Horses, mules and other animals as a factor in Ottoman military performance, 1683-1918

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Abstract: Historians have neglected access to animals as a factor in Ottoman military decline. Small Hungarian horses fell to Austria in 1699, and Crimean ones to Russia in 1783, while Romania became independent in 1878. Small Syrian-Iraqi Arab horses were sensitive to cold. Many large Türkmen horses were lost to Persia, although eastern Anatolia had some. Carthorses were absent. The Ottomans gradually lost control of Christian mule-breeders, in the Peloponnese in 1832, in Cyprus in 1878, and then in the Balkan massif from 1881 to 1913. Muslim mule-breeding was forbidden by hadiths, and Muslims flouting these hadiths were largely under Persian rule. Light cavalry was significant to the end of World War I. Small horses bore mounted infantry, together with mules, large riding donkeys, and camels. Heavy cavalry was in terminal decline, but large agile horses drew mobile rapid-firing field artillery. Deployment of heavy guns was hampered by reliance on water buffaloes and oxen. Mountain batteries of dismantled 'screw guns', from the 1860s, relied on mules. The Ottoman baggage train failed to standardise around the mule, and railways only mitigated the challenge. The Ottomans faced further difficulties in providing fodder and veterinary care.

Animals in Ottoman military history

Animals require more attention from historians assessing Ottoman military performance from the failed second siege of Vienna in 1683 to the empire's demise as after the First World War. Scholars have focused almost exclusively on the recruitment and organization of troops, and on the manufacture of firearms. Animals appear in these histories, but as afterthoughts or buried in footnotes, and usually forgotten by indexers.[1] One military historian refers to animals quite extensively, but rarely informs readers as to what animals they were.[2]

More generally, the history of Ottoman livestock remains obscure. The 'animal turn' in Western historical circles, gaining momentum from the 1970s, has only recently begun to seep into writings on the Ottoman empire.[3] This neglect of the wider historical context obstructs the assessment of what animals might have been available to the armed forces.

Overall, the Ottoman empire clearly suffered from declining access to animals from 1683, especially horses and mules. In times of war, opponents could interdict supplies. In times of peace, balance of payments difficulties arose from imports of animals, or, more commonly, from restricting exports for strategic reasons. Moreover, this process was something of a zero-sum game, for Ottoman losses simultaneously increased the resources of adversaries. A vicious circle loomed, as further defeats resulted in additional transfers of animals to hostile powers.

To be sure, the Ottoman empire never actually ran out of equids, let alone other animals. In 1910, there were about 1.2 million horses and mules in the Asian provinces, which was roughly in line with the resources of major western and central European powers.[4] Substantial grasslands remained in Istanbul's hands till 1918, notably in south-central Anatolia and on the margins of the Fertile Crescent. In addition, internal lines of supply shortened as the empire contracted, so that fewer animals were required to guard the sultan's 'well-protected domains'.[5] Moreover, there was a shift from cereal to livestock production in the seventeenth and eighteenth centuries, partly to meet expanding demand for beasts of burden, even if this was partly reversed in the nineteenth century.[6] Indeed, the Ottoman empire continued to export equids to rival powers down to 1914, despite occasional doubts as to the strategic wisdom of such trade.[7]

Scattered indications of early modern military shortages of horses and mules are difficult to interpret. The Ottoman army mobilised animals that were probably not optimally suited to certain military tasks, notably donkeys, camels, oxen, and water buffaloes. 'Excess demand' for horses allegedly 'exhausted' supplies in Anatolia by around 1650, resulting in a growing recourse to regions north of the Danube.[8] In the throes of military reforms after 1792, officials explained that insufficient revenues were responsible for a shortage of horses for palace guards, although they may have been seeking to reduce the political influence of the corps.[9] In 1828, a new unit of palace guards resorted to forced levies of horses, although, again, finance may have been the driving motivation.[10] A more striking indication of inadequate supplies was the importation of Spanish artillery mules at the outbreak of the war with Russia in 1853.[11]

Ottoman deficiencies in animals were clearer in the opening decades of the twentieth century, when most cavalry horses, and all field artillery draught horses were imported from abroad. Existing horses were insufficient, ageing, and overworked.[12] Units were under strength in terms of all animals, and insufficiently mobile. The exiguous size and poor state of Ottoman railways and rolling stock exacerbated the problem.[13]

The authorities encountered further difficulties with available animals. Recruitment for military purposes was financially costly, if market prices were paid, and politically costly, if animals were commandeered.[14] Feeding animals under the colours, and keeping them healthy, created further anxieties. Indeed, morbidity and mortality among military animals remained stubbornly high, compounding losses due to enemy action.[15]

From heavy to light cavalry

As a result of the 'military revolution' engendered by firearms, heavy cavalry of the old style almost disappeared, despite some survivals till the First World War.[16] Light cavalry remained, and was especially common in thinly peopled eastern Europe.[17] Armed with pistols and carbines, as well as traditional *armes blanches*, light horse units challenged artillery and infantry from the flanks and rear, and hunted down soldiers fleeing the battlefield. More generally, light cavalrymen scouted, sabotaged, foraged, and carried messages.[18] Cheaper mounted infantrymen tended to replace light cavalry, however, riding inferior beasts and fighting on foot with firearms.[19]

