

# Animal transport in the Balkans, c. 1300 to 1914

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## Abstract

Terrain, climate, and culture determined the employment of transport animals in the Balkans. Horses dominated pack and riding. Camels, mules, donkeys, and humans also bore loads, and some mules and donkeys were ridden. Humans or mules carried sedan-chairs and litters. Despite the mountainous terrain, wheeled vehicles featured more prominently in the Balkans than in Anatolia. Bovids pulled most vehicles, with buffaloes drawing heavier loads in wagons in the plains. Oxen dominated transport by cart in the hills, and donkeys contributed over short distances. Horses also drew vehicles when speed or prestige were at stake, and briefly powered stage-coaches and urban trams. The Eurasian steppe's grey oxen and small horses were plentiful and cheap, encouraging their widespread use. Mules were surprisingly uncommon, perhaps because of Islamic beliefs and Central Asian customs. Bactrian-dromedary hybrid camels were strong but costly, and associated with Turkish domination, so that few remained after the Ottomans withdrew.

## Résumé

Le terrain, le climat et la culture ont déterminé l'utilisation des animaux de transport dans les Balkans. Les chevaux dominaient le transport de marchandises et l'équitation. Les chameaux, les mulots, les ânes et les humains transportaient également des charges, et certains mulots et ânes étaient montés. Les humains ou les mulots transportaient des chaises à porteurs et des litières. Malgré le relief montagneux, les véhicules à roues étaient plus répandus dans les Balkans qu'en Anatolie. Les bovidés tireraient la plupart des véhicules, les buffles tirant les charges les plus lourdes dans des chariots dans les plaines. Les bœufs dominaient le transport par charrette dans les collines, et les ânes y contribuaient sur de courtes distances. Les chevaux tireraient également des véhicules lorsque la vitesse ou le prestige étaient en jeu, et furent brièvement utilisés pour les diligences et les tramways urbains. Les bœufs gris et les petits chevaux de la steppe eurasienne étaient abondants et bon marché, ce qui encourageait leur utilisation généralisée. Les mulots étaient étonnamment rares, peut-être en raison des croyances islamiques et des coutumes d'Asie centrale. Les chameaux hybrides bactriens-dromadiers étaient robustes mais coûteux, et associés à la domination turque, de sorte qu'il en restait peu après le retrait des Ottomans.

## Kurzfassung

Das Gelände, das Klima und die Kultur bestimmten den Einsatz von Transporttieren auf dem Balkan. Pferde dominierten den Last- und Reittransport. Kamele, Maultiere, Esel und Menschen trugen ebenfalls Lasten, und einige Maultiere und Esel wurden geritten. Sänften und Tragbahnen wurden von Menschen oder Maultieren getragen. Trotz des bergigen Geländes waren Radfahrzeuge auf dem Balkan stärker verbreitet als in Anatolien. Die meisten Fahrzeuge wurden von Boviden gezogen, wobei Büffel in den Ebenen schwerere Lasten in Wagen zogen. In den Hügeln dominierten Ochsen den Transport mit Karren, und Esel leisteten auf kurzen Strecken einen Beitrag. Pferde zogen auch Fahrzeuge, wenn es auf Geschwindigkeit oder Prestige ankam, und wurden kurzzeitig für Postkutschen und städtische Straßenbahnen eingesetzt. Die grauen Ochsen und kleinen Pferde der eurasischen Steppe waren reichlich vorhanden und billig, was ihre weit verbreitete Nutzung förderte. Maultiere waren überraschenderweise selten, vielleicht aufgrund islamischer Überzeugungen und zentralasiatischer Bräuche. Baktrische Dromedare waren stark, aber teuer und wurden mit der türkischen Herrschaft in Verbindung gebracht, sodass nach dem Rückzug der Osmanen nur wenige übrig blieben.

