

An approach to the route network of Asia Minor in early 20th century

Introductory

As a geographical and historical space, Asia Minor attracts the interest of the Greek researchers because, during the ancient, Byzantine and Ottoman period, the Greek element played an important role in this area. The historical evolution of the Asia Minor area during the Late Ottoman period (19th and beginning of the 20th century) is connected with the one of the Balkan space, as the two peninsulas, the Balkan and the Asia Minor one, were neighbouring and interdependent parts of the Ottoman Empire and were indeed situated in the most central part of it, from the two sides (northwest and southeast) of the capital of Constantinople.

From the scientific perspective of historical human geography, which comprises also the scientific field¹ of the present project, the Late Ottoman period is characterized by the territorial shrinkage of the Ottoman territory and the changes in its economic and social space. These changes are caused, on the one hand, by the attempts of economic penetration and expansion of the geopolitical influence of the Great Western Powers of that period and on the other hand by the reform efforts to modernize the Ottoman state.² The study of the transport network³ of the Ottoman Empire of this period is of interest, since it contributes to the approach and understanding of the spatial phenomena related to the two interrelated phenomena: the European capitalist penetration to the Ottoman Empire and the Ottoman state's at-

* University of Macedonia, Department of Balkan, Slavic & Oriental Studies.

¹ According to "New Beginning," an epistemological view of the historical human geography from the late 20th century, that is used in this paper, the geographical phenomena are related to the society and the economy of the period, see Evangelos P. Dimitriadis, «Μια πρώτη εκτίμηση της μεταπολεμικής Ιστορικής Γεωγραφίας στην Ελλάδα με πλαίσιο την αγγλοαμερικανική εξέλιξη του κλάδου» ["A first evaluation of post-war historical geography in Greece, within the English-American evolution of the branch"], *Ανθρωπολογικά (Anthropologica)* 8 (1985) 5-19, also Georgios Tsotsos, «Ιστορική γεωγραφία και κύριες θεωρητικές προσεγγίσεις του χώρου» ["Historical geography and basic theoretical approaches of space"], in D. Drakoulis and G. Tsotsos, eds, *Ιστορική, Κοινωνική και Πολεοδομική Ανάλυση του Χώρου. Αφιέρωμα στον Καθηγητή Ενώγγελο Π. Δημητριάδη [Historical, Social and Urban Analysis of Space. A Tribute to Professor Evangelos Dimitriadis]*, (Thessaloniki: An. Stamoulis, 2014), 73-92.

² Şevket Pamuk, *The Ottoman Empire and European Capitalism, 1820-1913* (Cambridge: Cambridge University Press, 1987); M. Şükrü Hanioglu, *A Brief History of the Late Ottoman Empire* (Princeton: Princeton University Press, 2008), 108-209.

³ The study of the transport network related to the geographical space is a special branch of geography named transport geography, see Robert J. Johnston and Derek Gregory and Peter Haggett and David M. Smith and David R. Stoddart, *The Dictionary of Human Geography* (Oxford: Basil Blackwell, 1981), 350-352. By some experts transport geography is considered to be a branch of economic geography, see Robert J. Johnston, "The state, political geography and geography," in Richard Peet and Nigel Thrift, eds., *New Models in Geography. The Political-Economy Perspective*, v. 1 (London: Unwin Hymen Ltd, 1989), 305.

tempt to cope with the demands of the time, among others also by modernizing the transportation network of the empire.

The land transport network includes the route and railway network. In this paper, per, our objective is to compile as complete a picture as possible of the main route network of Asia Minor. As an approach to this, we try to find the lines of the main route network (which is classified to primary and secondary),⁴ and to trace them on the map. The railway network of the Asia Minor part of the Ottoman Empire has been described and studied adequately and repeatedly in both the Turkish⁵ and the international⁶ literature (but also in the Greek one).⁷ On the contrary, there is a lack of modern specific studies on the road network, for the creation, development and use of which the historical sources are inadequate and contradictory (in some cases with detailed information but without prioritization), while the available studies also usually refer to the whole of the geographical space of the Ottoman Empire and do not include detailed descriptions of the routes.⁸ Many information on Asia Minor's road network in the period before, during and after World War I are contained in two books of Greek writers, contemporary of the period (published in 1921-1922), describing the routes of the roads and giving a fairly detailed picture of the road network: Pantelis Kontoyiannis, *Geography of Asia Minor*⁹ and A. N. Anagnostopoulos, *Geography of Anadolou*.¹⁰ More detailed information about the road network and the road construction process of the Ottoman state is included in the classic geographic

⁴ About the roads' classification in modern times see, for instance, Department for Transport, "Guidance on Road Classification and the Primary Route Network," in <https://www.geoplace.co.uk/documents/10181/87438/Guidance+on+Road+Classification+and+the+Primary+Route+Network/b7144810-af9a-41a1-a4cf-0f9c6de015d4> (accessed June 20th, 2017).

⁵ Sena Bayraktaroğlu, "Development of railways in the Ottoman Empire and Turkey," M.A. Thesis (Istanbul: Bogazici University 1995), in http://www.levantineheritage.com/pdf/Development-of-railways-in-the-ottoman-empire-and-turkey-Sena_Bayraktaroglu.pdf (accessed July 2nd, 2016); Necla Geyikdağı, *Foreign investment in the Ottoman Empire: international trade and relations 1854-1914* (London - New York: I. B. Publishers, 2011).

⁶ Philip Ernest Schoenberg, "The Evolution of Transport in Turkey (Eastern Thrace and Asia Minor) under Ottoman Rule, 1856-1918," *Middle Eastern Studies* 13/3 (1977), 363-371; Charles Issawi, *The Economic History of Turkey 1800-1914* (Chicago and London: The University of Chicago Press, 1980), 146-198.

⁷ Sia Anagnostopoulou, *Μικρά Ασία 19ος αιώνας-1919. Οι ελληνορθόδοξες κοινότητες. Από το Μιλέτ των Ρωμιών στο Ελληνικό Έθνος [Asia Minor 19th century-1919. The Greek orthodox communities. From Millet of Rum to Greek Nation]*, (Athens: Pedion, 2013), 77-80.

⁸ Cengiz Orhonlu, *Osmanlı İmparatorluğunda Şehircilik ve Ulaşım Üzerine Araştırmalar*, Izmir 1984, 140-147.

⁹ Pantelis Kontoyiannis, *Γεωγραφία της Μικράς Ασίας [Geography of Asia Minor]* (Athens: Syllogos pros diadosin Ofelimon Vivlion, 1921).

