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Sowing the Seeds of Rural Decline?: Agriculture as an Economic Barometer for Late Mamluk Jordan

The 1995 publication of Amalia Levanoni's *A Turning Point in Mamluk History* challenged historians of the Mamluk period to define and account for the political, social, and economic shifts that accompanied the Bahri-Burji transition. The ten years since have produced a growing corpus of studies on what has come to be known as "Mamluk decline"; this scholarship has been wide-ranging, making use of a variety of written (chronicles and, recently, *waqfiyāt*) and art historical (minor objects and archaeology) sources. The recent interest in rural endowments (*waqf*) illustrates well the new and exciting directions research on this topic has taken. An analysis of rural properties and proprietorship has revealed nuanced developments in social relations, in addition to political structure and economics, and suggests that more complex processes were at work than a model of "decline" can describe. Land was the basis of political, economic, and social relations in the Middle Ages. Significant shifts, then, in the way land was controlled, whether through usufruct or full ownership on one level, or dictating cropping strategies on another, resulted in what we now consider "transformations" of Egyptian society, a more neutral assessment of the fifteenth century than was possible ten years ago.

Such is the perspective of the state. What is missing, however, from such debates are the voices of the peasants themselves. What impact did these transformations have on the countryside, on village life, on rural markets, and on the peasantry that did not directly participate in political decision-making? Considering the political, economic, and social shifts of the period from the vantage point of the non-Egyptian provinces has the benefits of some degree of political distance; analysis of different, but complementary, sources of data; and demographic and economic diversity that one does not get from a reading of Egyptian written sources alone.

Today's Jordan, which the Mamluks administered as the Province of Karak and the southernmost districts of Damascus Province, provides us with a unique opportunity to analyze state-peasant relations and reassess the developments of the late fourteenth and fifteenth centuries. An intense and broad-based investment by Cairo in Jordanian agriculture through most of the fourteenth century suggests a concern for long-term objectives. Jordan was, for Cairo, the physical

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communications corridor to Syria, a mediator in political relations with the Syrian amirs, and a “cash cow,” so to speak, through exploitation of its agricultural markets.¹ Its decline in the late fourteenth and fifteenth centuries, however, is discernible on many levels: villages are abandoned, agricultural production is reduced, particular industries collapse (such as sugar production), and there are marked demographic losses. Traditionally, historians and archaeologists (who have been gradually coordinating their research efforts) have identified the factors behind these developments as local amiral rebellions;² natural and demographic disasters, such as drought, earthquakes, and plague;³ overt withdrawal of state monies;⁴ and climatic change.⁵ Such factors alone betray a provincial viewpoint and differ in emphasis from Egyptian-based scholarship, which emphasizes political and economic developments in the capital and is largely the result of different historiographies. Significantly, concurrent with these events were the large-scale purchase of rural lands from the Bayt al-Māl and their endowment as *waqf* by sultans, phenomena documented a good fifty years earlier than in Egypt that will be discussed in detail below.

This article explores the transformations of the Jordanian countryside in the fifteenth century in terms of these rural *awqāf*, settlement and demographic shifts, and traditional and state-sponsored planting strategies, and considers them in relation to the larger political and economic challenges of the late Mamluk period. In addition, the long-term environmental impact of Jordanian and Mamluk land management practices will also be considered. The agricultural regime of Jordan

¹Bethany J. Walker, “Mamluk Investment in the Transjordan: A ‘Boom and Bust’ Economy,” *Mamlūk Studies Review* 8, no. 2 (2004): 119–47.

²Shawkat R. Ḥujjah, *Al-Tārīkh al-Siyāsī li-Miṭṭaqaṭ Sharq al-Urdun (min Janūb al-Shām) fī ‘Aṣr Dawlat al-Mamālīk al-Thāniyah* (Irbid, 2002).

³Yūsuf Ghawānimah, “Al-Ṭā‘ūn wa-al-Jafāf wa-Atharuhumā ‘alā al-Bī‘ah fī Janūb al-Shām (al-Urdun wa-Filasṭīn) fī al-‘Aṣr al-Mamlūkī,” *Studies in the History and Archaeology of Jordan* 2 (1985): 315–22.

⁴Bethany J. Walker, “Mamluk Investment in Southern Bilād al-Shām in the Eighth/Fourteenth Century: The Case of Ḥisbān,” *Journal of Near Eastern Studies* 62, no. 4 (2003): 241–61; idem, “Mamluk Investment in the Transjordan.”

⁵Nicole Shehadeh, “The Climate of Jordan in the Past and Present,” *Studies in the History and Archaeology of Jordan* 2 (1985): 25–28; A. M. Frumkin, M. Margaritz, I. Carmi, and I. Zak, “The Holocene Climatic Record of the Salt Caves of Mount Sedom, Israel,” *The Holocene* 1, no. 3 (1991): 181–200; Christopher Heim, Norbort R. Nowaczyk, and Jörg F. W. Negendank, “Near East Desertification: Evidence from the Dead Sea,” *Naturwissenschaften* 84 (1997): 398–401; Bernhard Lucke, Michael Schmidt, Ziad al-Saad, Oliver Bens, and Reinhard F. Hüttl, “The Abandonment of the Decapolis Region in Northern Jordan—Forced by Environmental Change?” *Quaternary International* 135, no. 1 (2005): 65–82.

is, thus, used as a barometer for transformations of late Mamluk society in southern Bilād al-Shām.

REVIEW OF SOURCES

Jordanian historiography for the late Mamluk period relies on a set of sources not generally consulted by other Mamluk scholars. Because the Ottomans continued Mamluk administrative practices here until the mid-sixteenth century, when the first large-scale censuses were taken in the region, early Ottoman tax registers (*defters*) are an excellent, and widely used, source for late Mamluk economics, agriculture, land use, and demographics in Jordan.⁶ While these registers are far from complete, they do present a wide range of data that includes population estimates (numbers of Muslim and non-Muslim households/*khāneh* and "bachelors"/*mufrad*); status of rural property defined by degree of permanent settlement and cultivation (permanently settled village/*qaryah*, cultivated plot isolated from a settlement/*mazrā'ah*, untaxed ruins/*kharāb*, small plot of cultivated land/*qiṭ'ah*); ownership or usufruct status (private estate of the sultan or provincial amir/*khāṣṣ*, amir as tax recipient/*timār* or *zi'āmat*, charitable or family endowment/*waqf*); estimated annual revenues, in *akches* (the Ottomans' smallest silver coin), with taxes on each crop, livestock, and industry type specified; and, occasionally, incidental information, such as how the estate was acquired and access to water. *Awqāf* figure prominently in these registers, and many of them are Mamluk in date. For this reason, scholarship on late Mamluk Jordan has long been steeped in *waqf* studies.

The Ottomans levied the *'ushr* tax on *awqāf*, itemizing them individually as sources of revenue, along with crops, livestock, and industries. All endowed properties, including those supporting most mosques and madrasahs, were subject to taxation, with the exception of properties financing al-Ḥaramayn al-Sharafayn, the Khalīl al-Raḥmān mosque in Hebron, and the Dome of the Rock in Jerusalem.⁷ The Ottoman state, moreover, generally maintained the integrity of the largest of

⁶Muḥammad 'Adnān al-Bakhīt, *Nāḥiyat Banī Kinānah (Shamālī al-Urdun) fī al-'Aṣr al-'Āshir al-Hijrī/al-Sādis 'Āshir al-Milādī* (Amman, 1989); idem, *Tapu Defteri No. 275, Detailed Register of the Private-Khass of the Governor in the Province of Damascus 958 A.H./1551–2 A.D.* (Amman 1989); Muḥammad 'Adnān al-Bakhīt and Nūfān Rajā Ḥammūd, *The Detailed Defter of Liwā' 'Ajlūn (The District of Ajlun) Tapu Defteri No. 970, Istanbul* (Amman, 1989); idem, *The Detailed Defter of Liwā' 'Ajlūn (The District of Ajlun) Tapu Defteri No. 185, Ankara 1005 A.H./1596 A.D.* (Amman, 1991); Wolf-Dieter Hütteroth and Kamal Abdulfattah, *Historical Geography of Palestine, Transjordan and Southern Syria in the Late 16th Century* (Erlangen, 1977).

⁷Muḥammad 'Adnān al-Bakhīt, "Awqaf During the Late Mamluk Period and the Early Ottoman Times in Palestine and Jordan," in *Urbanism in Islam*, ed. Editorial Committee of the Research Project "Urbanism in Islam, a Comparative Study," 1994 (Tokyo, 1990), 188.

the Mamluk *awqāf*, keeping former sultanic endowments together as a unit and assigning their *'ushr* revenue to the governor (*mīr*) of Liwā' 'Ajlūn or as *khāṣṣ shāhī* for the sultan himself.⁸ Such estates may have represented a financially stable institution for the Ottoman state and, thus, a reliable source of revenue. The longevity of some of these private, rural estates suggests that the Mamluks had achieved some degree of financial success in at least one area of their agricultural investments.

