Provisioning of armies of 100,000 and more was one of the great challenges of all the states of Europe in the eighteenth century, forcing the coordination of production and supply of foodstuffs, and contributing to the incorporation of the military systems into the early modern state. Mobilisation and provisioning of the army were likewise the prime economic motivators of the Ottoman Empire, which had a long and distinguished history of the production and distribution of war supplies over vast distances, originally for the Janissary corps, and subsequently for the irregulars (levendler), the bulk of the fighting forces in the eighteenth century. Focussing on the production of biscuit, or hardtack (peksimet), for the Danubian battlefront during the 1768–74 Russo-Ottoman War, this article examines the costs and methods of financing its production, the success and failure of distribution, as well as the benefits and hazards of participation in Ottoman military fiscalism. The Ottoman government had come to rely on a provincial class of notables, consistently called ayans in the documentary evidence, for the oversight and completion of transactions driven by the exigencies of a war economy. Although the emergence of this class of officials has been corroborated by a number of studies, no one has yet considered the impact of war on these 'stewards of redistributions', who both profited and were coopted as the state 'reached directly into communities and households to seize the wherewithal of war'.

One estimate for the problems facing the armies of Europe during the later seventeenth century indicates that 60,000 soldiers and 40,000 horses required close to one million pounds of food a day. Costs of such demands on the society at large are extremely hard to calculate, even in western Europe, which has been far more extensively studied in this regard than the Ottoman Empire. One recent study of the Russian army acknowledged that the lack of data on prices combined with existing contradictory evidence makes estimating costs for the eighteenth century practically impossible. The Ottoman case may prove similarly intractable, but few attempts have been made even to pose the question.
Clearly, armies of larger and larger size forced the mobilisation of a state's energies at all levels, whether in the production, transport or storage of the massive amounts of foodstuffs, especially grain for bread and fodder. The period 1768–74 is particularly instructive in this regard, as both Ottoman and Russian faced formidable obstacles in fielding large, undisciplined forces covering tremendous distances, in one of the continuous confrontations of the two empires that occurred once in every generation until 1918. The costs of this war, financially and psychologically, were considerable, crippling the economies of both empires for decades beyond.

The primary arena of the 1768–74 war was the Danubian basin, noted for the frequency of plague as much as for agricultural abundance, although increasingly notorious for the extent of devastation and deserted villages. Forced marches of 1000 or more miles by soldiers on both sides contributed to as many losses as the battlefields themselves; half of every Russian levy of soldiers never reached the front, succumbing to disease and starvation. The Ottomans mobilised troops from every corner of Anatolia and the Arab provinces as well as from the Balkans, and their rapacity en route is the single most often repeated complaint of eyewitnesses. The Russians probably fielded over 100,000 men in the Danube area alone, deploying other forces simultaneously in Poland, the Crimea and the Caucasus, constituting 3–5 per cent of the population, as contrasted with the more normal 1.5 per cent of European armies. Estimates for the size of the Ottoman army of 1768–74 vary tremendously: probably at its greatest extent, about 60,000 Janissaries, cavalry and artillerymen, along with perhaps as many as 100,000 provincial infantry and cavalry irregulars were drawn to the centre of the war on the Danube. In addition, the Tatar Khan supplied 100,000 horsemen, at this point more of a hindrance than a help in the Ottoman prosecution of war, but still capable of exerting a nuisance value.