¹⁰ A. N. Anagnostopoulos, *Γεωγραφία της Ανατολής [Geography of Anadolou]*, v. 1, *Φυσική Κατάσταση της Ανατολής [Physical Nature of Anadolou]*, (Athens, 1922). The writer was officer of the Greek Army, Commander of the Greek Military Cartographic Service. A great part of the book is translated from a corresponding Turkish Military book, so it contains in details all the Turkish and Greek knowledge of the period on Asia Minor's geography.

work of Vital Cuinet, *La Turquie d'Asie, Géographie administrative*,¹¹ which also contains other detailed descriptions about the geography of Asia Minor. This work, due to the fact that it was published in 1892, does not contain the developments in the transport network since then and up until 1914, namely a period of time during which the Ottoman state has continuously expanded the road and, above all, the railway network.

The natural geographical context

As Asia Minor we define the whole of Asia Minor peninsula and the mainland its east up until the line that starts from the İskenderun (Alexandretta) Bay and northeast direction reaches the city Khopa, at the eastern end of the south coast of Euxinus Pontus (Kara Deniz).¹² This space is separated from the current eastern and southeastern Turkey with the mountain range of Antitaurus and the mountain complexes that form its extensions to the northeast, leaving out of Asia Minor space the valleys of the Euphrates River and its tributaries.

Typical for the natural Asia Minor¹³ geographical area is the extensive internal plateau, enclosed by mountain ranges, with a medium elevation 800-1100 m., generally smooth terrain and ground naked and steeply typed,¹⁴ but suitable for cereal crops and sheep husbandry. This plateau covers the central region of the Asia Minor peninsula and rises gradually to the east, while it lowers to the west, intersecting the long river valleys that drain it and flow into the Aegean Sea. These valleys direct from east to west and are approximately parallel to the north and south coast of the Asia Minor peninsula.¹⁵ They start from the central plateau and end up on the beaches of the Aegean Sea, where they expand forming small coastal plains, which are very fertile. In this way, the three longest of these, the valleys of the rivers Ermus (Gediz Nehri or Sarabat), Kaystros (Küçük Menderes) and Maiandrus (Büyük Menderes) penetrate from the west coast of Asia Minor deep to the inside, thus forming natural roads of communication between the low (lowland or hilly) coastal zone and the inner plateau.

¹¹ Vital Cuinet, *La Turquie d'Asie, Géographie administrative* (Paris, v. 1, 1892. v. 2, 1891, v. 3, 1894, v. 4, 1894). According to the years of publication written on the books, it seems that the second tome was published before the first.

¹² On the geophysical borders of Asia Minor see Anagnostopoulos, *Γεωγραφία Ανατολής*, 7-8.

¹³ For a description of physical geography of Asia Minor see Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 10-46; Anagnostopoulos, *Γεωγραφία Ανατολής*, 7-264; Ioannis Kalfoglous, *Ιστορική Γεωγραφία της Μικρασιατικής Χερσονήσου* [*Historical Geography of Asia Minor peninsula*], (Athens: Centre for Asia Minor Studies, 2001) (1st ed. 1899), 45-66; Ioakim Valavanis, *Περιγραφή γεωγραφική, ιστορική και αρχαιολογική της Μικράς Ασίας* [*Geographical, historical and archeological description of Asia Minor*], (without place and time of publication), 27-78; N. K. Spyropoulos, «Μικρά Ασία, Φυσική Γεωγραφία» [“Asia Minor, Physical Geography”], in *Μεγάλη Ελληνική Εγκυκλοπαίδεια Πυρσός* [*Great Greek Encyclopedia Pyrsos*], v.17 (Athens: Drandakis, 1931) 175-177; Anagnostopoulou, *Μικρά Ασία*, 51-75.

¹⁴ About the soil of Asia Minor's lands see Anagnostopoulos, *Γεωγραφία Ανατολής*, 110.

¹⁵ About the valleys of Asia Minor see extensive descriptions in Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 366-376.

The same roughly physical configuration is also present in the northwest end of the central plateau, to the coastal zone of the Sea of Marmara, where small and large rivers drain the central plateau and along their way to the shores form valleys, which are also natural roads of communication.

In contrast, to the north and south, the central plateau is surrounded by long and high mountain ranges: to the north are extended the densely wooded mountain ranges of Paflagonia and Pontus, which stand out between them from the valley of the down current of river Alys (Kızılırmak) and are crossed by a multitude of small rivers. These river systems form deep ravines that on the one hand facilitate somewhere the transports, as they form natural passages, but on the other hand they make them difficult somewhere else, as they are steep and most of them could be described as rutty canyons. To the south extends the high and forested mountain range of the Taurus, which prevents communication with the interior, which is accomplished through a few mountain passages. To the east, the plateau rises gradually to altitude and ends up in continuous and complex mountain clusters that separate the waters directed to the north and poured into the Black Sea from those feeding the river Euphrates. These mountain complexes complicate the transport of the Asia Minor plateau to the east internal areas with the lands of Armenia and Persia.

From the above it can be concluded that the geomorphological factor is essential for the development of the road network in Asia Minor,¹⁶ as transport within the vast plateau and between the central plateau and the western and northwestern coastal areas is favored, while communication between the plateau and the northern and southern shores, where the roads are forced to pass through specific and rutty mountain passages, is made difficult.

The financial and cultural framework of the period

Time of study of our project is the end of the Ottoman period, namely the beginning of the 20th century, and especially the period before World War I, the beginning of which (1914) meant the interruption of the construction of transport projects in the Ottoman Empire due to war events. We will have to date back to the previous period from the mid-19th century onwards, because in this particular period the construction of transport works (originally road and later rail ones) is initiated by the Ottoman state.¹⁷ The geographical space we defined for the needs of our project as Asia Minor belongs during the study period to the Ottoman Empire and includes the vilayets: Trabzon, Sivas, Kastamonu, Ankara, Konya, Adana, Hüdavendigâr, Aydin, as well as the Sanjaks Biga and Izmit.¹⁸

Since the mid-19th century, the political, social and economic situation of Asia Minor, as part of the Ottoman Empire that is in decline, is characterized by the European

¹⁶ Anagnostopoulou, *Μικρά Ασία*, 75-84.

¹⁷ *Ibid.*, 80-82.