The Ottoman cavalry was never as heavily armed and mounted as that of its European or Persian foes. 'Feudal' cavalrymen owed service with their own horses, in exchange for a kind of fief (*timar*), conceded in their lifetime.[20] From the seventeenth century, however, many fiefs became private property or tax-farms.[21] Timariots were also unreliable, failing to turn out, or going home early.[22] Provincial timariots still participated in the campaigns of 1828-1829 against Russia, riding beautiful horses, but by then they were described as 'obsolete but romantic.'[23]

Regular cavalrymen, centrally paid and supplied, gradually became more significant.[24] They had adopted the carbine and pistol by the mid-seventeenth century, though sabre and lance were preferred. Their horses were of uneven quality.[25] Marmont considered these units to be relatively well mounted and trained in the mid-1830s, even if their horses were on the small side.[26] In contrast, British advisers were scathing about them in the Crimean War of 1854 to 1856, describing them as poorly horsed, armed, and trained.[27] The quality of horses appears to have varied considerably, even within a single troop.[28]

In the First World War, Ottoman cavalrymen were reputed to ride small, if tough, horses, of the pony type.[29] On the Palestine front, they suffered from radical numerical inferiority by the end of 1917, when the British-led forces enjoyed an advantage of 8:1 in terms of mounted troops.[30] Outnumbered, their horses in poor condition, and vulnerable to artillery and machine-guns, Ottoman cavalrymen rarely engaged their mounted foes with lance and sabre, but dismounted to fight with firearms.[31]

Light irregular cavalry units came to the fore from the mid-seventeenth century.[32] They were drawn from all over the empire, but especially from Muslim frontier districts, with Crimean Tatars to the fore. They also numbered many Albanians, Bosnians, Circassians, Türkmen, and Kurds. These skilled horsemen were cheap to employ, but

were unevenly horsed and armed, and poorly trained. They were also mercenary and undisciplined, tending to melt away as soon as a campaign began to go badly. In addition, they were much given to slave raiding, looting and plundering.[33] This became a particular problem when auxiliaries enslaved Christian foes in the nineteenth century, at a time when Ottoman statesmen were seeking to gain acceptance in the 'Concert of Europe'.[34] Giving them some training, and placing them under regular cavalry officers, resulted in more disciplined units.[35] In 1910, they became reserve regiments of light cavalry, largely Kurdish in composition.[36]

Mounted infantry: horses and other animals

Although fighting on horseback was much prized in Ottoman cultures, mounted infantry emerged in the empire from at least the seventeenth century. The retinues of provincial pashas were described in the 1660s as being similar to dragoons, fighting on foot and entrusted with protecting baggage.[37] Kurdish auxiliaries from eastern Anatolia, dignified with names such as 'Tribal light cavalry', usually dismounted from their tough little ponies to fight.[38] After 1878, the French trained new units of mounted gendarmes, a para-military police force. They were transferred to the Ministry of War in times of conflict.[39]

Mounted infantry generally rode horses, albeit of lesser quality than those of the cavalry. For these purposes, small, tough, and frugal Anatolian horses were serviceable.[40] Regular squadrons of mounted infantry fought in the First World War, for example in Palestine.[41]

However, mounted infantrymen might well ride other animals to transport them to and from battlefields. Retreating janissaries commandeered mules in the eighteenth century.[42] The aged and infirm commander of the army engaging the Persians in 1585 found a mule to be a steadier mount.[43] On the Wallachian front in 1828, 'The Vizier himself mounted a mule.'[44]

A more systematic substitution of other animals took place from the late nineteenth century, as mounted infantry became better established in the armed forces. Mihdat Pasha, reformist governor of Iraq, formed a regiment mounted on mules in about 1870, which was still in place in the early 1890s.[45] From 1878, Ottoman gendarmes rode donkeys, mules, or camels in the western Gulf.[46] In 1914, the corps of 42,000 gendarmes in the empire included some 6,000 'mule-mounted troops.'[47]

During the First World War, shortages of horses, and the requirements of the desert, contributed to the use of varied mounts. For his attacks on the Suez Canal in 1915 and 1916, Friedrich Freiherr Kress von Kressenstein used many Arabs mounted on camels.[48] Ottoman gendarmes rode donkeys in Iraq in 1916.[49] The Germans raised a unit of mule-mounted infantry in Damascus, sent against Bedouin raiders of Ma'an, in modern Jordan, in 1917.[50] In April 1917, British forces in southern Palestine sustained an attack by an Ottoman column, which included donkeys, camels, and even mares with foals.[51]

Early modern field artillery

Early modern European artillery required ever larger numbers of equids, especially for field artillery. As gunners walked alongside horses hauling medium-sized guns, this was called 'foot artillery.' Oxen, too slow to keep up with the infantry, were only employed as a last resort.[52] Mules often proved to be superior in dry and mountainous terrain, as the British discovered in the Peninsular War in Iberia, 1807-1814.[53]

A variety of animals drew Ottoman artillery, among them horses and mules.[54] However, bovids, especially water buffaloes, were also harnessed to wagons to move Ottoman guns.[55] Buffaloes were remarkably powerful animals, but they were even slower than oxen, and they suffered from high mortality on campaigns.[56] They heated up quickly, and had to be repeatedly sluiced with water.[57] In addition, pack horses and camels carried very light half-pounders.[58]