The Russian soldier was conscripted for life (technically 25 years) and was expected to survive on a monthly ration of approximately 30 kilograms of rye flour, plus 15 kilograms of groats, for kasha, a kind of gruel. For the rest, he had to buy his own provisions or forage in the neighbourhood of the battlefield. The Ottoman elite soldier still appears to be the Janissary in this war, but increasingly the armed irregular, recruited from the countryside or local militias, provided most of the fighting forces. The Ottoman government found itself as the 'principal shareholder' of power, relying on provincial power bases and their households for fighting men, and negotiating their commitment to a massive effort. The irregulars in this period seem to include both provincial soldiers raised by recruiting sergeants (cavus) for official regiments of the army for the duration of the campaign, and the household troops of provincial governors (kapı halkı). Manpower and zeal seem never to have been a problem: discipline and perseverance
certainly were. Both Janissary and levend were entitled to pay and rations, whether in cash or kind, although the matter of entitlement versus purchase of rations by the irregulars has yet to be determined—both were practised, and appear to have been dictated by circumstance. Pay for the Janissaries in the Ottoman army was calculated on a daily basis, distributed in cash in four instalments, with the last two combined into one. The irregulars were paid by a system of ulufe and bahşi: an advance wage (ulufe), based on the estimated length of the campaign, and bahşi, incentives distributed before battle or after meritorious action. There are literally hundreds of orders for pay and rations on this war awaiting detailed analysis.

Lack of food and pay were the two primary causes of desertion, preferable no doubt to riots and or plunder, also as common to this war as to all others in the pre-modern period. Shortages of food forced the withdrawal of Russian troops from the Hotin confrontation in 1769, and then the abandonment of that same fortress by the Ottomans later in the year. When the entire Ottoman army arrived in Bender in 1769, scarce resources caused both riots and desertions on a large scale. Studies of earlier individual campaigns would indicate that the Ottoman soldier was generally treated quite well, expecting fresh baked bread (nan-i aziz for the Janissaries; nan-i cift for the ordinary soldier, the difference being the quality of the ingredients), biscuit when bread was unavailable; a daily meat ration (lamb and mutton) of approximately 200 grams; honey, coffee, rice, bulghur, and barley for the horses. The Comte de Marsigli noted the following daily ration for the late seventeenth century campaigns: 100 drachma (dirhem) of bread; 50 of biscuit; 60 of beef or mutton; 25 of butter; 50 of rice on Fridays, as well as the same amount of bulghur. By the time of D'Ohsson's account of the Russian campaigns of the late eighteenth century, each cohort (orta? or 120 men) of Janissaries received a daily ration of four okkas of mutton and 20 loaves of bread (of 75 drachmas or a quarter okka each). The officers of each regiment were to see to the supplying of rice, butter and legumes to their men, probably by purchase. During wartime, the daily ration increased to two okkas of meat and half an okka of bread for every five men, plus forage for their animals, a significant increase in the amount of protein, amounting to well over an improbable pound of meat and more than a third of a pound of bread or biscuit per man per day. Finkel's findings on biscuit for the 1593–1606 Habsburg-Ottoman confrontation corroborate the estimates of Marsigli and D'Ohsson. The Ottoman soldier was considerably better fed than his Russian fellow, if such figures are in any way indicative of reality.

In previous centuries, supply routes and foodstuffs had been rigorously controlled, carefully maintained in warehouses, and equitably distributed to the Janissaries and the sultan's household staff in order to guarantee the success of the campaign, with periods of shortages and
famines which are endemic to warfare. The logistics for this campaign, at least for the first year, 1769, seem full of confusion and disorder, as the Ottomans made the attempt to rebuild the military supply system after a hiatus of almost 30 years. The list of supplies is much the same: fresh bread, when available, biscuit, rice, bulghur, butter, coffee, lamb/mutton, flour, and barley for the horses, but biscuit appears to be assuming a larger proportion of the soldier's rations than previously, to judge from the numbers involved although, in light of the paucity of studies of Ottoman logistics, that statement may ultimately have to be modified. It was neither the first nor the last time it would be used, nor were the Ottomans unique in their reliance on biscuit. The Spanish army of the sixteenth and seventeenth centuries, for example, 'lived on bread which contained flour, offal, broken biscuits and lumps of plaster'. Hardtack was a staple of both the eighteenth century English navy, and of the American frontier, up to and including at least the Civil War, where the ration of the Union Army was one pound, or nine to ten biscuits, per man per day. Weevils plagued the American soldier, who dipped his biscuit in coffee so the bugs would float to the top. Extreme hardness and inedibility are the general complaints in the Ottoman texts, further described below.

