

This is an extract from:

*The Economic History of Byzantium:  
From the Seventh through the Fifteenth Century*

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Published by

*Dumbarton Oaks Research Library and Collection  
Washington, D. C.*

in three volumes as number 39 in the series

Dumbarton Oaks Studies

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Trustees for Harvard University

Washington, D.C.

Printed in the United States of America

[www.doaks.org/etexts.html](http://www.doaks.org/etexts.html)

# The Human Resources

Angeliki E. Laiou

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In the Byzantine Empire, as in all preindustrial societies, perhaps the single most important economic resource was manpower. Land without labor was useless, as contemporaries fully realized.<sup>1</sup> A recognition of this fact may underlie the willingness of some people, most notably Plethon, to consider land a common resource, not to be bought or sold, and becoming valuable only through the labor invested in it.<sup>2</sup> In the chapters that follow, it will be seen that, given the slow advances of technology, demography is of primary importance in the development of the countryside, production being a function of the increase or decrease in population.<sup>3</sup>

Given this overriding importance of the human factor, it is particularly unfortunate that it is not possible to estimate with any degree of accuracy the population of the empire at any point in its history, at least after the sixth century. Efforts have, of course, been made, but the figures that have been proposed vary widely.<sup>4</sup> In 1949, E. Stein gave the figures 30 million in the reign of Justinian, 20 million in the first half of the eleventh century, 10–12 million under the Komnenoi, and 5 million during the reign of Michael VIII, without discussing the basis for these figures.<sup>5</sup> The figures most frequently cited are those of J. C. Russell, who proposes, for the eastern Roman and Byzantine Empire, a population of ca. 24 million in 350, 21 million in 600, 10 million in 800, 13 million in the year 1000, and 7 million in the year 1200.<sup>6</sup> They are, unfortunately, based on untestable assumptions, such as the proportion of the population of

<sup>1</sup> See the statement of Constantine Limpidaris to Charles of Valois in 1308: A. E. Laiou, *Constantinople and the Latins: The Foreign Policy of Andronicus II, 1282–1328* (Cambridge, Mass., 1972), 343.

<sup>2</sup> See A. E. Laiou, "Economic Thought and Ideology," *EHB* 1119.

<sup>3</sup> Cf. J. Lefort, "The Rural Economy, Seventh–Twelfth Centuries," *EHB* 261ff, and A. E. Laiou, "The Agrarian Economy, Thirteenth–Fifteenth Centuries," *EHB* 306ff.

<sup>4</sup> For a discussion of older efforts, and a critique of the results, see P. Charanis, "Observations on the Demography of the Byzantine Empire," in *Studies on the Demography of the Byzantine Empire* (London, 1972), art. 1.

<sup>5</sup> E. Stein, "Introduction à l'histoire et aux institutions byzantines," *Traditio* 7 (1949), 154.

<sup>6</sup> J. C. Russell, *Late Ancient and Medieval Population* (Philadelphia, 1958), 148, 99. For Asia Minor he gives the following figures: 350, 11.6 million; 600, 7 million; 800, 8 million; 1000, 8 million; 1200, 7 million. For Greece and the Balkans: 350, 2 million plus 3 million; 600, 1.2 million plus 1.8 million; 800, 2 million plus 3 million; 1000, 5 million; 1200, 4 million. It must be remembered, however, that these figures apply to geographic areas, regardless of whether they were under Byzantine control. I

the principal city of a region to the total population of the region (1.5%), the size of particular cities, which is uncertain in itself, and a household coefficient of 3.5. His estimate of city populations tends to be low, and the household coefficient cannot be assumed for the entire period; a mean population coefficient of approximately 5 is attested in early fourteenth-century Macedonia, before demographic decline had set in.<sup>7</sup> W. Treadgold has quite sensibly used the Turkish agricultural census of 1950 for Asia Minor and concluded that the 2,527,800 rural households it comprised is comparable to the ninth-century population, estimating about 10 million for the 840s.<sup>8</sup> In a more recent work, the same author, using and adapting the figures given by C. McEvedy and R. Jones,<sup>9</sup> has produced the following population estimates: 540s: 19 million for the eastern provinces, 26 million for the entire empire; reign of Phokas: 17 million; 780s: 7 million; 1025, 12 million; 1143, ca. 10 million; 1204, ca. 9 million; 1281, ca. 5 million.<sup>10</sup> He provides no justification for most of the figures.