¹⁸ About the administrative division of Asia Minor's lands of the Ottoman Empire in vilayets and sanjaks, see Dem. N. Botsaris, *Η Μικρά Ασία και ο Ελληνισμός [Asia Minor and Hellenismus]*, (Athens: Mich. Mantzevelakis, 1919), 18-23.

economic penetration and the constant rise (demographic and economic) of the Greek element, which plays disproportionately a large role, in relation to its population, in the secondary and tertiary sector of the economy, particularly in trade. The role of the Armenian and Jewish element in economy is also important, as well as of the Western Europeans, mainly Latin Catholics, which are established in the Asia Minor area, especially in the west coast, and are known as Levantines or Franco-Levantines.¹⁹ The impact of the European capitalist economy and the development of international trade favoured the Christians rather than the Muslims.²⁰ In particular, they benefited, in addition to the European merchants and capitalists, the Greek-Christian element involved in the commodity trade.²¹ On the other hand, the expansion of the industrial revolution and the development of European capitalism into the Ottoman Empire resulted in significant structural changes in the organization of trade, but not in significant improvements in basic production technologies.²²

The time period 1839-1876 was called Tanzimât (reorganization) reform era, characterized by various attempts to modernize the Ottoman Empire and to secure its territorial integrity. The pressure of the Western powers for a reorganization of the Ottoman Empire resulted in two proclamations: The Gülhane Hatt-ı Şerif or Tanzimât Fermânı (1839) and the Hatt-ı Hümayûnu (Imperial Rescript) (1856). In the same period, Ottoman Empire suffered by several wars, such as the Crimean War (1853-1856), the Russo-Turkish War (1876-1878) and later the Greek-Turkish war (1897), the Italian-Turkish war (1911) and the Balkan wars (1912-13).

The efforts to modernize the Ottoman state included, among other things, the development of the transport network. This was the pursuit of the Western Powers, aiming at the economic penetration and the increasing of their political influence in the Ottoman Empire. However, it was an imperative need also for the Ottoman State itself because of the military needs (troop and supplies transport) and the general need for economic development and geopolitical empowerment of the empire, which was seeing its vital territory, both territorial and economic, shrink constantly. The development of the transport network concerned more the land rather than the maritime network, as it is mentioned that the significance of land transport

¹⁹ On the historical background of Asia Minor's economy from 19th century to 1918, see Thanos Veremis and Kostas Kostis, *Η Εθνική Τράπεζα στη Μικρά Ασία (1919-1922)* [*The National Bank in Asia Minor (1919-1922)*], (Athens: Cultural Foundation of National Bank, 1984), 25-40.

²⁰ Kemal Karpat, "The Ottoman demography in the nineteenth century: Sources, concepts, methods," in *Economie et sociétés dans l'empire Ottoman (Fin du XVIII^e - Début du XX^e siècle)*, *Actes du colloque de Strasbourg (1er-5 juillet 1980)*, (Paris: Centre National de la Recherche Scientifique, 1983), 217.

²¹ (no writer), *Le caractère grec de l'Asie Mineure attesté par des auteurs étrangers* (Nancy, Paris, Strasbourg: Berger - Levrault, Imprimeures, 1919).

²² İlhan Tekeli, "Urban Patterns in Anatolia: Organization and Evolution," in Renata Holod, ed., *Conservation as Cultural Survival* (Philadelphia: Aga Khan Award for Architecture, 1980), 15-27, in <http://archnet.org/system/publications/contents/3549/original/DPC0069.pdf?1384775565> (accessed December 20th, 2016).

for the people of the Anatolian plateau lies in the continental outlook of the Turkish nation.²³

The evolution of the construction of the road network since the middle of the 19th century until 1914

In the Ottoman Empire of the late period (19th and early 20th centuries) the main road network between cities²⁴ consists of:

1) Routes, which are routes in the form of a trail (narrow or wide), shaped by their their multiannual use by people, animals and wagons, without any particular technical works. These routes have existed for centuries and many of them were remnants of old roads that had already been built from the Byzantine and Roman periods.²⁵

2) Roads, which were constructed as technical works (with road surface, retaining walls, care for water drainage etc.) by the Ottoman state, to initially host the movement of carriages and later cars.

Until the mid-19th century, in Asia Minor caravans provided most of the overland links,²⁶ and pack animals were used for carrying goods and passenger travelling. They transported expensive goods, of high cost and low volume (fabrics, craft products, spices).²⁷ The inland of the peninsula was crisscrossed by long caravan routes. Hans and Kervan Sarays²⁸ were built at appropriate intervals.²⁹ In winter, transport conditions in the route network were often difficult because of snow or sometimes deep mud.³⁰

After the middle of the 19th century, the Ottoman state began to be interested in the improvement and the modernization of the land transports.³¹ The inadequacies of the transport system of the Ottoman Empire had been demonstrated during the Crimean War, due to the difficulties of the state to move a large number of troops and supplies

²³ B. G. Spiridonakis, *Essays on the Historical Geography of the Greek world in the Balkans during the Turkokratia* (Thessaloniki: Institute for Balkan Studies, 1977), 64.

²⁴ On the kinds and forms of the land routes in southern Balkans (which were similar to those of Asia Minor) in late Ottoman period, see Giorgos Makris and Stephanos Papageorgiou, *To χερσαίο δίκτυο επικοινωνίας στο κράτος του Αλή Πασά Τεπελενλή* [*The land communication network in Ali Pasha Tepelenli's state*], (Athens: Papazisis, 1990), 67-80.

²⁵ On the byzantine route network of Asia Minor see Ioannis Demetrukas, «Οδικό Δίκτυο στη Μ. Ασία (Βυζάντιο)», in *Εγκυκλοπαίδεια Μείζονος Ελληνισμού, Μ. Ασία* [*Encyclopedia for Major Hellenism, Asia Minor*] (2003), in <http://www.ehw.gr/L.aspx?id=5617> (accessed May 1st, 2016).

²⁶ Halil İnalçık and Donald Quataert, *An Economic and Social History of the Ottoman Empire, 1300-1914* (Cambridge: Cambridge University Press, 1994), 819.

²⁷ Donald Quataert, *Η Οθωμανική Αυτοκρατορία. Οι τελευταίοι αιώνες, 1700-1922* [*The Ottoman Empire. The last centuries 1700-1922*], (transl. Marinos Sariyannis), (Athens: Alexandria, 2006), 213.

²⁸ Eleni Gavra, "Chans et caravansérails dans le nord de la Grèce: de Thessalonique jusqu' à la ville de Sérres et autour d'elle de 1774 à 1913," in J.-A. Derens, and L. Geslin and M. Ortiz, eds., *Bazars ottomans des Balkans* (Paris: Non lieu, 2009), 135-141.

²⁹ Issawi, *Economic History*, 146.

³⁰ *Ibid.*, 180.