Evliya Çelebi, Ottoman traveller and polymath of the seventeenth century, counted 105 ovens in Istanbul alone for the baking of the biscuit for the army and navy stores. On Murad IV's 1639–40 Baghdad campaign, 89,972 kantar (more than five million kilograms) of biscuit were collected for the march across Anatolia, which it was then estimated could sustain 80,000 men for the duration of the march. Biscuit available to the Ottoman army of the late seventeenth century was reputedly good, plentiful, and very useful on the march. It had other uses as well, if the story about the soldiers at Plevne in 1878 using hardtack as ammunition when they ran out of bullets is to be believed.

Biscuit was made of wheat flour (dakik) mixed with water, and may have been cut with other grains, such as barley, or millet, when shortages occurred. The problem with such definitions is that to discuss any provision in the Ottoman context is to enter the ill-defined world of zahire (plural: zehayir), the general word for provisions, used ubiquitously in the documents. Nonetheless, a number of clear orders at the beginning of the 1768–74 war, setting out the ratio of 2.5 kile (bushels) of flour for every kantar of biscuit, are convincing as to its composition. Also set out in these documents are the wage (iicret) for the baking per kantar, costs of shipping, and even, occasionally, the cost of the sacks (cuval) for transport. Orders were sent out, often before the harvest, concerning the purchasing and storage of the new season's grain. State commission-ers (mubayacics) were appointed to buy the grain (wheat, flour, barley, sometimes oats and millet) and transport it to the battlefront warehouses, where it became the concern of the various commissary officials, most
often called emin. The larger questions about the buying and selling of grain in the eighteenth century, which are naturally important in a consideration of the impact of a war economy, have been very inadequately treated and must be considered as beyond the purview of this discussion. A combination of purchase at fixed prices, taxation and outright confiscation was the norm. Bender, Isakçı, Hantepesi and Babadağı, the latter south of the Danube, appear to have been the major points of supply in this war, although other towns along the river, such as Rusçuk, also served as depots and distribution centres. The Mubayaacı oversaw, in theory, the purchase of the grain, the baking and shipping of biscuit, but manpower and supplies for the baking process were a local matter, and therefore under the jurisdiction of the local judges (kadıs) and/or, increasingly, local notables (ayans). It has been argued that the ayans were in fact usurping the mubayaacı positions normally reserved for Istanbul appointees, an indication of the increasing power of provincial elites, which was enhanced by the exigencies of supplying this war. There is more confusion than clarity in the documents so far explored concerning the exact duties of the mubayaacıs, but whether state officials or local appointees, they were generally given a certain small sum of cash as an advance, and ordered to secure designated amounts of grain from each kaza (district), based on the tax household accounts, though there is no direct correlation of that transaction in the central records of expenses. Bakers, drafted or appointed by the state, accompanied the army for the baking of bread and biscuit, although the latter was more often baked at long distances from the battlefront and shipped overland or by sea to the Danube. Veinstein includes bakers as part of the orduçu system of guildsmen, commandeered for imperial campaigns, and in fact, often supported by the members of the guild who did not have to report, an unpopular system and far less in evidence in this war than previously. Distribution of foodstuffs from state supplies and warehouses was the duty of various bureaucrats: the Nüzül Emini, generally in charge of grain supplies; the Anbar Emini, the official in charge of the warehouse, and so forth.