None of these estimates are more than educated guesses, and there are virtually insuperable difficulties in reaching any solid estimate. Indeed, most modern historians, including A. Harvey, J. Lefort, M. Hendy, and M. Kaplan, have prudently refrained from proposing any global population estimates. This is certainly the wisest course of action. I will, nevertheless, attempt here another estimate. Before undertaking this effort, some further comments are necessary on Russell's figures, which are widely quoted because they were the only recent and reasoned estimates we possessed. First of all, they seem too low for certain periods, and, second, the evolution they suggest does not conform with the population trends that most historians accept these days. As to the first point, even if the number of households he proposes were to be correct, his global household coefficient goes against the only halfway solid evidence we have. Furthermore, as has already been stated, the basis for the estimate of population is very insecure.

The second point regarding Russell's figures has to do with demographic evolution. It is, today, widely believed that the population began an upward trend after the end of the period of plagues, conventionally set at 747 for the Byzantine Empire, the date of the last serious outbreak of the plague (although others are also attested) before the mid-fourteenth century. The increase suggested by Russell between the years 800 and 1000 seems to reflect the increase of territory rather than that of a secular population rise. Yet such a rise is posited by most modern historians. Its beginning would be at some point in the ninth century, while the curve itself is, to some extent, the subject of

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have adjusted them in my text to take account of the fact that, for example, most of the Balkans were not in Byzantine hands in 800, and part of Asia Minor was Turkish in 1200.

<sup>7</sup> For the critique, see Charanis, "Demography," 3, 5, and n. 2. For Macedonia, see A. E. Laiou-Thomadakis, *Peasant Society in the Late Byzantine Empire: A Social and Demographic Study* (Princeton, N.J., 1977), table vi-1.

<sup>8</sup> W. T. Treadgold, *The Byzantine State Finances in the Eighth and Ninth Centuries* (New York, 1982), 54–55.

<sup>9</sup> C. McEvedy and R. Jones, *Atlas of World Population History* (Harmondsworth, 1978).

<sup>10</sup> W. T. Treadgold, *A History of the Byzantine State and Society* (Stanford, Calif., 1997), passim.

discussion. For some scholars, there is a constant demographic increase either until the time of the outbreak of the Black Death in the 1340s or until the very early fourteenth century.<sup>11</sup> Others postulate a demographic growth from some time in the ninth century, becoming generalized in the twelfth century and continuing into the thirteenth.<sup>12</sup> Nicholas Svoronos' idea that there was demographic stagnation beginning in the late eleventh century has not found many followers.<sup>13</sup> Thus, independently of the geographic expansion or contraction of the empire, most scholars agree that there is an upward demographic trend from the ninth century certainly through the twelfth, and most probably through the thirteenth, down to the beginning or the middle of the fourteenth century.<sup>14</sup> After that, there is virtually unrelieved population decline until the end of the empire or a few decades before. The absolute numbers of the population of the empire, of course, were very much affected by its geographic frontiers. It is also undoubted that specific areas would be affected by political/military problems, since prolonged warfare had adverse effects on both the productive capacity of the areas so afflicted and the stability of the population.

To a considerable extent the demographic development of the empire was influenced by the long-term and short-term effects of the plague epidemic or pandemic that began in 541/542. These have sometimes been disputed, since it has been argued that its impact has been exaggerated.<sup>15</sup> The burden of the evidence, however, suggests that the plague of 541–542 was, indeed, catastrophic. It seems to have struck not only the cities, with Constantinople losing at least 40% of its inhabitants, but also the countryside.<sup>16</sup> It is arguable that its effects were diversified, with the interior of Asia Minor and the Balkans less afflicted than the coasts; the interior of Syria, on the other hand, seems to have suffered considerably.<sup>17</sup> In any case, the plague attacked the populations of both city and countryside, and since it traveled along the routes of trade and communications, along the coasts and the *cursus publicus*, its effects may well have been greatest

<sup>11</sup> On this, cf. J. Lefort, "Population et peuplement en Macédoine orientale, IXe–XVe siècle," in *Hommes et richesses dans l'Empire byzantin*, 2 vols. (Paris, 1989–91), 2:69–71; Lefort, "Rural Economy," and Laiou, "Agrarian Economy."

<sup>12</sup> A. Harvey, *Economic Expansion in the Byzantine Empire, 900–1200* (Cambridge, 1989), 47ff.