³¹ Anagnostopoulou, *Μικρά Ασία*, 80-84.

for the Turkish army over long distances in a short period of time.³² Thus, in 1865 a ministry of public works³³ was created in the Ottoman government. From 1865 to 1910 land route works were made mainly by forced labor, which was later replaced by cash payment.³⁴ After the middle of the 19th century, some work had been done, but with little result, on the roads: Samsun (Samsus/ Amissos) – Sivas (Sevasteia), Brussa (Prussa/Bursa) – Gemlik, Trebizond – Erzurum.³⁵ Under Sultan Abdul Aziz (1861-1876), the Ottoman Empire made its first efforts to improve the highways. The Kars – Erzurum and Trebizond – Erzurum roads were finished respectively in 1868 and 1871.³⁶ Priority was given to the roads of the northeastern provinces, from the ports of Pontus to Persia, because Ottoman Empire's aim was to keep Persian trade out of Russian hands by offering better transport.³⁷

Between 1858 and 1895, the Ottoman Empire's total route network increased 6,500 to 14,395 km,³⁸ but in 1904 the entire Ottoman world contained only 24,000 km of roads, poor in quality and poorly maintained.³⁹ By 1914 there were 20,000 kilometres of highway roads built by the Ottoman Empire. However, the roads were rather narrow (eighteen feet wide), only partially finished, poorly constructed or unusable due to lack of maintenance.⁴⁰ From 1910 to 1914 attempts were made to modernize the route network through the involvement of a French company but they were not completed due to the war.⁴¹

During the First World War, the Russians built many roads for military purposes in the eastern Pontus areas they temporarily occupied (1916-1918), while they repaired and improved other roads to make them accessible.⁴² At the same time began the construction of the Vatum – Trebizond railway line.⁴³

Until 1910, the accessible roads were built for carriages but were also used by pack animals. From 1910 to 1914, the first cars began to circulate in Asia Minor,⁴⁴ but actually motorized transport did not exist in the Ottoman Empire before the First World War. In 1914, European writers observed that “the only roadway ca-

³² Schoenberg, “Evolution of Transport,” 363.

³³ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 92.

³⁴ Issawi, *Economic History*, 150.

³⁵ *Ibid.*, 150.

³⁶ Schoenberg, “Evolution of Transport,” 362.

³⁷ *Ibid.*, 362.

³⁸ Iakovos Aktsoğlu, «Συμβολή στην Ιστορία του Ελληνισμού του Πόντου. Πληροφορίες για τη Γενική Διοίκηση Τραπεζούντας κατά το έτος αναρρήσεως στο θρόνο του Σουλτάνου Abdulhamid II (Egíρας 1293 (1876))» [“Contribution in the History of Pontus Hellenism. Information about the Trabzon vilayet in the year of Sultan Abdulhamid II's accession on the throne (Egira 1293 (1876))”], in *ΣΤ' Πανελλήνιο Συνέδριο για τον ελληνισμό της Μικράς Ασίας (24-26 Νοεμβρίου 2000)* [6th Panhellenic Conference on Asia Minor's Hellenism (14-26 November 2000)], (Thessaloniki: Aristotle University of Thessaloniki, Municipality of Thessaloniki, 2002), 100, note 5.

³⁹ İnalcık and Quataert, *Economic and Social History*, 818.

⁴⁰ Schoenberg, “Evolution of Transport,” 362.

⁴¹ Issawi, *Economic History*, 150.

⁴² Anagnostopoulos, *Γεωγραφία Ανατολής*, 115.

⁴³ *Ibid.*, 269.

⁴⁴ Issawi, *Economic History*, 150.

pable of sustaining traffic was the Constantinople – Brussa road.” In 1923, there were only 1,000 cars and trucks in the new Republic of Turkey.⁴⁵

Regarding the state of the transports in the Balkans during the same period (before the First World War), modern historians note the existence of a “wheel zone” in the Balkans and “without a wheel-zone” in Asia Minor.⁴⁶ This state of transport is also present in the part of the Balkan Peninsula that still belonged to the Ottoman territory and shows that there was a difference in the development of the transport between the European and the Asia Minor part of the Ottoman Empire and the latter’s lagging behind the first one too.

The state of the road network and the transport conditions

It appears that the efforts of the Ottoman state for the construction and maintenance of accessible roads in the period from the mid-19th century until the end of the First World War did not succeed in creating a road network similar to that of the European countries. The researchers’ ascertainment, based on evidence found in historical sources, of a substantial lack of a national, provincial and rural road network is general. In the nineteenth century foreign travellers, such as geographers, phers, archaeologists and ambassadors, in their visits to Anatolia complained that there were no roads at all, and that the Roman Empire had maintained better and more extensive roads.⁴⁷

Around 1920, the roads from Bergama (Pergamos) to Izmir (Smyrna), Edremit (Adrammytio) and Ayvali (Kydonies) are characterized as “all miserable,”⁴⁸ while the roads on the mountains of Kastamun “inadequate”⁴⁹ and their condition as “most wretched.”⁵⁰ Existing roads were not maintained, and during the winter they became impassable. Typical is the example of the road the Russians had built during the Russian occupation of the Eastern Pontus from Batum to Trebizond: after the Russians leaving the road was abandoned unmaintained and was completely destroyed, resulting in the fact that the traffic between the coastal settlements was carried out such as before 1916 only by sea.⁵¹

Problems in the road network were also caused by instable social conditions within Asia Minor, where robbery was endemic. European travellers’ evidences about robbery incidents are abundant, which not only were making road transport dangerous but also destroying the roads. Thus, it is reported that in 1869 the road from Bergama to Dikeli was built, later it was destroyed, repaired by the Ottoman state, but the

⁴⁵ Schoenberg, “Evolution of Transport,” 362

⁴⁶ Quataert, *Οθωμανική Αυτοκρατορία*, 213.

⁴⁷ Schoenberg, “Evolution of Transport,” 362. Roman roads in Asia Minor were used and extended in medieval times (Dimitroukas, «Οδικό Δίκτυο στη Μ. Ασία», *op. cit.*).

⁴⁸ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 317.

⁴⁹ Anagnostopoulos, *Γεωγραφία Ανατολής*, 120.

⁵⁰ Christos Soldatos, *Ο Οικονομικός βίος των Ελλήνων της Δυτικής Μικράς Ασίας [The economic life of the Greeks of Asia Minor]*, (Αθήνα: 1994), 162.

⁵¹ Anagnostopoulos, *Γεωγραφία Ανατολής*, 115.

wooden bridges were dilapidated.⁵² In 1850-1860, European writers observed that even the largest caravans needed protection of the Ottoman state to be safe from highway robbers, as other remarked that only solitary travellers and small caravans had to worry about being attacked by marauding tribesmen. It seems that the later improved, as in 1913 another European traveller states that “he actually by himself through much of Anatolia during the Turkish–Italian War without any cident.”⁵³

In spite of the modernization projects on the transport network, the pack animals⁵⁴ continued to be the main means of transport throughout the Ottoman Empire, and thus in Asia Minor, even in the early 20th century. In the long caravan routes, camels were mainly the carriers, as well as horses, mules, donkeys and oxen were also used. The peasants and local merchants used horses and donkeys as the main beast of burden to carry freight for local purposes.⁵⁵ But wagons were also in use. For short distances, a two-wheeled wagon drawn by four oxen was used by peasants, as well as travellers and city dwellers usually used two-horse carriages for shorter distances. For long distances, men travelled on horseback, but women and children in taghtravans (long, narrow boxes hung by long poles between two horses).⁵⁶ It is mentioned that in 1863, in the area of Izmir (Smyrna), most of the transit trade was carried by camels, as horses and mules were used only for light weights and travelling, in opposition to in the area of Trebizond (Trapezus/ Trabzon), where most of the goods were carried by horses, mules and donkeys, as camels were seldom used.⁵⁷ This difference shows the impact of the natural environment on the choice of animals as a means of transport. In the mountainous areas, with particularly uneven relief and cold climate, there were preferred horses and mules, which could walk more easily on rugged and inaccessible mountain passages than heavy and bulky camels.