Direct evidence of the distribution of biscuit to the army indicates that it was the chief sustenance on board ship during transport of infantry and cavalry troops to the battlefront; on quick forced marches, and a standard part of the supplies for border fortresses, as in the following examples: an order for the supply and distribution of 1063 kantar of biscuit to serdengeçti troops for the passage between the ports of Bartın and Bender; an order for the daily rations for seven regiments of serdengeçti and 1000 dalkılıç on the march to Hotin in late 1769, requesting 50 kantar and 11 okka of biscuit, amounting to roughly one-third of a kantar for each individual; a detailed account of the distribution of biscuit to individual regiments of serdengeçti and other soldiers from Anatolia, as they boarded ships in Sinop bound for the battlefront, at a
ratio of half a kantar per individual in 1769 and 1770, and one-third of a kantar per soldier in 1771;\textsuperscript{42} a requisition for 10 okka each of biscuit for 70 artillerymen and an officer ordered from Istanbul to Varna by ship in 1771.\textsuperscript{43} A ration, in other words, of somewhere in the neighbourhood of 18–28 kilograms (roughly 40–60 pounds) of biscuit was distributed to the soldiers in these examples, presumably to last for their entire journey.

Orders antedating the spring campaign indicate that the expectation of the government was that before the army left Istanbul, the warehouses along the march, at the way stations and at headquarters on the Danube would be fully supplied with the soldiers' needs in the matter of biscuit. The initial request for biscuit in 1769 included 100,000 kantar from Istanbul; 100,000 from Gelibolu, and 200,000 from Isakći, approximately 22,400,000 kilograms.\textsuperscript{44} It can be assumed that those three areas were central distribution points, to judge by other, numerous documents concerning individual towns and regions' orders for producing and supplying biscuit from the same year: Egypt 40,000 kantar (along with 100,000 kile rice);\textsuperscript{45} Edirne 20,000 kantar; Isakći 20,000 kantar; Rusçuk 20,000 kantar;\textsuperscript{46} and from a list of expenses of the privy purse for war supplies, these additional locations: Sinop, Silistre, Thessalonika, Cyprus, Keffe, Bolu, and Özü.\textsuperscript{47} That particular privy purse account totals 5,590,507 kuruş, of which 13–14 per cent was spent on supplies, baking and transport of biscuit.\textsuperscript{48} That this was not a one time affair is evident in repeated calls for the purchase and production of biscuit throughout the war years, as for example, Silistre, where an order went out for 350,000 bushels of flour to be brought to the Silistre wharf, along with a request for 79,783 kuruş for the production of biscuit for the 1770 campaign season in Isakći.\textsuperscript{49} Acquisition of flour proved increasingly difficult as the territories north of the Danube were occupied by the Russians: urgent instructions were sent, for example, to the former Kethiüda Ahmed in February 1770 to see personally to the purchase and transport of 120,000 bushels of flour and 345,500 bushels of barley in districts such as Zagra-Atik and Zagra-Cedid in Bulgaria, from the wharfs of Burgos to those in Isakći, because war and rebellion in Wallachia and Moldavia were making the normal supply routes and methods impossible. He was given 330,333 kuruş in cash for that purpose from the privy purse, on the face of it, an enormous sum of money, rarely doled out to individuals in such a context.\textsuperscript{50}

Is it possible to assess the success or failure of this elaborate system of wartime supply and demand? As it happens, there are numerous eyewitness accounts on the availability and effectiveness of the supply of biscuit. A report from Hantepesi (headquarters and depot on the Hotin/Bender axis) dated late June 1769, when the army had assembled just prior to the first campaign season, is perhaps the most reliable. By its account, the required biscuit and barley had been transported from Isakći, but beyond that the entire area from the Danube to Hotin had
been devastated by the oppression of Kahraman Pasha and his Albanian soldiers, even though they had been sent money from the government (600 bags of akce). As the number of soldiers increased at Hantepesi, shortages occurred, an okka of biscuit selling for 20 para. Then supplies arrived from Isakci and the Crimea, alleviating the situation. In the confusion of this report, it is clear enough that the delivery system, however haphazard, was in place. Sadullah Enveri witnessed the arrival of the army at Bender later in 1769, and had his own comments: the Chief Accountant of Bender (Defterdar) had been instructed to collect rations for 31 days but had failed to do so, neglecting also to see the proper number of ovens prepared, so that when the army arrived in Bender from Hantepesi, rebellion broke out, and 5000–6000 infantry and cavalry-men fled. In spite of that, more than 90 ovens were dug, and during the 27 day stay in Bender, 125,000 bushels of barley, and more than 6900 sacks of flour, and 4000 kantar of biscuit were delivered from surrounding areas.