<sup>13</sup> N. Svoronos, "Remarques sur les structures économiques de l'Empire byzantin au XIe siècle," *TM* 6 (1976): 62–63.

<sup>14</sup> J. Lefort, "Tableau de la Bithynie au XIIIe siècle," in *The Ottoman Emirate*, ed. E. Zachariadou (Rethymnon, 1993), 103.

<sup>15</sup> J. Durliat, "La peste du VIe siècle: Pour un nouvel examen des sources byzantines," in *Hommes et richesses* (as above, note 11), 1:106–19. For further bibliography, see Lefort, "Rural Economy," 262 n. 259.

<sup>16</sup> J.-N. Biraben, "La peste du VIe siècle dans l'Empire byzantin," in *Hommes et richesses* (as above, note 11), 1:121–25; E. Patlagean, *Pauvreté économique et pauvreté sociale à Byzance, 4e–7e siècles* (Paris, 1977), 85ff; M. Kaplan, *Les hommes et la terre à Byzance du VIe au XIe siècle: Propriété et exploitation du sol* (Paris, 1992), 458ff. Cf. in *EHB*: B. Geyer, "Physical Factors in the Evolution of the Landscape and Land Use," C. Morrisson and J.-P. Sodini, "The Sixth-Century Economy," Lefort, "Rural Economy," and G. Dagron, "The Urban Economy, Seventh–Twelfth Centuries."

<sup>17</sup> L. I. Conrad, "Epidemic Disease in Central Syria in the Late Sixth Century: Some New Insights from the Verse of Hassan Ibn Thabit," *BMGS* 18 (1994): 12–58; idem, "Die Pest und ihr soziales Umfeld im Nahen Osten des frühen Mittelalters," *Der Islam* 73 (1996): 81–112.

among the most economically productive segments of the population. Such was the loss of manpower that, apparently, both artisans and men who worked the land demanded wages two or three times higher than in pre-plague times.<sup>18</sup> The periodic recurrence of the plague until 747, although each instance was less powerful than the first outbreak, kept the population in check. The indices of the beginnings of a population expansion start shortly after the end of the period of plague outbreaks, in the ninth century.<sup>19</sup> This is also, of course, the period when the political fortunes of the empire improved considerably, which meant both the slow reestablishment of peace and increase in territory. The second large outbreak of the plague, in the late 1340s with recurrences over a hundred years, exacerbated a demographic and economic crisis already in existence.<sup>20</sup>

The proportion of the rural to the urban population is also not possible to establish with any numerical accuracy given the state of our knowledge, since we would be dealing with two unknowns: the size of cities and towns, and the size of the rural population. What may be stated with certainty is that the proportion of the urban population was much lower in the seventh, eighth, and ninth centuries than in the subsequent period; the urban population may have reached its height in the twelfth century, but was certainly also high in the Palaiologan period.

I should like to hazard another estimate of the overall population of the Byzantine Empire, based on population density, itself a matter of educated guess. I have suggested elsewhere that the density of the rural population in early fourteenth-century Macedonia was 34 people per km<sup>2</sup>, as against 57.4 people in the Greek census of 1961.<sup>21</sup> For the population of the Peloponnese, V. Panayiotopoulos, on the basis of the 50,941 families of the Turkish census of 1530–1540, estimates around 200,000 people for Ottoman Peloponnese (with a household coefficient of 4, since he argues that the household structure was different in the Peloponnese and in Macedonia), that is, a density of 9 people per km<sup>2</sup>.<sup>22</sup> Of course, the situation in the middle of the sixteenth century is not comparable to that of the Byzantine period, given the demographic upheavals attendant upon the Ottoman conquest and the population policies of the Ottoman state. The Greek census of 1940 shows in the Peloponnese a population density of 55.6 people per km<sup>2</sup> (for a population of 1,169,559), while that of 1829, after years of destructive war, shows a population density of 16 people per km<sup>2</sup>, with a total of 336,366.<sup>23</sup>

Let us take as a base the reign of Basil II in the year 1025, the time when the medieval

<sup>18</sup> Kaplan, *Les hommes et la terre*, 461, with reference to Novel 122 of Justinian I (544).

<sup>19</sup> Lefort, "Rural Economy," 261ff.

<sup>20</sup> Laiou, "Agrarian Economy," 309–11.