The results of archaeological fieldwork in Jordan the last fifteen years have produced an extensive database on patterns of settlement, including the emergence of new administrative centers and the abandonment of once thriving villages; the location of industrial and marketing centers and trade routes; and corpuses of small finds with economic significance (coins, imported pottery and glass, textiles).⁹ Analyses of such fieldwork's historical value has been previously published and do not need to be discussed in detail here.¹⁰ In recent years archaeological research has employed environmentally-focused data collection, such as soil and water analysis.¹¹ The implications of such scientific work, combined with the more traditional research on administrative documents described above, are significant and allow us to make preliminary statements about developments in the Jordanian agricultural regime and how they relate to the larger issue of Mamluk "decline."

Outside of the Ottoman *defters* and archaeological reports, however, there have been precious few other sources of information on rural life in Mamluk Jordan. Contemporary written sources, including chronicles and administrative manuals, give only a spotty picture of the Jordanian agricultural regime. Many Jordanian towns and villages become visible in the Arabic sources only in the fourteenth century. Three villages, for example, in which I have been doing intensive fieldwork—Ḥisbān, Malkā, and Ḥubrās—attract local historians' attention at this

⁸Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 52.

⁹The impact of the political and economic trends examined in this article on the standard of living of Jordanians in the late Mamluk period is dealt with in my forthcoming *Life on the Mamluk Frontier: Transjordan, 1250–1517 A.D.*, which relies on such archaeological and ethnographic data.

¹⁰Walker, "Mamluk Investment in Southern Bilād al-Shām," 249–61; idem, "Mamluk Investment in the Transjordan"; idem, "The Northern Jordan Survey 2003—Agriculture in Late Islamic Malka and Hubras Villages: A Preliminary Report of the First Season," *Bulletin of the American Schools of Oriental Research* 339 (2005): 67–111; idem, "Regional Markets and their Impact on Agriculture in Mamluk and Ottoman Transjordan," in *On the Fringe of Society: Archaeological and Ethnoarchaeological Perspectives on Pastoral and Agricultural Societies*, Symposium hosted by the Albright Institute in Jerusalem, June 3, 2004, ed. Eveline van der Steen and Benjamin Saidel (Jerusalem, 2006, in press).

¹¹Lucke et al., "The Abandonment of the Decapolis Region."

point, perhaps because of their political or economic importance during al-Nāṣir Muḥammad's third reign. Although settled as a village on and off since the Iron Age, Ḥisbān in central Jordan was made the administrative capital of the Balqā' district around 710/1310.¹² According to the results of recent archaeological investigations, it was also a redistribution point, at this time, for refined cane sugar, grown and processed in the Jordan River Valley, and housed a small garrison of a half dozen soldiers.¹³ Isolated references in the early thirteenth century aside, it is not mentioned regularly by either Syrian or Egyptian historians until early in the fourteenth century.¹⁴ The same is true for two contemporary villages in northern Jordan: Ḥubrāṣ and Malkā. Ḥubrāṣ, occupied since the Byzantine period, may have had two mosques in the thirteenth century; by the sixteenth century it was one of the largest villages in the region.¹⁵ The farmers of Malkā were productive enough in 796/1393 for Sultan Barqūq to endow the village for his madrasah-mausoleum complex in Cairo; Malkā's population doubled over the course of the sixteenth century.¹⁶ All three villages were, moreover, known for their marketplaces and their residents for their level of education: the *nisbahs* al-Ḥisbānī, al-Ḥubrāṣī, and al-Malkāwī were prominent in biographical dictionaries of Syrian scholars.¹⁷ The majority, by far, of historical references to these villages are fourteenth-century in date.

The absence of such villages from earlier Mamluk sources, however, may merely reflect the problems of Syrian historiography. Several key Syrian sources simply do not cover the chronological transition from the thirteenth to fourteenth centuries. Published and edited excerpts from al-Yūnīnī's chronicle, *Dhayl Mir'āt al-Zamān*, do not extend beyond 701/1301–2. Likewise, entries for the years

¹²Walker, "Mamluk Investment in Southern Bilād al-Shām," 249–50.

¹³Bethany J. Walker, "The Late Ottoman Cemetery in Field L, Tall Hisban," *Bulletin of the American Schools of Oriental Research* 322 (2001): 1–19; idem, "Mamluk Administration of Transjordan: Recent Findings from Tall Hisban," *Al-'Uṣūr al-Wuṣṭā* 13, no. 2 (2001): 29–33; idem, "Mamluk Investment in Southern Bilād al-Shām," 254, 258; Bethany J. Walker and Øystein S. LaBianca, "The Islamic *Quṣūr* of Tall Hisban: Preliminary Report on the 1998 and 2001 Seasons," *Annual of the Department of Antiquities of Jordan* 47 (2003): 443–71.

¹⁴Ibn Shaddād, in his biography of Salāḥ al-Dīn completed in 1228 (*Al-Nawādir al-Sultānīyah wa-al-Maḥāsin al-Yūsufīyah*), mentions that Salāḥ al-Dīn withdrew his forces to Ḥisbān after a failed attempt to take the Crusader fortress at Karak (cited in Malcolm Russell, "Hesban during the Arab Period: A.D. 635 to the Present," in *Historical Foundations: Studies of Literary References to Hesban and Vicinity*, Hesban 3, ed. Larry Geraty and Leona G. Running [Berrien Springs, 1989], 28).

¹⁵Walker, "Mamluk Investment in the Transjordan," 129–30.

¹⁶*Ibid.*, 130–31.

¹⁷Walker, "Mamluk Investment in Southern Bilād al-Shām," 250; idem, "Mamluk Investment in the Transjordan," 130–31.

711–39/1311–38 in al-Jazarī's *Ḥawādith al-Zamān* are no longer extant.¹⁸ While the Egyptian historian al-'Aynī, in his *'Iqd al-Jumān fī Tārīkh Ahl al-Zamān*, does preserve some of the sections missing from these two sources, his chronicle after 701/1301 is only available in manuscript form.¹⁹ Ibn Qāḍī Shuḥbah, who is a rich, albeit inconsistent, source of information regarding agriculture and village life in southern Bilād al-Shām, begins his chronicle only in 741/1340.²⁰ Mamluk officials serving in the region, such as the amir Baybars al-Manṣūrī who was governor of Karak in 680–85/1281–86, show little interest in rural events and the state of local agriculture in their written narratives.²¹

Nothing illustrates these trends more clearly than the coverage of al-Nāṣir Muḥammad's cadastral survey (*rawk*) of southern Bilād al-Shām in 713/1313 by both Syrian and Egyptian sources. There is no equivalent for Syria of Ibn al-Jī'ān's *Kitāb al-Tuḥfah al-Sanīyah bi-Asmā' al-Bilād al-Miṣrīyah* or Ibn Duqmāq's *Kitāb al-Intiṣār li-Wāṣiṭat 'Iqd al-Amṣār*, which summarize the results of al-Nāṣir Muḥammad's subsequent survey of Egyptian land in 715/1315.²² The historian of Mamluk Egypt can mine a wealth of information from Ibn al-Jī'ān's account, including a catalogue of village names and their location, the amount of cultivatable land attached to each village (recorded in feddans), the annual estimated fiscal yield (cash equivalent in dinars), in whose name the land was and now is registered, the status of that registration (as *iqṭā'*, *mulk*, *waqf*, etc.), soil types and access to water, and suitability for food and cash crops.²³ The surveys of southern Syria (that is Damascus Province, Hims, Baalbek, Ṣafad, and Gaza), Egypt, Tripoli (in 717/1317), and Aleppo (in 725/1325) are briefly described by al-Nuwayrī and al-Maqrīzī. Like al-Maqrīzī, whose narrative is the more detailed of the two, al-Nuwayrī, in his *Niḥāyat al-Arab fī Funūn al-Adab*, is more concerned with personnel and procedure than the results of the surveys. The only comment he makes about the local reception of the 715/1315 survey was that "upon the distribution of the *iqṭā'* documents there were disagreements and conflicts" (*wa-*

¹⁸Walker, "Mamluk Investment in Southern Bilād al-Shām," 246.

¹⁹Donald P. Little, *An Introduction to Mamluk Historiography: An Analysis of Arabic Annalistic and Biographical Sources for the Reign of al-Mālik al-Nāṣir Muḥammad ibn Qalā'ūn* (Montreal, 1970), 80–87.

²⁰Taqī al-Dīn Abū Bakr Aḥmad Ibn Qāḍī Shuḥbah, *Tārīkh Ibn Qāḍī Shuḥbah*, ed. 'Adnān Darwīsh (Damascus, 1994), 2:8.

²¹Walker, "Mamluk Investment in Southern Bilād al-Shām," 247.

²²Sato Tsugitaka, "Historical Character of *al-Rawk al-Nāṣirī* in Mamluk Syria," in *Proceedings of the First International Conference on Bilād al-Shām*, Amman, Jordan, 20–25 April 1974 (Amman, 1984), 224.

²³Sharaf al-Dīn Yaḥyá Ibn al-Jī'ān, *Kitāb al-Tuḥfah al-Sanīyah bi-Asmā' al-Bilād al-Miṣrīyah* (Cairo, 1898).

