

## State, Land Tax and Agriculture in Iraq from the Arab Conquest to the Crisis of the Abbasid Caliphate (Seventh-Tenth Centuries)

### Introduction

As several historians of the Middle East have noted, a significant decline in tax revenue occurred in Iraq from the time of the Arabic conquest to the rise of the Buwayhids (945)<sup>1</sup>. The decline in tax revenue is a crucial element in the study of the social, political and economic history of the Medieval Middle East, because State income relied heavily on land tax. A decline in tax revenue from Iraq would have deeply affected the stability of the Islamic Caliphate, since the Caliphate relied heavily on tax income from the Mesopotamian plain<sup>2</sup>. A decline in tax revenue could be seen as a consequence of inefficient tax collection, of weaker control on

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1. I would like to thank Professor Michael G. Morony and Professor Michael L. Bates for their suggestions. R. McC. Adams, *Land behind Baghdad. A History of settlement on the Diyala plain* (Chicago and London, 1965), 71-102; E. Ashtor, *A Social and Economic History of the Near East in the Middle Ages* (London 1976), 36-60; D. Waines, "The Third Century of Internal Crisis of the Abbasids", *Journal of the Economic and Social History of the Orient* 20, 1977, 282-306.

2. Waines, "The Third Century"; P. Christensen, *The Decline of Iranshahr. Irrigation and Environments in the History of the Middle East, 500 B.C. to A.D. 1500* (Copenhagen, 1993), 86-9; H. Kennedy, "The Decline and Fall of the First Muslim Empire", *Der Islam* 81, 2004, 3-29; in particular 11-5.

tax collectors or of changes in tax assessments, but it could also indicate a decline in agricultural production.

The scholars who have investigated this topic, including Robert McC. Adams, Eliyahu Ashtor and David Waines, however, have offered only partial explanations for the reasons behind the decline in tax revenue. Adams analysed an impressive data set generated by excavations in the Diyālā region of Iraq, which clearly show the decline in the number of tilled surfaces in Iraq (particularly in the second half of the 9<sup>th</sup> century). He tried to link the decline in the size of the tilled surface with an inefficient water-supply administration, but it is hard to find any analysis of the conditions of land tenure and tax administration in his work. He also did not have the benefit of a set of data on the prices of agricultural products, which were clearly connected to agricultural output. Ashtor realised that the decline in agricultural output was linked to the problems of land tenure and administration in the Arab Caliphates, and how this determined the social and political conditions that led to an ecological disaster which changed the face of the Near East in the Middle Ages. However, an extensive analysis of the elements of land tenure and tax administration that determined this evolution in Iraq cannot be found in his work. Waines linked the shrinkage of tilled surface area with the fall in tax revenue, and tried to relate them to the political crisis of the Abbasid Caliphate in the 3<sup>rd</sup> century AH. However, like Adams, Waines does not provide an analysis of the land tenure and its connections to tax collection and land administration. Furthermore, no link is established between the decline in tax revenue and the levels of food prices and wages, assuming that a decline of tax revenue automatically means a decline in agricultural production.

In this paper I will show that decline in tax revenue was mainly due to the fall in soil output. I will demonstrate that the fall in soil output, political administration, land tenure and the methods of tax assessment were deeply interrelated. I will endeavour to explain how land tenure, tax administration and political and social struc-

ture contributed to the decline in agricultural output, especially in food crops, and why the decline in tax revenue was an important indicator of this economic crisis. In particular, I will focus on the incentives and disincentives related to tax collection and administration and, in general, the role of the State in agricultural activity. Taxation was just another form of surplus extraction and reflected the relative power of different social and political groups. Different social categories were able to take advantage of this form of surplus extraction and influence reforms in tax assessment. It is also extremely important to understand the role of State investment in agricultural activity. The creation and maintenance of a good irrigation system, for example, was very important for Iraqi soil and was mainly implemented by the State<sup>3</sup>. The *State* (an anachronistic term, employed hereafter for simplicity's sake) also had considerable influence on the structure of land tenure. In this paper I will focus on these multiple aspects.

I will begin the analysis by refining the data on tax revenue used by previous historians, relying on primary sources for correction. I will conclude with an analysis of two important indicators: real grain prices (the main product of Iraqi agriculture) and military wages. The diachronic changes in the levels of these two indicators will provide us with: 1) another clue regarding the decline in agricultural production (increasing grain prices) and 2) a measure of the decline in the purchasing power of the State (increasing military wages).

The Arab Caliphates did not radically change the system of taxation that they inherited from their pre-Islamic predecessor, the Sasanian Empire<sup>4</sup>. Changes in religion and the ruling classes did not modify the nature of these Middle Eastern Empires, which were typified

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3. Adams, *Land*, 85; Ashtor, *A Social and Economic History*, 45.

4. M. Khan Fateh, "Taxation in Persia. A Synopsis from the Early Times to the Conquest of Mongols", *Bulletin of the School of Oriental Studies* 4/4, 1928, 723-43; M. G. Morony, *Iraq after the Muslim Conquest* (Princeton, 1984), 99-124; A. Gariboldi, *Il regno di Xusraw dall'anima immortale. Riforme economiche e rivolte sociali nell'Iran Sasanide del VI secolo* (Milan, 2007), 178-9

by centralised governments ruled by elites who lived on the surplus extracted from the land. Taxation on the land was the main source of revenue for the State centralised. According to juridical sources, *Kharādj*, a tax imposed on the land of conquered populations who had not accepted Islam before the conquest and had not signed a special agreement (*sulh*), was levied on most of the conquered areas<sup>5</sup>. Another kind of tax assessment should also be remembered - the tithe (*‘ushr*), which was assessed on the land of believers. This impost, set at 10% of production in the case of naturally irrigated land, could be reduced by half in the case of artificially irrigated land<sup>6</sup>. Since conversion to Islam and purchase of land by Muslims could cause the removal of *kharādj*, the authorities tried to establish *kharādj* as a tax assessed on the land itself, independent from the religious beliefs of the owner. In this form, *kharādj* differed from what it is usually called *djizya*, the capitation, which was assessed on the non-Muslim population, even if the two words were sometimes used inter-changeably<sup>7</sup>. The juridical treatises dealing with taxation and administration were often called *Kitāb al-kharādj*, the book of *kharādj*, and this reflects the general importance of this impost<sup>8</sup>.

5. For a general survey of these topics, see: D. C. Dennet, *Conversion and the Poll Tax in Early Islam* (Cambridge, Mass., 1950); F. Løkkegaard, *Islamic taxation in the classic period with special reference to circumstances in Iraq*, second edition (Philadelphia, 1978); H. M. Tabūtabā’ī, *Kharāj in Islamic law* (London, 1983), A. Oran, S. Rashid, “Fiscal Policy in Early Islam“, *Public Finance* 44, 1989, 75-101. See also : V. Lagardère, “Structures étatiques et communautés rurales: les impositions légales et illégales en al-Andalus et au Maghreb (XI<sup>e</sup>-XV<sup>e</sup>)”, *Studia Islamica* 80, 1994, 57-95.

6. See for example Ḳudāma Ibn Dja’far, *Kitāb al-kharādj. Part seven and excerpts from Abū Yūsuf’s Kitāb al-Kharāj*, translated and with introduction and notes by A. Ben Shemesh (Leiden-London 1965), 37 (English translation), 123 (Arabic text. From here onwards Kudama Ibn Dja’far, *Kitāb al-kharādj*, ed. Ben Shemesh).

7. See, for example, ash-Shaybānī, *Kitāb as-siyyar al-kabīr* (el Cairo, 1957), 15.

8. See, for example, Abū Yūsuf, *Kitāb al-kharādj*, translated and with introduction and notes by A. Ben Shemesh (Leiden-London, 1969. from here onwards: Abū Yūsuf, *Kitāb al-kharādj* (transl. Ben Shemesh)); Abū Yūsuf, *Kitāb al-kharādj* (El Cairo, 1886. Arabic text); Ḳudama Ibn Dja’far, *Kitāb al-kharādj*

This paper will focus on what was called the Sawād, the rural area of Iraq, extending roughly from Takrīt to ‘Abbadān and from Hulwān to Ḳādisiyya<sup>9</sup>. This area is important for several reasons. Firstly, it was the rural region of Baghdad, the new capital city of the Caliphate in the Abbasid period. The area experienced a high rate of urbanisation under the Abbasid Dynasty<sup>10</sup>, and the urban population obviously had to be fed. Sawād land is also of interest due to its particular status in the Caliphal taxation system. According to many Arab historians, ‘Umar I (634-644) decided to not distribute the land of as-Sawād among the conquerors as he wanted to turn it into a trust to benefit the whole *umma*<sup>11</sup>. Instead of distributing the land among the Arab conquerors, he left it to its inhabitants, imposing *ḵharādj* upon them. Thus, he immobilised the revenue of the land and its inhabitants, creating a rent for public necessities. Ḳudāma Ibn Dja‘far (end of the 9<sup>th</sup>-first half of the 10<sup>th</sup> century) wrote that ‘Umar made the Sawād and Egypt *fay*’<sup>12</sup> and turned it into a *mawḵūfa* for the benefit of all Muslims<sup>13</sup>. I won’t discuss in

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(ed. Ben Shemesh). See: R. Verrier, *Introduction à la pensée économique de l’Islam du VIII<sup>e</sup> au XV<sup>e</sup> siècle* (Paris, 2009), 67-9.

9. Morony, *Iraq*, 137; see Yāḳūt ar-Rūmi, *Kitāb mu’djam al-buldān*, 5 vol. (Beirut 1955-7), vol. III, 272.

10. Adams, *Land*, 89-97; I. M. Lapidus, “The Evolution of Muslim Urban Society”, *Comparative Studies in Society and History* 15/1, 1973, 21-50.

11. Aḥmad Ibn Yaḥyā Ibn Djabīr al-Balādhurī, *Kitāb futūḥ al-buldān (Liber expugnationis regionum, auctore imāmo Ahmed Ibn Jahja Ibn Djabir al-Belādsori)*, ed. M.J. de Goeje (Leiden, 1866). It also useful to read the fiscal rescript attributed to ‘Umar II included in the *Sīra ‘Umar Ibn ‘Abd al-‘Azīz* of Ibn ‘Abd al-Hakam: H.A. R. Gibb, “The Fiscal Rescript of ‘Umar II”, *Arabica* 2/1, 1955, 1-16, p. 5. See also A.N. Poliak, “Classification of Lands in the Islamic Law and Its Technical Terms”, *The American Journal of Semitic Languages and Literatures* 57/1, 1940, 50-62.

12. F. Løkkegaard, “Fay”, in *Encyclopaedia of Islam*, 2<sup>nd</sup> Edition, 12 vol. (Leiden, 1960-2004. From here onwards EI(2)), vol. II, 869-870; Løkkegaard, *Islamic Taxation*, 38-72.

13. Ḳudāma Ibn Dja‘far, *Kitāb al-ḵharādj*, (ed. Ben Shemesh), 135 (Arabic Manuscript). See also P. G. Forand, “The Status of the Land and Inhabitants of the Sawād during the first two centuries of Islām”, *Journal of Economic and Social History of the Orient*, 14, 1971, 25-37, 29-30; see Abū ‘l-Ḥasan

this paper the concept of *fay*' and its evolution, we should simply note that the revenue of *fay*' land was supposed to benefit the whole Muslim community. This fact was later used as a justification for limiting land sales in as-Sawād. Al-Māwardī (974-1058) wrote that the as-Sawād land could not be sold and that only "what was created on it of plant and building" could be transferred<sup>14</sup>. Though these all appear to be later theorisations, they help us to understand the importance of as-Sawād for the Caliphate, especially under the Ab-basid when Iraq became the centre of the Empire.

## 1. Decline in tax revenue and agricultural output

Tax revenues from Iraq probably declined after the Arab invasion. Towards the end of the Sasanian Empire, figures relating to tax revenue seem to have been higher than in the Arabic period<sup>15</sup>. It is said, for example, that under Kawād (488-531), the revenue of as-Sawād was 150,000,000 dirhams *mithāqīl*, the equivalent of 214,000,000 dirhams in the 9<sup>th</sup> century, according to the rate given by Ibn Khurdābih<sup>16</sup>. According to the estimates of Altheim and Stiehl, in the eighteenth year of the government of Husraw II (607), the revenue from central and southern Iraq was 168,000,000 dirhams in the old coinage, and at the end of his reign 240,000,000

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al-Māwardī, *al-Aḥkām al-sultāniyya wa-al-wilāyā al-dīniyya* (Beirut, 1980), 163-4 and 219. Some Arabic sources claim that part of the land had been appropriated by Muslim soldiers early on, therefore 'Umar asked them to return it to the Muslim community, M. G. Morony, "Landholding in Seventh Century Iraq: Late Sasanian and Early Islamic Patterns", in *The Islamic Middle East, 700-1900*, ed. by A. L. Udovitch (Princeton, 1981), 135-175, 154.

