan War, in 1913, the line of the Egnatia emerged as the boundary dividing the victors, between Greeks, Bulgars, Serbs and Turks. In a sense, the strategical situation was once more that of 120BC, before the Way was built. The First World War began as a continuation of the struggle about the axis of the Way, for the Serbs and Bulgars still desired to reach the Adriatic and Aegean. The post-war frontiers were established broadly along the course of the Way from Florina to Adrianople. In the period after World War II, land transport along the axis Adriatic Sea-Euxine Sea was of minor importance. Most commercial vehicles heading to Minor Asia and Middle East would prefer the more convenient way through former Ygoslavia republic. Along the itinerary of the great route of the past, a dense national road network was built to serve for local rather than international transport purposes.

Thus, in more than 2000 years of warfare in the central Balkans, from the period in which Roman governors defended Macedonia against the many-named tribes of the mysterious north down to the time when the Serbs, French, British and Greeks stood against the

Central Powers, the Egnatia Way acted as a wall, cutting across the natural routes by which invasians came from the north. Every point along it is a strategical one.

## 5. THE DESIGN AND CONSTRUCTION METHOD

The Via Egnatia was a road of European standards. There was uniformity in pavement, signage, construction of army camps, stations and horse changing posts, bridges, entrances to towns and internal routes. It was built according to the specifications of other roads; construction methods can be summarized in Strabo's extract, mentioning that Romans "cut hills and regraded slopes in order for carriages to pass smoothly". The remnants of Via Egnatia be preserved not only for their historic value, but also for their engineering significance. The Romans built straight. The Roman emphasis on constructing straight roads often resulted in steep grades relatively impractical for most economic traffic; over the years the Romans themselves realized this and built longer, but more manageable, alternatives to existing roads. Compared to other civilisations, the construction of Roman roads is governed by a strong abstraction process. The land loses its original condition and is isolated from its context. The marks of nature, which are uncertain due to their continuous becoming, are replaced by the land surveyor by the well-defined marks of the Roman State.

The Via Egnatia was adapted to local topography, geomorphology and ground conditions. Thus the road avoided the difficult and unstable ground, the close curves and the steep grades. Its normal width was about 10 Roman feet (2.85 m.), but it was sometimes extended to 12 feet, to enable waggons to pass. It was wider at curves and narrower in mountains, where it might shrink to only 6 feet (1.77 m.). In cities its width reached up to 20m. to accommodate the increased traffic. The horizontal curvature of the road was usually more than 100m ( $R > 100m$ ). Only in a few cases in mountainous areas curvatures of  $R = 10-20m$ . were found. The gradient of the pavement normally was 1 to 2%, but in mountain regions gradients of 16-18% were observed. Gradients up to 20% were measured in a stretch of the road 2 km west of Kavala. The cross section of the pavement was convex, with grades perpendicular to its axis from 5-10%, for rapid drainage.

The diggers would make a shallow 8 to 10 foot wide depression down the length of the agger and line the edges with kerb stones to hold the entire construction in place. The thickness and the layering of the pavement varied according to the foundation conditions. In stable, rocky ground, the pavement consisted of only one layer of well-fitted cobble stones. In soft and unstable ground the soft soil was excavated and replaced by several layers of cobbles, gravels and rubbles held together with compacted sandy soil or lime mortar. Up to four stone layers have been found in an archaeological excavation in the road pavement in the Thrace area. Some layers were made waterproof by well-compacted clay soil. A trench was excavated until a firm base of stone or clay was reached. This having been smoothed, a base of sand from 12-18 in. deep was laid in the trench. The four layers, from the bottom up are (Figure 4) :

- a) *Stateumen* : a layer or several layers of flat stones, the broader ones are at the bottom and are joined by very hard cement or clay, about 1 Roman foot deep.
- b) *Rudus* : a layer of pebbles or broken bricks, thickness was about 1 in.
- c) *Nucleus* : a layer of gravel or coarse sand , from 1-2 in. deep.
- d) *Summa crusta or summa dorsum* : the road surface, it was about 1-3 feet deep and sometimes even more. It was important to have it as thick and durable as possible, because carts and waggons made deep ruts, such as can be seen to this day.

Limestone slags were used on the Egnatia, as is still the case with roads and streets in many parts of the Balkans and southern Italy. Limestone abound there. It is very smooth,

and can be dangerously slippery in wet weather, but it wears very well. The flags were cut in varying shapes and placed so as to fit more and less closely, while the lower layer of gravel or coarse sand was still fresh enough to trip. The thickness of the pavement varied from 25 cm. to more than 150 cm. Large rock blocks were placed at the sides of the pavement, raised above the surface, to prevent lateral spreading of the pavement and deterring carts and wagons from sliding off the road. A series of elongated rock blocks were constructed in the middle of the pavement, possibly for separating that opposite traffic.