ḥaṣala fī tafriqihā [al-amthilah] ikhtilāf wa-iḍṭirāb).²⁴ A contemporary in Ḥamāh, Abū al-Fidā', surprisingly makes no mention of any of the three cadastral surveys in Syria carried out by al-Nāṣir Muḥammad. He does, however, make reference to the Nāṣirī revolt in Tripoli that al-Nuwayrī, by combining his description of the two events in the same narrative, implicitly ties to the survey of that city in 717/1317.²⁵ Likewise, Ibn al-Dawādārī, an important source for events in Syria in the first half of the fourteenth century, makes no reference at all to any of the Syrian surveys, only the Egyptian one (described as the *rawk mubārak*), which he suggests was one of the most important events of the year 715/1315, along with the campaign in Malta.²⁶ This is all the more surprising since he describes the passing of his father, an amir, in 713/1313, while on a tour of Syrian fortresses (perhaps in connection with the 713/1313 survey), and since throughout his chronicle Ibn al-Dawādārī expresses concern for the condition of Syrian *iqṭā's*.²⁷ An event that should have had a real impact on the Syrian countryside is not worth mentioning by some of the local sources of the period. The implications of the 713/1313 survey for rural developments in Jordan will be considered shortly.

While copies of the 713/1313 survey are no longer extant, we do have important economic documents related to Jordanian agriculture in this period at our disposal, though finding them is the proverbial "looking for a needle in the haystack." Moreover, one has to be intimately familiar with the local geography and topography to recognize them for what they are. The Dār al-Wathā'iq and Wizārat al-Awqāf in Cairo and the archives of St. Catherine's Monastery in the Sinai preserve copies, in various forms, of *waqfiyāt* recording the endowment of Jordanian farmland for charitable purposes during the late fourteenth century. One has been published and analyzed in part: the endowment of the village of 'Adar, near Karak, in 777/1375 by Sultan Sha'bān.²⁸ A second has been analyzed in a couple of recent publications and will be published shortly: the endowment of the village of Malkā in northern Jordan by Sultan Barqūq in 796/1393 for his madrasah-mausoleum

²⁴Shihāb al-Dīn ibn 'Abd al-Wahhāb al-Nuwayrī, *Nihāyat al-Arab fī Funūn al-Adab* (Cairo, 1997), 32:206.

²⁵Malik al-Mu'ayyad 'Imād al-Dīn Ismā'il Abū al-Fidā', *Al-Mukhtaṣar fī Akhbār al-Bashar*, ed. Muḥammad Ḥusayn (Cairo, 1999), 4:98; al-Nuwayrī, *Nihāyat al-Arab*, 32:255–60.

²⁶Abū Bakr ibn 'Abd Allāh ibn Aybak ibn al-Dawādārī, *Kanz al-Durar wa Jāmi' al-Ghurar* (Cairo, 1960), 9:286–87.

²⁷*Ibid.*, 266.

²⁸Waqfiyah 8/49, Dār al-Wathā'iq, Cairo, in Yūsuf Ghawānimah, *Tārīkh Sharqī al-Urdun fī 'Aṣr Dawlat al-Mamālik al-Ūlā (al-Qism al-Ḥadarī)* (Amman, 1979), 243–44, and idem, "Al-Qaryah fī Janūb al-Shām (al-Urdun wa-Filasṭīn) fī al-'Aṣr al-Mamlūkī fī Ḍaw' Waqfiyāt 'Adar," *Studies in the History and Archaeology of Jordan* 1 (1982): 363–71.

complex on the Bayn al-Qaşrayn in Cairo.²⁹ In addition to these are references in unpublished, contemporary *waqfiyāt* to a village on the outskirts of Karak (its name is not preserved in the fragmentary manuscript),³⁰ for the same complex in Cairo, and other rural land in the vicinity of Karak for Sultan Ḥasan's monumental madrasah complex in Cairo (endowed in 762/1360–1).³¹

All other references to large, endowed estates in Jordan are either summarized in the early Ottoman *defters*³² or contemporary chronicles. These Ottoman documents describe landed estates in terms of their physical extent, local topography and water sources, roads, quality of the land, agricultural installations of various sorts, neighboring villages, previously endowed properties within the village, and buildings or plots of land that have been abandoned or otherwise fallen out of use. They are coming under renewed scrutiny for their potential contribution to settlement cycles and agricultural and environmental history.³³

For documentation for the late Mamluk period we are more fortunate. Biographical dictionaries (Ibn al-Jī'ān's *Al-Qawl al-Mustazraf*, Ibn Ṭūlūn's *Mufākahāt al-Khillān fī Ḥawādith al-Zamān*, and Ibn Iyās' *Badā'i' al-Zuhūr fī Waqā'i' al-Duhūr*), biographies of Burji Mamluk sultans (Ibn Ṣaṣrā's *Kitāb al-Durrah al-Muḍī'ah fī al-Dawlah al-Zāhirīyah*), and the products of contemporary, local historians ('Abd al-Bāsiṭ's *Nayl al-Amal fī Dhayl al-Duwal*) are available, largely in manuscript form, for research on fourteenth- and fifteenth-century Jordan and the region. They have been used, with much success, by Shawkat Ramaḍān Ḥujjah, in his recent monograph on Burji Mamluk Jordan.³⁴ However, provincial capitals (such as Karak) and the largest administrative centers, towns, and villages ('Ajlūn, for example) are the most visible in these sources, making research on less politically important villages and their hinterland very difficult.

While my research on agriculture in Mamluk Jordan is ongoing, and I have not yet examined the manuscripts of the sources described above other than *waqfiyāt*, I believe—on the basis of the Ottoman *defters*; Mamluk-period *waqfiyāt*; a variety of published, primarily Syrian, sources; and archaeological and geological data—that some trends are emerging which suggest the following:

²⁹Waqfiyah 9/51, Dār al-Wathā'iq, Cairo, in Walker, "Mamluk Investment in the Transjordan," 130; idem, "The Northern Jordan Survey"; idem, "Regional Markets."

³⁰Waqfiyah 49, microfilm 15, fols. 1–4, Dār al-Wathā'iq, Cairo.

³¹Waqfiyah 40, microfilm 15, fols. 1–3, Dār al-Wathā'iq, Cairo.

³²Mehmed İpşirli and Muḥammad Dāwūd al-Tamīmī, *Awqāf wa-Amlāk al-Muslimīn fī Filasṭīn* (Istanbul, 1982); al-Bakhīt, *Nāḥiyat Banī Kinānah*, and idem, *Tapu Defteri No. 275*; Bakhīt and Ḥammūd, *Tapu Defteri No. 970*, and idem, *Tapu Defteri No. 185*.

³³Walker, "The Northern Jordan Survey."

³⁴Ḥujjah, *Al-Tārīkh al-Siyāsī*; see my review in *Mamlūk Studies Review* 8, no. 2 (2004): 219–23.

1. The Mamluk state, from the beginning, was actively investing in the infrastructure of southern Bilād al-Shām. While much of this investment was initially security-driven, it certainly benefited regional agricultural markets, through the construction of roads, storage facilities, and caravanserais and *wikālahs*.

2. During the third quarter of the fourteenth century, Mamluk sultans were purchasing entire villages in Jordan from the Bayt al-Māl and were already endowing them as *waqf* for institutions, primarily madrasahs, located outside Jordan. Most of this rural property was located in the Jordan River Valley, the rich agricultural regions of the Yarmouk River riparian, and the Karak Plateau, on which there had already developed an extensive system of land ownership by local families, both Muslim and Christian.³⁵ Much of the land around Karak was, moreover, already tied up in earlier endowments for Sufi shrines and Christian monasteries.³⁶

3. The fifteenth century witnessed what initially appears to be a withdrawal of state monies from Jordan: garrisons are abandoned, there are no new public building projects, the local tribesmen no longer receive "security monies." The effects of this process, however it is defined, were made worse by drought and the insecurity of the main transport routes for agricultural surplus. As a result, some, but far from all, sectors of the local agrarian regime went into decline, particularly labor-intensive projects such as sugar cane production and processing. Villages in particular regions of Jordan were abandoned, with a general resettlement in the well-watered highlands.

4. On the eve of the Ottoman conquest, two different pictures of rural Jordan emerge. On the one hand, villages have resorted to traditional patterns of land tenure, agricultural production, and marketing—namely communally-owned lands, largely cultivated on a subsistence basis, with limited specialized production for local markets and traditional trading partners. This pattern remained in place through the Ottoman period and was adapted to the requirements of the Tanzimat in the nineteenth century. On the other hand, the largest *waqf* estates remained intact through at least the sixteenth century and maintained their prosperity well into the Ottoman period. The Ottomans exploited both categories of land to create a broad and diverse tax base that contrasted with the seemingly specialized agricultural markets of the Mamluk period.

5. Mamluk-period land management in Jordan, while opening up new markets temporarily, did lead, in the long run, to environmental degradation, particularly in terms of soil exhaustion and exacerbating the process of deforestation begun in earlier periods.

We will examine each of these points in turn.

³⁵ Waqfiyah 49, fols. 1–4, Dār al-Wathā'iq, Cairo.