The weight that could be carried by each type of pack animal was as follows: The typical donkey or mule could carry 150 kilograms; a camel could carry 150 to 200 kilograms and a horse could carry 225 kilograms.⁵⁸ According to İlhan Teke-

⁵² Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 319.

⁵³ Schoenberg, “Evolution of Transport,” 363.

⁵⁴ About the circumstances and conditions of pack animals for transport means in the Balkans, see Demetres Anoyiatis-Pele, *Δρόμοι και διακίνηση στον Ελλαδικό χώρο κατά τον 18^ο αιώνα* [*Routes and Transportation in Greek lands in 18th century*] (Athens: Papazisis, 1993), 52-77; Georgios Tsotsos, «Ορεινοί δρόμοι στη Βόρεια Πίνδο κατά τον 18^ο και 19^ο αιώνα» [“Mountainous routes in Northern Pindus in 18th and 19th centuries”], in E. P. Demetriadis and A.-F. Lagopoulos and G. P. Tsotsos, eds., *Ιστορική Γεωγραφία: Δρόμοι και Κόμβοι της Βαλκανικής, Από την Αρχαιότητα στην Ενιαία Ευρώπη* [*Roads and crossroads of the Balkans from antiquity to the European Union*] (Thessaloniki: Dep. of Urban and Regional Planning, Aristoteleion University of Thessaloniki - Organization for the Cultural Capital of Europe “Thessaloniki 1997,” 1998), 180-182.

⁵⁵ Schoenberg, “Evolution of Transport,” 362.

⁵⁶ *Ibid.*, 362.

⁵⁷ Issawi, *Economic History*, 177.

⁵⁸ Schoenberg, “Evolution of Transport,” 363.

li,⁵⁹ the camel's transport capabilities are greater: In caravans and in high temperature (heat) conditions, it transports 200-300 kg depending also on the distance. In cold weather it can carry up to 450 pounds in short distances. An Araba, a two-wheeled vehicle drawn by horses or oxen, could carry up to 3,000 kilograms.

Regarding the lengths of the journeys covered per day and the speed of the pack animals and wagons, the data is as follows: The camel could make 50 kilometres per per day and a horse 60 kilometres per day.⁶⁰ The usual speed of the caravan (mixed with camels, horses and mules) was 4-4.8 km per hour, and the usual date stage was was 24 to 47 km.⁶¹ Daily caravan driving time with camels was 7 hours.⁶² Thus, the horse trip from Trebizond to Erzurum (290 km) lasted 8 days⁶³ and the journey from Ankara to Izmit (Nicomedeia) 20days.⁶⁴

The cost of land transport was very large and unprofitable. Apart from the very short distances, the fodder for the pack animals cost more than the commodities.⁶⁵ Thus, it is reported that the camel, which was the cheapest means of transport, demanded from Sivas to Samsun half of the grain transported as a fare.⁶⁶

With the (limited) use of cars after 1910, distances have significantly decreased. Indicatively, the Mudanya – Brussa route, on a 31 kilometre accessible road, was driven by car in half an hour, while with a carriage in two and a half hours.⁶⁷

The rail network in relation to the road network

The railway network in Asia Minor was mainly constructed with European funds⁶⁸ in the second half of the 19th century and the first decade of the 20th century,⁶⁹ it facilitated foreign investments and increased the trading and production of agricultural products.⁷⁰ On the coast line, the construction companies were French and English, revealing the existence of a French and English sphere of influence, while in the interior it was a German one (German sphere of influence).⁷¹ Ground morphology was a key factor in the design of the railway network⁷² and that's why the first railway lines

⁵⁹ İlhan Tekeli, "On Institutionalized External Relation of Cities in the Ottoman Empire," *Etudes Balkaniques* VIII/2 (1972): 51-53.

⁶⁰ Schoenberg, "Evolution of Transport," 363.

⁶¹ Issawi, *Economic History*, 177.

⁶² Tekeli, "Institutionalized External Relation," 51-53.

⁶³ Quataert, *Οθωμανική Αυτοκρατορία*, 213.

⁶⁴ Issawi, *Economic History*, 150.

⁶⁵ Quataert, *Οθωμανική Αυτοκρατορία*, 209-210.

⁶⁶ Stamatis Antonopoulos, *Μικρά Ασία [Asia Minor]* (Athens: Printing Establishment of "State," 1907), 22-23.

⁶⁷ Anagnostopoulos, *Γεωγραφία Ανατολής*, 63.

⁶⁸ Quataert, *Οθωμανική Αυτοκρατορία*, 217-219.

⁶⁹ For a short history of railway construction in Asia Minor (1860-1918), see Schoenberg, "Evolution of Transport," 364. For the railway network see Bayraktaroğlu, *Development of railways*, 76, table 5, and Geyikdağı, *Foreign investment*, 82-89.

⁷⁰ Veremis and Kostis, *Εθνική Τράπεζα*, 36.

⁷¹ Anagnostopoulou, *Μικρά Ασία*, 77.

⁷² *Ibid.*, 79.

were made along the valleys leading from the port of Izmir to the hinterland of the peninsula.⁷³

By 1918 the railway lines were as follows:⁷⁴

Izmir – Manisa (Magnesia) – Afyon Karahisar – Adana

Izmir – Buldur/ Uluburlu/ Çivril

Afyon Karahisar – Eskişehir – Ankara

Eskişehir – Ada Pazar – Haydarpaşa

Mudanya – Brussa

Manisa – Bandırma (Panormos)

Mersina – Adana

The advantages of the railroad network were political, military and economic.⁷⁵ By 1913 railroads were playing the leading role in Ottoman transport⁷⁶ and by 1914 carried 48% of all goods shipped in Anatolia.⁷⁷

However, the construction and expansion of the rail network, which shaded land means of transport, contributed to the stopping of road construction as unnecessary.⁷⁸ Nevertheless, the caravans found a new job by selling the goods to the train stations from the production sites.⁷⁹ In some cases, the railways were separated by mountain ranges, as between Izmir – Aydın and Izmir – Kasaba railways, so they were connected by caravan routes.⁸⁰ Thus, the existing road network was now functioning complementary to the railway, to which the Ottoman state gave priority.