Ottoman leaders fretted that their field artillery was insufficiently mobile, partly because of a fondness for large pieces, and partly because of transport methods.[59] Huge

siege guns, moved as much as possible on water, continued to be dragged onto the field of battle at the last moment, largely as a symbolic expression of power.[60] Moreover, wagons transported guns as late as 1738.[61] The Ottomans did have recourse to gun carriages by 1770, but wagons were still employed.[62] European observers further considered that carriages were built too heavily in oak, with flimsy ironwork, and with low unspoked wheels, which easily stuck in mud.[63]

Baron de Tott alleged in the 1770s that Sultan Suleiman's sixteenth-century success in recruiting draught horses for the artillery had been undone by his incompetent successors.[64] Efforts from the 1750s to employ more horses for field artillery achieved little, despite a keen sense in Istanbul that this arm was the key to military power. Slow buffaloes continued to draw many pieces, possibly reflecting financial constraints and corruption. Some Ottoman guns thus failed to reach battlefields in time, or easily fell into enemy hands after a defeat.[65]

The quality of Ottoman field artillery only really improved after the Peace of Jassy in 1792 and Selim III's subsequent reforms, with greater speed and accuracy of fire, and with more horses hauling guns.[66] When the property of Bektashi Sufi lodges was confiscated in 1826, strong horses were sent to artillery units to draw cannon.[67] In the 1828-1829 campaigns against Russia, Helmuth von Molkte considered that horses chiefly moved Ottoman artillery pieces, supplemented by mules.[68] That said, Francis Chesney stated that oxen and buffaloes still drew batteries in this conflict.[69] More sensibly, camels replaced horses in desert areas.[70] In 1839, opposing the Egyptians in Anatolia, Moltke again referred to horses pulling Ottoman guns.[71] Moreover, the fusion of the artillery and transport corps, in 1827, indicated a continuing shift from wagons to gun carriages, even if Moltke and Marmont remained critical of the quality of the latter.[72]

The flying artillery interlude

The Ottomans were slow to adopt flying ('horse') artillery, which revolutionised European tactics from the 1750s. Keeping pace with the cavalry rather than the infantry, flying artillery disposed of light guns on two-wheel carriages. Gunners might ride on the horses pulling the assemblage, on limbers or ammunition caissons, or on additional mounts.[73] Gunners would gallop up within close range of hostile infantry, unlimber their guns, break enemy squares, and leave the cavalry to cut down fleeing infantrymen. Intense drilling was needed to perfect this perilous manoeuvre.[74]

Flying artillery also required numerous and expensive horses. A French battery of 8 12-pounder guns in the Napoleonic Wars, at the upper limit of the size of guns, employed a minimum of 112 men and 96 horses.[75] Horses needed to be large and powerful, 15 to 16 hands in height, but also agile and fast.[76] In short, they were of the hunter type, earlier ridden by heavy cavalrymen.

The Ottomans eventually adopted flying artillery, although delay cost them dear in the 1768-1774 war with Russia.[77] In 1796, Jean-Baptiste Aubert du Bayet, French ambassador, brought a detachment of this type of artillery to Istanbul. He demonstrated its capacities, and handed over gunners and artisans to the sultan. The corps numbered 800 men by the late 1810s.[78] In the early 1850s, there were three battalions of 'flying or horse artillery' per regiment.[79] However, there were only 6 batteries left, with 42 pieces, by the Balkan War of 1912.[80]

New forms of field artillery

The decline of flying artillery resulted from further technical change, from around the 1840s. Improved rifles mowed down gunners and horses in the front line, while trenches, machine-guns, and barbed wire made it ever more hazardous to move batteries forward. Simultaneously, the range and accuracy of artillery improved, allowing larger cannon to engage in indirect fire from behind the front line. In consequence, powerful horses hauled large guns into rear positions, in combination with railways.[81] These tactics came to deadly fruition on the Western Front in the First World War. Although self-propelled ordnance began to emerge in this conflict, powerful carthorses remained vital to moving ponderous pieces of artillery.[82]

As the Ottoman army adapted to these changes, it continued to be dogged by problems of insufficient and sub-optimal animals. Horses hauled some field artillery in the Crimean War of 1853-56, but they were too few and of poor quality.[83] Mules drew ammunition caissons, and some guns.[84] On the Caucasus front in 1854, Ottoman artillery was judged to be less mobile than that of the Russians.[85] Indeed, Ottoman batteries eventually became completely immobile, as horses died in droves in the besieged city of Kars in 1854-55.[86] Units in northeastern Anatolia in June 1877 disposed of nine new field artillery batteries to engage the Russians in yet another war, 'but without the necessary animals.'[87] Similarly, the artillery arm was hampered by a shortage of good horses in the brief war of 1897 against Greece, although the new German field guns performed well.[88] As so often in this story, having good guns was only half the battle.