14. Al-Māwardī, *Al-aḥkām al-sultāniyya*, 219.

15. Adams, *Land*, 71.

16. Abū 'l-Ḳasim 'Ubayd Allāh Ibn Khurdābih, *Kitāb al-masālik wa 'l-mamālik (Liber viarum et regnorum auctore Abu'l-Kasim Obaidallah Ibn Abdallah Ibn Khordadbeh et Excerpta e Kitāb al-Kharadj auctore Kodama Ibn Dja'far)*, ed. M. J. De Goeje (Leiden, 1889), 14 (Arabic text); this figure is reported also by Abū 'l-Ḳasim Ibn Ḥawqal al-Naṣībī in his *Kitāb surat al-arḍ. Opus Geographicum*, vol. I (Leiden, 1938), 234; see Christensen, *The Decline*, 88.

dirhams<sup>17</sup>. These figures seem to be quite high compared with the following ones. ‘Umar Ibn al-Khattāb, according to several geographers, such as Ibn Khurdābih and al-Muqaddasī (second half of the 10<sup>th</sup> century), collected 128,000,000 dirhams, through having 500,000 *dhimmī* who had to pay *djizya*. Since *djizya* was assessed at between 12, 24 and 48 dirhams per head, using the medium tax rate we can estimate that 12,000,000 dirhams were collected from the *djizya* (although usually the poll tax and the land tax were paid together, as a single contribution), making the value of the crops in the Sawād 116,000,000 dirhams<sup>18</sup>. A lower figure of 100,000,000 dirhams was occasionally reported for the value of the *kharāj* under ‘Umar Ibn al-Khattāb. Three explanations can be supplied for this discrepancy: these two figures may refer to two different periods of ‘Umar’s reign, the lower figure may refer only to the Sawād al-Kūfa<sup>19</sup>, or the lower figure may refer only to the *kharāj* while the higher figure might also include other forms of revenue<sup>20</sup>. Mu‘āwiya (661-680) collected 120,000,000 dirhams from the crops of the Sawād alone. I assume that this figure refers just to Sawād al-Kūfa, the area extending from Kaskar to the Zāb River and from Hulwān to Qādisiyya<sup>21</sup>, since the districts of Tigris and Hulwān are listed apart<sup>22</sup>. Another 20,000,000 dirhams was collected from

17. F. Altheim- R. Stiehl, *Ein asiatischer Staat. Feudalismus unter den Sasaniden und ihren Nachbarn*, vol. I (Wiesbaden 1954), 41; Adams, *Land*, 70-71; estimates based on Ibn Khurdābih; *Kitāb al-masālik wa ’l-mamālik*, 14-5 (Arabic text). See also Ibn Hawqal, *Kitāb šurat al-arq*, 235; Morony is very sceptical about the liability of these estimates; *Iraq*, 120.

18. Ibn Khurdābih, *Kitāb al-masālik wa ’l-mamālik*, p. 14 (Arabic text); Shams ad-Dīn ‘Abd Allāh Muḥammad al-Muqaddasī, *Kitāb aḥsan at-taqaṣīm fī ma’rifat al-aqālīm*, 133 (see also al-Muqaddasī, *The best Divisions for Knowledge of the Regions*, translated by B.A. Collins (Reading, 1994), 121); Ibn Hawqal, *Kitāb šurat al-arq*, 234.

19. “The income from Sawād al-Kūfa amounted, one year before ‘Umar’s death, to 100,000,000 of dirham”; Abū Yūsuf, *Kitāb al-kharāj*, (transl. Ben Shemesh), 80; Abū Yūsuf, *Kitāb al-kharāj*, 15 (Arabic text).

20. Al-Balādhurī, *Kitāb futūh al-buldān*, 270.

21. Morony, *Iraq*, 154.

22. See Ahmad Ibn Abī Ya‘qub Al-Ya‘qubi, *Ta’rīkh*, ed. by M. Th. Houtsma, 2

Hulwān and 10,000,000 from the district of Tigris. These high figures were reached, in part, due to the threat of dismissal made against the governor of the province<sup>23</sup>.

We should also remember that in 698 a new dirham was introduced, lowering the weight of the average coinage from about 3.98 g to 2.97 g<sup>24</sup>. However, we should remember that at this stage a large part of the *kharaḍj* was collected by assessing a fixed amount of dirhams on each *djarīb*. Therefore, the absolute figure would not have changed very much after the coinage reform. Figures for tax revenue under al-Haǧǧīdǧāǧī (695-714) seem inconsistent, ranging from 18,000,000 to 40,000,000 dirhams<sup>25</sup>. ‘Umar II (717-720) collected 124,000,000 dirhams. Judging from the sources, this figure probably also includes the poll tax, and thus a subtraction of about 12,000,000 dirhams provides a better estimate of the land tax<sup>26</sup>.

Under the Umayyad, the revenue remained fairly stable, without any noticeable increase. These figures have already been adjusted for tax collection expenditures and other normal expenditures<sup>27</sup>. Morony

vol. (Leiden, 1883), vol. II, 277-8.

23. Adams, *Land*, p. 84-85; Ahmad Ibn Abī al-Ya‘qūbi, *Ta’rīkh*, vol. II, 277. Yāqūt ar-Rūmi writes that Ziyād Ibn Abī Sufyān, governor of Iraq (665-673) collected 125,000,000 *dī* dirham, his son ‘Ubayd Allah († 685) 135,000,000, *Kitāb mu‘dǧam al-buldān*, vol. III, 274

24. Ph. Grierson, “The Monetary Reforms of ‘Abd al-Malik: Their Metrological Basis and Their Financial Repercussions”, *Journal of the Economic and Social History of the Orient* 3/3, 1960, 241-64; Ashtor, *A Social and Economic History*, 83; H. Gaube, *Arabosasanidische Numismatik* (Braunschweig, 1973), p. 63. Arabic authors are conscious of this change. Abū Yūsuf, for example, shows us that the dirham in use at the time of ‘Umar had a higher value than the dirham used in his time (at the end of the 8<sup>th</sup> century), since the weight of a dirham was one *mithqāl*, Abū Yūsuf, *Kitāb al-kharaḍj* (transl. Ben Shemesh), 107; Abū Yūsuf, *Kitāb al-kharaḍj*, 63 (Arabic text). Al-Māwardī says that the weight of ten dirham is equal to that of seven dirham *mithāqīl*; al-Māwardī, *Al-aḥkāḡ as-sultāniyya*, 195.

25. Al-Balādhurī, *Kitāb futūḡ al-buldān*, 270; Ibn Khurdābih, *Kitāb al-masālik wa ‘l-mamālik*, 14 (Arabic text).

26. Adams, *Land*, p. 85; E. Ashtor, *A Social and Economic History*, 63; Ibn Khurdābeh, *Kitāb al-masālik wa ‘l-mamālik*, 14 (Arabic text).

27. M. Shimizu, “Les finances publiques de l’Etat Abbaside”, *Der Islam* 42,

is sceptical about the possibility of comparing Sasanian figures and Arabic ones. He explains, for example, that there was no provincial division exactly equivalent to the Sawād in the Sasanian period<sup>28</sup>. He also shows that the total revenue of 150,000,000 Kawād is said to have raised can be related to al-Māwardī's claim that the land tax base in the 6<sup>th</sup> century was 150,000,000 *djarīb*<sup>29</sup>. I think that, despite the care required when establishing any comparison with Sasanian tax revenue, it is still possible to compare the Persian level of tax revenue with the Arabic one. Continuity in administration often survived at the district level<sup>30</sup>. Arab geographers more or less knew to which area they were referring when they used words such as 'Sawād' and 'Iraq' because they were aware of which districts and sub-districts they were referring to. Ibn Khurdādbih, for example, who provided details of the tax revenue for Kawād's kingdom, lists all the districts contributing to the final revenue in his time, as Kudāma also does.

After the first half century of Abbasid rule, the trend seems to have been a steady decrease in revenue. In the lists of revenue included in al-Djāhshiyārī's *Kitāb al-wuzarā' wa al-kuttāb* it can be seen that under Hārūn ar-Rašīd the tax collected from the crops of as-Sawād was 80,780,000 dirhams and 14,800,000 dirhams were collected from other sources. This figure refers only to the Sawād al-Kūfa. If, in addition to the value of the crop from the Sawād, we add the revenue from Hulwān, Kaskar and Kuwwar Diđjla (the lower Tigris valley), which is included in the later revenue list of the Sawād in Kudāma's and Ibn Khurdādbih's works, we get a total figure of 117,980,000 dirhams of land-tax revenue<sup>31</sup>. Šāleḥ Aḥmad

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1965, 1-24, 9, A. von Kremer, *Über das Einnahmenbudget des Abbasiden-Reiches vom Jahre 306 H. (918-919)* (Wien, 1887), 9.

28. Morony, *Iraq*, 121-3.

29. Morony, *Iraq*, 120. See also Yāqūt ar-Rūmi, *Kitāb mu'djam al-buldān*, vol. III, 272-3.

30. Morony, *Iraq*, 163-4.

31. The 14,800,000 dirhams collected from other sources is not included; Muḥammad Ibn 'Abdūs al-Djāhshiyārī, *Kitāb al-wuzarā' wa al-kuttāb*, ed. by M. al-Saqqā-I. al-Abyārī-A. Shalabī (El Cairo, 1938), 281-3; A. von Kre-

el-‘Alī also considers another revenue estimate that could refer to the second year of the kingdom of ar-Rashīd (787-8). This list calculated around 87,860,000 dirhams of tax revenue from Sawād al-Kūfa, 11,640,000 from Kaskar, 20,000,000 and 20,000 dinars (that is 240,000 dirhams) from Kuwwar Diǧġla, and 4,000,000 dirhams from Hulwān, in total 123,740,000 dirhams<sup>32</sup>. These two lists could be two different versions of the same budget. However it is clear that both lists refer to the years of the reign of ar-Rashīd before 803, because both refer to Yaḥyā Ibn Kḥālīd, the vizier who fell into disgrace in that year. In 819 (204 of hegira), according to Ẹudāma Ibn Dġa‘far, the revenue of Iraq was 177,200 *kurr* of wheat, 99,721 *kurr* of barley and 8,095,800 dirhams<sup>33</sup>. His list does not include the district of Hulwān. The amount of wheat listed is possibly the result of an error in the manuscript tradition. Ẹudāma calculated a final revenue of 108,457,650 dirhams on the basis of a wheat price of 1,367 dinars for 100 kg and a barley price of 0.68 dinars for 100 kg, if the figure of 177,200 *kurr* of wheat was correct the final revenue would be 144,127,025.85 dirhams (one *kurr* = 2,925 kg). Both von Kremer and De Goeje propose that it should read 117,200 *kurr* of wheat<sup>34</sup>.

Ẹudāma gives the amount of revenue for this year because it is the first one available in the State archives, as previous records were burnt in the year 197 of hegira. As was mentioned earlier, according to Ẹudāma the total revenue of as-Sawād seems to have been 108,457,650 dirhams. However, he clearly overestimated the value of the crops, since he calculated them according to the prices in use in his time, at the beginning of the 10<sup>th</sup> century. Furthermore,

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mer, *Über das Budget der Einnahmen unter der Regierung des Hārūn al-Rašīd* (Wien, 1887), 4; D. Waines, “The Third Century”, 284-6. 240 *riṭl* of clay and 200 cloaks were also collected.

32. Ṣ. A. el-‘Alī, “A New Version of Ibn al-Muṭarrīf’s List of Revenues in the Early Times of Harun al-Rashīd”, *Journal of the Economic and Social History of the Orient*, 14, 1971, 303-10.

33. Ẹudāma Ibn Dġa‘far, *Kitāb al-kḥarādj*, ed. M. J. De Goeje, 239-40.

34. Von Kremer, *Über das Einnahmehbudget*, 43, Ẹudāma Ibn Dġa‘far, *Kitāb al-kḥarādj* (ed. M. J. De Goeje), 180.

the data for the district of the Tigris are taken from the year 260 of the hegira, not 204 like the other data, but this should not significantly affect the final result. He also wrote that the *ṣadaqa* of the area of al-Baṣra amounted to 6,000,000 dirhams, making the total sum 114,457,650 dirhams<sup>35</sup>. At the time of Ibn Khurdābih (middle of the 9<sup>th</sup> century), the revenue of as-Sawād amounted to 70,650 kurr of wheat, 112,050 kurr of barley or rice, and 11,848,840 dirhams<sup>36</sup>. The first interesting thing to note is the abrupt fall in wheat production. Rice and barley were more robust grains and capable of growing on highly saline soils. If this amount is added into the total amount—in dirhams—of tax revenue, the final result is 113,097,760 dirhams (calculating grain prices in dinars and using an exchange rate for dinar/dirham of 1=20). It should be remembered, however, that these two sums are overestimated as they are based on prices at the beginning of the 10<sup>th</sup> century (see Appendix). Scholars have also proposed estimating the tax revenue for the year 893 (280 hegira) at 75,000,000. This estimate is based on a tax-farm leased in that year that included about half the Sawād<sup>37</sup>.