In some cases, the failure to complete the railway network could lead to an urgent road construction: In the case of the need to cross the Anatolian plateau – Southern Cappadocia (Kapadokya) to Adana, through the narrow passage of Golek Boghaz (the ancient Cilician Gates), which is considered to be one of the most remarkable passages of the Taurus mountain range, during the First World War, the road was repaired and made accessible also to cars because the railway line leading to Bagdat⁸¹ had still not been completed.

Main route network

In the three geographical projects mentioned above as the main evidence of the period for the Asia Minor road network,⁸² there is listed a large number of roads,

⁷³ The first railway was from Izmir to Aydın (1856-1867). see Bayraktaroğlu, *Development of railways*, 76, table 5 and Geyikdağı, *Foreign investment*, 89.

⁷⁴ Bayraktaroğlu, *Development of railways*, 76, table 5; Geyikdağı, *Foreign investment*, 89.

⁷⁵ Schoenberg, “Evolution of Transport,” 363.

⁷⁶ Issawi, *Economic History*, 150.

⁷⁷ İnalçık and Quataert, *Economic and Social History*, 812.

⁷⁸ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 369.

⁷⁹ İnalçık and Quataert, *Economic and Social History*, 821.

⁸⁰ Issawi, *Economic History*, 149.

⁸¹ Anagnostopoulos, *Γεωγραφία Ανατολής*, 143-144.

⁸² Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, Anagnostopoulos, *Γεωγραφία Ανατολής* and Cuinet, *La Turquie d’Asie*, v. 1, 2, 3, 4.

without a network prioritization. In addition, the information provided is uneven, heterogeneous and fragmentary, namely for some areas there is detailed information on the road network and for other ones minimum. For these reasons, we will attempt an effort to identify the main road network, namely the main road axes of the Asia Minor area, based, in addition to the aforementioned projects, on two other, later (second half of the 20th century) general studies on the geography and the economy of this area, which are also referring to the main road network. These studies include an approach to the prioritization of the road network, in the sense of identifying the major roads (in the first) and the roads that were suitable for cars (in the second).

According to Ch. Issawi⁸³ (also mentioned by Kontoyiannis and Anagnostopoulos, as below), the main roads in the 19th and early 20th centuries were:

1) The road Trebizond – Gümüşhane (Argyroupolis)⁸⁴ – Baipurt (through the narrow valley of Chorok river)⁸⁵ – Erzurum – Bayezit to Tabriz,⁸⁶ leading from the sea of Karadeniz (Euxinus Pontus) to the Persian frontiers. It was the route of the export trade of the Persian state to Europe.

2) The road Samsun – Amasya – Zile – Tokat – Sivas,⁸⁷ bifurcated one branch to Kayseri – Cilician gates – Tarsus, another to Deliklitaş – Harput – Diyarbakır (Mardin – Mosul or Urfa – Aleppo), which connects the seacoast of Karadeniz with the Central Plateau of Anatolia and from there to Syria. According to Anagnostopoulos,⁸⁸ the part from Samsun to Sivas and its branch to Harput was the most important road of Anatolia and especially the part Samsun – Sivas with a continuous and uninterrupted traffic. It was also considered to be the most important transport axes in Asia Minor since the end of the 19th century.⁸⁹

3) The road Izmit – Bolu – Tosya – Amasya. This road was connecting the capital Constantinople (Istanbul) via Izmit to the Pontus region, marching in the eastern direction, alongside the Paflagonia mountain ranges from their inner (southern) side. It had a vertical direction in relation to the previous one. By A. Sravridis,⁹⁰ it is called "the great postal road" that crosses Paflagonia, from Constantinople to Tokat.

4) The road Brussa – Aksehir – Konya (Ikonion) – Tarsus – Syria. This road crossed diagonally from northwest to southeast the interior of Asia Minor and was the shortest route for anyone who wanted to go from the Sea of Marmara to the Middle East, such as Syria, Mesopotamia (now Iraq).

⁸³ Issawi, *Economic History*, 146.

⁸⁴ Anagnostopoulos, *Γεωγραφία Ανατολής*, 115.

⁸⁵ Aristomenis Stavridis, *Εγχειρίδιον Πολιτικής, Φυσικής και Εμπορικής Γεωγραφίας του Οθωμανικού κράτους* [*Textbook for Political, Physical and Commercial Geography of the Ottoman State*] (Mytilene: University of Aegean - Department of Social Anthropology, 1996) [1st edition Kydonies 1896].

⁸⁶ According to Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 92-93, it was a main road in the vilayet of Trabzon.

⁸⁷ By Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 92-93, it is, also, considered to be a basic road in the area of Pontus.

⁸⁸ Anagnostopoulos, *Γεωγραφία Ανατολής*, 33, 118.

⁸⁹ Cuinet, *La Turquie d'Asie*, v. 1, 26.

⁹⁰ Stavridis, *Εγχειρίδιον*, 120.

According to a map by Besim Darkot,⁹¹ the roads passable by motor vehicles (which must be considered to be the main route network) circa 1915 were the following:

- Constantinople – Izmit

This road is bifurcated from Izmit to two roads:

- Izmit – Ankara – Kayseri (Kaisareia)
- Izmit – Konya – Adana

From Ankara, the two roads are bifurcated to five (four to the ports of Aegean and Black Sea, the fifth to the inlands of Anatolia):

- Ankara – Brussa – Balikesir – Izmir
- Ankara – Afyon Karahisar – Denizli – Izmir
- Ankara – Inebolu
- Ankara – Samsun
- Ankara – Sivas – Erzurum – Kars

From Afyon Karahisar two roads lead to the ports of Aegean and East Mediterranean Sea:

- Afyon Karahisar – Izmir (through Manissa)
- Afyon Karahisar – Antalya (Attaleia)

Another road leads from Balikesir to the Marmara Sea:

- Balikesir – Bandirma

From Adana, a road leads to the inland:

- Adana – Malatya – Diyarbakir

Two main roads lead from the ports of Black Sea, in the area of Pontus, to the inland of Anatolia:

- Samsun – Sivas – Malatya
- Trabzon – Erzerum – Van

From Kontoyiannis,⁹² the quality of the roads Brussa – Mudanya and Brussa – Kios, which had been completed since 1865, is praised. However, these are roads of local importance that cannot be included in the main route network.

⁹¹ Besim Darkot, *Türkiye İktisadi Coğrafyası* (Istanbul: İstanbul Üniversitesi İktisat Fakültesi Yayınları, 1958), 165, map “Roads passable by motor vehicles. ca 1915,” quoted from İlhan Tekeli, “Urban Patterns in Anatolia: Organization and Evolution,” in Renata Holod, ed., *Conservation as Cultural Survival* (Philadelphia: Aga Khan Award for Architecture), 1980, 22, in <http://archnet.org/system/publications/contents/3549/original/DPC0069.pdf?1384775565> (accessed December 20th, 2016).