<sup>21</sup> Laiou-Thomadakis, *Peasant Society*, 42–43. The statistics for 1961 are from the Στατιστική Έπετηρίς της Ελλάδος (Athens, 1970). I also warned against extrapolations about the total size of the rural population. As an indication of how soft our estimates are, one might look at N. K. Kondov, "Za broja na naselenieto v B'lgarija k'm kraja na XIV v.," *Istoricheski Pregled* (1968), 66–69, who gives the density of the Macedonian population in the 14th century as 15 people per km<sup>2</sup>.

<sup>22</sup> V. Panayiotopoulos, Πληθυσμός και οικισμοί της Πελοποννήσου, 1305–1805 αιώνας (Athens, 1985), passim, and esp. pp. 118ff, 170.

<sup>23</sup> *Ibid.*, table 20, p. 173.

empire reached its geographic, although not its demographic, height. Let us, further, use half my estimate of the rural population of Macedonia, that is, 17 people per km<sup>2</sup>,<sup>24</sup> and apply it to Thrace, Macedonia, Bulgaria, and Asia Minor.<sup>25</sup> Let us apply the low density of 9 people per km<sup>2</sup> that we found in the Peloponnese in 1530–40 to the rest of the empire.<sup>26</sup> The population would doubtless be more dense in agricultural areas.<sup>27</sup> This gives us a population estimate of ca. 18 million, to which must be added about 200,000 for Constantinople and an unknown figure for other cities, for a total not far from 19 million people. This is higher than most other estimates, except that of Stein, but does not seem unlikely. In the late eleventh and twelfth centuries there was considerable loss of territory in Asia Minor, but the fertile and populous coastal territories and their hinterlands remained in Byzantine hands. Furthermore, there was continuing population increase and urbanization, with an increase in both the number and size of cities. Constantinople reached a population of 300,000 to 400,000 in the late twelfth century; Thessalonike may have reached 150,000, a number of other cities ranged from 10,000 to 30,000, and others upward of 30,000. Corinth has been estimated as having a population of 15,000–20,000, and Monemvasia one of 20,000.<sup>28</sup> Thus it is not unlikely that in the late twelfth century, that is, in the 1170s, and thus before the secessions of the last part of the century, the population was similar to that of 1025.

Along with the difficulty of establishing a total population for the empire, we lack other secure demographic information, such as the age structure of the population. Indications exist for periods that are very far apart from each other: the mid-fifth to the seventh century, on the one hand,<sup>29</sup> and the fourteenth century on the other.<sup>30</sup> Information for the most important period, the eighth through the thirteenth century, is lacking. Furthermore, the data from the two periods for which there is documentation are not comparable, nor have they been analyzed in comparable ways. The most that can be said is that, generally speaking, the population was a young one, that is, life expectancy at birth was low. The data from the earlier period show that 42% of the men

<sup>24</sup> I have used this figure primarily because we are some way away from the demographic high point, and therefore should allow for the differential due to the point in the demographic curve. I am also taking into account the fact that some areas were less densely populated than others.

<sup>25</sup> That is, roughly speaking, the surface of modern Turkey and Bulgaria, and Greek Thrace and Macedonia, or a total of ca. 909,000 km<sup>2</sup>. For comparison, see B. Geyer, Y. Koć, and J. Lefort, "Le peuplement et l'occupation du sol au début de l'époque moderne" in press, who estimate that Bithynia had, in 1573/74, a population of 20 people per km<sup>2</sup>, or 15 if one excludes Bursa. The estimate is predicated upon a household coefficient of four, which the authors consider a minimum. I am grateful to J. Lefort for allowing me to see a copy of this study in manuscript.

<sup>26</sup> This is a surface of ca. 339 km<sup>2</sup>, not including southern Italy.

<sup>27</sup> Cf. J. Lefort, "Population et démographie," in press. I am grateful to the author for allowing me to see this study in manuscript.

<sup>28</sup> For Constantinople, see in *EHB*: P. Magdalino, "Medieval Constantinople: Built Environment and Urban Development"; for Corinth, G. D. R. Sanders, "Corinth"; for Monemvasia, H. Kalligas, "Monemvasia, Seventh–Fifteenth Centuries." For Thessalonike and other cities, see Treadgold, *History*, 702.

<sup>29</sup> Durliat, "La peste," 109; Patlagean, *Pauvreté*, 95ff.