Ahmed Resmi was particularly incensed by shortages and abuses in the supply system. In Isakci, he noted, the Nüzü l Eminî adulterated the newly baked bread with dirt and left-over biscuit from the storehouses, causing many deaths. For this he blamed the Mubayaacis and bakers, who hoarded the flour for their own profit. Canikli Ali Pasha, one of the commanders ordered to Hotin in the early days of the war, noted that both the Mubayaacis and the captains of the transport ships cut the barley with straw, and the flour with sand and dirt, a fact well known to one and all. The ayans, he asserted, sold rotten and insect-infested wheat to the Mubayaacis. Finally, from another eye-witness in Isakci in 1768, Mustafa Kesbi, the astonishing information that 3000 kantar of biscuit were literally unearthed from the warehouse, 'pure, white and edible' leftovers from the 1738–39 campaign against Russia and Austria.

While it may never be possible to present realistic total figures in the matter of biscuit (or any other foodstuff), clearly a significant amount of money was sunk into its manufacture and distribution, involving all levels of society. How was it financed and who stood to benefit? The following are some preliminary observations. Apart from the 'cash on account' distributed to the Mubayaacis indicated above, which in most of the instances I have surveyed to date represents a very small proportion of the total transactions, there seems to have been a great deal of paper transfers, or application of what was owed the state by way of taxation from the generic avariz, and what was demanded by the state by way of extraordinary war services. Another feature very much in evidence in this war is the system of bedeliyat, the substitution of cash for supplies and/or services, by either the state, in the case of rations, or the local population, unable or unwilling to fulfil the demands of the war economy. Many of the documents refer to another cash source as the office of Mevkufat, or Bureau of Contributions in Kind, which collected the avariz
and bedeliyat taxes and was routinely involved in the supply of war materials, especially on the march.\textsuperscript{58}

The carefully recorded central accounts mask the extent and depth of the impact of the process of acquisition and production of biscuit on local communities, a process generally involving both negotiation and coercion. Other surviving documents, however, reveal the negotiations between the government and the agricultural sector, as in the two that follow: one from Bolu in 1770–71 and the other from Plevne in 1773–74. The Bolu example involved orders for the production of 6000 kantar of biscuit at a cost of 20,250 kurş, of which only 9000 kurş had been advanced by Istanbul. The Bolu Voyvoda, Yusuf Bey, found himself with a rebellion on his hand: though the order for biscuit had been completed, various villages in the Bolu region were refusing to hand over the requested items until they were paid, and Yusuf Bey had had to imprison a number of the offenders. He had repeatedly requested the remaining 11,250 kurş. The government’s response involved the transfer of the money owing from the imdad-i seferiye (campaign taxes) levied on the same region, some 16,500 kurş. Further investigation revealed that 10,500 of the imdad-i seferiye had already been spent on other war needs. The upshot was that the 6000 kurş left in the imdad-i seferiye was applied to the debt, with a note to the effect that the remaining 5250 kurş still owed to the Bolu producers of biscuit would be transferred later from some 'suitable source'. This appears to be a classic case of 'robbing Peter to pay Paul', and one has to wonder how much cash actually ever exchanged hands. Yusuf Bey, the local tax collector, an Istanbul appointee, has become both policeman and middleman.\textsuperscript{59}