³⁶ Ibid.

TRANSFORMATION OF THE JORDANIAN AGRICULTURAL REGIME

At the beginning of the Mamluk period Transjordan represented a security concern; Ayyubid princes still maintained castles there, and the principle hajj route from Damascus to Mecca ran through the middle of the region. Sultan Baybars initiated an ambitious defensive project that involved reinforcing the citadel walls and towers at former Ayyubid castles, such as Karak and Shobak, and building new fortifications at what would become rural capitals, such as Ḥisbān and Salt.³⁷ He also built and leveled roads and reorganized the *barīd* system that would, by the eighth/fourteenth century, blossom into a comprehensive communications network of postal centers (*marākiz*), pigeon and fire towers, and caravan and pilgrim stops. Several of the stops on the hajj route—‘Ajlūn, Zarqā, Salt, and ‘Aqabah were among the largest—maintained seasonal markets (*aswāq mawsimīyah*) that catered to pilgrims.³⁸ Amirs and sultans from the thirteenth through the sixteenth century invested in these markets, providing endowments for caravanserais and building new markets within these towns.³⁹ By combining the hajj route with state-sponsored market institutions, the Mamluks merely formalized a relationship between pilgrimage and business that had been part of Islam from the time of the Prophet.⁴⁰ Such investments indirectly benefited the local agricultural sector. While the initial objectives of infrastructure development were defensive, the networks and facilities that grew out of it facilitated the transport of agricultural goods from fields to markets and on to ports.⁴¹

The state’s overarching concern for defense (against both foreign and domestic enemies) also impacted the structure of administration in the region. Mamluk administration of southern Bilād al-Shām was particularly fluid, with periodic shifts in administrative borders and district (*ṣafaqah*) capitals (*niyābahs* or *wilāyahs*) and the combination or division of districts.⁴² The promotion of a previously undistinguished village to a district capital, for example, served to solidify relations

³⁷Walker, “Mamluk Investment in Southern Bilād al-Shām,” 243.

³⁸Yūsuf Ghawānimah, “Al-Tijārah al-Dawlīyah fī al-Urdun fī al-‘Aṣr al-Mamlūkī,” *Studies in the History and Archaeology of Jordan* 3 (1987): 323–30; Faysal ‘Abd Allāh Muḥammad Banī Ḥamad, “Al-Aswāq al-Shāmīyah fī al-‘Aṣr al-Mamlūkī” (M.A. thesis, Yarmouk University, 1992); Sa‘īd Ṣāliḥ Mūsā Khalīl, “Al-Tijārah al-Dākhilīyah fī Dawlat al-Mamālīk al-Thānīyah (784–922 A.H./1382–1516 A.D.)” (Ph.D. diss., University of Jordan, 1992), 51–52; Ḥujjah, *Al-Tārīkh al-Siyāsī*, 252–57.

³⁹Ghawānimah, “Al-Tijārah al-Dawlīyah,” 326–27.

⁴⁰Bethany J. Walker, “The Globalizing Effects of Ḥājj in the Medieval and Modern Eras,” in *Connectivity in Antiquity: Globalizing as Long Term Historical Process*, ed. Øystein S. LaBianca and Sandra Schram (London, 2005), 68.

⁴¹Walker, “Regional Markets.”

⁴²Walker, “Mamluk Investment in Southern Bilād al-Shām,” 241–46.

between the sultan and the powerful local tribes of Transjordan in the power struggles among the Mamluk elite throughout the fourteenth and fifteenth centuries. Two examples from the Balqā' district of central Jordan illustrate this well. As noted earlier, the small village of Ḥisbān came to prominence in the fourteenth century when al-Nāṣir Muḥammad made it the capital of the Balqā' (*Wilāyat Balqā'*), as a reward, the written sources lead us to believe, for the loyalty of its local tribes during his periods of exile in Karak.⁴³ After an earthquake destroyed the Ḥisbān citadel in mid-century, the capital of the Balqā' was then moved to Amman, a move that, according to Ibn Qāḍī Shuḥbah, served the financial interests of Mamluk amirs who had investments there.⁴⁴ In a similar vein, the previously independent Province of Karak was merged, first with the districts of 'Ajlūn and Salt in the third quarter of the eighth/fifteenth century, and then with the Province of Damascus in the early tenth/sixteenth century. Contemporary sources attribute this change to an attempt by the state to eliminate the independence of the Karak governors and quell the amiral rebellions there that rocked Jordan in the late Mamluk period.⁴⁵ Such administrative shifts had an important impact on local society. Money followed the movement of centers of political power. For some fifty years Ḥisbān served as a district capital with a governor (*wālī*); a small garrison of perhaps a half dozen mamluks; and a large storage facility and redistribution point for processed cane sugar, an industry monopolized by the Mamluk elite.⁴⁶ When the capital was moved to Amman in 1356, the judiciary, governorship, and most of the district markets were transferred from Ḥisbān.⁴⁷ There is little archaeological evidence for the sugar industry in Ḥisbān after this, and the village was gradually abandoned.⁴⁸ By the late sixteenth century there was no permanent settlement at the site, although local Bedouin continued to pay a tax to the Ottoman government for seasonal cultivation of small plots of land there.⁴⁹ Similarly, there is significant archaeological evidence for the abandonment of the central Karak Plateau for the isolated southwest rim at the time of the amiral

⁴³Ibid., 245.

⁴⁴Ibn Qāḍī Shuḥbah, *Tārīkh*, 1:550.

⁴⁵Ḥujjah, *Al-Tārīkh al-Siyāsī*, 185–87.

⁴⁶Walker, "The Late Ottoman Cemetery"; idem, "Mamluk Administration"; Walker and LaBianca, "The Islamic *Quṣūr*."

⁴⁷Walker, "Mamluk Investment in Southern Bilād al-Shām," 245.

⁴⁸Walker, "Mamluk Administration," and idem, "Tall Ḥisbān, 2004—An Investigation in Medieval Rural History," *Newsletter of the American Center of Oriental Research* 16, no. 2 (2004): 1–3.

⁴⁹Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 149; Hütteroth and Abdulfattah, *Historical Geography*, 169.

revolts and administrative changes of the late Mamluk period.⁵⁰

A third factor that had an effect on the agricultural regime of Jordan was al-Nāṣir Muḥammad's cadastral survey of southern Bilād al-Shām in 713/1313. This was the first of four surveys ordered by al-Nāṣir Muḥammad, which collectively laid the economic foundations for Mamluk society by reallocating *iqṭā'*s among the sultan, amirs, and members of the *ḥalqah*. Most of the scholarly studies of these surveys have focused on the Egyptian one of 715/1315 and its political and economic ramifications.⁵¹ It is more difficult to do the same for Syria. There are no records, either in original or summary form, of any of the three Syrian surveys, and, as discussed earlier, there are very few references to them by Syrian historians. The surveys, thus, do not appear to attract the notice or interest of contemporaries. Nonetheless, a few suggestions may be made about the possible structural impact of the 713/1313 *rawk* on agricultural production, land tenure, and markets in Jordan.

The immediate results of the survey were to fragment land, assigning smaller, non-contiguous, and often widely dispersed, shares to the *muqṭā'*s, and to give more control over land to the sultan himself. How this affected agricultural production and village life in general would have depended on several factors: the types of crops traditionally grown there, the nature of traditional crop rotation, how water was distributed, and how and when taxes were paid and collected. Describing these factors first requires an understanding of how the *iqṭā'* system functioned economically and socially, that is what the relationships were between *muqṭā'*s and *fallāḥūn*. In the absence of written sources dealing directly with southern Syria on such matters, we have to depend on Egyptian sources, taking into account that Egyptian and Syrian societies were organized differently, that there were differences in access to and sharing of water, and a different history of land proprietorship. Hassanein Rabie and Sato Tsugitaka's monographs on rural Egypt are suggestive in this regard. Relying largely on the accounts of the management and planting cycles of Egyptian agricultural land by al-Makhzūmī, Ibn Mammātī, al-Nābulṣī, and al-Nuwayrī, they conclude the following:

⁵⁰Robin Brown, "Late Islamic Ceramic Production and Distribution in the Southern Levant: A Socio-Economic and Political Interpretation" (Ph.D. diss., State University of New York at Binghamton, 1992), 440–41.

⁵¹Sato Tsugitaka, *State and Rural Society in Medieval Islam: Sultans, Muqta's, and Fallahun* (Leiden, 1997), 138–43; Carl F. Petry, "Fractionalized Estates in a Centralized Regime: The Holdings of al-Ashraf Qāyṭbāy and Qānṣūh al-Ghawrī According to their Waqf Deeds," *Journal of the Social and Economic History of the Orient* 41, no. 1 (1998): 96–117. A single article by Sato in the 1980s is one notable exception (Sato Tsugitaka, "Historical Character of *al-Rawk al-Nāṣirī* in Mamluk Syria," in *Proceedings of the First International Conference on Bilād al-Shām*, ed. University of Jordan [Amman, 1984], 223–25).