By the Balkan Wars of 1912-1913, the Ottomans imported all their field artillery horses from abroad.[89] Indeed, shortages of artillery animals emerged as a major headache for Ottoman military planners. Thus, four batteries of field artillery in Yanya [Ioannina] had to be allocated to fortress duties, because the garrison had sent its horses eastwards to other units. Another lacuna noted was animals, probably mules, to pull ammunition caissons.[90]

In the First World War, Ottoman artillery units were still reeling from losses of imported horses during the Balkan Wars, which had not been made good for lack of funds.[91] They were thus forced to employ many slow bovids. Enver Pasha's quixotic strike in the Caucasus, from December 1914 to January 1915, failed in part because it proved difficult to bring up field artillery to reinforce the initial thrust, at a time when 8 to 10 oxen dragged a gun.[92] The Ottomans disposed of artillery horses in eastern Anatolia, but in insufficient numbers and suffering from crippling mortality.[93] Buffaloes hauled heavy pieces on the Gallipoli peninsula, and bovids did likewise on the Galician front against Russia, even though 300 additional draught horses had been allocated to the artillery there.[94] Mules were crucial to the mobility of Krupp field guns in the successful Ottoman defence of Gallipoli in 1915.[95]

On the Palestine front, bovids were surprisingly prominent. In his dash for the Suez Canal in January-February 1915, Kressenstein employed teams of eight strong buffaloes, completely unsuited to the desert, to haul each heavy howitzer, which was fitted with specially made sand wheels.[96] Oxen and buffaloes pulled field artillery and anti-aircraft guns in Palestine in 1915-1916, with soldiers lending a hand.[97] Austrian and Ottoman artillery units employed some horses, but these were in 'miserable' shape by late 1917, and were supplemented by 'slow oxen', also described as 'little Turkish bullocks.'[98]

The rise of mountain artillery and machine-guns

Mountain warfare required a special kind of gun, a light weapon that could be disassembled into several pieces and transported by pack animal. This technique was slowly perfected from the early nineteenth century. After the 1860s, 'screw-guns' came apart in half a dozen pieces, which were rapidly put together again when needed. While horses or other animals were sometimes employed, experience showed that mules were ideal to carry the gun parts.[99]

The Ottomans had mountain guns by the time of the Crimean War of 1853-56.[100] The artillery regiment attached to each army corps in 1853 included one battalion, out of twelve, which consisted of a 'very light howitzer battery, intended for mountain service'. These battalions seem to have been employing mules.[101]

In the First World War, mountain guns were integrated into field artillery, rather than forming autonomous units.[102] They were insufficient in quantity, until the collapse of Serbia in late 1915 enabled Germans and Austrians to bring in fresh supplies.[103] Enver Pasha's plan to break through Russian lines in the Caucasus, in December 1914, depended on moving howitzers along a difficult mountain path. By early January 1915, his forces had only 30 mountain guns left, and they were mainly out of action.[104] Similarly, the Ottoman army in the Kurdish zone of southeastern Anatolia was reported

to be 'deficient in the important arm of mountain guns' in March 1917.[105] Reinforcements for Palestine in January 1917 included three mountain cannon, with their attendant mules.[106] In September 1918, British forces captured 'a camel pack gun'.[107]

The collapse of Serbia also allowed substantial numbers of German machine-guns to reach the Ottomans from late 1915.[108] Even before that, Ottoman machine-guns were used with deadly effect against the Entente forces trapped on the Gallipoli beaches, with one mule carrying one gun.[109] On the Caucasus front, machine-gun sections employed horses, mules and donkeys, although some half-starved crews ate their animals, as they fell back towards Aleppo in 1916.[110] Among the reinforcements that reached Ottoman forces in Palestine in January 1917 were machine-guns, loaded on mules, which were deployed against British-led forces in the south.[111]

The quagmire of logistics

Animal power remained central to supplying armies around the world till the end of World War I. The spread of railways and steamers removed some bottlenecks, but animals were still essential to transport ammunition, food, and many other necessities from railheads and ports to fronts. As wars of movement developed from the seventeenth century, the baggage train became ever more crucial to victory.[112]

Martin van Creveld only mentions horses in this regard, but other animals serviced armies, especially mules in hot, dry, and mountainous terrain.[113] In British India, Lord Roberts standardised the baggage train from the 1880s around the rugged, reliable and abstemious mule, which was mainly employed for pack, but also for drawing light carts.[114] This became standard practice in colonial conflicts, even if mules served alongside well-established oxen in the Second Anglo-Boer war of 1899-1902.[115] Camels, donkeys, elephants, and buffaloes were pressed into service on colonial peripheries, but mules became the 'gold standard' of military logistics.[116]

The Ottomans long continued to employ camels and bovids, alongside horses and mules.[117] Oxen and buffaloes rarely served for pack, but they drew numerous carts and wagons in the Balkans, whereas wheeled vehicles were rare in Anatolia.[118] Early modern European observers expressed admiration for the strings of six speedy and strong pack camels that carried materials for Ottoman armies in the Balkans.[119] These may have been powerful hybrid Bactrian-dromedaries from Anatolia.[120] However, the climate was considered to be too wet and cold for camels to the north of Sarajevo.[121] Up to the 1820s, camels remained a staple of the Ottoman baggage train in the Balkans, but they were rare by the dawn of the twentieth century, possibly because Turkic pastoralists had migrated to Anatolia.[122] During the Balkan Wars of 1912-1913, the emphasis was on horses, mules, and buffalo carts.[123]