The other example, from Plevne in 1773–74, starts with a representation from the entire populace of the district about their absolute inability to supply the 6000 bushels of flour and the biscuit they were to bake from that amount, even though half of it was already finished, because excessive rains had ruined the crops and impoverished the peasantry, and they had received neither penny (akçe) nor kernel (habbe) from the government. Investigation in Istanbul revealed that the original contribution from Plevne was to be 43,350 bushels of barley and 20,000 bushels of flour, of which 6000 was to be baked as biscuit, and delivered to Niğbolu. Five thousand kurş had been advanced to Varnali Ibrahim Agha for this purpose, of the total 29,670.5 kurş bill. The final order is addressed to Ibrahim Agha, and the ayan and zabitan of the area, and reiterates that the original order must be fulfilled, and that Ibrahim Agha had better come up with the 5000 kurş, and deliver whatever was left of the order to Niğbolu, after determining how much had already been delivered. The remainder of the debt was to be applied from the Mevkufat.\textsuperscript{60} Ibrahim Agha is elsewhere described as the ayan of Niğbolu, functioning as both Mubayaaci and Nizžul Emini.\textsuperscript{61} There is no indication of mercy for the impoverished inhabitants of Plevne here, but a clear understanding of
the real message about the possible abuse of state funds. Both examples elucidate the kinds of negotiation required by the Ottoman government to secure the much-needed battlefront supplies.

The officials responsible for the oversight and termination of this type of transaction were increasingly drawn from the group called _ayans_, though it is sometimes unclear as to whether a glorified bandit, a lapsed Janissary, or a local notable is meant. The term _ayan_ was not new to the eighteenth century, having always been a part of the provincial landscape, but the extortionary role played by the _ayans_ in the town and countryside of Anatolia and the Balkans increased dramatically after 1750. In the vacuum created by the much detested officially appointed governors (_valis_) called to the battlefront, local strongmen and their households became the official presence in numerous towns and villages, and the government was forced to rely on them for continuity of coercion and supply.62 This class of officials, thrust up and increasingly vital to the operation of the state in the desperation of the needs of war, can be distinguished from the rebels of previous periods, or even the ubiquitous bandits of much of later Ottoman history because both government and peasantry agreed to their election and mediation. Nagata emphasises the role of Muhsinzade Mehmed (Grand Vizier 1765–68; Grand Vizier and Commander-in-Chief on the battlefield from 1771–74), in recognising and utilising the _ayans_ in order to raise funds and recruits for the war effort,63 initiating a period of negotiation over their right to control and represent provincial populations.64 Grand vizierial control over appointment of the _ayans_ was first instituted by Muhsinzade Mehmed in 1765, in an effort to stop wide-spread extortion and abuse of peasant populations, but such attempts at central control were abandoned in 1769, upon the outbreak of war, when the necessity of supplying foodstuff expeditiously prevented the lengthy correspondence involved in selecting new _ayans_, and the election was left to the notables of each region.65 _Ayans_ thus gained further autonomy and power, and were instrumental in provisioning the army throughout the war, as well as policing, and often fleecing, local populations. While many _ayans_ shirked their responsibility, just as many served the state effectively.66 Postwar attempts to eliminate the _ayans_ were interrupted by the outbreak of the next war with Russia in 1787.67

A number of studies of provincial elites have detected a significant difference in those involved in countryside unrest and control between the first and second halves of the eighteenth century, without relating the change to the increasing scale and scope of Ottoman warfare in that period. Both Masters and Marcus, writing on Aleppo in the eighteenth century, note a signal change in the distribution of coercive power to _ayans_ in the latter part of the century, although they do not link it to the demands of war, but rather to the domination of certain local elites in international trade.68 Uluçay on the bandits of the Aegean region (_eskiya_), especially Saruhan, also comments on the change from bandit to local
lord (*ayan*) beginning in the second half of the eighteenth century. For Schatkowski-Schilcher, local 'paramilitary' groups in Damascus, drawn from the aghas and *kapı kulu*, especially after 1660, dominated the urban grain market until the latter part of the eighteenth century, when centralisation disrupted much of the factional politics, especially under strongman Ahmad Pasha al-Jazzar, both defender of and threat to the central government. A more recent study argues effectively that the 'privatisation' of the tax-farming system (*malikâne*) can explain the increasing power of local provincial classes, yet concludes that the primary beneficiaries continued to be the officials and households of the central state. Consideration of the pressures of war on the economies of all areas of the empire should produce stronger evidence to account for the significant societal disruption already well documented.