1. The *muqtā'* was responsible for digging canals, building dams, and maintaining both. He relied on peasants for most of these activities but could use corvée labor and his own soldiers when needed. By and large he did not reside on his *iqṭā'āt*; he generally relied on his own agents (*wakīls*) to estimate local taxes and collect them on his behalf.⁵² Because the *iqṭā'āt* were fractured, one *muqtā'* could hire as many as four or five *wakīls* for these purposes.⁵³

2. *Muqtā'*s rarely interfered in the internal operations of the planting and harvests. It was the *fallāḥūn* themselves who decided what to plant, on what schedule to rotate crops, and how to share water. In other words, local custom generally prevailed in matters of cropping, harvest, and processing. One notable exception is sugar production, which was more closely monitored by the *muqtā'*, who in Jordan tended to be the sultan himself. On "sugar estates" the cropping of the sugar plant took precedence over other crops and customary water sharing agreements, interrupting crop rotation and the planting of summer crops.⁵⁴

3. Taxes on grains (*kharāj al-zirā'ah*) were generally paid in kind in Egypt.⁵⁵ The presence of grain storage facilities throughout Jordan by the fourteenth century suggests that grain was stored on the *iqṭā'āt* that produced the grain and at transport depots on main roads. Grain surplus could be used for times of need, which was often exploited by the state through forced purchases (*ṭarḥ*), or to provide provisions for agricultural laborers who supplemented the labor on sugar estates.⁵⁶

While Jordanian agriculture was broad-based and produced a variety of grains, fruits, and vegetables for the region, the staple here, as in Egypt, was wheat. Wheat is a winter crop that requires adequate rainfall during the growing season (200–300 centimeters per year in Jordan) and dry storage. It is grown in all of the country, but the largest fields are on the open plains of central and southern Jordan. Because Jordan's *wādīs* run with water only seasonally and are not generally navigable, local farmers had no major river, like the Nile, on which to rely for transport of grains to major storage facilities. Therefore, much transport from threshing floors to granaries (*shuwan*) must have been done overland, on the extensive road system developed in the early Mamluk period. The granaries took two forms: formally built *shūnahs*, which is a common enough place name in the Jordan Valley, and reused cisterns, which are ubiquitous in the country's soft

⁵²Sugar tax is one notable exception: *muqtā'*s, who were generally the sultans themselves, often personally supervised the collection of tax on sugar.

⁵³Hassanein Rabie, *The Financial System of Egypt: A.H. 564–741/A.D. 1169–1341* (London, 1972), 65.

⁵⁴Sato, *State and Rural Society*, 212 and 233.

⁵⁵Rabie, *Financial System*, 74–76.

⁵⁶Sato, *State and Rural Society*, 201.

limestone beds and can preserve grains for up to two years.⁵⁷ Both facilities required regular maintenance through cleaning and plastering. Because of Jordan's special hydrological conditions and infrastructure, its grain industry was highly vulnerable to drought and the security of the road system. As for cropping patterns, the *fallāhūn* of Jordan traditionally practiced a two-crop rotation on most cultivated land, including the Jordan Valley. Land tenure, where there was private ownership, has historically been communal, with a division of revenues among villagers after the harvest according to shares, known today as *mushā'* and very similar to the pattern of shares adopted by the *muqtā'*s.⁵⁸

Given these factors, but in the unfortunate absence of written sources for verification, one can cautiously propose that the *rawk* of 713/1313 impacted Jordanian agriculture in multiple ways. To begin with, the fragmentation of *iqṭā'āt* may have produced a more complex system of tax collection and transportation, particularly of grains, under the supervision of the agents of multiple *muqtā'*s. It is not clear at this point whether there was any coordination of efforts on the part of these agents or if tax revenues (in kind or in cash) were simply divided by the *muqtā'*s shares of the revenues after the harvest or sale and conversion of crops to currency. Regardless, the multiplication of *muqtā'*s meant heavier traffic on the road system and made more vital than ever the security of these transportation corridors for the purposes of tax collection.

On a second note, the concentration of *iqṭā'āt* in the hands of the sultan led to the development of large estates based on the production of specialized cash crops, such as sugar cane and olive oil, for export markets. These "plantations" transformed traditional cropping, water sharing, and labor organization. The sugar plantations in the Jordan Valley and on the tributaries of the Jordan River best illustrate these patterns. Cane sugar production requires a soft, well-drained soil, high temperatures, extensive irrigation, and a large labor force.⁵⁹ In addition to

⁵⁷J. M. H. Kareem, *The Settlement Patterns in the Jordan Valley in the Mid- to Late Islamic Period* (Oxford, 2000), 10; Carol Palmer, "Following the Plow': the Agricultural Environment of Northern Jordan," *Levant* 30 (1998): 155.

⁵⁸Communal land ownership was the pattern in the nineteenth and twentieth centuries and is also suggested by early Ottoman tax registers. It remains to be documented with certainty that this was the traditional pattern in the Mamluk period, however. In her historical-anthropological analysis of late Ottoman *mushā'*, Carol Palmer suggests ways to identify communal land tenure in historical periods archaeologically (Carol Palmer, "Whose Land Is It Anyway? An Historical Examination of Land Tenure and Agriculture in Northern Jordan," in *The Prehistory of Food: Appetites for Change*, ed. Chris Gosden and Jon Hather (London, 1999), 300–2. The private ownership of land by individual families is documented for the Karak region (see note 34), but so far this pattern seems to be unique for Jordan as a whole.

⁵⁹Sato, *State and Rural Society*, 216; Kareem, *Settlement Patterns*, 13.

resident *fallāhūn*, seasonal, migrant workers assisted in some of the heaviest labor tasks associated with sugar processing, and there is some evidence for the use of slaves, as well.⁶⁰ The soil requirements, the long period of cultivation (ten months), and the labor intensive activities associated with pre-sowing land preparation and maintenance make it impossible to grow other summer crops, namely vegetables, that tend to bring in large revenues, or to maintain the traditional two-crop rotation.⁶¹ Moreover, growing sugar cane requires the diversion of irrigation water from other crops.⁶²

The concentration of land in the hands of a single *muqṭā'*, as in the case of the sultanic sugar estates, was certainly conducive to plantation-style production. What impact, however, the fragmentation of the largely grain-producing plains had on annual yields and tax revenues in general has yet to be determined. The nineteenth-century grain boom of Palestine and Transjordan would not have been possible without the development of large landed estates after the implementation of the Ottomans' 1858 Land Law. There was a significant shift at that time from subsistence farming and limited production for local markets to surplus production for export to Europe.⁶³ Ottoman tax registers, as well, indicate that large estates brought in more tax revenue for the state than family or village-owned farms, explaining their conversion to taxable units by Ottoman authorities. In the absence of a comparison of grain yields between the pre- and post-*rawk* periods, which is not yet possible, such patterns do suggest that fragmentation of grain lands is more expensive, in the end, to administer.

In summary, all of these developments required more from the *muqṭā'*s, in terms of maintenance of irrigation canals and storage facilities, than before al-Nāṣir Muḥammad's survey, diverted Jordanian agriculture from a diversified to a specialized and export regime, and was profit-driven. It altered labor organization, local market, and traditional cropping and water distribution practices. Such a transformation of the local regime was certainly profitable, as the Ottoman *defters* demonstrate; however, it required a strong state and demanded safe transport and storage. Security was a particular concern for grain production, which was concentrated on the open plains and was particularly susceptible to disruption during times of political unrest. As the linchpin of the Mamluk economy, problems in the grain sector had serious ramifications to the state's economy as a whole.

⁶⁰Sato, *State and Rural Society*, 185; Kareem, *Settlement Patterns*, 11.

⁶¹Sato, *State and Rural Society*, 217 and 220.

⁶²*Ibid.*, 212.

⁶³Linda Schilcher, "The Grain Economy of Late Ottoman Syria and the Issue of Large-Scale Commercialization," in *Landholding and Commercial Agriculture in the Middle East*, ed. Çağlar Keyder and Faruk Tabak (Albany, 1991), 173–95.