## Resumen

El terreno, el clima y la cultura determinaron el empleo de animales de transporte en los Balcanes. Los caballos dominaban el transporte de mercancías y la equitación. Los camellos, los mulos, los burros y los seres humanos también transportaban cargas, y algunas mulas y burros se montaban. Las personas o mulas transportaban las sillas de manos y literas. A pesar del terreno montañoso, los vehículos con ruedas estaban más presente en los Balcanes que en Anatolia. Los bóvidos tiraban de la mayoría de los vehículos, y los búfalos transportaban las cargas más pesadas en carros por las llanuras. Los bueyes dominaban el transporte en carretas por las colinas, y los burros contribuían en distancias cortas. Los caballos también tiraban de vehículos cuando la velocidad o el prestigio estaban en juego, y durante un breve periodo de tiempo impulsaron diligencias y tranvías urbanos. Los bueyes grises y los caballos pequeños de la estepa euroasiática eran abundantes y baratos, lo que fomentó su uso generalizado. Las mulas eran sorprendentemente poco comunes, quizás debido a las creencias islámicas y las costumbres de Asia Central. Los dromedarios bactrianos eran fuertes pero costosos, y se asociaban con la dominación turca, por lo que quedaron pocos después de la retirada de los otomanos.



Over sixty years ago, Traian Stoianovich famously proposed that some Christian shepherds in the Balkans became muleteers from around 1300, then merchants, and finally bankers from the eighteenth century. However, he used the term 'muleteer' loosely to mean people using any pack animal, in this case mainly horses. Moreover, vehicles featured more prominently in the Balkans than Stoianovich alleged, despite the mountain ranges that stretch from Greece to the Danube and Sava rivers.<sup>1</sup>

Choices of modes of transport related to many factors, such as the relative cost and availability of beasts and vehicles, and the skills of local inhabitants. Terrain and climate suggested which animals and conveyances to deploy, and local cultures had a further influence. In addition, Ottoman policies and capabilities during these centuries deeply affected the building and repairing of roads, and the policing of routes.

## Transport resources and infrastructures

In contrast with the Asian part of the Ottoman Empire, where pack camels largely replaced wheeled traffic, vehicles remained numerous in the Balkans, and were accurately depicted in miniatures of the time.<sup>2</sup> Thrace was a major manufacturing centre for four-wheeled wagons, which were smaller and lighter than those made north of the Danube. There were numerous regional types of two-wheeled carts, with solid or spoked wheels.<sup>3</sup>

Estimates of capacity vary widely, but all underline the superiority of draught over pack. A wagon could transport some 800 to 2,400 kilos, depending on the number and strength of animals in a team, whereas a cart drawn by a single ox moved about 500. A camel carried around 250 kilos on its back, compared to about 100 for a horse or mule, and 50 for a donkey.<sup>4</sup>

Different types of thoroughfare suited varying modes of transport. Wagons were largely restricted to main roads in the plains, endowed with causeways, bridges, and ferries. An extra team of animals could overcome steep slopes, but the length of a wagon, combined with the lack of a pivot on its front axle, made it unsuitable for winding and narrow roads. Lighter carts, more manoeuvrable and easier to transport across bodies of water, prevailed on minor roads. As for pack animals, they dominated mountain trails and paths, which were frequently obstructed by rocky ravines and dense forests.<sup>5</sup>

Three great Roman routes fanned out across the Balkans from Istanbul, resembling interwoven braids more than single carriageways.<sup>6</sup> The foremost itinerary was the Orta Kol (central arm), or Via Militaris, which connected with the navigable Danube and Sava rivers at Belgrade.<sup>7</sup> At Niš, a little before Belgrade, a spur led westwards to the Adriatic at Ragusa (Dubrovnik), though it was unsuited to wheeled traffic.<sup>8</sup> Another spur at Niš, accessible

1 Stoianovich 1960; Stoianovich 1994.

2 Bulliet 1975, 235.

3 Faroqhi 1982; Stoianovich 1994, 72–80; Brown 1687, 48; Clarke 1818, 64; Boué 1840, III, 7.

4 Peysonnel 1787, II, 175; Murphey 1999, 75–77; Haldon 2005, 146f.

5 Boué 1840, III, 45–56; Mehlan 1939; Faroqhi 1982.

6 Boué 1854.

7 Riedler and Stefanov 2021; Zirojević 1987; Jireček 1877.

8 Howell 2017.

to light vehicles, followed the Morava and Vardar valleys south to Salonica (Thessaloniki).<sup>9</sup> Many wagons travelled from Istanbul to Salonica along the eastern section of the Sol Kol (left arm), the old Roman Via Egnatia, and continued thence into northern Greece. However, they could no longer reach the Adriatic on the Via Egnatia, as repairs since Byzantine times had taken the form of shallow stone steps.<sup>10</sup> The Sağ Kol (right arm), or Via Pontica, headed for the Danube Delta, competing with Black Sea shipping, and linking with roads to Inner Asia and Eastern Europe.<sup>11</sup> Other Roman arteries, notably along the Danube, were hardly used any more.