<sup>30</sup> Laiou-Thomadakis, *Peasant Society*, chap. 7.

and 49% of the women were between fifteen and thirty-four years old at the time of death, but this analysis does not count children before the age of fifteen, when mortality is heaviest. For the early fourteenth century, I have supposed a life expectancy *at birth* of 22.5 years for females and 22.295 years for males. For those who survived their first year, life expectancy rises to 33 years, and after five years the life expectancy becomes 47.5 years. This estimate may, in fact, be too pessimistic. It bears repeating that it is not possible to compare the data from the early and the late period, and thus any effort to trace differences in the life expectancy must fail. The point remains clear that in both periods the life expectancy *at birth* was low, although the life span did not differ significantly from that of the mid-twentieth century. In the later period, life expectancy increases significantly for those who survive the first few hazardous years.

It has been said that Byzantine men of letters in the late eleventh and twelfth centuries died at the high average age of seventy-one, which compares favorably with the figures for similar groups in the fourth century, the sixth century, and in western Europe of the late eleventh and twelfth centuries.<sup>31</sup> However, no general conclusions may be drawn from this observation, for two reasons. First, what these figures show is not “an unexpectedly long life expectancy,” for they do not represent life expectancy at birth, but rather the average life span of a preselected group, membership in which necessarily presupposes survival past the most dangerous years. Second, the sample is much too small to have any statistical significance. Conclusions drawn from saints’ lives are equally unenlightening, for it was easier to become a saint at an older rather than a younger age. Individuals certainly could and did reach the age of sixty-five, seventy, or even older, but the majority of the population did not.

It is also possible that life expectancy was higher during the periods of economic expansion, that is, in the tenth through the twelfth centuries; but no trustworthy information exists.

Two important factors that affected life expectancy and the size of population were diet and disease. We are better informed for the former than for the latter. The diet of the Byzantines comprised the elements usual in a medieval diet in the Mediterranean regions: grains, pulses, olive oil, wine, dairy products, fish and meat, fresh vegetables, and fruit.<sup>32</sup> Honey provided the sweetener; fowl provided both meat and eggs. Butter substituted for olive oil in areas where the olive tree could not be cultivated, that is, in areas where the climate is cold, which in practice means the inland regions.<sup>33</sup> The staple diet may, perhaps, be surmised from the products mentioned in *adelphata*, the annuities purchased from monasteries by some people in the late Byzantine period,

<sup>31</sup> A. Kazhdan, “Two Notes on Byzantine Demography of the Eleventh and Twelfth Centuries,” *ByzF* 8 (1982): 117. The number of people involved is 15, 27, 13, and more than 100, respectively. Only the large figure can be significant (average age at death = 63 years).

<sup>32</sup> For details of the diet of the inhabitants of Constantinople, see Dagron, “Urban Economy,” 437ff; for the various kinds of grain and pulses cultivated, see *ibid.*; Lefort, “Rural Economy,” 244ff, and Laiou, “Agrarian Economy,” 313ff.

<sup>33</sup> Cf. Laiou-Thomadakis, *Peasant Society*, 26–28.

and which were paid in kind. The recurring foodstuffs are grain, wine, olive oil or butter, legumes, and cheese, to which might be added walnuts, olives, and salt.<sup>34</sup> This accords well with the rations given to the patients of the hospital of the monastery of Pantokrator in the twelfth century.<sup>35</sup> For obvious reasons, none of these sources mentions meat. Meat consumption, however, seems to have been not inconsiderable. It has been argued that there is a very steep decline in the quantity of bread consumed in twelfth-century Byzantium (1.5 pounds per person per day) compared to that of the late Roman period (3–6 pounds) and that the difference was made up by a considerable increase in meat consumption. Both written sources and archaeological sources from Bulgaria point up the importance of cattle breeding, flocks of sheep and goats, and herds of pigs. The evidence from Constantinople confirms that meat was an important part of the diet.<sup>36</sup> Undoubtedly, cattle provided a much smaller portion of the meat consumption than did sheep and goats or, indeed, pigs, although a late seventh-century text which says that Jews do not eat pork because the pig gives only meat, while other animals also produce dairy products and wool may suggest that the pig was not prized as much as other animals.<sup>37</sup> Meat has been described as a famine reserve,<sup>38</sup> since cattle consume grain and “store” it, to be consumed in times of grain shortage. In Byzantium, it seems that the consumption of meat was more considerable than would be the case if it functioned mostly as famine reserves. Meat consumption would undoubtedly have varied with the general economic conditions: the strongest argument for high meat consumption outside Constantinople has been made for the eleventh to twelfth centuries.