If we look at the budget for 306 hegira (918-19) under al-Muḳtadir, it can be seen that the amount of revenue for all Iraq is 1,547,734 dinars, which equals only 30,954,680 dirhams. If the customs, revenues from markets, mints, and other kinds of imports and duties are subtracted and the land revenue from Hulwān (*kharāj* e *diyyā'* revenues) is added<sup>38</sup>, the result is more or less the final

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35. Adams, *Land*, p. 85; Ashtor, *A Social and Economic History*, 42.

36. A. von Kremer, *Culturgeschichte des Orients unter den Chalifen* (Wien 1875-1877), vol. I, 291; Ibn Khurdābih, *Kitāb al-Masālik wa 'l-Mamālik*, 8-14 (Arabic text). For the district of Hulwān, the text reports an income of 1,800,000 dirham. De Goeje proposes to follow *Djahshiyārī* and Ibn *Khaldūn* who have 4,800,000. I don't agree with him because this figure is based on an earlier estimate of the tax revenue, therefore I read 1,800,000 dirham; Ibn Khurdābih, *Kitāb al-masālik wa 'l-mamālik*, 10, n. 8.

37. H. Busse, "Das Hofbudget des Chalifen al-Mu'tadidbillah (279-289/892-902)", *Der Islam* 33, 1967, pp. 11-36. Waines, "The Third Century", p. 286.

38. von Kremer, *Über das Einnahmenbudget*, 29.

amount of Sawād land-tax income, 1,367,705 dinars. This figure more or less equals 27,354,100 dirhams, an abrupt fall compared with the previous figures of tax revenue<sup>39</sup>.

As previously mentioned, the decline in imperial revenue could also have been determined by an inefficient tax collection system. ʔudāma, for example, thought that the decline in imperial revenue in his time was due to the weakness of the administration; many people simply refused to pay the taxes<sup>40</sup>. Numerous tax reductions and tax exemptions could be granted by the government and the fiscal prefects (*ummāl*) could profit from the weakness of central power in order to increase their personal income<sup>41</sup>. As was explained before, Waines, in his paper on the decline of the Abbasid Empire, explains the phenomenon by means of the decline in agricultural output: if the land-tax revenue decreased, it was because the land was producing less or less land was being tilled. His analysis seems correct, especially if two other phenomena are taken into consideration. Firstly, a large part of the tax income was collected, from the end of the 8<sup>th</sup> century, as a share of the land production (according to a system called *muḳāsama*, which will be described later) and this system clearly links agricultural output and state revenue.

The second relevant element is the rise in prices from the end of the 8<sup>th</sup> century to the middle of the 10<sup>th</sup> century. Wheat was the most important component in the diet of Middle Eastern populations<sup>42</sup>. It is difficult to avoid the impression that real grains prices are increasing between the beginning of the Abbasid period and the first half of the 10<sup>th</sup> century, whereas real wages are declining. That points to a decline of grain production in the Sawād. Between the second

39. von Kremer, *Über das Einnahmenbudget*, 26 (Arabic source) and 32 (German translation).

40. ʔudāma Ibn Dja‘far, *Kitāb al-ḳharāj*, 249 (Arabic text).

41. H. Q. es-Samarraie, *Agriculture in Iraq During the 3<sup>rd</sup> Century AH* (Beirut, 1972), 185-91

42. D. Waines, “Cereals, bread and society. An essay on the staff of life in medieval Iraq”, *Journal of the Economic and Social History of the Orient* 30, 1987, 255-85.

half of the 8<sup>th</sup> century and the beginning of the 10<sup>th</sup> century, nominal prices of wheat increased around ten times (from 0.112 dinars for 100 kg to 1.36 dinars)<sup>43</sup>. In the same period, the wages of mounted soldiers (who had a very high bargaining power) increased between two and six times (according to the different sources available, see Appendix). Nominal wages increased, but real wages declined: if we want to calculate the real price of wheat in terms of wages, we can see how the price of 100 kg of wheat would have represented at the end of the 8<sup>th</sup> century only 1.723% of the monthly wage of a horseman, while at the beginning of the 10<sup>th</sup> century it would have been as much as 10.9% of a monthly wage of a cavalier.

The increase in prices could in the long term be the effect of the devaluation of coins. It can be very risky to estimate the effect of the devaluation of coins in determining inflation, since every analysis has to be based on the specimens which are still available. In Ehrenkretz's analysis of several specimens of mintless dinars from the Umayyad and early Abbasid period, we can see how their standard of fineness and weight do not show any consistent decline, with the exception of several specimens from the period of the civil war between al-Amīn and al-Ma'mūn (810-813)<sup>44</sup>. From the reign of al-Ma'mūn onwards, the inscription on the dinars mention the name of the mint where the coins were struck, but we cannot see any relevant sign of decline in the standard of fineness of the dinars struck in Baghdad and Samarra before the rise of the Buwayhids<sup>45</sup>. Furthermore, the standard of fineness was increased under the reign

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43. See Appendix

44. A. S. Ehrenkretz, "Studies in the Monetary History of the Near East in the Middle Ages", *Journal of Economic and Social History of the Orient* 2, 1959, 128-61, 135-43; see also M. Broome, *A Handbook of Islamic Coins*, London 1985, pp. 29-32; M. L. Bates, "The 'Abbasid Coinage System, 833-946'", Presented at the Annual Meeting of the Middle East Studies Association, 1996 (available on <http://www.numismatic.org./collections/abbasid.html>); J. L. Bacharach, "Thoughts about Pennies and other Monies", *Middle East Studies Association Bulletin*, 35, 2001, 2-13 (available on <http://fp.arizona.edu/mesassoc/bulletin/Pres%20Addresses/Bacharach.html>).

45. Ehrenkretz, "Studies", 144-5

of al-Ma'mūn<sup>46</sup>. An analysis of silver coins shows that their weight tended to vary more, with different types of silver coins having different weights (often depending on the province where they were struck) and it is very likely that silver coins were circulated by weight. Dirhams struck between the 7<sup>th</sup> and the 10<sup>th</sup> century were almost always of high quality silver<sup>47</sup>. All these elements show that the effect of the devaluation of coins in determining price increases can be neglected.

The relationship between the decline in grain production and the fall in tax revenue is not only confirmed by price data, but reveals that the decline was probably even sharper. As a large part of the tax revenue was collected in kind, the increase in grain prices suggests that the fall in agricultural production during the 9<sup>th</sup> century was very considerable. The increase of nominal (but not real) wages, especially military wages, also shows how the 'purchasing power' of the State income dramatically declined (see Appendix).

## 2. Land and Taxation policies

As we have seen, after the Arab conquest some land was considered only liable to pay the tithe ('*ushr*', amounting to 10% or some-

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46. T. El-Hibri, "Coinage Reform under the 'Abbāsīd Caliph Al-Ma'mūn", *Journal of the Economic and Social History of the Orient*, 36, 1993, 58-83, in particular 72

47. W. Hinz, *Islamische Masse und Gewichte* (Leiden, 1955), 1-4; J. Walker, *A catalogue of the arab-Sasanian coins : Umayyad governors in the east, Arab-Ephthalites, 'Abbāsīd governors in Ṭabaristān and Bukhārā* (London, 1967), CXLVI-CLIV and 1-174 (catalogue); A. A. Gordus, "Non-Destructive Analysis of Parthian, Sasanian, and Umayyad Silver Coins", in *Near Eastern Numismatics, Iconography, Epigraphy and History: Studies in Honor of George C. Miles*, ed. by D. K. Kouymjian (Beirut, 1974), 141-62; M. L. Bates, "Islamic Numismatics", *Middle East Studies Association Bulletin* 12/2, 1978, 1-16; 12/3, 1978, 2-18; 13/1 1979, 3-21; 13/2, 1979, 1-9; Id., "History, Geography, and Numismatics in the First Century of Islamic Coinage", *Revue Suisse de numismatique* 65, 1986, 231-62; Broome, *A Handbook*, p. 28-29.

times 5% of the harvest). Tithe-payers were often Arab landlords who received large land grants from the political authorities<sup>48</sup>. Therefore, it was necessary to compensate for the financial losses caused by the introduction of the tithe by raising tax rates on *kharādj*-payers, taxpayers liable to pay the heavier land tax. Tax assessment on *kharādj* land mainly followed a system called *'ala 'l-misāḥa*: from a fixed portion of land (usually one *djarīb*) a fixed amount of money and/or crops was collected. The tax was also often levied on untilled land. According to many of our sources, the impost assessed varied with the kind of crop. The tax was usually levied in cash and the rate depended on the crop. Normal tax rates under the Sasasians included, for example, one dirham per *djarīb* for wheat and barley, 5 or 6 for rice, 8 for vines, 7 for clover, one dirham for 6 fruit trees, and one dirham per 4 or 6 date palms (depending on the kind of palm)<sup>49</sup>. For the period following the Arab conquest the tax rates frequently reported in the sources were: 12 dirhams for a *djarīb* of olives, 10 dirhams for vines, 8 or 10 dirhams for date palms, 3 or 8 dirhams for clover, 6 dirhams for sugar cane, 5 dirhams for sesame and cotton, 4 dirhams for wheat and 2 dirhams for barley<sup>50</sup>. We are told that on wheat and barley 'Umar Ibn Khaṭṭāb levied either 4 and 2 dirhams respectively, or one dirham and one *kaḫṫz*. Some sources, such as al-Balādhuri's *Kitāb futūh al-Buldān* and al-Māwardī's *Al-aḥkām as-sulṭāniyya*, affirm that tax assessments also depended on different levels of soil fertility and the proximity to markets and water cours-

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48. See, for example: M. Morony, "Landholding and Social Change: Lower al-'Iraq in the Early Islamic Period", in *Land Tenure and Social Transformation in the Middle East*, ed. by Tarif Khalidi, (Beirut, 1984), 209-22.

49. Morony, *Iraq*, 100.

50. Occasionally different rates are found: for example, al-Muḫaddasī wrote that in Iraq a *djarīb* of palms was taxed at 8 dirhams; Ibn Kḫurdadbeh also speaks of 8 dirhams for palms, 6 for vines and 6 for the medic. It should be remembered that there are no official documents, just geographical and juridical treatises; Løkkegaard, *Islamic Taxation*, 102-103; Šhams ad-Dīn 'Abd Allāh Muḫammad Al-Muḫaddasī, *Kitāb aḥsan at-taḫasīm fī ma'rifa al-aḳālīm*, 133; Abū 'l-Ḳasim 'Ubayd Allāh Ibn Kḫurdābih, *Kitāb al-masālik wa 'l-mamālik*, 14 (Arabic text).

es<sup>51</sup>. Under Arab rule the tax rate was subject to small fluctuations, but did not change radically over time (except when tax was assessed according to the system called *mukāsama*, as will be seen later on)<sup>52</sup>. It should also be remembered that the weight of the dirham changed at the end of the 7<sup>th</sup> century, from about 3.98 g to 2.97 g. This would have reduced the taxes paid in silver, but without returning them, in most cases, to Sasanian levels<sup>53</sup>. Initially, the tax was also assessed according to a smaller *djarīb* compared with the size in Sasanian times: 1050 m<sup>2</sup> compared with 1592 m<sup>2</sup>, which implicitly increased the tax rate by about 33%. However, use of the larger *djarīb* was restored, probably under the governor Ziyād Ibn Abī Sufyān (665-673)<sup>54</sup>. Poll tax also increased: Sasanian rates were 4, 6, 8 or 12 dirhams per year, Arab rates 12, 24 or 48 dirhams per year according to personal wealth. This tax was often collected at the same time as the land tax, so it represented yet another burden for the peasants<sup>55</sup>.

The social and institutional framework of land tenure is very relevant to tax administration. To understand the nature of land tenure in the Sawād between the 7<sup>th</sup> and 10<sup>th</sup> centuries is a very delicate issue, due both to the scarcity of sources and the conceptual difficulties of legal theory. Several theories have been formulated, such as van Berchem's idea that most of the as-Sawād ultimately belonged to the State, and Lambton's approach, which tends to treat Sawād land as divided into individual properties<sup>56</sup>. This problem cannot be

51. Aḥmad Ibn Yahyā Ibn Djabīr Al-Balādhurī, *Kitāb futūh al-buldān*, 271; Abū 'l-Ḥasan al-Māwardī, *Al-aḥkām al-sultāniyya*, 220-1; on this problem, see also Qudāma Ibn Dja'far, *Kitāb al-kharādī*, 121 (Arabic manuscript).

52. Morony, *Iraq*, 103.

53. For example, paying one dirham per *djarīb* in the Sasanian period would have meant to give 3.98 g. of silver to the State. With Arabic tax rates, after the weight of the dirham had been changed, the taxpayer would have paid 11.88 g. of silver for wheat and 5.94 for barley; Ashtor, *A Social and Economic History*, 83.