Roman roads had drawbacks, notably heavy and rutted stone paving, insufficient width of minor roads, trajectories straight up and down steep hills, and stretches impassable for vehicles in wet and wintry weather.<sup>12</sup> The Ottomans thus did much to repair, improve, and extend the Roman and Byzantine legacy, though fiscal problems at times reined in their ambitions.<sup>13</sup> Together with railways and steamers, new roads emerged in the nineteenth century, applying novel Western techniques, and raising the number of vehicles.<sup>14</sup>

Caravans most commonly operated in summer, and rarely included more than a hundred animals in times of peace.<sup>15</sup> When security was poor, however, a thousand animals might proceed together under military escort.<sup>16</sup> Caravanserais, whether established by the state or by private initiatives, provided shelter and other services for man and beast.<sup>17</sup>

## Draught animals

Bovids drew most goods vehicles. Oxen were slow, but cheap and frugal. Water buffaloes were even slower, and extremely sensitive to heat and cold, but they were exceptionally strong. Buffalo wagons were common in the interconnected plains of Macedonia, Thrace, and eastern Bulgaria, where distances were counted in terms of buffalo wagon performances.<sup>18</sup>

Some laden conveyances were pulled by equids, notably horses harnessed to wagons for reasons of speed or prestige.<sup>19</sup> Contrasting with Roman and Byzantine practice, however, few mules hauled wagons in later centuries.<sup>20</sup> The Aegean islands were unusual in their reliance on mule draught, supplemented by donkeys.<sup>21</sup> Horses and some mules also towed boats on rivers, notably vessels going up the Danube, together with oxen and men.<sup>22</sup>

9 Hahn 1861.

10 Zachariadou 1996; O'Sullivan 1972.

11 In the absence of a general survey, see Faroqhi 2023; Boscovich 1784.

12 Boué 1840, III, 45–47; Haldon 2006, 139–40.

13 Necipoğlu 2011, 71–74; Atçıl 2015, 276.

14 Gounaris 1993; Boué 1840, III, 48–51; Hahn 1861, 65–6; Mehlan 1939, 287f, 294.

15 Howell 2017, 38; Eliot 1908, 371.

16 Fraser 1906, 220, 279, 284; Gounaris 1993, 25f.

17 Wittman 1803, 83; Gell 1810, xii; Cvijić 1918, 195, 408; Mehlan 1939, 283–286; Heywood 1996.

18 Clarke 1818, 60, 122; Lear 1851, 26; Cvijić 1918, 186; Gounaris 1993, 35; Stoianovich 1994, 72; Bailey 1916, 239; Faroqhi 2023.

19 Stoianovich 1994, 72–74; Faroqhi 1984, 50.

20 O'Sullivan 1972, 32; Stoianovich 1994, 80f.

21 Cvijić 1918, 51, 185f; Anon 1854, 346.

22 Faroqhi 2014, 34; Quin 1836, 101–105; Boué 1840, III, 149–57; Zirojević 1987, 402.

Horses further drew passenger vehicles, notably the carriages of the rich and powerful.<sup>23</sup> In mountainous areas, however, mules might be preferred.<sup>24</sup> Hungarian *kocsi* (coaches) incorporated metal springs for a smoother journey from the fifteenth century, but only spread slowly in the Balkans. As for Western carriages, they did not become common till the late nineteenth century.<sup>25</sup> At the same time, horses powered new stage-coaches, buses, and trams, though steam trains and electric trams fairly quickly replaced them.<sup>26</sup>