Among equids employed for military pack work, horses appear to have been more common than mules, although the word *bârgir* (*beygir*), with the root meaning of work horse, could include mules.[124] The latter were certainly present in Balkan campaigns of the 1660s, and figured in the baggage trains of armies fighting Persia.[125] However, during the Crimean War of 1853-56, mules appear to have been less numerous than horses for operations against Russia in the Caucasus.[126] The same impression emerges from Rafael de Nogales' account of eastern Anatolia in 1915-1916.[127]

The Ottomans benefited less from railways than their European rivals, leaving them more dependent on animal power. The Ottoman rail network was built late, and remained less extensive than those of European rivals.[128] A significant cause of the Ottoman defeat in the Balkan Wars of 1912-1913 was a shortage of transport animals and wagons. Bulgaria alone disposed of superior resources to those that the Ottomans could muster in the region.[129]

In the First World War, logistics were once again an Achilles' heel for the Ottoman army, which was short of both draught animals and wagons in 1914.[130] The Gallipoli campaign of 1915, as so often, proved to be something of an exception. Transport lines, centred on Istanbul, were short, and there were sufficient mules effectively to supply Ottoman forces.[131]

Further afield, problems with the rail network compounded the scarcity of working animals.[132] Not only were there different gauges, and stretches of single track, but there were also tunnels under construction through the Taurus and Amanus ranges, interrupting the line connecting Anatolia to Syria.[133] Nogales, who organized road freight operations straddling one of these gaps in 1915, complained that he had insufficient resources. He disposed of 3,500 to 4,000 animals, partly camels and horses for pack, and partly buffaloes to draw carts.[134]

Thrusts towards the Suez Canal in 1915-1916 suffered from a lack of animals. For the first attack, in January to February 1915, Kressenstein only disposed of some 12,000 camels.[135] He had estimated that he needed 30,000. As the Ottomans lacked the money to buy them, German discretionary funds met the high price of 10 Turkish gold pounds per camel.[136] The 'Pasha Expedition' of early 1916 brought partial relief, in the form of German lorries, but petrol was in short supply.[137] The second major attempt to take the Suez Canal, in July-August 1916, suffered again from a limited camel-train.[138]

In Palestine and Syria, the Ottomans were increasingly short of transport. Camels sent to an isolation hospital in 1916 were allowed to die of hunger. A mule-worked railway extension to al-Arish was beset with technical problems. At best, Jewish colonies supplied horses and wagons.[139] As the Ottomans retreated from late 1917, they resorted to a mixture of pack camels, mules and donkeys, vehicles drawn by horses, mules and oxen, and some lorries and cars.[140]

Small horses: contracting supplies

Provisions of small steppe horses to the Ottoman empire first contracted in 1699, when Istanbul ceded Hungary to the Austrian foe.[141] Although this posed little immediate threat to Istanbul, it greatly benefited Vienna, which recruited Hungarian light horse units for Prince Eugene's campaigns in the 1710s.[142] Hungarians bred small horses of an 'oriental' type at the time that they passed under Hapsburg rule, but they came to produce a much wider gamut of military horses, as the Austrians initiated a systematic process of importing and cross-breeding from the 1740s.[143]

Ceding the Crimean khanate to Russia in 1783 was a real blow to the Ottomans, who lost vast herds of ponies grazing on the Pontic or Black Sea steppe. These shaggy little horses were around 13 hands in height, coarsely built, and with large ungainly heads. But they were incredibly tough, and supremely well adapted to wet and cold conditions.[144] Since Crimean Tatars had become the foremost auxiliary cavalry forces in the Ottoman army, the loss was felt all the more keenly.[145] Moreover, the Pontic steppe now supplied Russia with horses for campaigns on the Danube.[146]

Almost all Balkan horses to the south of the Danube-Sava line were lost to the Ottomans between 1832 and 1913, but these were mainly small pack animals, with a rather poor reputation. Thracian horses were mongrel beasts, albeit conveniently placed to supply Istanbul. Thessaly, Epirus and the Peloponnese mainly furnished similar animals, while Albania and Serbia yielded small tough and well-formed mountain ponies.[147] Bosnia was an exception, as the Muslim nobility had a tradition of breeding fine horses there.[148]

The Ottoman empire retained plentiful and beautiful small Arabian horses in the Iraq-Syria borderlands, even if their utility for light cavalry duties was variously appreciated. From one point of view, they were fine officers' mounts, and served valiantly in Palestine.[149] However, the Australian official war historian dismissed them as 'a nondescript lot of ponies'.[150] They were certainly rarely above 14 hands high. Moreover, they sickened easily in cold and wet climates, and were hard to accustom to gunfire.[151]

For operations to the north of Greater Syria, small Kurdish horses were tougher, if somewhat inferior in style and beauty, and were much in demand.[152] Anatolian horses, small, hardy and frugal, served well for light riding and draught.[153]

Small horses: export restrictions

The traditional Ottoman response to perceived shortages was to prohibit exports of horses, according to Islamic injunctions not to strengthen the enemies of the faith.[154] In practice, export bans were patchily applied, probably because they deprived the state of revenue and foreign exchange.[155] Moreover, pack horses were at times specifically exempted.[156]