WAQFIYĀT AND LAND MANAGEMENT

The sultanic estates of Mamluk Jordan were, in part, the result of the gradual transformation of *iqṭā'āt* into *khāṣṣ*, or crown lands, by purchase from the Bayt al-Māl, as is verified in the original *waqf* documents. They were then endowed as *waqf* for charitable institutions, the majority of which were sultanic madrasah complexes in Cairo. The alienation of state land has been recently examined for fifteenth-century Egypt, where the process is documented with sales and purchase writs and deeds from the late Mamluk and early Ottoman period.⁶⁴ Petry has described the process as an investment strategy for later Mamluk sultans.⁶⁵ According to his estimates, some 1000 *waqfiyāt* of the pre-Ottoman period are extant in Cairo's archives, most of these are Mamluk in date, and 30% of these date to the reign of Sultan al-Ghawrī.⁶⁶ Most of the land in these endowments was acquired piecemeal, through shares of rural land or villages, the kind of fragmentation produced by al-Nāṣir Muḥammad's cadastral surveys.⁶⁷ In the case of al-Ghawrī's endowments, Petry has demonstrated that revenues from rural estates far exceeded the expenses required to maintain the endowment proper, in some cases resulting in a 90% surplus, a large revenue not accounted for by any documented expenditure.⁶⁸ Petry suggests in his studies that these were, thus, a form of "clandestine investment" that, on one hand, resulted in the erosion of the *iqṭā'* system, but on the other created significant asset-building in the form of private property.⁶⁹

Abū Ghāzī's recent monograph on land tenure in late Mamluk Egypt has received much attention for its statistical analysis of the same phenomenon.⁷⁰ His data largely supports the conclusions of Petry in the 1990s: 1) 95.79% of all documented land sales from the Bayt al-Māl in the pre-Ottoman period date to the Burjī Mamluk period;⁷¹ 2) most of these purchases were of former *iqṭā'āt*;⁷² and 3) the majority of these purchases took place during the reigns of Īnāl, Khushqadam,

⁶⁴Carl F. Petry, *Protectors or Praetorians? The Last Mamluk Sultans and Egypt's Waning as a Great Power* (Albany, 1994), 196–210; idem, "Waqf as an Instrument of Investment in the Mamluk Sultanate: Security vs. Profit?" in *Slave Elites in the Middle East and Africa: A Comparative Study*, ed. Miura Toru and John Edward Philips (New York, 2000), 99–115; 'Imād Badr al-Dīn Abū Ghāzī, *Taṭawwur al-Ḥiyāzah al-Zirā'iyah fī Miṣr Zaman al-Mamālīk al-Jarākisah* (Cairo, 2000).

⁶⁵Petry, "Waqf as an Instrument."

⁶⁶Ibid.

⁶⁷Ibid., 103.

⁶⁸Ibid., 104.

⁶⁹Petry, *Protectors or Praetorians?* 210.

⁷⁰Abū Ghāzī, *Taṭawwur al-Ḥiyāzah*.

⁷¹Ibid., 16.

⁷²Ibid., 18.

Qāyṭbāy, and al-Ghawrī (the highest at 64.5%).⁷³ He further suggests that by the time of the Ottoman conquest one half of former state land was now in private hands;⁷⁴ that the Bayt al-Māl was, for all intents and purposes, empty;⁷⁵ and that some 88.89% of Egypt's agricultural land was tied up in *waqf*.⁷⁶ Of the three social groups that purchased state lands (the Mamluk elite, amirs' families and retainers, and Egyptian civilians), the largest land owners were the Mamluk elite (sultans and amirs), at 43.1% of all documented purchases from the Bayt al-Māl.⁷⁷ Abū Ghāzī states, furthermore, that in some cases entire villages were, indeed, purchased as complete units,⁷⁸ an observation that would not have been possible without reading the available Ottoman land sales files.

Abū Ghāzī's conclusions are justifiably conservative: that we cannot know for certain what the real objectives were for this rush to purchase and endow former state lands at the end of the Mamluk period. He dismisses the point of view of Arab contemporaries, who cite financial and security (that is military) crises for which liquidation of public lands was necessary. Certainly, the process led to the creation, for better or worse, of newly-propertied classes, who now could dispose of land as they saw fit. This is, of course, another way of describing social transformations that cannot be said to be purely "decline" or "development." Perhaps the most intriguing of his conclusions was that by broadening the base of private ownership, the agricultural base of the Mamluk economy could be revived.⁷⁹ By his own admission, the author has no evidence for such a claim, but offers it only as a final thought in his study.

As for Jordan, the same process occurred here, but there were some important differences. The largest documented sultanic endowments date to the reign of Barqūq and were concentrated in the Jordan Valley and the Sawād of the northern hill country (some of the richest farmland in the region); the earliest recorded endowments consisted of entire villages, not merely shares. The documented examples are few:

1. Sultan Baybars—two shares of the village Bayt Rāmah in the Jordan Valley, for his madrasah complex in Cairo, no date given.⁸⁰
2. Sultan Sha'bān—the village of 'Adar near Karak, in its entirety, for an

⁷³Ibid., 28.

⁷⁴Ibid., 105.

⁷⁵Ibid., 83.

⁷⁶Ibid., 66.

⁷⁷Ibid., 110.

⁷⁸Ibid., 104.

⁷⁹Ibid., 125.

⁸⁰Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 32.

unnamed recipient, in 777/1375.⁸¹

3. Sultan Barqūq—the Jordan Valley villages of Nimrīn, Kafrīn, and Zarā‘ah, in their entirety, for his madrasah-mausoleum complex in Cairo, no date given;⁸² the village of Malkā in the Sawād, in its entirety, for the same complex, in 796/1393.⁸³

4. Sultan Khushqadam—three shares each of the Sawād villages of Marw and Harhār, for his madrasah complex in Cairo, no date given;⁸⁴ twelve shares of an unnamed *mazrā‘ah* (isolated farm) in the Jordan Valley for the same complex, no date given.⁸⁵

The lands described are located in the most fertile regions of Jordan and fall into three categories: grain fields of the plains, sugar plantations of the Jordan Valley, and the orchards of the Sawād (which produced high quality olive oil, as they do today). Wheat, sugar, and olive oil—these were the staples of the average man’s diet in this period, and were, thus, excellent commodities to control by enterprising entrepreneurs. The revenues collected from these estates, which remained intact through the sixteenth century, are recorded in the Ottoman *defters*. However, to give an idea about the scale of production and the possible revenues to the *mawqūf* at the time of endowment, I will rely on recent archaeological data that continues to supplement the archival work for this study.

CASE STUDY: FINANCIAL RETURNS FROM ḤISBĀN SUGAR AND MALKĀ OLIVE OIL

Ḥisbān was an administrative center, and there is no evidence that any of its land was made *waqf* during the Mamluk period. However, its role in the transport and redistribution of processed cane sugar has been documented by recent archaeological investigations, which also indicate the scale of the sugar produced in the region. During the 1998, 2001, and 2004 field seasons, the southern end of a domestic complex, identified as the residence of the *wālī al-Balqā’*, was excavated.⁸⁶ A long and narrow, barrel-vaulted storeroom, approximately 8 meters long and 2 meters wide, defined this space. On the basis of pottery and coins recovered from floor levels, it has been dated to the fourteenth century. The storeroom was full of mendable ceramic vessels, including sugar jars, which were hour-glass in shape

⁸¹Ghawānimah, *Tārīkh Sharqī al-Urdun*, 243–44; idem, “Al-Qaryah fī Janūb al-Shām.”

⁸²İpşirli and al-Tamīmī, *Awqāf wa-Amlāk*, 94; al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 32.

⁸³Waqfīyah 9/51, Dār al-Wathā’iq, Cairo; Walker, “The Northern Jordan Survey”; idem, “Mamluk Investment in the Transjordan,” 130.

⁸⁴Al-Bakhīt, *Nāhiyat Banī Kinānah*, 38 and 45.

⁸⁵Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 32.

⁸⁶Walker, “Late Ottoman Cemetery”; idem, “Mamluk Administration of Transjordan”; Walker and LaBianca, “The Islamic *Quşūr*”; Walker, “Tall Ḥisbān, 2004.”

and built for overland transport. The sugar jars were originally placed directly on the floor, along both sides of the room, while other vessels were stored on wooden shelves along the walls. The destruction of this complex by earthquake and fire in mid-century preserved much of its contents.

A rough estimate of the carrying capacity of this storeroom is 94 store jars, each holding some 6750 cubic cm of raw sugar. Using modern calculations for the density of processed cane sugar, the weight of the contents of each jar would have been 6.075 kg, or a total of 571 kg for all the jars in storeroom, if filled to capacity. To determine the market value of the sugar stored here in fourteenth-century currency, I adopt the price scheme developed by Ashtor, which he bases on Italian price lists recorded by weight of product in Damascus *qintārs*.⁸⁷ The Ḥisbān storeroom would, thus, at full capacity have held some 3.1 *qanāḥīr* of processed cane sugar, which, if the end product was raw sugar, would have been worth 3875 dirhams or 194 dinars by the third quarter of the fourteenth century.⁸⁸ While this seems a modest amount, it alone would have contributed 10% of a cargo of sugar carried on a Venetian galley in the fourteenth century.⁸⁹

Archaeological surveys in the *wādīs* surrounding Tall Ḥisbān have identified many water mills, but their date and function are still uncertain. If the sugar stored at Ḥisbān was not a local product (and this has still not been established), it may have been transported there from the Jordan Valley, 15 kilometers to the west, where there is written and archaeological evidence for extensive sugar production at this time. Ḥisbān, like other administrative centers in Palestine and Transjordan, served double-duty as a storage and transport depot for agricultural products en route to regional markets and ports. In short, if the Ḥisbān sugar was grown and processed locally, it was en route to Mediterranean ports for export to Europe; if a product of the Jordan Valley, it may have been on its way to Egypt or local markets.

Malkā is today one of the largest and most prosperous villages in northern

⁸⁷Eliyahu Ashtor, "Levantine Sugar Industry in the Later Middle Ages—An Example of Technological Decline," *Israel Oriental Studies* 7 (1977): 252. Considerations of vacillating exchange rates of the dinar and its relation to the dirham, while currently debated in Mamluk scholarship, are well beyond the scope of this article. Prices are presented merely to suggest scale of production.