Oxen or buffaloes typically pulled *araba*, covered passenger wagons of Turco-Mongol origins, which were constructed with flexible wickerwork to absorb shocks. Segregated groups of better-off women were the main passengers. Before the generalisation of coaches and carriages, elite men employed horse-drawn *araba*, whereas the Inner Asian practice of harnessing Bactrian camels to such vehicles was not adopted.<sup>27</sup>

## Riding, litters, and sedan chairs

Social norms glorified horses, and able-bodied elite Muslim men, often together with their retainers, liked to mount fine Arab steeds.<sup>28</sup> Gendarmes, couriers, and pastoralists relied more on local horses.<sup>29</sup> When women rode horses, which they very rarely did, they did so astride in the Inner Asian manner, rather than side-saddle.<sup>30</sup>

Other equids were for other classes. Merchants and clerics bestrode large white riding donkeys in towns, on Middle Eastern lines.<sup>31</sup> Peasants, including a few women, travelled on common donkeys, and sometimes mules, to and from markets and fairs.<sup>32</sup> Some pastoralists watched over flocks and herds on donkeys.<sup>33</sup> Ridden donkeys appeared in caravans to Ragusa, despite difficulties in keeping up with horses and mules.<sup>34</sup> Moreover, leaders of camel caravans famously rode donkeys, to match their camels' slow pace.<sup>35</sup> Neither camels themselves, nor bovids, were ridden.

When not riding, or ensconced in an *araba*, elite women and older or infirm men travelled by litter or sedan chair. Porters commonly carried these conveyances for short trips, notably in towns. A pair of mules, valued for their smooth gait, were preferred for long distances, though horses were substituted where mules were unavailable.<sup>36</sup>

23 Lear 1851, 41; Abbott 1903, 283f; Fraser 1906, 282.

24 Anon. 1854, 383.

25 Boué 1840, III, 55, 166; Marmont 1839, 8; Engin 2019; Mehlan 1939, 273–275; Stoianovich 1994, 72f.

26 Gounaris 1993; Engin 2019.

27 Davis 1986, 133; Clarke 1818, 198f, 210, 219; Marmont 1839, 8; Davey 1897, II, 292–294, 301f.

28 Bey 1920, 8, 13f, 20, 46, 94, 371; Davey 1897, II, 326, 328.

29 Baldacci 1897, 396, 404; Koh 2022.

30 Clarke 1818, 39f; Boué 1840, III, 55.

31 Tweedie 1894, 31, 159; Cuinet 1890–5, III, 47; Davey 1897, II, 316.

32 Lear 1851, 193f; Jochmus 1854, 71; Abbott 1903, 171, 213; Bailey 1916, 238–241, 258; Cvijić 1918, 179, 442, 448.

33 Quin 1836, 29.

34 Howell 2017, 29.

35 Montagu 1861, I, 310; Boscovich 1784, 12f; Quin 1836, 171; Chervau 1884, 213; Mehlan 1939, 281; Gounaris 1993, 35.

36 Gell 1810, VII; Hahn 1861, 27; Davey 1897, II, 293, 306; Boué 1840, III, 55.

## Pack animals

Many historians give the impression that Balkan pack transport relied essentially on small shaggy local horses.<sup>37</sup> These creatures were indeed ubiquitous. Despite their rather uncouth appearance, travellers praised them for their patience, docility, resilience, strength, sturdiness, and courage.<sup>38</sup>

However, mules were active in pack work, especially towards the west and south of the peninsula.<sup>39</sup> Where limestone swallowed up surface water, mules, as well as camels, had an advantage over horses.<sup>40</sup> In the early twentieth century, an Aromanian (Vlach) muleteer in the Pindus Mountains typically worked with a team of four to nine cargo mules, depending on whether he had assistants, and led his team astride a horse.<sup>41</sup>

Richard Bulliet suggests that pack camels were normally limited to supplying military operations in Europe beyond the Thracian Plain.<sup>42</sup> However, Corancez, his source for this, merely notes that camels were especially numerous in Thrace, an observation echoed by many.<sup>43</sup> Camels were certainly common on official or military business, and were mainly owned by the state or by leading Muslim notables.<sup>44</sup> Camels were less dependent on transported forage than equids and carried a heavier load, but they were also considerably more expensive.<sup>45</sup> Many camel drivers were Turkic Muslim Yörük, a service group settled by the Ottomans in the southeastern Balkans.<sup>46</sup>