54. Morony, *Iraq*, 103, Hinz, *Islamische Masse*, 55 and 65-66.

55. Morony, *Iraq*, 107-8.

56. M. van Berchem, *La propriété territoriale et l'impôt foncier sous les premiers califes. Études sur l'impôt du kharāg* (Genève, 1886); A. K. S. Lamb-

solved in this paper. However, it is necessary to try to understand some relevant issues that link land tenure to tax collection.

Village estates were the normal agricultural and taxation units at the time of the Arab conquest, while at the end of the Sasanian Empire smallholdings were often absorbed by large estates, which were very common in the Sawād and along the Tigris. Under the Persians, such estates were usually apportioned off from crown lands as grants. The Arabs confiscated the crown lands, but left many of the land grants to Persian noblemen<sup>57</sup>. After the Arab conquest Muslim landlords acquired estates in the Sawād of Kūfa and existing landlords converted to Islam. It has been argued that the Islamic conquest may have led to the partial emancipation of peasants, leading peasant-cultivators to become the proprietors of some of these lands<sup>58</sup>. Nevertheless, sources show that a concentration of the land into the hands of Muslim elites occurred after the Arab conquest<sup>59</sup>. We are informed of attempts to enforce the rule that *kharāj* land should not be sold to Muslims, both under ‘Umar Ibn al-Khattāb (634-644) and under the last of the ‘Umayyads<sup>60</sup>. Yaḥyā

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ton, *Landlord and Peasant in Persia. A Study of Land Tenure and Land Revenue Administration*, second edition (Oxford, 1969). Morony, “Landholding”, 135. More generally, see also W. Schmucker, *Untersuchungen zu einigen wichtigen bodenrechtlichen Konsequenzen der islamischen Eroberungsbewegung* (Bonn, 1972); M. G. Morony, “Grundeigentum im frühislamischen Irak », in *Jahrbuch für Wirtschaftsgeschichte. Sonderband 1987 Das Grundeigentum in Mesopotamien*, ed. by B. Brentjes (Berlin, 1988), 135-47.

57. Altheim-Stiehl, *Ein asiatischer Staat*, p. 141; Morony, “Landholding”, T. Daryaei, *Sasanian Persia: The Rise and Fall of an Empire* (London, 2009), 29 and 147-8.

58. Morony, “Landholding”, 157 and 165; B. Johansen, *The Islamic Law on Land Tax and Rent*, (London-New York-Sydney, 1988), 11-2. Johansen writes: «By transforming land into a commodity and the land tax into a proof of property, the Hanafite legal position on *kharāj* stands in the way of the attempt to consider the peasant as a serf bound to the soil».

59. J. Banaji, “Aristocracies, Peasantries and the Framing of the Early Middle Ages”, *Journal of Agrarian Change* 9, 2009, 59-91, 78-86.

60. Morony, “Landholding”, 139-40 and 155; Lambton, *Landlord*, 22-3; Haque, *Landlord and peasant in early Islam : a study of the legal doctrine of “Muzāra’a” or sharecropping* (Islamabad, 1977), 216-218.

Ibn Ādam wrote that ‘Umar forbade the acquisition of *kharādj* land (*ard al-kharādj*)<sup>61</sup> and Abū ‘Ubayd said that the purchase of the land owned by the *ahl adh-dhimma* (non-Muslim poll-tax payers) was forbidden<sup>62</sup>. Some anecdotes also confirm that Muslim landlords were purchasing land after the conquest. For example, Yaḥyā Ibn Ādam reports that a *dihkān* approached ‘Abd Allāh Ibn Mas‘ūd, a Companion of the Prophet, asking him to buy his land. The Arab accepted, provided that the old landlord would continue to pay *kharādj* on it<sup>63</sup>.

Finally, Muslim jurists tried to show that *kharādj* was imposed on the land in order to justify the idea that if the landlord was Muslim but the land was *kharādj* land the heavier tax had to be paid anyway. Ḳudāma Ibn Dja‘far later wrote that there was no dispute among the jurists that if somebody of the *ahl al-‘anwa* (the ‘conquered’ population under Muslim rule) accepted Islam he should nevertheless pay *kharādj*<sup>64</sup>. Abū Yūsuf (†798) also wrote that no one had the right to turn *kharādj* land into ‘*ushr* land’<sup>65</sup>. This also seems to be the policy pursued by the authorities. ‘Umar II (717-720) affirmed that conversion to Islam exempted individuals from the poll tax but not from the *kharādj*, whereas the *mawālī* (who were Muslim converts and clients of the Arabs) asked to pay ‘*ushr*’<sup>66</sup>. The Caliph also stressed that the property of converted people would remain *fay*’ if they accepted Islam after the conquest<sup>67</sup>. Therefore

61. Yaḥyā Ibn Ādam, *Kitāb al-kharādj* (English translation), 49; Yaḥyā Ibn Ādam, *Kitāb al-kharādj* (Arabic text), 39

62. Abū ‘Ubayd, *Kitāb al-amwāl* (Bayrūt, 1989), 157.

63. Yaḥyā Ibn Ādam, *Kitāb al-kharādj* (English translation), p. 49; Yaḥyā Ibn Ādam, *Kitāb al-kharādj* (Arabic text), 39. Edition: *Le livre de l’impôt foncier de Yaḥyā Ibn Ādam*, ed. Th. W. Juynboll, (Leiden, 1896).

64. Ḳudāma Ibn Dja‘far, *Kitāb al-kharādj* (English translation), 26.

65. Abū Yūsuf, *Kitāb al-kharādj* (English translation), 3; Abū Yūsuf, *Kitāb al-kharādj*, 49 (Arabic text).

66. A. A. Duri, “Notes on taxation in Early Islam”, *Journal of the Economic and Social History of the Orient* 17, 1974, 136-44, in particular 138.

67. Gibb, “The Fiscal Rescript”, 3.

*kharādj* continued to be paid on *kharādj* land, although other lands were only liable to pay *'ushr*.

Fiscal agents usually tried to deal with responsible individuals within the village or district in order to help them collect taxes and mediate between the peasantry and the bureaucracy<sup>68</sup>. These people were usually larger landlords, recruited from the general class of *tunnā'*, large or medium-sized landlords<sup>69</sup>. There is no doubt that these groups took advantage of their position by trying to increase the burden on the peasantry, or by lending money to the farmers at a high interest rate. The Syriac *Chronicle of Zuqnān*, written at the end of the 8<sup>th</sup> century at the monastery of Zuqnān, near Amida (nowadays Diyarbekir on the Tigris in Turkey)<sup>70</sup>, provides a gloomy picture of the situation: «When they were assessed for seventy thousand, they themselves demanded a further three (thousand), not sparing or saying: 'such and such a village is broke and cannot bear (such a burden)»<sup>71</sup>. These men were responsible for tax collection in their villages and in this way part of the tax burden could be shifted onto their tenants, even if, according to legal theory, tax payment proved land ownership. Legal theory usually put the burden of *kharādj* on the shoulders of the landlords<sup>72</sup>, while payment of *'ushr* was often shared with the tenant, but there is evidence that in some cases the tenants paid *kharādj*<sup>73</sup>. In the anecdote reported by

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68. C. Cahen, "Fiscalité, propriété, antagonismes sociaux en Haute-Mésopotamie au temps des premiers Abbassides", *Arabica* 1, 1954, 136-152; Løkkegaard, *Islamic Taxation*, 166-8; Morony, "Landholding"; Idem, "Landholding and Social Change", 210.

69. Løkkegaard, *Islamic Taxation*, 166-8; Shimizu, "Les finances publiques", 15-6.

70. Mistakenly attributed in the past to Dionysius of Tell-Mahre. *The Chronicle of Zuqnān. Parts III and IV. A.D. 488-775*, Translated from Syriac with Notes and Introduction by A. Harrak (Toronto, 1999), 1. See also W. Witakowski, *The Syriac Chronicle of Pseudo-Dionysius of Tel-Mahrē* (Uppsala, 1987).

71. *The Chronicle of Zuqnān*, 267-8; see also 244-5.

72. Johansen, *The Islamic Law*, 7-19.

73. Morony, "Landholding", pp. 149-53; M. 'Abdul Jabbar, "Agricultural and irrigation labourers in social and economic life of 'Iraq during the Umayyad

Yaḥyā Ibn Ādam mentioned above, the Companion ‘Abd Allāh Ibn Mas‘ūd bought the land of a *dihqān* provided that the old landlord still paid *kharādj* on it<sup>74</sup>. This anecdote shows that sometimes the Persian landlords were reduced to being the tenants or stewards of new masters and that payment of *kharādj* did not always burden the landlord.

The first people to benefit from tax collection were, of course, the tax collectors who were supposed to rely on the villages’ resources while they were collecting taxes around the country and they often collected their wages directly from the imposts. There is no reason to doubt that the demands of the jurists (for example Abū Yūsuf in the late 8<sup>th</sup> century), to appoint rightful and honest people to the position of tax collector and to enquire constantly into their behaviour, had some real foundation<sup>75</sup>. At lower levels, it seems that there was little control over tax-collectors. We read in the *Chronicle of Zuqnīn*: «because they trusted that they did not have to answer to anyone, (they) mercilessly and pitilessly determined (the tax) and imposed it on the people»<sup>76</sup>.

In addition to the *kharādj* land, post-conquest Iraq was also marked by the presence of crown land (*sawāfi al-ustān*). It consisted of all the land owned by the Persian royal family, their supporters, the lands of the fire temples, and also the royal mints, mills and cisterns, etc. The peasants residing on these lands were bound to pay a tax-/rent proportional to the yield<sup>77</sup>. Since the reign of Mu‘āwiya, the caliphs had tried to extend the estates under their direct control by reclaiming Sasanian crown lands and swamp lands, especially in the area of al-Batā’ih (the famous Big Swamp)<sup>78</sup>. The

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and ‘Abbāsīd Caliphates”, *Islamic Culture* 47, 1973, 15-31.

74. Yaḥyā Ibn Ādam, *Kitāb al-Kharādj*, p. 49.

75. Abū Yūsuf, *Kitāb al-Kharādj* (transl. Ben Shemesh), 107 ; Abū Yūsuf, *Kitāb al-kharāğ*, 63-4 (Arabic text).

76. *The Chronicle of Zuqnīn*, 267.

77. Morony, *Iraq*, 104-5.

78. I. M. Lapidus, “Arab Settlement and economic Development of Iraq and Iran in the Age of Umayyad and Early Abbasid Caliphs”, in *The Islamic Middle*

*Chronicle of Zuqñn* also shows that the agents of the crown lands tried to arbitrarily extend crown land by confiscating properties that were not registered in the census, the cadastral assessment for the land tax<sup>79</sup>.

*Sawāfi* lands were also granted to Muslim conquerors, following a general process that led to the authorities granting large estates to their favourites. Usually the only land tax they were compelled to pay was the tithe, as is noted above. This process started to expand under the governor ‘Abd Allāh Ibn Amīr Ibn Ḳurayz (650-56), who granted land to many of his relatives and *mawālī*<sup>80</sup>. Land grants were also a very common way of integrating military wages<sup>81</sup>. The destiny of the large landlords who owed their position to land grants was connected with their political fortunes and misfortunes: dynastical wars and expropriations could threaten their position. The diffusion of large land grants (*kaṭī‘a*) led to much disappointment among the smaller aristocracy of the *dahāqīn* and Arab landlords. The contrast between the crown and its favourites who were granted big estates on the one hand, and the local aristocracy and Arab tribesmen on the other, led to the revolt against al-Hadjdjādī in 701. This uprising led to the battle of Dayr al-Djamādīm, culminating in victory for al-Hadjdjādī. This governor also contributed, as has been mentioned before, to the ruin of many *dahāqīn* by refusing to repair their dykes<sup>82</sup>. Here there is further evidence of the paradox of the ‘Umayyad government of Iraq. The land grants usually helped, as I will show in the next chapter, in the reclamation of ruined land, but they created a large aristocracy, tied to the destiny of the dynasty, who largely profited from the ruin of smaller landlords.

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*East 700-1900: Studies in Economic and Social History*, ed. by A. L. Udovitch (Princeton, 1981), pp. 177-208, pp. 183-7; cfr. Ahmad Ibn Abī al-Ya‘qūbi, *Ta‘rīkh*, vol. II, 277-8.

79. *The Chronicle of Zuqñn*, 234-5 and 256.

80. Morony, “Landholding and Social Change”, 211-3.

81. H. Kennedy, *The Armies of the Caliphs. Military and Society in the Early Islamic State* (London-New York, 2001), 81-5.