In terms of the foodstuffs consumed, the Byzantine diet was probably well balanced. Pulses provided vegetable protein; wine provided calories. There was a considerable variety of fruits and vegetables, as one can see from sources from most periods: apples, nuts, figs, pears, melons, pomegranates, raisins, olives, spinach, endives, carrots, cabbages, leeks, carrots, beetroot, radishes, turnips, onions, garlic, cucumbers, lettuce, pumpkins.<sup>39</sup> Honey was an important supplement, and a twelfth-century source states that apiculture was more developed than in northern France.<sup>40</sup> If potentially the Byzantine diet was quite adequate, the question arises whether the quantities were such as to keep the population in good health. The answer must be a qualified yes. It is

<sup>34</sup> See, for example, A. Guillou, *Les archives de Saint-Jean-Prodrôme sur le mont Ménécée* (Paris, 1955), no. 34 (1339); *Actes d'Esphigménou*, ed. J. Lefort (Paris, 1973), no. 29 (1388).

<sup>35</sup> Dagron, “Urban Economy,” 440–41 and n. 324.

<sup>36</sup> Kazhdan, “Two Notes,” 115–22; for Constantinople, see Dagron, “Urban Economy,” 438–39.

<sup>37</sup> Anastasius Sinaita, PG 89:1273; for the date (ca. 690), see B. Flusin, “Démon et sarrasins: L’auteur et le propos des Diègèmata stèriktika d’Anastase le Sinaïte,” *TM* 11 (1991): 390–93, 409.

<sup>38</sup> M. Jameson, “Famine in the Greek World,” in *Trade and Famine in Classical Antiquity*, ed. P. Garnsey and C. R. Whittaker (Cambridge, 1983), 9–10.

<sup>39</sup> J. Koder, “Fresh Vegetables for the Capital,” in *Constantinople and Its Hinterland*, ed. C. Mango and G. Dagron (Aldershot, 1995), 49–56; *Actes d'Iviron*, ed. J. Lefort, N. Oikonomidès, and D. Papa-chryssanthou, 4 vols. (Paris, 1970–82), 4: no. 97 (1421); P. Schreiner, “Die Produkte der byzantinischen Landwirtschaft nach den Quellen des 13.–15. Jh.,” *BHR* 10 (1982): 88–95.

<sup>40</sup> Kazhdan, “Two Notes,” 121.

argued below that the average peasant household produced enough to be more than self-sufficient, and that the wages of urban laborers, assuming that they were employed throughout the year, which was not necessarily the case, were sufficient to maintain life.<sup>41</sup> In the periods of economic expansion, and at normal times, it may be that the diet of the Byzantines was, indeed, better than that of western Europeans.<sup>42</sup> It must always be borne in mind, however, that diet changed according to the general economic circumstances, and that therefore production and the alimentary well-being of the population were dialectically related.

It must also be kept in mind that even during periods of economic expansion, there were places and times when the population was afflicted by hunger. In the areas that belonged to the Byzantine Empire, there is very considerable annual variation in wheat yields, and it has been suggested that in many parts of modern Greece two out of seventeen years give very poor wheat crops.<sup>43</sup> Successive crop failures could tax this fragile system rather heavily. Wars and sieges could easily create near-famine situations, not only in the period of endemic invasions or warfare but even, sporadically, in times of relative security. Given the coincidence of the agrarian calendar and the calendar of warfare, and the ancient practice of burning the crops and destroying the productive resources of the enemy, this is no wonder.<sup>44</sup> A curious text of the late eleventh to twelfth centuries, which its editor has called a tragi-legal poem, relates the tragic story of a woman from the Kibyrrhaiotai theme, who had not only eaten unclean meats, including snakes, but had also killed and eaten her own child. Whatever the truth of the story, the poignant answer of the heroine to the judge who asked her if she had accomplices encapsulates the factors that could bring about terrible famine: her accomplices, she said, were “Heavy Winter and exceedingly severe Famine,” at a time when her province was under the “barbarian knife,” that is, during the Seljuk invasions.<sup>45</sup> On the other hand, it has to be noted that events with globally catastrophic effects, such as the severe winter and famine of 928, were rare in Byzantium, especially in the tenth century and through the twelfth. Although severe shortages are attested in the first half of the eleventh century, no significant famines are mentioned in the twelfth century, a tribute to the system of production and distribution.<sup>46</sup> After the recovery of Constantinople by the Byzantines in 1261, shortages of food, sometimes very

<sup>41</sup> Lefort, “Rural Economy,” 293ff; C. Morrisson and J.-C. Cheynet, “Prices and Wages in the Byzantine World,” *EHB* 856–57.