⁸⁸The carrying capacity of the storeroom is based on my own field notes and a published floor plan (Walker and LaBianca, "The Islamic *Quṣūr*," Fig. 5) and my own ceramic profile drawings and one published photo (Walker, "Mamluk Investment in Southern Bilād al-Shām," 255, Fig. 3). Price estimates are based on Ashtor, "Levantine Sugar Industry," 252, Table 252 (price entry for Nov. 1379 C.E.) and Sato, *State and Rural Society*, 243. I have relied on an internet source for current calculations on the density of processed sugar, which is 900 kg per each cubic meter: www.sugartech.co.za/density/index.php.

⁸⁹Ashtor, "Levantine Sugar Industry," 236.

Jordan, known for its high-quality olive oil. It must have given the Mamluk state considerable income, as well, in the late fourteenth century, because, as we have already discussed, Sultan Barqūq endowed the entire village, among other rural and urban properties in Egypt and Syria, in financial support of his madrasah complex on the Bayn al-Qaşrayn. According to the original *waqfiyah*, now housed at the Dār al-Wathā'iq in Cairo, olive orchards and presses (*ma'āşīr*) are listed as important parts of the estate.⁹⁰

An archaeological survey in 2003 revealed evidence of the olive oil industry that is described in this document. It is possible to cautiously estimate production of this single factory, while keeping in mind that other presses were in operation at the same time, elsewhere in the medieval village. The group of presses surveyed was located in a cave (Cave 12) that had been used for olive oil production since the Byzantine period. It contained a half dozen shafts cut into the natural cave walls to hold press arms, as well as two ceiling holes for screw-and-weight presses. In addition, the remnants of a basalt grinding stone were left in the cave interior. According to calculations made for similar weighted lever plants at Hellenistic Maresha, and assuming that all six presses were in use in this period and operating simultaneously, six hectares of olive groves would have supported this single plant at Malkā and could have produced 13,000–27,000 liters of olive oil annually. Of this amount, over 10,000 liters were surplus, exceeding the needs of local consumption, and were thus available for sale in local markets or export.⁹¹

As for the value of such surplus in fourteenth-century currency, we once again rely on Ashtor. Today a liter of olive oil weighs 9/10 of a kilogram; the 10,000 liters surplus from this single plant at Malkā would have weighed a total of 9000

⁹⁰Waqfiyah 51/9, Dār al-Wathā'iq, Cairo.

⁹¹Nahum Sagiv and Amos Kloner, "Maresha Underground Olive Oil Production in the Hellenistic Period," in *Olive Oil in Antiquity: Israel and Neighbouring Countries from the Neolithic to the Early Arab Period*, ed. D. Eitam and M. Heltzer (Padova, 1996), 276–77. This is based on a conservative population estimate of 150 people, arrived at by using figures from an Ottoman land register (*Tapu Tahrir Defterleri*) of 1596–97. The census records 27 families (*khāneh*) and 15 bachelors (*mufrad*) (al-Bakhīt, *Nāḥiyat Banī Kinānah*, 22, Table I). A peasant family, for the purposes of Ottoman tax registers, consisted of a nuclear family (mother, father, and children) (Halil Inalcik, *The Ottoman Empire: The Classical Age 1300–1600* [London, 1994, reprint], 144). Our modest estimate is deliberately low at a five-member household. (Such numbers should be used with caution, however. For criticisms of calculating population size on the basis of Ottoman tax surveys, see Bekir Kemal Ataman, "Ottoman Demographic History (14th–17th Centuries): Some Considerations," *Journal of the Economic and Social History of the Orient* 35 (1992): 187–98, and Heath W. Lowry, "The Ottoman *Tahrir Defterleri* as a Source for Social and Economic History: Pitfalls and Limitations," in idem, *Studies in Defterology: Ottoman Society in the Fifteenth and Sixteenth Centuries* (Istanbul, 1992), 3–18.

kg, which was the equivalent of 482 Syrian *qinṭārs*.⁹² Ashtor, citing Ibn Kathīr, records an export price in the year 1347 of 4.5 dirhams per Damascus *raṭl* of oil, which was 9 dinars per Syrian *qinṭār*.⁹³ In the mid-fourteenth century, then, this plant could have produced a profit of 440 dinars annually. This is, of course, assuming the same end product, which was soap. If the oil was of a higher quality and sold as table oil, it would have been worth considerably more. Regardless, this was no negligible profit: it would have represented, for example, over 30% of the cost of a shipment of 2790 jars of Spanish olive oil to Alexandria in 1405.⁹⁴

Clearly, profit could be made from such specialized production, even when the scale of production at a single site was modest. But was profit the primary rationale for land purchases from the Bayt al-Māl, as we presume these to be, and for their subsequent endowment during the late fourteenth and throughout the fifteenth centuries? Contemporaries commented on and lamented the abuses of rural land by Mamluk amirs but, apparently, had nothing to say about the alienation of state lands in Jordan. Nonetheless, the Ottoman tax registers describe the development of these estates in the sixteenth century and are rather instructive about the financial longevity of the endowments. I will summarize the contents of these registers as regards the villages described above:

1. ‘Adar—The village was no longer settled on a permanent basis by 945/1538 and had devolved into a *mazrā‘ah* (isolated farm), administered, and perhaps cultivated, by Karak town.⁹⁵ ‘Adar produced an annual revenue of 100 *akches*,⁹⁶ which belonged to the sultan’s *khāṣṣ*.⁹⁷ Barqūq’s endowment had, apparently, been dissolved.

2. Nimrīn—In the years following the Ottoman invasion this village had dwindled in size but rebounded by the close of the century. In 945/1538 it was a very small village of five households that controlled only 5 feddans of cultivated land, which produced wheat, barley, sorghum, cotton, and sesame,⁹⁸ sugar cane

⁹²My estimates for modern weight and volume calculations were retrieved on-line at: www.olivebusiness.com/oliveHandbook/GrowingOlives/olive_balance_sheet.htm.

⁹³Eliyahu Ashtor, *Histoire des prix et des salaires dans l’orient médiéval* (Paris, 1969), 407.

⁹⁴Notarial records in the Vatican record a shipment of olive oil from Seville to Alexandria in 1405, when the Mamluk state was now importing large quantities of oil from Europe; the shipment was worth 1400 dinars at the time (Eliyahu Ashtor, *Levant Trade in the Later Middle Ages* [Princeton, 1983], 214). While there is a fifty-year difference between this shipment and the price estimate used above, and we are not certain from the data provided about the quality of the oils and how they compare, the comparison in profits is, nonetheless, informative for the scale.

⁹⁵Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 970*, 152.

⁹⁶Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 75.

⁹⁷*Ibid.*, 306.

⁹⁸Al-Bakhīt and Ḥammūd, *Tapu Defteri 970*, 102.

was not grown any more. The tax registers make reference to Barqūq's original endowment but suggest that part of the revenues from this village once earmarked for his madrasah in Cairo were now being used, along with the villages of Kafrīn and Zarā'ah, to support the Mūsá shrine (arguably a local shrine in Wādī Mūsá). Annual taxable revenues totaled 3659 *akches*. By 1005/1596 there were six households, still small for a village of the time in the Jordan Valley, controlling 20 feddans of cultivated land. Annual revenues from this land came to 3470 *akches*.⁹⁹ Of this, 695 *achkes* were set aside for the Mūsá *zāwiyah* and 2756 *akches* for Barqūq's Cairo complex; the *'ushr* tax on both of these endowments belonged to the sultan as his private fisc (*khāṣṣ*).¹⁰⁰

3. Kafrīn—The fate of Kafrīn mirrored that of nearby Nimrīn. In 945/1538 the village had an imam and consisted of 37 households, which cultivated 10 feddans of land. Taxable crops included wheat, barley, sorghum, cotton, and sesame and brought 6900 *akches* in taxable revenues a year, which were divided among two endowments (those of Nabī Mūsá *zāwiyah* and Barqūq's Cairo complex) and the sultan's *khāṣṣ*. According to the register for 1005/1596 the population had grown to 43 households (the largest in the Jordan Valley at the time) and cultivated land had doubled, producing some of the highest yields in the province.¹⁰¹ Both endowments were retained, that of Barqūq receiving 12665 *akches*/year (17921/year with Nimrīn and Zarā'ah combined) and Mūsá shrine a modest 665 *akches*/year.¹⁰² As with the Nimrīn, there is no mention of sugar production in the register entries.

4. Zarā'ah—Likewise, in 945/1538 Zarā'ah constituted 11 households, one imam, and cultivated 10 feddans, which produced some 7150 *akches* in annual revenue.¹⁰³ It produced the same crops as Nimrīn and Kafrīn. At this point, however, it seems that the village was separated from Barqūq's original estate and specifically earmarked as a *timār* for one Maḥmūd Jawūsh.¹⁰⁴ By 1005/1596 the population grew to 17 households that controlled less land (6 feddans), shared water from Wādī Zarqā, and paid taxes on presses (*ma'āṣir*), presumably olive presses.