Export prohibitions, sometimes applicable only to fine animals, alternated with heavy export taxes in Iraq and Syria from the early 1850s, as the Crimean War raised worries about cavalry horses. However, limiting exports posed problems. The Ottoman balance of trade with India was chronically in deficit, and horses sent from Basra helped to reduce the gap, while simultaneously providing revenue in the form of export taxes. That said, officials feared that excessive numbers of breeding stallions and mares were being shipped out, leading to a deterioration of the famous Arabian horse.[157] From at least the 1880s, the Ottomans imposed bans on exports of horses to belligerents. The prohibition on supplying horses to the British expedition against Egypt, in 1882, was further motivated by Ottoman claims to suzerainty over the territory.[158]

In the event, ham-fisted restrictions proved to be counter-productive. Smugglers took numerous animals to ports in Persia or British Kuwayt for export to India, so that Ottoman revenues and foreign exchange were sacrificed in vain.[159] Uncertain of future supplies, foreigners intensified the breeding of fine Arabians in their own lands. Conversely, breeders in Syria became discouraged, switching their attention to camels.[160] Obligatory official purchases, at artificially low prices, further antagonized breeders.[161] And the Sa'udi emirs of Najd, which bred the finest horses, became all the more determined not to submit to Ottoman rule.[162]

Large horses: contracting supplies

The initial staple of Ottoman heavy cavalry forces consisted of Turcoman (Türkmen) horses, raised by Turkic tribes infiltrating from Central Asia into Anatolia and Persia.[163] They were long a favourite of the Ottoman elite.[164] However, the 1639 Persian-Ottoman treaty of Qasr-e Shinin denied the Ottomans any further direct access to large Turcoman horses from Persia and the Türkmen areas.[165]

By about 1650, a marked shift from regular to irregular cavalry was partly motivated by a shortage of horses at the disposal of the central authorities.[166] The main Turcoman breeding areas for the Ottomans were the Cappadocian Plateau (Karaman) and the Cilician Plain (Çukurova), in the south-central Anatolia.[167] Foreign observers noted the excellence of some Anatolian Turcomans, for both artillery and cavalry purposes, as late as the 1830s.[168] However, interbreeding with local and Arabian horses tended to produce smaller animals over time.[169]

Large horses from Romanian lands therefore increasingly replaced Turcomans from the mid-seventeenth century.[170] Stately 15 hand horses from the Transylvanian plateau were lost to Austria in 1699.[171] However, the Ottomans continued to appreciate large and well-formed Moldavian and Dobruja horses, and, to a lesser extent, Wallachians.[172] Indeed, the latter were widely employed to move artillery pieces in the 1828-1829 war against Russia.[173]

Moldavia and Wallachia were in a tributary relation to the Ottomans, which cheapened the cost of their horses. The principalities sent 40 horses a year to Istanbul as a token of their subjection.[174] More significant was the Ottoman right to purchase horses, among other commodities, at low fixed prices.[175] By the 1810s, some 3,000 horses a year went to Istanbul alone from the two Romanian territories, and others were destined for different parts of the empire. They were allegedly bought at about a quarter of the prevailing market price.[176]

As links with Romanian principalities became looser, shortages of fine horses emerged.[177] The equine wealth of the principalities probably contributed to the length and bitterness of Russo-Ottoman warfare from the 1760s to the 1870s, which gradually went against the Ottomans.[178] As early as the first decade of the nineteenth century,

Istanbul could not prevent Austrian and Prussian military buyers from obtaining horses from the principalities.[179] Obligatory Ottoman purchases at fixed prices, were temporarily suspended, and finally abandoned in 1839.[180] In 1878, after yet another war with Russia, Wallachia and Moldavia were recognized internationally as the independent state of Romania, leaving Bessarabia to Russia.[181] 'Countless herds of cattle and horses' were thereby lost to the Ottomans.[182]

Large horses: breeding programmes

Shortages of large and fine horses were perceived in Ottoman circles from the early nineteenth century.[183] However, the authorities appear to have been slow in formulating breeding strategies, for official input is not mentioned before the late 1870s. Moreover, cavalry interests were generally accorded priority, even though artillery and logistics were in greater need.

Some breeding initiatives occurred at an uncertain date, and without agency being expressed. Little Thracian pack animals were crossed with larger horses from north of the Danube, giving rise to the Karakaçan of modern Turkey, standing at a respectable 14.25 to 15.25 hands.[184] Local horses were also mated with taller Caucasian ones on the plateau of central-eastern Anatolia, although the resulting Unzunyayla or Circassian breed was fit only for pack, light draught, or riding, rather than for heavy draught.[185] More potentially useful for artillery purposes was a cross with European carthorses, undertaken in northeastern Anatolia. The resulting Malakan breed was heavily muscled, with a large chest, but it stood at only 13.25 to 13.75 hands.[186]

Defeat at the hands of Russia in 1877-78 spurred the first clearly indicated official action. The government set up three studs, which mainly crossed Turcomans with Arabians, resulting in relatively small riding animals for the cavalry. That said the Çukurova horse, from a Cilician stud, apparently stood at 15 hands. After the revolution of 1908, the 'Young Turks' set up twelve state farms for breeding purposes, still with cavalry remounts chiefly in mind.[187]

Mules: official neglect and religious attitudes

In 1909-10, census figures revealed about 1,000,000 horses in the Asian provinces of the Ottoman empire, but only a little over 200,000 mules, a ratio of 1:5. A partial census for about half the European provinces in 1895-96 yielded a ratio of about 1:4.[188] These ratios are quite surprising, for mules could have stood in advantageously for horses in many capacities. They were better than horses in dry lands, as they were cheaper and easier to feed, and in mountainous lands, where they were more sure-footed.