<sup>42</sup> Kazhdan, “Two Notes,” 121; for the diet of western Europeans in the early medieval period, see K. L. Pearson, “Nutrition and the Early-Medieval Diet,” *Speculum* 72 (1997): 1–32.

<sup>43</sup> K. Hopkins, “Models, Ships and Staples,” in Garnsey and Whittaker, *Trade and Famine* (as above, note 38), 91; D. Rathbone, “The Grain Trade and Grain Shortages in the Hellenistic East,” in *ibid.*, 46.

<sup>44</sup> A. E. Laiou, “War, Peace and Economic Development in the Medieval Balkans,” in *South East Europe in History: The Past, the Present, and the Problems of Balkanology* (Ankara, 1999), 67–77.

<sup>45</sup> R. Macrides, “Poetic Justice in the Patriarchate: Murder and Cannibalism in the Provinces,” *Cupido Legum* (Frankfurt, 1985), 144–45: Ἐσχον συνεργοὺς ἀφορήτους τῆ βία· ἔσχον συνεργοὺς οὓς λέγεις βροτοφθόρους . . . / χρεμῶν ἐπαχθῆς καὶ λιμὸς βαρὺς σφόδρα.

<sup>46</sup> Lefort, “Rural Economy,” 263.

severe indeed, reappear frequently; they are mostly connected to wars, invasions, and sieges.

About illness, and the health of the population, we are very poorly informed, less because of an absence of sources and more because the topic has not yet been the subject of sufficient research. Evelyne Patlagean has given a typology of illnesses that affected the population of the early period (4th–7th centuries), on the basis of healing miracles attested in saints' lives. She is, of course, aware of the problems inherent in such sources; for example, illnesses like malaria, and possibly tuberculosis, appear only rarely, since people perhaps did not consider them as specific illnesses, while other problems, such as paralysis or demonic possession, having a good scriptural pedigree, appear with alarming frequency.<sup>47</sup> Blindness, deafness and mutism, dropsy, intestinal problems, ulcers, muscular problems including paralysis, possibly leprosy, and mental disorders are all mentioned in these sources. Some of the illnesses that do appear she thinks may have been due to malnutrition: blindness to an absence of vitamin A, muscular troubles to insufficient vitamins A and B. The miracles of saints in the ninth to tenth centuries, studied by Alice-Mary Talbot on the basis of the saints' lives included in the hagiographic database at Dumbarton Oaks, and the miracles of the saints of the fourteenth century, mention similar illnesses. Urinary problems, hemorrhage, menstrual problems and problems with lactation in the case of women, paralysis, mental problems (possession), blindness, dropsy, fever, abscesses, cancerous lesions, variants of leprosy, dumbness and deafness, hernia, epilepsy, and problems with the joints are all mentioned.<sup>48</sup> Given the nature of the sources, an analysis of the frequency of the incidence of such diseases in the texts has no hope of corresponding to their incidence in reality; it is not possible, for instance, that demonic possession was thirty or forty times more common than sterility or complications from childbirth. Nor is the omission of illnesses such as rickets to be taken as an indication that the disease did not afflict the population. In brief, any serious discussion of the health of the population, especially in its relationship to nutrition and to the productive capacity of the population, must await a systematic study of illnesses, in which the examination of written sources, especially epistolography, must go hand in hand with the discoveries of archaeology.

<sup>47</sup> Patlagean, *Pauvreté*, 101ff.

<sup>48</sup> A.-M. Talbot, *Faith Healing in Late Byzantium: The Posthumous Miracles of the Patriarch Athanasios I of Constantinople by Theoktistos the Stoudite* (Brookline, Mass., 1983), 16–18. I thank A.-M. Talbot for having shown me her unpublished list of diseases from the saints' lives of the ninth-tenth centuries.