⁹² Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 294.

Primary and Secondary route network

It is very difficult to make a classification of the main roads to a primary and secondary network, even for a specific and limited period of time, because many roads are mentioned by historians in a different way. They are sometimes reported as continuous lines, such as the Afyon Karahisar – Kayseri Street, characterized as “admirable” by a European traveler of the late 19th century⁹³ and sometimes they result as a sum of other routes, as the same road is mentioned in the above list of motorways as two roads (one separate and one second): (a) Ankara – Afyon Karahisar and (b) Izmit – Ankara – Kayseri. Therefore, not only the classification, but also the mere mention of the roads involves a degree of arbitrariness and depends on the writer's view.

In order to attempt a classification of the main routes to primary and secondary, we will make a combination of the above-mentioned information, and will include in the primary route network the routes listed as the most important by Issawi in general during the 19th and early 20th centuries (and as important by Kontoyiannis and Anagnostopoulos in 1920), but they also belong to the list of motorways mentioned by Darkot in 1915. These roads are the following (see map 1):

1) The road Trebizond – Gümüşhane (Argyroupolis) – Baipurt – Erzurum. The road was 5-6 m wide, with 2-8% slope altitude, and 314 km long to Erzurum.⁹⁴ The Trebizond – Erzurum section was completed, as we saw above, in 1871 because the Ottoman state attached great importance to this roadway, which was the way out for the Persian and Indian products to Karadeniz through the Ottoman Empire. The Trebizond – Tabriz route had flourished between the 1830s and 1860s, because 40% of the total foreign trade of Iran was carried out through this route. But in the early 20th century it was reduced, because of the opening of the Suez Canal and the development of Russian routes through Georgia.⁹⁵ According to A. Stavridis,⁹⁶ in 1896, the road was just finished. In the second decade of the 20th century, the section of the road from Trebizond to Erzurum was in excellent condition.⁹⁷

2) The road Samsun – Amasya – Zile – Tokat – Sivas – Deliklitaş – Harput. The road was 6-7 m wide, 6-12% slope altitude, 9 large bridges with chipped stone and 135 valley bridges. His study was made in 1862-1869 and the construction in 1869-1883.⁹⁸

3) The diagonal road that crosses Asia Minor from the coast of Scutari (Chrysoupolis) across from Constantinople through the Central Asia Minor Plateau to Cilicia and from there to Syria is described by Issawi as the road Brussa – Akşehir – Konya – Tarsus – Syria while on the list of the aforementioned motorways is described as road Constantinople – Ismit – Konya – Adana. It is the same route we will record by making a combination of the above as road Constantinople – Ismit – Akşehir – Konya –

⁹³ Anagnostopoulou, *Μικρά Ασία*, 92, footnote 100.

⁹⁴ Cuinet, *La Turquie d'Asie*, v. 1, 22-23.

⁹⁵ İnalçık, and Quataert, *Economic and Social History*, 820.

⁹⁶ Stavridis, *Εγχειρίδιον*, 136.

⁹⁷ Anagnostopoulos, *Γεωγραφία Ανατολής*, 19.

⁹⁸ Cuinet, *La Turquie d'Asie*, v.1, 26.

Tarsus – Adana – Syria, considering the section to Brussa as a branch of this road given the fact that the section to Izmit and Constantinople must be considered more important, since it leads to the capital Constantinople. The sea transportation from Scutari to Constantinople was made with a variety of floating means, ranging from boats to ferryboats.⁹⁹

It seems that the road Izmit – Bolu – Tosya – Amasya, mentioned by Issawi in early 20th century, was of no great importance in 1915, since it is not mentioned as road for vehicles in Darkot's list.

In the secondary route network we will include all the above mentioned routes and are not included in the primary network (map 1):

Izmit – Bolu – Tosya – Amasya

Izmit – Ankara – Kayseri

Ankara – Brussa – Balikesir – Izmir

Ankara – Afyon Karahisar – Denizli – Izmir

Ankara – Inebolu

Ankara – Samsun

Ankara – Sivas – Erzurum – Kars

Afyon Karahisar – Izmir (through Manissa)

Afyon Karahisar – Antalya

Sivas – Kayseri – Cilician gates – Tarsus

Balikesir – Bandirma

Adana – Malatya – Diyarbakır¹⁰⁰

In addition to the above mentioned roads, which are included in the main route network (classified to primary and secondary), the abovementioned geographical books¹⁰¹ mention a large number of local roads, whose routes are described within the borders of the vilayets or sanjaks, where they are situated, usually without reference to whether they are accessible to cars and to their general geographical importance to the wider, beyond the local, space.

Conclusion: The relation of the road network with the economy and the settlement network

The state of a country's transport network is directly related to its economic development. In Ottoman Asia Minor of the first two decades of the 20th century there was a lag in the development of the road network in relation to the advanced European countries. The lack of a modernized transport network along with robbery and inadequate administration were reasons for not extending crops to land that could be cultivated if there was a way to channel agricultural products to markets, especially by exports to the international market.¹⁰² The result was that fertile

⁹⁹ *Ibid.*, 614.

¹⁰⁰ Most of this road is out of the geographical territory of Asia Minor, as it was defined.

¹⁰¹ Cuinet, *La Turquie d'Asie*, v.1, 2, 3, 4, passim and Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, passim.

¹⁰² Antonopoulos, *Μικρά Ασία*, 22-23.

areas of the Asia Minor plateau remained unexploited and infertile. In addition, the cost of transporting the products by animal packs or wagons (carriages) was very high. An economic effect of high transport costs was the restriction of the zone in which it was profitable to grow export crops: In Asia Minor, it would be profitable to to grow wheat for export up to 77 km inland (away from the coast), as in the United States (in the same time period) up to 309 km.¹⁰³ This situation created a closed economy covering a range of 50-70 km.¹⁰⁴

The lack of technological progress in transports, combined with a corresponding lag in agriculture and small industry, created a trade deficit and was an important factor contributing to the economic decline of the Ottoman Empire and its dependence, finally, on Western powers.¹⁰⁵ Moreover, the underdevelopment of the transport network of certain areas to the detriment of others was also due to the penetration of western capital, which indirectly caused the change of the economic orientations of the Ottoman Empire,¹⁰⁶ since it was more concerned with the expansion of the railway network according to the wishes of the Great Powers of that period.