Ottoman officials neither restricted exports of mules to foreign destinations, nor took measures to stimulate mule breeding. Indeed, following the poor performance of Ottoman troops against the Russians in 1877-78, mule breeding in the region of Trabzon (Trebizond), north-central Anatolia, actually contracted over the following decade. This was met with apparent official indifference.[189]

Disinterest in mules may have reflected Islamic precepts. A number of hadiths forbade the breeding of mules, even though the Prophet himself had owned mules, and the Qur'an stated that God had given all domestic equids to humans for their enjoyment. Mule breeding was sometimes merely discouraged by the ulama, or even portrayed as ethically neutral.[190] Abu Bakr al-Khashnawi, a Kurdish *'alim*, declared that mule breeding was allowed in the 1860s. His book was said to be a close paraphrase of Ibrahim b. Muhammad Halabi's standard Ottoman précis of Hanafi law, in vogue since the early sixteenth century. That said, al-Khashnawi's Kurdish origins may have influenced his latitudinarian pronouncement on mules.[191]

Even when the ulama tolerated mule breeding, Turkic custom opposed it.[192] After conversion to Islam, forms of venerating horses persisted, whereas donkeys were despised.[193] Mules were even denounced by Central Asian Turks as impure animals, on a par with pigs and dogs.[194] For south-central Anatolians, infertility was a sure sign that Allah had cursed mules.[195] In the early 1900s, Gertrude Bell noted that mules almost disappeared as the traveller moved from Arabic-speaking to Turkish-speaking lands,

being replaced with horses.[196] That said, strong Persian cultural influence led some elite Ottomans to look favourably upon mules.[197]

Arabs were only somewhat less hostile to breeding mules, for many believed it unseemly to mate the noble horse with the humble ass.[198] A Palestinian folk tradition held that the mule was cursed with barrenness, because it had carried information to the enemies of the Prophet in the Jabal ʻArafât.[199] A fourteenth-century Mamluk veterinary text, perhaps influenced by Central Asian notions, went further, deploring any hybridisation of species, and comparing a mule to a genie, the fruit of coupling Iblîs (Satan) with a serpent.[200]

Other Ottoman Muslims held more positive views of mule breeding. Kurds, politically divided between the Ottoman and Persian empires, were heirs to a long Iranian cultural approval of mules.[201] In the 1870s, some of the most highly prized Ottoman mules came from Mardin and Harput, areas with large Kurdish populations.[202] Similarly, Circassian refugees from the Caucasus from the 1850s were recent and rather superficial converts to Islam. They brought traditions of raising mules to parts of Anatolia and Syria.[203] It is not known who bred mules in the two major centres in Greater Syria, the Kilis area north of Aleppo, and the plains of Damascus and the southern Biqʻa (Bekaa).[204] However, Kurds were likely in the first case, and Christian Arabs were possibly responsible in the second.

Mule breeding was clearly a Christian occupation elsewhere in the empire, and Istanbul gradually lost control of these populations. The first to go, in 1832, were the Greeks of the Peloponnese, where mule breeding had been famous since Antiquity.[205] Cypriot Greeks passed to Britain in 1878, and they supplied the British occupation forces in Egypt with fine mules and hinnies from 1882.[206] Moreover, Britain could now cut supplies of Cypriot mules to Palestine.[207] Scattered pockets of highland Arumani (Vlachs) in the Balkans, Greek Orthodox by religion and speaking a form of Romanian, were other significant breeders, and they were partitioned between Greece, Albania, Serbia and Bulgaria between 1881 and 1913.[208]

Recruitment, fodder, and veterinary medicine

Even when animals were available, problems arose in incorporating them into the Ottoman army, as the state rarely had sufficient funds to purchase or hire livestock at commercial rates. In early centuries, animals were simply pressed into service for little or no remuneration.[209] Over time, however, groups of animal breeders were granted exemption from taxes, in return for supplying animals in time of war, and looking after them on campaigns.[210] From the 1880s, a Prussian system of registered equine reserves was applied, in return for small payments.[211] By the First World War, registered animals were expected to serve for four years when called up.[212]

The needs of war overwhelmed the reserve system. Thus, the Bulgarians, threatening to take Istanbul in 1912, disposed of nearly three times as many animals as the Ottoman defenders.[213] The Ottomans once again forcibly seized animals, for little or no payment.[214] In 1912, the Ministry of War commandeered the tram horses of Istanbul, and took most other horses in the city.[215] That said, Balkan armies also suffered from shortages of livestock for war, and from animals brought in poor condition.[216]