Pack camels, both official and civilian, ranged well beyond the Thracian Plain, notably to Sarajevo in Bosnia.<sup>47</sup> Some camel caravans went all the way to Vienna and Budapest, though their loads were more often transferred to horses before reaching the Danube-Sava line, as transport riders were wary of the impact on their beasts of humidity, cold, and disease.<sup>48</sup> A decline in pack camels accompanied the gradual Ottoman withdrawal from the Balkans. Camels were exotic beasts, associated with infidel rule, and Balkan Christians thus tended to shun them.<sup>49</sup> Mehlan puts it succinctly, if not entirely accurately: 'the camel came and went with the Turks'.<sup>50</sup>

37 Stoianovich 1960, 309; Stoianovich 1994, 74, 260f; Cvijić 1918, 74, 85; Howell 2017, III–IV, 35–39, 84; Heywood 1996, 134–136.

38 Baldacci 1897, 79, 378–380.

39 Gell 1810, VI; Pouqueville 1826–7, II, 342, 390, 577; Leake 1835, I, 284f, 300, 303; Abbott 1903, 78; Eliot 1908, 371; Cvijić 1918, 22, 74, 85, 195–197, 408; Lear 1851; Wace and Thompson 1914, 74.

40 Lear 1851, 237; Fraser 1906, 107; Cvijić 1918, 455; Goodwin 1999, 271; Howell 2017, 38; Boué 1840, III, 53.

41 Wace and Thompson 1914, 12–14, 73–75, Plate II.

42 Bulliet 1975, 235, 316 (n. 49).

43 Corancez 1816, 80f. See also Faroqhi 1982, 532, 535; Brocquière 1807, 251; Burbury 1671, 158; Brown 1687, 38; Boscovich 1784, 11–13; Vandal 1900, 97; Mehlan 1939, 272.

44 Boué 1840, I, 509.

45 Busbecq 1881, I, 218f; Goodwin 1999, 72; Murphey 1996, 172f; Montagu 1861, I, 309f.

46 Faroqhi 1982, 535; Inal 2021, 60.

47 Zirojević 1987, 402; Aleksić 2021, 70; Burbury 1671, 140; Busbecq 1881, I, 97; Jireček 1877, 114f; Vandal 1900, 56; Katić 2021, 91.

48 Busbecq 1881, I, 214, 218, 415; Stoianovich 1994, 74; Mehlan 1939, 280f; Goodwin 1999, 114.

49 Bartosiewicz 2014.

50 Mehlan 1939, 272.



Human beings and donkeys played a major role carrying goods in towns, where narrow and winding streets were often interrupted by steps.<sup>51</sup> Porters, many of them women, also played a role in rural transport, notably in the western mountains.<sup>52</sup> Donkeys carried goods over short distances, typically to and from market in rural zones.<sup>53</sup> In the Pindus Mountains, a small boy led the miller's donkey to collect grain to turn into flour.<sup>54</sup> Bovids were not worked for pack, unlike in parts of the Middle East and North Africa.<sup>55</sup>

## The availability and price of animals – breeding and trade

Cattle were raised throughout the Balkans, but the small red and black types were mainly kept for meat, notably in mountainous areas. Medium-sized grey cattle were the usual draught oxen, in demand for agriculture as well as transport, although rarely milked. They mainly came from the north and east, and from the steppe lands beyond. To the west and south, mixed with other breeds, they became too small and weak for draught.<sup>56</sup>

Genetic evidence indicates that large dark 'river' buffaloes, of the Indian type, arrived in the Balkans around the seventh century CE. They did not spread westwards in the Mediterranean beyond Italy.<sup>57</sup> Balkan buffaloes were less common than cattle, and more specialised as draught animals, albeit also valued for their milk. Buffaloes were especially prominent across the central belt of the peninsula, becoming rarer and smaller in Greece.<sup>58</sup>