This type of study of the provisioning of the Ottoman army elucidates the effective functioning of a massive supply system along with the increasing appearance of the dialogue and collaboration (meaning both submission and resistance) of the Istanbul bureaucracy and lower level administrative officials, in turn contributing to the centralisation often observed as a byproduct of military fiscalism in Europe. The impact of the immediacy of the demands of war on the Ottoman economic and social system is undeniable, as the entire population of the empire was mobilised in the logistics effort, from producer to consumer. The nature of the negotiations as outlined above produced stronger provincial elites, some of very dubious backgrounds, who would make themselves overtly felt in the events leading up to the governmental crisis and the 'Pact of Alliance' of 1808, when a coalition of *ayans* brought their demands to the doorsteps of Istanbul. While the emergence of powerful provincial elites was neither initiated nor terminated by this war, nor were such elites ultimately successful against what has been described as the Ottoman 'legal-administrative system of checks and balances that contained provincial power building', as they became the target of Mahmud II's reforms in the early decades of the nineteenth century, the demands of the military economy accelerated their rise to power and provoked the transition to direct rule and centralisation more evident by mid-century.

Notes
14. A Janissary rollcall, June 1771, Maliyeden Müdevver collection (MM)17383, Prime Minister's Archives, Istanbul, has a figure of 62,611 Janissaries; other estimates include those of Sadullah Enveri Efendi, official Ottoman historian throughout the war, who estimated that 14,400 Janissaries from Istanbul plus 10,000 court cavalry (*Sipahi*) previously sent to join the Tatar Khan in 1769, gathered on the battlefront: *Tarih*, 1780, covering 1768–74, f. 8b, Istanbul University MS T 5994; and Richard Ungermann, *Der Russisch-türkische Krieg 1768–1774* (Vienna 1906), 15, who estimated that 22,000–27,000 Janissaries assembled at the beginning of the war.
16. The pay for the common Russian soldier in the late seventeenth century ran from 7.25 to 11 roubles a year. By the eighteenth century, it was 11 roubles, paid in three to four-month instalments (Keep, *Soldiers of the Tsar*, 84 and 108).
18. Mouradgea D'Ohsson, *Tableau général de l'empire othoman divisé en deux parties* (Paris 1788–1824), 7: 332–3, quotes a pay scale for the Janissaries of 1–100 akçe per day, depending on length of service and deserving exploits. He
also calculated that the levend was engaged at 25 piastre (kurus) and paid an additional 2.5 or 5 kuruş per month, depending on whether he was an infantry or a cavalryman (D'Ohsson, Tableau général, 7: 382).