Through the construction of the roads (or the attempts to build, as many roads remained unfinished) from the Ottoman state in the mid-19th century to the end of the First World War, some cities benefited while others remained underdeveloped, either because they did not have a favorable position in the land transport network (road and rail) or because motorways and the railway did not reach their areas. It is noteworthy that up until 1920 there was no road network at the northwest and southwestern border of Asia Minor, in the independent sanjak of Viga¹⁰⁷ and the sanjak of Mentese of the vilayet of Aydin.¹⁰⁸ The examining of the relationship between transport and settlement networks requires special research, that's why we limit ourselves only on just a few examples regarding this topic.

Two cities with a favorable position on the road network were Izmir and Ankara. Izmir's geographic location is reported as excellent for transport, road and rail,¹⁰⁹ as a harbor located in the middle of the west coast of Asia Minor and at the exit of a long valley, the Ermus River (Sarabat), connecting it with the interior of Anadolu. Ankara presents itself as an important transport hub within the Asia Minor plateau, based on the list of motorways by Darkot.¹¹⁰ Six highways are developed to the west, east and north and the area seems to be the transport center of the Asia Minor plateau.¹¹¹ Obviously, this fact is also an important reason why a few years later it was chosen by Mustafa Kemal Atatürk as the capital of the newly established Turkish Republic.

¹⁰³ Issawi, *The Economic History*, 179.

¹⁰⁴ İlhan Tekeli, "On Institutionalized External Relation of Cities in the Ottoman Empire," *Etudes Balkaniques* VIII/2 (1972): 51-53.

¹⁰⁵ Veremis and Kostis, *Η Εθνική Τράπεζα*, 30.

¹⁰⁶ Anagnostopoulou, *Μικρά Ασία*, 76.

¹⁰⁷ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 214.

¹⁰⁸ *Ibid.*, 349.

¹⁰⁹ *Ibid.*, 300-301.

¹¹⁰ Darkot, *Türkiye İktisadi*, 165.

¹¹¹ Tekeli, "Urban Patterns," 19-21.

Trebizond also benefited from the Ottoman state's interest in the road to Erzurum and Persia, as it has been the main export port of Persian trade for a long time.

An example of a city benefiting from the extension of the railroad, although its sition was eccentric to the road network was Mersina. Up until 1840 it was an inland village, but then developed, because the railway line was extended from Adana¹¹² and its harbor was connected to the interior.

On the contrary, an example of a city affected by the progress of the railway work and the lack of a corresponding road is Kuşadası (New Ephesus), which the Smyrna (Izmir) railroad has cut off from the mainland. The city grew up, with the sult that the rich families abandoned it.¹¹³ Moreover, despite the existence of the Kios – Bursa road, Kios lost its value after the construction of the Bursa – Mudanya¹¹⁴ railway line.

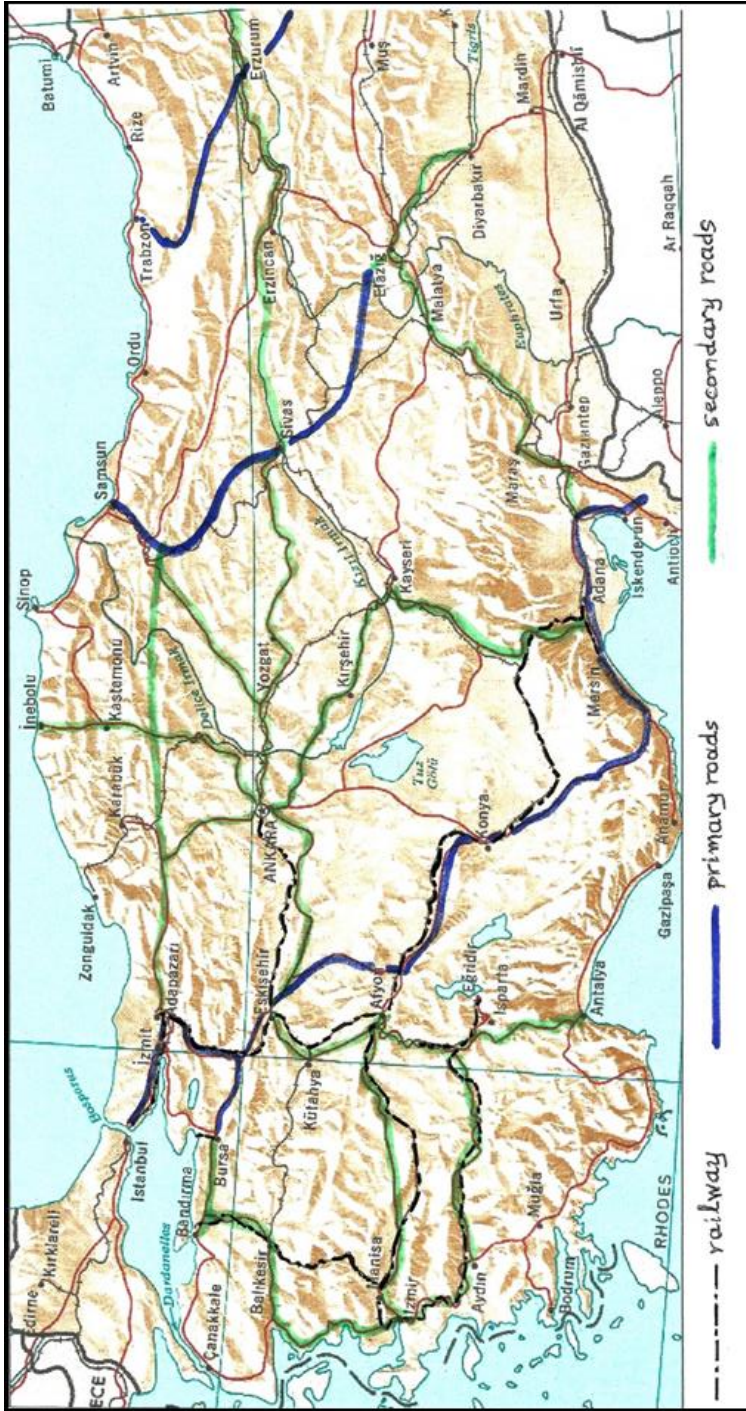
Finally, an example of a city that was isolated and without a road (nor a railroad) was Muğla, the only sanjak town in Asia Minor where one could not reach either by sea, by rail or by road.¹¹⁵

¹¹² Anagnostopoulos, *Γεωγραφία Ανατολής*, 106.

¹¹³ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 320.

¹¹⁴ Anagnostopoulos, *Γεωγραφία Ανατολής*, 62.

¹¹⁵ Kontoyiannis, *Γεωγραφία Μικράς Ασίας*, 349.



An approach to a classification of the main roads of Asia Minor in early 20th century to primary and secondary network. Designed by Georgios Tsotsos on basemap: Map of Turkey (Index of /blog/wp-content/uploads/2011/11), in http://www.nathanbeaver.com/blog/wp-content/uploads/2011/11/turkey_rel_1969-1024x660.jpg (access 20-7-2017).