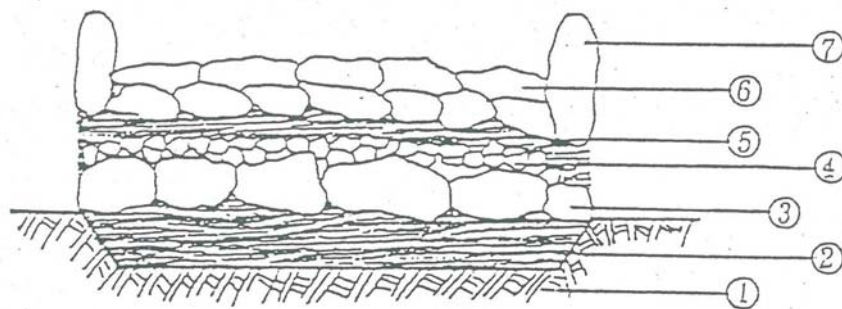


Figure 4 - The design of Roman road: 1=natural firm base, 2=base of sand, 3=stataeumen, 4=rudus, 5=nucleus, 6=road surface, 7=rock blocks

The roadmakers built the road up with embankments and sometimes provided vaulting to support it against cliff sides. They cut tunnels, built bridges, and made use of ferries and fords (Figure 5). In Macedonia the soldier settlers who had most to benefit from the Via Egnatia probably helped to build it. It was like a wall like laid sideways across the countryside, a ramp rather than a road.



Figure 5 – Bridge from Via Egnatia in Thrace

## 6. EGNATIA ODOS: THE MODERN HIGHWAY

On the threshold of the 21st century, in the 1990s, one of the largest road construction projects being carried out in Greece is the Egnatia Odos or National Road 2, the modern reincarnation of the Via Egnatia. The new highway, with the total length of 670 km, begins at the Greek-Turkish border on the Evros river and after 76 tunnels of 99 km combined length and 1650 bridges, ends at the western Greek port of Igoumenitsa, which is connected to the ports of Brindisi, Bari, Ancona and Venice by ferry boats. It is a closed dual motorway with a central reserve, two traffic lanes plus an emergency lane per direction, for a total paved width of 24.5 metres over its greatest part, except for the road's mountainous sections. 49.5 km of the entire Egnatia will be underground in a total of 69 twin bore tunnels. Generally, it was designed to the specifications of the Trans-European road network.

From Evros to Thessaloniki, the new highway closely parallels the ancient route, sometimes even coinciding with it. This is largely finished now. The other part of the highway, from Thessaloniki to Ioannina is unfinished, but work is due to be completed. This is the most challenging part, and perhaps the greatest construction ever undertaken in modern Greece, as it is designed to traverse the mountainous regions of Macedonia and Epirus. Over this part of its length, it follows a new alignment. (Figure 6).



Figure 6 – The map of Egnatia Highway

The Egnatia Motorway and its vertical axes are the backbone of Northern Greece transport system. An open architecture road safety management system has been developed to allow integration with the highway's existing ground transportation facilities and future technology upgrades. It shortens distances and brings areas like Epirus, Western Macedonia and Thrace out of their isolation. It will connect four of the country's major ports and six of its airports. On the European level, the Egnatia links the industrial centres of the West with those of the East. The bigger a political and economic structure grows, the greater the need for radial channels of communication leading out from the centre towards the fringe regions. As part of the European Intercontinental Transportation Network, the Egnatia Motorway will also be a collector route for the Balkan and south-eastern European transport system. Trans-European Corridors **X** (Berlin-Sofia-Thessaloniki), **IX** (Helsinki-Alexandroupolis) and **IV** (Vienna-Belgrade-Thessaloniki) all end at the Egnatia. It multiplies



investment in transport, industry and tourism and links the industrial centres of the West and the East. This is why the geostrategic importance of this road is tremendous for the entire region.

The Egnatia Motorway and its vertical axes will enable Greece to play an active role in shaping the new regional Balkan market and to take an effective lead in Community operational initiatives associated with the Balkans. The opening of the Balkan market will create new outlets for Greek business and boost the export of the products and services this market demands.



Figure 7 - Modern Egnatia Highway

## 7. CONCLUSIONS

Via Egnatia was a route of strategic importance both in ancient times and today, ensuring communications from East to West, when the flow of the sources of energy and the information, which are crucial to the development of many continental areas, are more evident. Romans expertise was entirely innovative and implied a suitable and well-established economic, geographical, ethnological and geometrical, as well as organisational, know-how. They were the only ones who managed to redefine consistently the territory and to adapt it to the new institutional requirements.

Today, the Egnatia Odos highway is one of the largest and most ambitious civil engineering projects to be found in Europe today. The finished highway will form the backbone of the Northern Greece's transport system. It is, also, a major collector road for the Balkans and South-eastern Europe via the Pan-European Corridors, to which it is linked by nine vertical axes. The transfer from the Via Egnatia to Egnatia Odos highway is a great example for the importance of the value of protecting and studying everything that is related to the past. It is a fact that the people who ignore their past and their history can have no future.

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