When mobilization for war was decreed on the 2nd August 1914, the Ottoman army aimed to gather 160,000 animals, rising to 210,000. However, they suffered from ‘severe shortages,’ notably of horses, camels and oxen.[217] High-handed impressing of animals caused deep resentment among non-Turkish subjects, for example Arabs in Palestine, handing over horses and mules.[218] Agriculture was affected, as some 40% of draught horses were mobilised immediately, followed by further requisitions.[219] By 1918, the empire was estimated to have lost more than half of its draught animals.[220]

Insufficient fodder in times of war resulted in major losses.[221] Animals trapped in sieges were especially vulnerable, as in Kars in 1854-55, when they starved.[222] Due to the poor state of their roads and railways, the Ottomans were at an increasing disadvantage compared to their European enemies, notably during the wars of the early twentieth

century. Furthermore, Ottoman logistics services in the Balkan Wars of 1912-1913 were 'scandalously corrupt.'[223]

In the First World War, the Germans sought to place one of their own officers in charge of provisioning, but were rebuffed. Ottoman officers sold fodder, medicine and building materials on the black market, as well as the best animals and vehicles.[224] Hunger, cold and neglect proved to be a lethal combination, with about 100 horses dying in a single night on the Caucasus Front in 1916.[225] By early 1917, about half the Ottoman artillery horses on the Caucasus front had perished, mainly of starvation.[226]

In Palestine, the situation was equally bad by 1917-1918. Shrinking cavalry forces found it hard to maintain a fighting capacity with their half-starved mounts, which were in 'wretched condition.'[227] Ottoman artillery and transport units were in an even worse state. The Ottomans faced complete paralysis by late 1918, as their animals dropped dead around them from starvation.[228]

To cap it all, Ottoman commanders encountered enormous difficulties in keeping their hungry animals healthy. Death rates from disease at times took on apocalyptic proportions, as in Jaffa in 1800, 'when carcasses of horses, camels, asses and mules lay scattered in great abundance.'[229] The development of veterinary medicine in the Ottoman empire only dated from 1842, when the first modern veterinary school was set up, and young Ottomans also went abroad to study veterinary medicine.[230]

However, veterinarians of any kind were still in cruelly insufficient numbers in the early twentieth century, and their quality was criticized.[231] It was estimated that there were only some 250 veterinarians available in the whole empire in 1914.[232] Losses were experienced during the war, for example with the Russian capture of a military veterinary unit in 1916.[233] In addition, medicines for animals were in short supply, and the poor care of animals made matters worse.[234] The morbidity and mortality of Ottoman animals of war thus remained stubbornly high.[235]

Conclusion

Participation in the Balkan Wars and the First World War threw into sharp relief Ottoman deficiencies in the procurement and care of animals for military purposes, which had been building up over the previous centuries. While the Ottoman armed forces certainly suffered from many other problems, shortages of animals, and their poor physical condition, contributed significantly to the empire's humiliating demise.

A two-pronged approach is required to analyse this question more deeply. On the one hand, military historians need to ask more probing questions about the difficulties encountered by Ottoman commanders in physically transporting soldiers, guns and supplies. On the other hand, economic and social historians should further explore the wider story of how deficiencies in livestock contributed to the unmaking of Osman's dream.[236]

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[1] Uyar and Erickson 2009; Aksan 2007; Ágoston 1994 and 2005; Murphey1999; Grant 1999; Nicolle, 1983, 1994, and 1998; Parry 1970.

[2] Erickson 2001; Erickson 2003.

[3] For the 'animal turn', Weil 2010. For Ottoman history, Faroqhi 2010a; Yilmaz et al. 2012; Mikhail 2014.

[4] McCarthy 1982: 295-6. For global numbers, see various volumes of B. R. Mitchell's *International historical statistics*.

[5] The expression is taken from Deringil 1998.

[6] Tabak 2007: 168-72; Cvijić 1918, pp. 50-1, 177-84, 408

[7] Fattah 1997: ch. 6.

[8] Rogers 1996: 177-8.

[9] Juchereau de Saint-Denys 1819: I, 87.

[10] Aksan 2007: 330-1, 344.

[11] Chesney 1854: 323.

[12] Kressenstein 1938: 42.

[13] Erickson 2003 and 2001.

[14] Genç 1995: 185-7, 192; Imber 2009: 94, 244;

[15] Erickson 2003 and 2001.

[16] Black 1991: 5, 8-9, 32; Tylden 1980: 10, 19; Isemonger and Scott 1998: 52

[17] Black 1991: 19-20; Dent 1974: 50.

[18] Isemonger and Scott 1998: 48, 52-5, 114, 119, 133-40; Callwell 1990: 401-24; Dent 1974: 50; Tylden 1980: 24.

[19] Edwards 1987: 151; Tylden 1980: 10-12, 24; Callwell 1990: 402-4, 413, 422-4.

[20] Rycaut 1682: 7-8, 327-8; Imber 2009: 169, 181-7, 266-7, 276, 279, 284, 315-17; Hyland 1998: 131-3; Hamilton Smith 1841: 233.

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[27] Lake 1857: 59-60.

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[43] Cantemir 1734: 233.

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[236] The term is taken from Finkel 2005.