82. Morony, “Landholding”, 162; see al-Balādhurī, *Kitāb futūh al-buldān*, 272-3.

### 3. Water management and land reclamation

In addition to the effects of inequality on the distribution of the tax burden and of the birth of a new, politically supported landholding elite, an analysis of the evolution of water management is also crucial to understanding the decline of Iraqi agriculture. Political instability and the continuous wars that upset the Middle East in the 7<sup>th</sup> century seriously undermined the highly developed water management system of the Late Sasanian period, especially after Heraclius' invasion of Iraq (627). An example of this is the Great Swamp in Southern Iraq which was created in 628 when the Tigris expanded out of its bed, and attempts made to restore it by the Umayyad governor Khālīd al-Ḳasrī were unsuccessful<sup>83</sup>. Archaeological surveys show the abandonment of a large area of the Euphrates' lower central floodplain<sup>84</sup>. There appears to be some discontinuity in the occupation of the central floodplain of the Euphrates between the Sasanian irrigation and settlement patterns and Islamic ones (from the second half of 7<sup>th</sup> century)<sup>85</sup>. Ḳudāma speaks diffusely of floods and the breaking of dykes during the Late Sasanian period and the Arab conquest of Iraq<sup>86</sup>. Islamic authors, such as al-Māwardī, make allusions to a decline in the tilled surface area after the conquest<sup>87</sup>.

This should be linked to the fact that Sasanian irrigation was highly centralised, requiring a highly stable central government to work and to prevent the problems connected with high levels of irrigation (such as salinisation)<sup>88</sup>. In the late Sasanian period, direct investment by the State had been crucial for agricultural growth: written

83. Ashtor, *A Social and Economic History*, 61.

84. R. McC. Adams, *Heartland of Cities. Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates* (Chicago and London, 1981), 205.

85. Adams, *Heartland*, 206-11.

86. Ḳudāma Ibn Dja'far, *Kitāb al-kharādj* (ed. M. J. De Goeje), 240-1.

87. Al-Māwardī, *Al-aḥkām as-sultāniyya*, 218-9.

88. Adams, *Heartland*, 213.

sources report that Husraw I (531-579) invested large amounts of money in building forts, bridges, canals, *Ḳanāts* (the famous underground canals) and other irrigation works and even in rebuilding villages<sup>89</sup>. The most interesting case was that of the *Ḳātūl al-Kisrawī*, a huge canal (about 100 km long) drawn from the Tigris that solved the chronic problems of water shortage in some parts of the Diyāla region. Islamic sources, such as *Yāḳūt ar-Rūmī* (1179-1229) and *al-Ḳazwīnī* (1203?-1283), attribute the building of the canal to Husraw. At the same time, the king established the three administrative districts of the Upper, Middle and Lower Nahrawān, where the *Ḳātūl al-Kisrawī* played a central role in the canal system. As this illustrates, the growth of irrigated agriculture and the development of a central administration were clearly linked to each other: the fall of this administration would seriously have damaged the system<sup>90</sup>.

As I mentioned in the previous chapter, one of the most important strategies adopted by the Caliphate to bring untilled land under cultivation was to grant extensive land ownership to wealthy and powerful members of the elite. These land grants usually enabled the landlords to recover large areas which had fallen out of use because they had become swamps or lacked irrigation. There were disputes among the jurists concerning the necessity of granting the land as a condition for reclaiming it, but to a large extent this was a theoretical discussion: land grants and reclamation went together. In most cases only wealthy people were able to undertake this work and this led to an extension of the large estates<sup>91</sup>. Owners of privately reclaimed land usually only paid the tithe (but there were debates among the jurists concerning this point) or even only half of it due to the extensive artificial works of irrigation or drainage that

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89. Adams, *Land*, 71; F. Rahimi-Laridjani, *Die Entwicklung der Bewässerungslandwirtschaft im Iran bis in sasanidisch-frühislamische Zeit* (Wiesbaden, 1988), 457.

90. Adams, *Land*, p. 76.

91. Ashtor, *A Social and Economic History*, p. 46.

had to be carried out<sup>92</sup>. Many of the land grants given by caliphs and governors consisted of dead land from the area of Basra, which was considered in the sources to be a tithe-paying area. Basra was an important area for sugar cane plantations<sup>93</sup>. The largest estates were often used for market-oriented monocultures, often, from the end of the 7<sup>th</sup> century, due to the introduction of *Zandj*, African slaves<sup>94</sup>. These *ḳatī‘a*, the Arabic word for these land grants, could yield very high revenues. ‘Abd Allāh Ibn Darrādī, for example, was able to reclaim swamp land which yielded five or maybe 15,000,000 dirhams (silver coins)<sup>95</sup>. These grants could be enormous, as large as 8000 *djarīb* (1 *djarīb* = 1592 m<sup>2</sup>)<sup>96</sup>.

Arabic sources offer some concrete evidence of how members of the elite were awarded these grants. An interesting example is provided by Al-Balādhurī, the famous historian of the Arab conquest, who describes the reclamation project of Maslama, the son of the Umayyad Caliph ‘Abd al-Malik, in southern Iraq during the reign of al-Walīd (705-715)<sup>97</sup>. Maslama proposed the investment of money in a reclamation project, the cost of which had been estimated to be about 3,000,000 dirhams. Maslama asked that the land that remained under water was given to him as *ḳatī‘a*. The reclamation project was successful, farmers were brought in to work this land,

92. Ḳudāma Ibn Dja‘far, *Kitāb al-ḳharādī*, 37 (English translation), p23 (Arabic text).

93. es-Samarraie, *Agriculture in Iraq*, 94.

94. A. A. Duri, *Arabische Wirtschaftsgeschichte*, aus dem Arabischen übersetzt von J. Jacobi (Zürich-München, 1979. First Arabic edition Beirut, 1969), 90-2. Slaves were also common on crown land; Morony, “Landholding and Social Change”, 210 and 218-9. On the *Zandj*: A. Popovic, *La révolte des esclaves en Iraq au III<sup>e</sup>/IX<sup>e</sup> siècle*, (Paris, 1976).

95. Ashtor, *A Social and Economic History*, 61.

96. Morony, “Landholding”, p. 150, pp. 157-9; Idem, “Landholding and Social Change”.

97. al-Balādhurī *Kitāb futūh al-buldān*, 294. This event has been broadly discussed by Hugh Kennedy: “Elite Incomes in the Early Islamic State”, in *The Byzantine and Early Islamic Near East*, VI. *Elites Old and New in the Byzantine and Early Islamic Near East*, edited by J. Haldon and L. I. Conrad (Princeton, 2004), 13-28, 21-2.

and many other people entrusted their farms (*diyyā'*) to Maslama for 'protection'.

The reclamation process came to an end around the middle of the 8<sup>th</sup> century<sup>98</sup>. Problems with salinisation arose and it was difficult to find drinkable water in the area of Basra. Al-Muḳaddasī writes at the end of the 10<sup>th</sup> century that water in Basra was scarce and even had to be imported by ship<sup>99</sup>. Since the revival of dead land was a requisite to acquiring property rights on it, with an emphasis on irrigational works, it is also possible that this law contributed to the over-irrigation of some areas, causing increasing salinisation. The nature of the soil in Iraq is very fragile, requiring both irrigation and drainage to keep land productivity high<sup>100</sup>. Water management was extremely important, since the delicate ecological balance that allowed high soil productivity could be seriously threatened by irresponsible land administration. Summer heat could dry out the land, but the floods of the Tigris and the Euphrates could be also a serious menace to the environment, turning the tillable surface into swamp<sup>101</sup>. Soil salinisation could reduce land productivity, and over-irrigation or flooding could increase the salinity level. This delicate balance of drainage and irrigation work was difficult to achieve for a class of landlords whose property rights on land were established by land grants (ultimately linked to political positions) and by their capability to revive dead land, which was mainly linked to the presence of irrigation works. The arbitrary nature of these grants would have prevented any serious planning of the irrigation works, since the land grants were based on political rather than economic choices. A change in the central government entailed a change in the

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98. Morony, *Iraq*, 106; Christensen, *Decline*, 88-91.

99. Al-Muḳaddasī, *Kitāb aḥsan at-taḳāsim*, 129.

100. C. E. Larsen, «The Mesopotamian Delta Region: a Reconsideration of Lees and Falcon», *Journal of the American Oriental Society* 95/1, 1975, 43-57; E. Wirth, *Agrargeographie des Irak* (Hamburg, 1962), 97-8; P. Buringh, *Soils and Soil Conditions in Iraq* (Baghdad, 1960), 255-63; J. H. G. Lebon « The New Irrigation Era in Iraq », *Economic Geography* 31/1, 1955, 47-59, 47-50.

101. Lebon, "The New Irrigation Era", 47-50.

landholding elite, as can be seen to have happened under Abbasid policies in Southern Iraq, where the land was granted to people close to the dynasty<sup>102</sup>. Climate, of course, also had a negative influence on the process of soil erosion and aridification in the Near East, but the decline in the area of the tilled surface in particular finds its roots in a more inefficient way of dealing with an environment that, in the past, had been successfully tamed by other societies<sup>103</sup>.

Poor water management was one of the causes of the process of land abandonment that can be observed in Iraq in this period. Between the 7<sup>th</sup> and 10<sup>th</sup> centuries, there was a growing phenomenon of abandonment of the land by peasants; indeed, under al-Hadjdjädj force was used in order to bring them back to the land<sup>104</sup>. Many villages and fields were abandoned, leading to a decline in the size of the cultivated area. The abandonment of land was related to fiscal pressures, as shown by the *Chronicle of Zuqñn*, which describes the dramatic conditions of peasants trying to escape the greed of tax collectors<sup>105</sup>. But this abandonment of the land was also deeply interrelated with problems of water management. Abū Yusūf, one of the acutest observers of the situation in Iraq at the end of the 8<sup>th</sup> century, wrote that in the time of ‘Umar Ibn Khaṭṭāb the greater part of the land was cultivated (which suggests that in his time the situation was rather different) and he added: “there are lands which were not cultivated for a period of 100 years, more or less, and could not be developed and irrigated without expense beyond the means

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102. Morony, “Landholding and Social Change”, 215-7.

103. Ashtor, *A Social and Economic History*, 51; Lamb, *Climate, History and the Modern World* (London-New York, 1995), 184-5; A. S. Issar and M. Zohar, *Climate Change-Environment and Civilization in the Middle East* (Berlin-Heidelberg-New York, 2004), 214-5.

104. Forand, “The Status”, 28. On al-Hadjdjädj’s taxation policies see also: M. Cosgel, R. Ahmed and Th. Miceli, *Law, State Power, and Taxation in Islamic History*, University of Connecticut. Department of Economics Working Paper Series, Working Paper January 2007, revised July 2008, 20

105. *The Chronicle of Zuqñn*, e.g. 225, 237 and 257.

of the peasants”<sup>106</sup>. Abū Yūsuf put a lot of emphasis on the revival of the dead lands and the importance of irrigation for this purpose. He also mentioned cases of uncultivated areas where ancient water-courses and canals had been found, which could be cleared to supply the untilled land<sup>107</sup>. He argued that “if the main canals and water-courses, from the Tigris and Euphrates, need clearing and cleaning the expenses should be borne by the Treasury and by those directly benefiting from such watercourses”. He also stated that “the expense of the upkeep of the walls on the river banks, to prevent flooding, of the dams and the water locks on the Tigris and Euphrates and similar great rivers, must be borne by the Treasury alone, because it is in the public interest that they should be kept in order as any mal function will cause damage to agriculture and decrease the income from taxation”<sup>108</sup>. Ẓudāma affirmed that the most important Muslim jurists, including Abū Ḥanīfa (ca. 699-767) and Malik (708/716?-796), also asserted that the supervision of irrigation and the damming of the overflow of the great rivers had to be sustained by the government at the expense of the Treasury<sup>109</sup>. It is possible that the relatively high tax revenue reported under the reign of Hārūn ar-Rashīd should be seen in connection with the great attention paid to a good central administration and proper water management system under the first Abbasids. Abū ‘Ubayd Allāh, the first author of a book on *kharāj*, a general treatise about taxation, already appointed under al-Manṣūr to the retinue of his heir al-Mahdī, was made vizier under the government of the latter (probably appointed in 775, died 786-7)<sup>110</sup>. Abū

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106. Abū Yūsuf, *Kitāb al-kharāj* (Transl. Ben Shemesh), 100; Abū Yūsuf, *Kitāb al-kharāj*, 28 (Arabic Text).

107. e.g. Abū Yūsuf, *Kitāb al-kharāj* (transl. Ben Shemesh), 106; Abū Yūsuf, *Kitāb al-kharāj*, 62-3 (Arabic text)

108. Abū Yūsuf, *Kitāb al-kharāj*, 106; Abū Yūsuf, *Kitāb al-kharāj*, 63 (Arabic text). See: Verrier, *Introduction*, 69.

109. Ẓudāma Ibn Dja‘far, *Kitāb al-kharāj*, 62; see also ‘Abdul Jabbar, “Agricultural and Irrigational Labourers”, 235-52.