There was a sharp divergence between supplies of horses of different sizes. Numerous cheap little horses were raised locally, especially to the north and east, and they were supplemented by the vast reserves of the steppe beyond.<sup>59</sup> Imported Arabs were finer, but quite small and delicate. Hardly any large horses were bred across the Ottoman empire, though Hungary and Romania traditionally supplied a few. Western breeds were expensive, and were often poorly adapted to the local climate and diet.<sup>60</sup>

Donkeys and mules were mainly animals of the west and south.<sup>61</sup> That said, northern areas, including Hungary, bred donkeys specifically for sale in the central Balkans.<sup>62</sup> Arumani (Vlach) mountaineers also excelled in raising large jacks to engender good mules.<sup>63</sup> And yet, overall, the Ottoman empire bred so few mules that it had to import some from Iberia for military purposes in the early

51 Davey 1897, I, 198, and II, 251, 292f, 310f.

52 Boué 1840, III, 170.

53 Faroqhi 2009, XXV; Weigand 1894f, I, 8; Abbot 1903, 232.

54 Wace and Thompson 1914, 76.

55 Planhol 1969.

56 McGowan 1981, 9, 15, 17, 20, 26, 41, 181; Boué 1840, I, 505; Moltke 1854, 34, 59, 231; Chesney 1854, 28, 30; Hahn 1861, 27; Weigand 1894–5, I, 19; Mehlan 1939, 271.

57 Zhang 2020, 179.

58 Boué 1840, I, 505; Wittman 1803, 465; Hahn 1861, 27; Bailey 1916, 239; Cvijić 1918, 186.

59 Marsigli 1732, II, 41–2; Mehlan 1939, 271; Bailey 1916, 239; Wittman 1803, 465; Lear 1851, 400; Goodwin 1999, 109.

60 Clarence-Smith 2014; Yilmaz et al. 2012.

61 Leake 1835, II, 550.

62 Boué 1840, I, 509, and III, 140.

63 Wace and Thompson 1914, 20–1, 31, 84; Pouqeville 1826–7, II, 282–4, 384–5, 390; Leake 1835, IV, 210.

nineteenth century.<sup>64</sup> Islamic strictures on mule breeding, together with Inner Asian prejudices against these hybrids, may have played a part.<sup>65</sup> It was indicative that a mule fetched a markedly higher price than a pack-horse in the sixteenth-century Balkans, and that this differential persisted over the centuries.<sup>66</sup>

Camels were least integrated into Balkan pastoralism.<sup>67</sup> Mating Bactrians with dromedaries to produce powerful hybrids was a skilled job, performed mainly in western Anatolia.<sup>68</sup> The few official Ottoman Balkan centres for camel breeding were probably limited to state needs.<sup>69</sup> Even Muslim Yörük settlers preferred to raise sheep.<sup>70</sup> There were a few private camel breeders around Salonica in the 1860s, but the quality of their beasts was poor.<sup>71</sup>

## Conclusion

The determinants of which transport animals were employed in the Balkans, and how, remain to be fully ascertained. In broad outline, however, the availability of vast numbers of small and cheap horses undermined the position of mules and donkeys, notably in comparison to the western Mediterranean. Similarly, an abundance of grey cattle and water buffaloes reduced the recourse to scarce and expensive large horses. Hybrid camels were strong but exotic, and they failed to become firmly established in the Balkans.

Regional variations complicate this picture, not only influencing the choice of animals, but also whether they were harnessed, yoked, ridden, or laden. Running like a scarlet thread through this story is a contrast between a wetter, flatter, and colder north and east, and a drier, warmer, and more mountainous south and west. In the plains, oxen, buffaloes, and horses could draw wheeled vehicles over considerable distances. In the mountains, pack animals came into their own, largely small local horses, but also mules, donkeys, and camels.

64 Chesney 1854, xxiv, 323.

65 Clarence-Smith 2017.

66 Faroqhi 1984, 49–50; Faroqhi 2010, 300f; Faroqhi 2014, 126.

67 Blunt 1878, I, 215; Stoianovich 1994, 74.

68 Inal 2021, 60–3.

69 Shopov 2019, 171, 173; Jireček 1877, 131; Aleksandar Shopov, email 06. August 2022.

70 Petkova 2019, 29–34; Kotzageorgis 2015, 111–15.

71 Cherveau 1882, 213–14.

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