20. Unger mann, Der Russisch-türkische Krieg, 48; Resmi, Hulâsat, 32.
23. Comte de Marsigli, L'État militaire de l'Empire Ottoman (The Hague 1732), 2: 68. 400 dirhem = 1 okka = 2.8 pounds.
26. Resmi, Layiha, ff. 8a-9b; f. 39b, from 1771, Hacı Mahmud Collection MS 4859, Süleymaniye Library, Istanbul, list of recommended purchases for 1771: flour, barley, meat, oil and rice.
29. Murphey, 'Functioning of the Ottoman Army', 229, on the ovens; a ration of 700 grams a day for the march, per Murphey's calculations: 1 kantar (quintal) = 56.443 kilograms; ibid., 124.
31. As related to me by Hasan Kayalı.
32. Caroline Finkel, 'The Provisioning of the Ottoman Army During the Campaigns of 1593–1606', Habsburgisch-osmanische Beziehungen CIEPO Colloque (Vienna 1983), 111.
33. Cevdet Askeriye Collection (CA)12626, June 1979, Prime Minister's Archives; a series of orders relating to biscuit production in Bolu, June 1770–April 1772, CA 2684; a series of orders relating to biscuit production in Plevne, May 1773 to April 1774, CA 13131. 1 kile = 1 bushel (36.5 kilograms).
34. The cost of baking ranged from 30 akçe (CA 12626) to 48 akçe (CA 13544, July 1769) to 60 akçe (MM 10384, 'Kuyud-l Mülkimmat', December 1769–February 1770, f. 209). Finkel has a figure of 20 akçe for 1597 in Belgrade (Administration of Warfare, 171).
35. CA 13544, where the 48 akçe appears to include the cost of the sacks.
36. The only works yet to deal with the grain trade in any detail are John McGowan, Economic Life in Ottoman Europe: Taxation, Trade and the Struggle for Land, 1600–1800 (Cambridge 1981), and Lütfi Gücer, XVI–XVII. Asırlarda Osmanlı İmparatorluğu'nda Hububat Meselesi ve Hububattan Alınan Vergiler (Istanbul 1964).
38. McGowan's is still the best description of the tax household (avarizhane).
40. CA 13072, April 1771.
41. CA 2677, 8 November 1769. Serdengeçi and dalkılıç were advance infantry or 'shock' troops, always given the most dangerous assignments, and paid accordingly: D'Ohsson, Tableau général, 7: 383.
42. Bab-ı Defteri Baş Muhasebe Collection (D.BŞM) 4010, 1769, Prime Minister's Archives; D.BŞM Peksimet Emini Collection (D.BŞM.PKE) 12325, 1770 and D.BŞM.PKE 12336, 1771, respectively.
43. CA 1834, April 1771.
44. Mustafa Kesbi, İbretniima, undated, f. 38a, Ali Amiri Collection MS 484, Süleymaniye Library.
45. CA 2784, December 1769, addressed to the Governor of Egypt and other officials.
46. CA 12626, which breaks down by district the amount of flour contributed from Edirne; CA 13544, for Isakci; CA 8710, January 1770, for Rusçuk.
47. D.BŞM 3913, 1768-9, ff. 2-3, amounts in kuruş only.
48. Ibid. Another total of 1,325,306.5 kuruş occurs in a series of central accounts labeled 'monies for the purchase of various supplies for biscuit for the imperial campaign, July 1769', MM 11786, 'Masarifat Defteri', ff. 8-9 and MM 5970, 'Masarifat Defteri', ff. 28, 34-5, where the totals are identical and then continue in MM 11786—coverage reaches into 1770—both are central expense accounts.
50. Kemal Kepici Collection (KK) 2929, 'Ahkam Defteri', ff. 5-6, Prime Minister's Archives. This refers to Ahmed Resmi Efendi, who, better known as a historian and diplomat, was also second-in-command on the Danube battlefront (kethüda ) to the Grand Viziers, once in 1769 and again in 1771–74.
54. He is mentioned in Topkapi Sarayi E866/9 as ordered to Hotin; his comments on biscuit are in his Nasayih al-Muluk, Esad Efendi Collection MS 1855, f. 26, Süleymaniye Library.
56. Kesbi, f. 38. He was appointed as part of the team sent to repair and enlarge the fortress at Isakći.
57. Part of the accounts of income and expenditure called teslimat (Finkel, 'Provisioning', 111).

59. CA 2684, with the pleas from the Voyvoda in 1771.

60. CA 13131.


62. Ibid, 77–8. His research concluded that the Rumeli ayans may have contributed as many as 30,000 men to the battlefront, in addition to their role as commissioners and local police.


66. Ibid., 74–78.


70. Linda Schatkowski-Schilcher, Families in Politics: Factions and Estates of the 18th and 19th Centuries (Stuttgart 1985), 111.


72. Tilly, Coercion, Capital and European States, 103–4.

73. Salzmann, 'Ancien Régime Revisited', 408, 397.