110. S. Moscati, “Abu ‘Ubayd Allah”, in *EI* (2), vol. I, 157-8, D. Sourdel, *Le viziral ‘abbaside de 749 à 936 (132 à 324 de l’Hégire)*, vol. I (Damascus, 1997,

Yūsuf, whose *Kitāb al-kharāj* pays much attention to the problems of water management, was appointed *kāḍī* of Baghdad at the demand of Hārūn ar-Rashīd (however it is not known whether this appointment was made by al-Mahdī, al-Hādī or Hārūn ar-Rashīd) and he was often consulted by the Caliph of The Arabian Nights<sup>111</sup>. It seems that several irrigation works were accomplished under the first member of the ‘Blessed Dynasty’, initially particularly in the areas of Basra and Wāsīt, with attention then shifting to the areas of Baghdad, Samarra and the central reaches of the Tigris river<sup>112</sup>.

A key case in understanding the history of water management in Ancient and Medieval Mesopotamia, the Diyālā plain, has been analysed by the archaeologist Robert McC. Adams. This area was crossed by the Diyālā River and the *Ḳāṭūl al-Kisrawī* canal. A network of smaller canals allowed the Diyālā region to have very high land productivity and a very large tilled surface area. The tilled surface area shrank from 8000 square kilometres at the end of the Sasanian era to just 6000 square kilometres by the middle of the 9<sup>th</sup> century<sup>113</sup>. Two cities, five smaller urban centres, three large towns and ninety villages or boroughs were abandoned soon after the end of the Samarran period<sup>114</sup>. Adams hypothesises that under the Sasanian Empire water management was more efficient and highly centralised<sup>115</sup>. The evidence supports his views, as I have shown before: State investment and centralised administration were crucial in the last phase of Sasanian agricultural development. Other archaeological surveys conducted in the Central Euphrates floodplain show, according to Adams, a decline in land use since the

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94-103.

111. J. Schacht, “Abu Yusuf” in *EI* (2), vol. I, 164-5.

112. Lapidus, “Arab Settlement”, 187-9.

113. Adams, *Land*, 102.

114. Adams, *Land*, 98.

115. Adams, *Land*, 70-1; about Sasanian water management, see also R. McC. Adams, “Intensified Large-Scale Irrigation as an Aspect of Imperial Policy: Strategies of Statecraft on the Late Sasanian Mesopotamian Plain”, in *Agricultural Strategies*, ed. by J. Marcus and C. Stanis (Los Angeles, 2006), 17-37.

7<sup>th</sup> century, which almost became abandonment in the 9<sup>th</sup> and 10<sup>th</sup> centuries<sup>116</sup>. Of course there are various methodological risks in using, as Adams does, the absence of diagnostic sherds to prove the absence of occupation at a site, and one of these problems can be the need to use pottery to establish a relative chronology of settlement<sup>117</sup>. However, we should not forget that this process of abandonment seems to take place over several centuries, therefore making the possibility of an error in chronology or in settlement occupation smaller. Furthermore, there is less and less evidence of irrigational works taking place in the written sources from the 9<sup>th</sup> century onwards<sup>118</sup>.

#### 4. Reform in tax assessment, the diffusion of tax-farming and grants of tax revenue (end of the 8<sup>th</sup> century to the 10<sup>th</sup> century)

As we have seen, the land was taxed in Iraq according to the system called *'alā 'l-misāḥa*. According to al-Balādhurī, at the end of the reign of al-Manṣūr (754-775) the people of the Sawād asked for a change in tax assessment. Under al-Mahdī (ruled 775-785), a new taxation system, based on a share of the crops, was

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116. Adams, *Heartland*, pp. 218-23; for land abandonment, see also R. McC. Adams and H. Nissen, *The Uruk Countryside. The Natural Setting of Urban Societies* (Chicago and London, 1972), 63-5.

117. M. G. Morony, "Land Use and Settlement Patterns in Late Sasanian and Early Islamic Iraq", in *The Byzantine and early Islamic Near East II Land Use and Settlement Patterns*, ed. by G.R.D. King and Averil Cameron (Princeton, 1994), 221-29, 222-6.

118. Lapidus, "Arab Settlement", p. 189. Christensen has argued that the decisive factor in the decline was the spread of epidemics in the Middle East and their demographic consequences. But demography does not directly explain the decline in water management. Whether population decline plays a role in water management or not depends on the social and political organisation of the water management system. The key issue is to explain how water management was organised. I remind the reader that plague epidemics had already occurred on the Mesopotamian plain in the 6<sup>th</sup> century, a period of expansion for irrigated agriculture; Christensen, *Decline*, 88-99.

enforced. As we know, this system was called *muḳāsama*: «Yahyā Ibn ʿAdam said: concerning the *muḳāsama* in the Sawād; the people (*nās*) asked for this from the ruler in the last period of the Caliph al-Manṣūr’s reign»<sup>119</sup>. Under this form of tax assessment, instead of a fixed amount of money or crops, the taxpayers had to pay a share of the crop: one half of the crop for land irrigated by flooding, a third for land irrigated by waterwheel and one quarter for land irrigated by animal-turned wheels, according to al-Māwardī<sup>120</sup>. According to Ḳudāma Ibn Djaʿfar, Abū ʿUbayd Allāh, al-Mahdī’s vizier<sup>121</sup>, suggested that people who irrigated their land with buckets should pay with one third of their crops, while those who irrigated their land with waterwheels should pay with one quarter, and in general advised that the government should take into account all the expenses afforded by the taxpayer when calculating the final assessment<sup>122</sup>. Abū Yūsuf suggested that the people of the Sawād (ahl as-Sawād) should pay 40% of their output in the case of naturally irrigated lands and 30% for artificially irrigated lands producing wheat and barley<sup>123</sup>. Other sources give other rates, with a minimum rate of 10%<sup>124</sup>. Al-Māwardī writes that tax rates amounted to one half of the crop for land irrigated by flooding, a third for land irrigated by waterwheel and one quarter for land irrigated by animal-turned wheels<sup>125</sup>. Al-Māwardī’s rates seem to have been closer to reality, especially as Abū Yūsuf’s rates are suggested as optimal ones and were not considered by the jurist to have been the rates actually assessed. Aṭ-Ṭabarī writes that the al-Maʿmūn reduced the taxation rate to 40%. It is doubtful that this change should be considered to have been a

119. Al-Balādhurī, *Kitāb futūh al-buldān*, 271.

120. Al-Māwardī, *Al-aḥkām as-sultāniyya*, 221.

121. S. Moscati, “Abu ʿUbayd Allah” in *EI* (2), I, 157-8.

122. Ḳudāma Ibn Djaʿfar, *Kitāb al-kharādj*, 40-1 (English translation), 119 (Arabic text).

123. Abū Yūsuf, *Kitāb al-kharādj* (English translation), 101; Abū Yūsuf, *Kitāb al-kharādj* (Arabic text), 28.

124. C. E. Bosworth, “Muḳāsama” in *EI* (2), vol. VII, 506-7.

125. Al-Māwardī, *Al-aḥkām as-sultāniyya*, 221.

permanent reform, but it is evident that it reveals that 50% was already a common rate at the beginning of the 9<sup>th</sup> century<sup>126</sup>.

According to Ibn at-Ṭiḡṭakā (wrote in 1302), the new system was introduced thanks to Abū ‘Ubayd Allāh<sup>127</sup>. It is interesting to note this bottom-top-bottom movement. The initiative for the tax reform came from the ‘people’ (*nās* in the Arabic text of Balādhurī), but was further promoted by a minister. Why does there seem to be this special agreement between the two levels? Who are the ‘people’ who asked for the reform and why?

It should first be noted that we are told of an abrupt fall in prices around the year 772 in upper Mesopotamia: the price of wheat was one dirham for five *mudd*, which is equal to 0.027 dinars for 100 kg of wheat. From the *Chronicle of Zuqnīn*, we can estimate an average price of around 0.112 dinars for 100 kg of wheat just a few years before in 766-767<sup>128</sup>, and 0.088 dinars for 100 kg in 768-769<sup>129</sup>. Ashtor argues that this fall in prices occurred because of a lack of currency<sup>130</sup>. With such a fall in prices, it would have been more difficult to pay taxes in cash. I have made a rough calculation of how much the taxpayer would have been expected to hand into the State with such prices. If we accept the reported tax rate of 4 dirhams per *djarīb* of wheat, it implies that about 1,229 kg of wheat per *djarīb* (1,592 m<sup>2</sup>) had to be paid in tax. According to Adams, land produc-

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126. Abū Dja‘far Muḥammad Ibn Djarīr at-Ṭabarī, *Ta’rīkh ar-Rusul wa ‘l-mulūk. Annales quos scripsit Abū Djafar Mohammed Ibn Djarīr At-Tabarī*, ed. M.J. De Goeje, 15 vol. (Leiden, 1879-1901), III series, p. 1039; cfr. ; M. Nejatullah Siddiqi and S.M. Ghazanfar, “Early Medieval Islamic Economic Thought. Abu Yousuf’s (731-798 AD) Economics of Public Finance”, in *Medieval Islamic Economic Thought. Filling the Great Gap in European Economics*, ed. by S. M. Ghazanfar (New York, 2003), 209-27, 213-4.

127. Muḥammad Ibn ‘Alī Ibn at-Ṭiḡṭakā, *Al-Fakhri*, translated by C. E. J. Whitting (London, 1947), 176-177; Arabic text: *Al-fakhrī fī ‘l-ādāb as-sulṭaniyya wa ‘d-duwwal al-Islāmiyya* (Ḥalab, 1997), 179-80.

128. *The Chronicle of Zuqnīn*, 186 and 216.

129. *The Chronicle of Zuqnīn*, 245.

130. E. Ashtor, *Histoire des prix et des salaires dans l’Orient médiéval* (Paris, 1969), 42.

tivity per hectare in the Diyālā region of Iraq would have amounted to around 1,132 kg of wheat per hectare<sup>131</sup>. Of course these are very rough estimates, but we can definitely assume that the situation was quite difficult for the taxpayers. Nevertheless, it would perhaps have been possible to solve the emergency using temporary measures. Therefore there should also be other reasons behind the reform that took place in the Sawād.

We should not forget that the *muḳāsama* was specifically used to collect tax on grain, the staple food of the Mesopotamian populations since the Sumerian Era. Al-Māwardī, for example, explained that on palms, vines and trees the tax had to be collected under the ‘*alā ’l-misāḥa* system<sup>132</sup>. Shimizu has shown how one of the reasons for the adoption of the *muḳāsama* system in as-Sawād was an attempt by the State to control the grain market in the area of southern Iraq, where the most important cities of the Empire needed to be supplied. With ‘*alā ’l-misāḥa*, the merchants had a lot of opportunity to speculate. Under ‘*alā ’l-misāḥa* the taxpayers had to sell the grain at a bargain price in order to pay their taxes: the merchants could therefore lead the dance<sup>133</sup>. With the new system, it was probably easier for the government to ensure that the growing urban population was fed; in an area that became, with the rise of the Abbasids, the political centre of the Empire. However, we should not forget that under the ‘*alā ’l-misāḥa* system a portion of the taxes could nevertheless be collected in kind.

*Muḳāsama* did not necessarily mean tax collection in kind: the prevalent implication of the use of the word *muḳāsama* was the collection of the tax burden as a share of the crop (*muḳāsama* comes from the Arabic root *ḵsm*, to divide, to share). Basically, what *muḳāsama* offered was the possibility of risk sharing: in the case of a bad harvest the taxpayers would be not oppressed, in the case of a good harvest the State could increase its revenues. With

131. Adams, *Land*, 17 and 101-2.

132. Al-Māwardī, *Al-aḥkam as-sulṭaniyya*, 221.

133. Shimizu, “Les finances”, 20-2.

*muḳāsama* it would have been possible to share the crops or the money gained by selling them at market, apparently preventing contention between the authorities and the taxpayers<sup>134</sup>.

We should also remember that Balādhurī wrote that the people of the Sawād asked for the reform: I believe that the diffusion of the new tax assessment was also related to the necessity of establishing good relationships between the Muslim landlords/taxpayers, who were purchasing or had purchased land in Iraq, as I have shown in the third chapter of this paper, and the new dynasty. This attitude was in marked-contrast with the more severe fiscal policies of the Umayyads, who had to rely more heavily on cadastres to firmly establish fiscal duties on the basis of the *'alā 'l-misāḥa* tax assessment (based on the size of the tilled surface area)<sup>135</sup>. In particular, I refer to the land survey of the Sawād conducted in 105 AH (723-4 AD) by the governor 'Umar Ibn Hubayra at the request of Yazīd II. This land survey is reported to have caused hardship and discontent among taxpayers<sup>136</sup>.

The payment of a share of the crops instead of a fixed amount would have meant that the landlords were better able to afford the payment of taxes. This system, however, perfectly fits into a situation in which investment in land administration was declining, and the landlords were living off their land as parasitic *rentiers*. If a share of the crops has to be paid instead of a fixed amount of money or cash, the State and taxpayer can share the risk, but this system also stimulates less investment in agriculture. Under the *'alā l-misāḥa*

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134. M. Campopiano, "Land Tax *'alā l-misāḥa* and *muqānāma*. Legal Theory and the Balance of Social Forces in Early Medieval Iraq (6<sup>th</sup>-8<sup>th</sup> Centuries C. E.), *Journal of the Economic and Social History of the Orient*, 54, 2011, 239-269.

135. A similar process has been observed by Elton E. Daniel for Khurasan "It is more likely that Umayyad attempts to survey land, draw up cadastres, and enforce the land tax led to dissent than their alleged impiety"; *The Political and Social History of Khurasan under Abbasid Rule 747-820* (Minneapolis and Chicago, 1979), 196.

136. Wadād al-Qāḍī, "Population Census and Land Surveys under the Umayyads (41-132/661-750)", *Der Islam* 83/2, 2006, 341-416, 365.

system, the taxpayers had to pay four dirhams for each *djārīb* of land planted with wheat, but they could keep the remaining crops for themselves: to produce one more pound of wheat meant to have one more pound for themselves. Under the *mukāsama* assessment, each pound of wheat had to be shared with the State.

Another downside to *mukāsama* was that it would have been more difficult to calculate the State budget. A similar case can be found in the history of the Sasanian Empire. At first, the Persians adopted a system similar to *mukāsama*: a portion of the harvest was taken as tax. The harvest varied from year to year, making it difficult for the government to estimate its revenue. In the case of a shortage, the government had recourse to extra imposts, causing riots and discontent. The reform of the started tax assessment, already seen by Kawād (488-531), was finally fulfilled by Husraw I<sup>137</sup>. A fixed amount, payable either in cash or in kind, was collected. This system probably made it easier to estimate the amount of revenue due to the State and would have provided a steadier source of income<sup>138</sup>. As we know, this system was the predecessor of the Islamic *'alā 'l-misāha*<sup>139</sup>.

However, the possible weakening effects did not go unnoticed

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137. M. Grignaschi, "La riforma tributaria di Hosro I e il feudalesimo sassanide", in *Accademia Nazionale dei Lincei. Problemi attuali di scienza e cultura. Atti del convegno internazionale sulle tema La Persia nel medioevo* (Roma, 31 marzo-5 aprile 1970) (Rome, 1971), 87-138; R. N. Frye, *The History of Ancient Iran* (München, 1984), 324-5; Z. Rubin, "The Reforms of Khusro Anūshirwān", in *The Byzantine and Early Islamic Near East. III: States, Resources and Armies*, ed. by A. Cameron (Princeton, 1995), 227-97; U. Mårtensson, "Discourse and Historical Analysis: the case of al-Tabarī's *History of the Messengers and the Kings*", *Journal of Islamic Studies* 16/3, 2005, 287-331; A. Gariboldi, *Il regno di Xusraw dall'anima immortale. Riforme economiche e rivolte sociali nell'Iran Sasanide del VI secolo* (Milano, 2007), 178-97.

138. M. Khan Fateh, "Taxation in Persia. A Synopsis from the Early Times to the Conquest of Mongols", *Bulletin of the School of Oriental Studies* 4/4, 1928, 723-43, p. 730; A. Christensen, *L'Iran sous les Sassanides*, second edition (Copenhagen, 1944), 124; Løkkegaard, *Islamic Taxation*, 110; Daniel, *The Political and Social History*, 195.

139. Løkkegaard, *Islamic Taxation*, 119.

by Muslim scholars. It is noted, for example, that at-Ṭabarī (839-923) favourably portrayed the tax reform enforced by Husraw, since cadastral assessments, a land tax based on fixed rates and a centralisation of tax revenue would have strengthened the State<sup>140</sup>. Since the taxation was not based on fixed cadastral assessments, but required a calculation of the State's share, the role of intermediaries became more important in order to deal with the difficulties of centralisation. The difficulty of estimating tax revenue was one of the reasons the Abbasid Empire had to have recourse to more tax-farming and to different forms of tax revenue, which finally culminated in the creation of the *ikṭā'* system under the Buwayhid. Tax-farming and *ikṭā'* either assured a more stable income for the State, or saved the government from paying a salary to officers and soldiers and hiring agents to poll taxes around the Empire. The role of the tax-farmers (*dāmin*) was extremely important: in the year 280 AH, for example, the totality of the Sawād income depended on a contract with Aḥmad Ibn Muḥammad at-Ṭā'ī<sup>141</sup>.

Tax-farming was possible at different levels, within the central or local government, or within smaller districts. Before the contract was signed, the sum to be handed over to the State, the general amount of the revenue and all the extra charges, was fixed on the basis of the previous incomes from that area. The Treasury could also order their officers, at the demand of the tax-farmer, to allocate some funds for important works in the farmed area (such as irrigation). However, the tax-farmers were expected to take upon themselves tasks such as ground amelioration and hydraulic works, and their activity was controlled by inspectors<sup>142</sup>. As the contract ran for a limited period, the interest of the tax-farmer lay in the op-

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140. Mårtensson, "Discourse and Historical Analysis", 287-331.

141. Shimizu, "Les finances", 11-12, for the contract with Aḥmad Ibn Muḥammad at-Ṭā'ī: *The Historical Remains of Hilāl al-Sābi. First Part of his Kitāb al-Wuzara (Gotha Ms. 1756) and Fragment of his History (389-393) A. H. (B. M. Ms, add. 19360)*, ed. by H. F. Amedroz (Leyden, 1904), 10-1.

142. Løkkegaard, *Islamic Taxation*, 96.

portunity to minimise costs (including ground amelioration costs) in order to maximise profits. Therefore he had more interest in ‘squeezing’ money from the tax-payers than in investing in water management. The tax-farmer was forced to hand over a fixed sum to the State even if the general revenue was smaller than the sum fixed in the contract<sup>143</sup>. In the case of a decline in revenue, the tax-farmer, since he could not modify the sum to be handed over to the State, would try to increase the burden on the taxpayers. To offer the necessary financial guarantees to the State, the tax-farmers had to be chosen from the upper classes of ‘Abbasid Society. According to al-Muqtadir’s vizier Ibn al-Furāt, three social groups could act as tax-farmers; merchants (*tādjir*), trustworthy officers (*‘āmil waft*) -and wealthy landlords (*tān ghanī*)<sup>144</sup>. The role of merchants, and in particular of grain merchants, is very relevant because it clearly links tax-farming and the grain trade: tax-farmers, such as Aḥmad Ibn Muḥammad aṭ-Ṭā’ī, often abused their position in order to speculate on grain prices<sup>145</sup>.

Other possible areas exempted from tax collection rights were *īghār* and *muḳāta‘a*, districts enjoying fiscal immunity which paid only a fixed sum to the State, and *taswīgh*, an area which was enjoying full tax exemption for one year<sup>146</sup>. According to Cahen, from these concessions under the Buwayhids the military *īqtā‘* developed, based on the institution of *īqtā‘ al-istighlāl*, *īqtā‘* of usufruct<sup>147</sup>. The *tu‘ma*, a life-long grant of revenues to a province or a district, in use from the early Islamic period until the beginning of the 10<sup>th</sup> century,

143. Shimizu, “Les finances”, 12-14.

144. *The Historical Remains*, 71. I write the Arabic words in their singular form as in the original text.

145. Aḥmad Ibn Muḥammad aṭ-Ṭā’ī’s -speculations concurred with rising prices in Baghdad in 272 A.H.; aṭ-Ṭabarī, *Ta’rīkh*, III series, 2110; Shimizu, “Les finances”, 16.

146. C. Cahen, “L’évolution de l’iqta‘ du IX<sup>e</sup> au XIII<sup>e</sup> siècle. Contribution a une histoire comparée des sociétés médiévales”, *Annales. Economies, Sociétés, Civilizations* 8, 1953, 25-52, 28-9; Løkkegaard, *Islamic Taxation*, 107-8.

147. Cahen, “L’évolution”, 30-2.

must also be mentioned<sup>148</sup>. The *iktā' al-istighlāl* was a concession of the fiscal rights of the State over land in place of a salary. This kind of grant became an increasingly common way to pay soldiers after 946, under Mu'izz ad-Dawla<sup>149</sup>. Some *iktā'* also included tax-farming assignments and land grants. The grantees often acquired rights to the administration of these lands, initially connected to their right to collect taxes, and often developing into a more general administrative power<sup>150</sup>. To give an idea of how important this phenomenon was, it must be noted that in 958, at the very end of the period under consideration, Mu'izz ad-Dawla granted the revenue of the provinces of Wāsit, Basra and Ahwāz<sup>151</sup>. The grantees often extended their land estates in the areas which were given to them as *iktā'* by accepting the submission of farmers who, unable to afford the payment of imposts, gave their fields to the lords in exchange for protection<sup>152</sup>. This phenomenon resulted in the diffusion of large *latifundia*.

## A conclusion

The competition of the different ruling groups to gain access to land surplus seems therefore to have been the ultimate reason for the decline of Iraqi agriculture. These groups fought to receive land grants and to acquire fiscal privileges. Even when they made relevant investments in agriculture, as was the case with the diffusion of market oriented monocultures in the Basra region, they were made to a large extent through the massive importation of slave labour, a

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148. Kennedy, *The Armies*, 85.

149. S. Tsugitaka, *State and Rural Society in Medieval Islam. Sultans, Muqta's and Fallahun* (Leiden-New York-Köln, 1997), 20-1.

150. For a more detailed classification, see Cahen, "L'évolution", 28-32; Tsugitaka, *State*, 1-4 and 18-38.

151. Ashtor, *Histoire des prix*, 71-2.

152. H. Ben Abdallah, *De l'iqta' étatique à l'iqta' militaire. Transition économique et changements sociaux à Bagdad, 247-447 de l'Hégire/861-1055 ap. J.C.* (Uppsala, 1986), 110-112.

social time bomb, and at the expense of smaller landlords and cultivators. The diffusion of the *iḳtā'* system was the final consequence of a process in which different factions or groups of the ruling classes competed to acquire control over land and its surplus: this was, for them, a reward for their political affiliation, for their military service, another source of revenue to integrate into their political, bureaucratic or commercial activities, or a limited resource that they could speculate on. The possibility of acquiring and keeping possession of land surplus ultimately depended upon their political position- their need to make land prosper and fructify was secondary. In all probability, a stronger influence from those social groups whose life and prosperity entirely depended on the land and on its returns would have halted the process of decline in Iraqi agriculture.

Michele CAMPOPIANO

(Centre for Medieval Studies, University of York)

## Appendix

### Prices and wages

It is extremely difficult to establish trends for wages and prices in early medieval Iraq, firstly because of the lack of sources. For example, the largest set of prices we have, wheat prices, only begins at the end of the 8<sup>th</sup> century. Furthermore, the sources we do have (essentially literary sources, chronicles, juridical treatises etc.) usually inform us about exceptionally low or high prices, making it more difficult to compare the different data available. However, it is not impossible to establish trends. First of all, some price data are not considered in the sources as exceptionally high or low, but as general or average prices. Furthermore, it is interesting to compare the peaks and valleys of a sequence at different periods in time. If, for example, exceptional prices tend to be higher at any one time, this fact could be eventually considered as an element in evaluating

price trends over time: therefore we should only compare homogeneous entities (e.g. the 'normal' prices among them). Another problem is related to the fact that we have recourse to some data available for Upper Mesopotamia. Even though this region is close to Iraq (and in part belongs to what is now the Republic of Iraq) and was a grain supplier for the people of Sawād<sup>153</sup>, we cannot assume that the level of prices was always the same.

The *Chronicle of Zuqnīn* tells us that in 766-767 25/30 *djarīb* of wheat were sold for one dinar. Since one *djarīb* in the *Chronicle of Zuqnīn* was ten *kaftz*, we can estimate an average price of around 0.112 dinars for 100 kg of wheat<sup>154</sup>. The chronicler recorded that the market price of wheat for the years 768-769 was one dinar for 30-40 *djarīb*<sup>155</sup>, therefore it can be calculated that 100 kg of wheat were sold for 0.088 dinars. The chronicler also noted that in the same year 30 *kaftz* of wheat were sold for one *zūz* (a silver coin, one dirham is what is meant), which would indicate a price of one dirham (around 1/12 of dinar) for 97.35 kg of wheat, and this more or less confirms our previous calculation<sup>156</sup>. Since it is not indicated that these prices are exceptional (perhaps just 'moderate'), they represent a good indicator of wheat prices in the area. Reading al-Azdī, we can see that in Mosul in 791 1,200 *raṭl* of wheat were sold for 30 dirhams and the same quantity of barley for 20 dirhams, which equates to around 0.51 dinars per 100 kg of wheat and 0.34 dinars for the same amount of barley<sup>157</sup>. In 815 100 kg of wheat flour in Mosul would have cost 0.51 dinars<sup>158</sup>. It seems that the cost of wheat was by far the most

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153. Ashtor, *Histoire des prix*, 42-45 and 453-7.

154. *The Chronicle of Zuqnīn*, 186 and 216. Ashtor assumes 7 *kaftz*, but he was wrong in this case (*Histoire des prix*, 42).

155. *The Chronicle of Zuqnīn*, 245.

156. *The Chronicle of Zuqnīn*, 223.

157. Yazīd Ibn Muḥammad al-Azdī, *Ta'rīkh al-Mawṣil* (El Cairo, 1967), 276; Ahsan reads 40 dirham for the wheat but the source says 30; Ahsan, *Social Life*, 138.

158. al-Azdī, *Ta'rīkh al-Mawṣil*, 340; Ahsan, *Social Life*, 138; see Hinz, *Islamische Masse*, 31.

important element in establishing flour prices<sup>159</sup>. It is difficult to estimate to what extent the wheat price determined the flour price. We know that at the end of the year 941, because of a sudden growth in grain prices, one *kurr* (2,925 kg) of wheat was sold for 210 dinars, and one *makkūk* (probably 5.625 kg) of flour for 6 dirhams, which equates to one *kurr* of flour being sold for around 312 dinars (estimating 1 dinar = 10 dirhams)<sup>160</sup>. In a period of scarcity the role of wheat in establishing the flour price would have been overestimated, but we can nevertheless reasonably assume that the grain represents around two-thirds of the flour price, giving an estimated price of around 0.34 dinars for 100 kg of wheat in Mosul in 815.

At the beginning of the 10<sup>th</sup> century, ʔudāma Ibn Djaʔfar wrote that the price of 2 *kurr* of mixed wheat and barley was 60 dinars<sup>161</sup>. Since the price of wheat was almost double that of barley, and one *kurr* was 2,925 kg, the price of wheat at the beginning of the 10<sup>th</sup> century was approximately 1.367 dinars and the price of barley around 0.68 dinars. This figure also does not refer to an exceptional price. Therefore, at the beginning of the 10<sup>th</sup> century the nominal wheat price was nearly ten times higher than in middle of the 8<sup>th</sup> century and the price of barley at least double by the end of the 8<sup>th</sup> century.

Other sources give us exceptionally high or low prices related to particular events such as wars, famines and, in the case of low prices, lack of currency. The *Chronicle of Zuqnīn* tells us that the price of wheat rose, because of the famine, to one dinar for 7 or 8 *kaftz* in 743-4 (equal to one dinar for 22.715 or 25.96 kg); one dinar for one *djarīb* (34.25 kg) in 750-1 and 3.5 *zūz* for *kaftz* in 766-7 (0.29 dinars

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159. Ashtor, *Histoire des prix*, 48 ; see also Id., “ Prix et salaires à l' époque mamlouke. Une étude sur l' état économique de l' Egypte et de la Syrie à la fin du moyen âge“, *Revue des études islamiques*, 1949, 49-94, in particular 71.

160. See Ashtor, *Histoire des prix*, 40-41 (value of dinar) and 43-8 (prices).

161. ʔudāma Ibn Djaʔfar, *Kitāb al-kharādj* (ed. M. J. De Goeje), 239 (Arabic text).

per 3.245 kg)<sup>162</sup>. We are told of an abrupt fall in prices around the year 772: the price of wheat was one dirham for five *mudd*, which equals 0.027 dinars for 100 kg of wheat. Regarding exceptionally high prices, we must remember that aṭ-Ṭabarī writes that the price of wheat in the year 822 was around 40 dirhams for one *kaftz*. In Iraq, in the 10<sup>th</sup> century the *kaftz* equalled 48.75 kg of wheat (or half of this, since the same word was used for double the amount)<sup>163</sup>. Since one dinar was equivalent to about 20 dirhams, the price of 100 kg of wheat was about 4 dinars. We also know about exceptionally high prices due to speculation. Exceptionally high prices were recorded for the year 874: 150 dinars for one *kurr* of wheat (around 5 dinars for 100 kg) and 120 for barley (around 4 dinars for 100 kg). Under al-Muʿtaḍid (892-902), the vizier Ibn al-Furāt sold 2 *kurr* of wheat and barley at 90 dinars, which was approximately 2 dinars for 100 kg of wheat and around half of this for the same quantity of barley. In 919, due to speculations connected to tax-farming, the vizier Ḥāmid Ibn al-ʿAbbās was able to acquire a large quantity of grain and the wheat and barley were sold at 55 dinars for one *kurr muʿaddal*<sup>164</sup>. As the prices were too high, the government was forced into fixing the wheat price at 50 dinars for one *kurr muʿaddal*, which is equal to 609.375 kg<sup>165</sup>, meaning that the price had risen to around 9 dinars per 100 kg of wheat. Higher prices were also recorded in later periods: 120 dinars for a *kurr* of wheat in 935 (4 dinars per 100 kg), 130 dinars for a *kurr* of wheat in the summer of 941 (4.4 dinars per 100 kg), 210 dinars for a *kurr* of wheat in December of the same year (7.17 dinars for 100 kg) and 120 dinars for a *kurr* of barley, 316 or 317 for a *kurr* of wheat in 942 (about 10.8 dinars per 100 kg) and 120 for a *kurr* of barley and 25 dirhams (1.78 dinars) for one *makkūk* (probably 5.625 kg) in 946<sup>166</sup>.

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162. *The Chronicle of Zuqnān*, 167, 186 and 213.

163. Hinz, *Islamische*, 48-9.

164. Ashtor, *Histoire des Prix*, 46.

165. Hinz, *Islamische Masse*, 42.

166. Ashtor, *Histoire des prix*, 43.

The prices of grain have to be compared, of course, with wages. Notwithstanding the scarcity of primary sources, a consistent increase in nominal wages can be noticed from the 8<sup>th</sup> to the 10<sup>th</sup> century. However, real wages did not increase and even declined. In 762-766 an unskilled worker employed on the construction of Baghdad earned between 1 ¼ and 1 7/8 dirhams per month, equal to between 0.1 and 0.156 dinars. The price of wheat at this time was 0.112 dinars per 100 kg, so the monthly wage of an ordinary worker could be converted into 89-139 kg of wheat per month. However, it is also possible that the authorities distributed grain for free<sup>167</sup>. In the second half of the 9<sup>th</sup> century a glass craftsman could earn 1.6 or 1.8 dinars per month<sup>168</sup>. In the first half of the 10<sup>th</sup> century, a young accountant was hired for 2 dinars per month (but as the source explains that he was desperate, it can be supposed that his salary was quite low for his position). Two dinars per month, in the first half of the 10<sup>th</sup> century, more or less corresponds to 146 kg of wheat<sup>169</sup>. If it is considered, as the evidence suggests, that the unskilled worker also received a contribution in kind, the second wage (that of a clerk) seems to be comparable or even lower than the first one.

The largest set of wage data available is for military wages. An analysis of military wages is interesting because the soldiers had considerable bargaining power. Military expenditure represented the bulk of the budget of the Caliphs. It can be estimated that under the governor Ziyād Ibn Abī Sufyān (665-673) 86% of the revenue from the provinces of Basra and Kūfa (which more or less covers the whole of Iraq) was devoted to military expenditure<sup>170</sup>. When al-Mu‘tadid came to power in 892, 80% of expenditure was devoted to the army<sup>171</sup>. The army was usually paid in mint coins, but they also received land grants (*kaṭī‘a*). At the time of the Arab

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167. Ashtor, *Histoire des prix*, 64.

168. Ashtor, *Histoire des prix*, 65.

169. Ashtor, *Histoire des prix*, 65.

170. Kennedy, *The Armies*, 71.

171. Kennedy, *The Armies*, 156.

conquest, it is said that the soldiers who took part in the early campaigns in Iraq were paid 3,000, 2,500, or 2,000 dirhams per year, but after the battles of Kādisiyya and Yarmūk and the collapse of the Persian empire their wages fell to 1,000 and then to 500, 300 or even 200 dirhams per year, which equates to a little less than 50, 30 or 20 dinars<sup>172</sup>. It can be assumed that 30 dinars per year was a common soldier's wage after the Arab conquest of Iraq. Under the Umayyads a soldier's wage was usually 8 dinars per month. One 'month' of pay did not correspond to a common 'month', in this context a period of 3 or 4 months could be meant. There were also troops who earned less anyway. At the beginning of their power the Abbasids reduced the wages. As-Saffāḥ, the first of the Abbasids (d. 754), paid 6.5 dinars per month (80 dirhams), and this seems to have been an exceptionally high wage, due the conquest and the large booty of the Abbasid army<sup>173</sup>. These lower wages were probably due to a greater supply of soldiers, since many non-Arabs, for example the Khurasians, were enrolled in the army. The evidence shows that under al-Ma'mūn, the infantrymen received one dinar (20 dirhams) per month and horsemen double this<sup>174</sup>. In the year 200 AH Abū 's-Sarāyā paid 1,000 dirhams to the horsemen and 500 to the infantry, probably per year, which equates to 50 and 25 dinars respectively<sup>175</sup>. At the beginning of the 10<sup>th</sup> century, under al-Muqtadir, the wage for mounted troops was 12.5 dinars per month until 917, when it was diminished by two-thirds<sup>176</sup>. It can be seen that there were at-

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172. Ashtor, *Histoire des prix*, 61.

173. This is probably the wage of a horseman: 'Izz al-Dīn Muḥammad Ibn al-Atīr, *Tārīkh al-kāmil*, 12 vol. (El Cairo, 1873), vol. V, 322.

174. 'Izz al-Dīn Muḥammad Ibn al-Atīr, *Tārīkh al-kāmil*, vol. VI, 228.

175. Aḥmad Ibn Muḥammad Miskawayh, *Taḍjārib al-umam*, in *Fragmenta historicorum Arabicorum : et quidem pars tertia operis Kitābo al-Oyun wa al-hadā'ik fī akhbāri al-hakā'ik, et pars sexta operis Taḍjārib al-Omami auctore Ibn Maskowaih* (Leiden, 1869-1871), 423.

176. Aḥmad Ibn Muḥammad Miskawayh, *Taḍjārib al-umam* (*The eclipse of the 'Abbasid caliphate; original chronicles of the fourth Islamic century*), edited and translated by H. F. Amedroz and D. S. Margoliouth. 7 vol. (Oxford, 1920-21), vol. I, 43 (Arabic text).

tempts to reduce wages, but eventually they increased again. In 929 a cavalier could be paid as much as 42 dinars per month, but this seems to be an exceptionally high wage.<sup>177</sup>

Therefore, if we want to calculate real wages in terms of wheat quantity, it must be realized that in the second half of the 8<sup>th</sup> century the real wage of a horseman with a nominal wage of 6.5 dinars would have been 5803.5 kg of wheat (using the wages reported for As-Saffāh, d. 754). At the beginning of the 10<sup>th</sup> century, the real wage of mounted troops (nominal wage of 12.5 dinars) would have been around 914 kg of wheat. It is even more interesting to calculate the real prices of wheat in terms of wages: 100 kg of wheat would have been more or less the 1.723% of a monthly wage of a horseman, and at the beginning of the 10<sup>th</sup> century it would have been 10.9% of the monthly wage of a cavalier.

Recorded land tax revenue from Iraq (in dirham, Middle of the 7<sup>th</sup> c. to ca. 918-919)

Period or year	Tax revenue
Caliph ‘Umar ibn al-Khattāb (634-644)	116,000,000 dirhams c.
Caliph Mu‘āwiya (661-680)	150,000,000 dirhams c.
Caliph ‘Umar ibn ‘abd al-Azīz (717-720)	112,000,000 dirhams c.
787-8	123,740,000 dirhams
819	114,457,650 dirhams. This figure is overestimated as it is based on prices at the beginning of the 10 <sup>th</sup> century. Part of the tax amount was collected in kind.

177. Ashtor, *Histoire des prix*, 70-1.

Middle 9 <sup>th</sup> century	113,097,760 dirhams This figure is overestimated as it is based on prices at the beginning of the 10 <sup>th</sup> century. Part of the tax amount was collected in kind.
918-919	27,354,100 dirhams

Recorded grains prices

<b>Year</b>	<b>Wheat Prices</b>	<b>Barley Prices</b>
743-4	1 dinar for 22.715/25.96 kg	
750-1	1 dinar for 34.25 kg	
766-7	0.112 dinars for 100 kg	
766-7	0.29 dinars for 100 kg	
768-9	0.088 dinars for 100 kg	
ca 772	0.027 dinars for 100 kg	
791	0.51 dinars for 100 kg	0.34 dinars for 100 kg
815	0.34 dinars for 100 kg	
822	4 dinars for 100 kg	
874	5 dinars for 100 kg	4 dinars for 100 kg
892-902	2 dinars for 100 kg	1 dinar for 100 kg
Beginning 10 <sup>th</sup> century	1,367 dinars for 100 kg	0.68 dinars for 100 kg
919	9 dinars for 100 kg	

935	4 dinars for 100 kg	
941 (summer)	4.4 dinar for 100 kg	
941 (December)	7.17 dinars for 100 kg	4 dinars for 100 kg
942	10.8 dinars for 100 kg	4 dinars for 100 kg
946	1.78 dinars for 5.625 kg	