5. Malkā—This village experienced notable growth throughout the sixteenth century. By mid-century it had its own mosque, and by 1005/1596–97 its population had doubled.¹⁰⁵ Its annual revenues in summer crops and olives were among the

⁹⁹ Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 43.

¹⁰⁰ *Ibid.*, 125.

¹⁰¹ *Ibid.*, 25 and 43.

¹⁰² *Ibid.*, 126.

¹⁰³ Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 970*, 112.

¹⁰⁴ *Ibid.*

¹⁰⁵ Hütteroth and Abdulfattah, *Historical Geography*, 202.

highest in the region by the century's close.¹⁰⁶

6. Marw and Harhār—The agricultural production of these villages has long been focused on wheat. By 941/1534 Harhār was the largest wheat-producer in northern Jordan. Khushqadam's endowment continued to be recognized by the Ottoman state, although it was now taxed. All tax revenue now went to the provincial governor as his private estate (*khāṣṣ*).¹⁰⁷

7. Bayt Rāmāh—By 1005/1595–96, when the registers were compiled in a final form, this village had been abandoned (*khālī*). It did, nonetheless, pay 2400 *akches* annually in taxes to a sultanī endowment.¹⁰⁸ The farmland of Bayt Rāmāh was probably cultivated by the residents of a nearby village.

These former sultanī endowments in the sixteenth century follow the general pattern of growth (in terms of population and revenues) and agricultural diversification that characterizes early Ottoman Jordan. The largest of the pre-Ottoman endowments were, by and large, retained, and taxed at 10%; those tax revenues then became the *khāṣṣ* of the Ottoman sultan or provincial governor. On the other hand, agricultural land that was not endowed seems to have fragmented even further into small hamlets or communally-held land, cultivated and tax-paying but, in many cases, no longer permanently settled. Much of central Jordan falls into this category, including Ḥisbān, the former capital of the Balqā', which was fully abandoned by the end of the century and paying only a pastoral tax, presumably by semi-nomadic tribes that camped there on a seasonal basis.¹⁰⁹ The regional pattern of growth and decline that emerges for late Mamluk and early Ottoman Jordan suggests, perhaps, that endowment was the key to preserving the financial solvency of agricultural estates, particularly in times of political turmoil.

LOCAL PERSPECTIVES ON THE STATE'S RURAL POLICIES

Contemporaries, of course, had their own ideas about the economic health of the Mamluk state in the fifteenth century. Al-Maqrīzī was one of the most vocal critics of fiscal practices. His *Ighāthat al-Ummah bi-Kashf al-Ghummah* is a well-structured critique of what he believed to be the worst of these practices and describes the damage they have done to the Egyptian economy: inflated prices and forced purchases (*tarḥ*), bribery (particularly damaging when financial offices are purchased in this manner), high taxes, and an unstable and inflated currency. According to al-Maqrīzī, one natural factor lay behind such practices: drought,

¹⁰⁶Ibid.; al-Bakhīt, *Nāḥiyat Banī Kinānah*, 88 and 162.

¹⁰⁷Al-Bakhīt, *Nāḥiyat Banī Kinānah*, 45.

¹⁰⁸Hütteroth and Abdulfattah, *Historical Geography*, 167, entry #P43.

¹⁰⁹Al-Bakhīt and Ḥammūd, *Tapu Defteri No. 185*, 149; Hütteroth and Abdulfattah, *Historical Geography*, 169.

which ultimately led to grain shortages.¹¹⁰

The point of view of Syrian historians was comparable, in that they identified drought as the single most important factor behind the financial and political decline of Bilād al-Shām and the regional political struggles that flowed from it. Ibn Qāḍī Shuḥbah, who often commented on agricultural conditions throughout Syria, discussed the problems of Jordanian agriculture in his obituary of Iyās al-Jarkashī, who was the Supervisor of the Jordan Valley (*Mushadd al-Aghwār*) during Barqūq's reign and died in prison in 799/1396. Contemporaries condemned Iyās for causing the economic collapse of the Jordan Valley in this period by diverting shared water to his own plantations, forcing sales of his own sugar on local residents at inflated prices (*ṭarḥ*), and terrorizing peasants by cutting the hands off accused thieves.¹¹¹ After receiving complaints from local peasants and administrators alike for his abuses, Sultan Barqūq had Iyās arrested and executed that year. Ibn Ṣaṣrā records the events that followed: the former viceroy in Damascus was named to replace Iyās as *Mushadd al-Aghwār*. Once he took up his new post, he began buying up wheat from the markets in the Jordan Valley at low prices, hoarding them, and reselling at inflated ones during the height of a famine.¹¹²

Throughout the events of this year, contemporaries recognized the sultan's active role in addressing rural grievances and responding to drought and famine. Al-Maqrīzī, in his *Ighāthah al-Ummah*, mentions the grain shortages of 796/1393–94 as illustrating a rare instance when the government acted responsibly to avoid famine. For al-Maqrīzī, there was no famine that year, in spite of drought and grain shortages, because Barqūq invested so much money in charitable endowments.¹¹³ This intriguing statement suggests that, in the eyes of contemporaries, the endowment of rural lands, even while creating vast private estates for the elite, resulted in good things for the people. Moreover, it was a response to natural crises, such as drought, grain shortages, and famine—all the result of rainfall of insufficient levels to support an adequate grain harvest.

Jordanian agriculture is particularly susceptible to drought. Many regions of the country receive just enough rainfall to support the cropping of grains without irrigation; even today, the wheat crop fails one out of every five years from insufficient rainfall.¹¹⁴ Historical, palynological, sedimentological, and

¹¹⁰Adel Allouche, *Mamluk Economics: A Study and Translation of al-Maqrīzī's Ighāthah* (Salt Lake City, 1994), 50–54.

¹¹¹Ibn Qāḍī Shuḥbah, *Tārīkh*, 1:630–31.

¹¹²Ibn Ṣaṣrā as recorded in Ḥujjah, *Al-Tārīkh al-Siyāsī*, 81.

¹¹³Allouche, *Mamluk Economics*, 53.

¹¹⁴Palmer, "Following the Plow," 132. Here is where Jordan ecologically differs the most from Egypt: unlike the Nile (before the building of the Aswan Dam), the Jordan River has no annual

dendrochronological analyses have all indicated that the late fourteenth and fifteenth centuries witnessed several cycles of drought in the region and a general trend towards desertification: higher temperatures, reduced rainfall, and abandonment of once cultivated fields.¹¹⁵ Such processes coincided with cycles of settlement abatement (and in many cases whole-scale abandonment of villages), which are documented by archaeological surveys. So, too, are the local soils vulnerable, particularly to mismanagement of the land. Sugar cultivation is especially hard on soil, depleting it of mineral resources and water; sugar cane must be planted on land that has been left fallow for at least four years.¹¹⁶ After two years' of harvest, the land must once again be left fallow or crops other than sugar should be planted. According to Ibn Mammātī, land on which sugar was planted was taxed at a lower rate after the first year, thus losing value over time.¹¹⁷ Sugar processing is, moreover, ecologically demanding, in terms of fuels and minerals.¹¹⁸ Deforestation is, thus, a potential correlate of sugar production, leading to further environmental challenges. With the gradual removal of forested areas, soil cover erodes and what remains is depleted of its constituent minerals; recent soil analyses have identified such patterns for the historical periods in Jordan.¹¹⁹ Written sources and soil science

flood. In other words, Egyptian agriculture traditionally relied on flood-basin irrigation, whereas Jordanian farmers depended on regular rainfall for their largely dry-farming grains regimen. Thus, "drought" for Egyptian historians meant that the Nile did not reach plenitude a given year, resulting in lower grain yields, whereas for the Syrian historian local drought meant rainfall too low to support the minimum grain yield on which the local population depended for survival. (For a recent analysis of drought from an Egyptian perspective, see Stuart J. Borsch, *The Black Death in Egypt and England: A Comparative Study* (Austin, 2005): 34–39.)

¹¹⁵Alan Horowitz, "Preliminary Palynological Indications as to the Climate of Israel during the Last 6000 Years," *Paleorient* 2, no. 2 (1974): 407–14; Ghawānimah, "Al-Ṭā'ūn wa-al-Jafāf"; Shehadeh, "Climate of Jordan"; W. van Zeist, "Past and Present Environments of the Jordan Valley," *Studies in the History and Archaeology of Jordan* 2 (1985): 199–204; Heim et al., "Near East Desertification"; Lucke et al., "Abandonment of the Decapolis."

¹¹⁶Sato, *State and Rural Society*, 216.

¹¹⁷Rabie, *Financial System of Egypt*, 75.

¹¹⁸Effie Photos-Jones, Konstantinos D. Politis, Heather F. James, Alan J. Hall, Richard E. Jones, and Jerry Hamer, "The Sugar Industry in the Southern Jordan Valley: An Interim Report on the Pilot Season of Excavations, Geophysical and Geological Surveys at Tawahin as-Sukkar and Khirbat ash-Shaykh 'Isa, in Ghawr as-Safi," *Annual of the Department of Antiquities of Jordan* 46 (2002): 591–614.

¹¹⁹B. Lucke, Z. al-Saad, M. Schmidt, R. Bäumler, S.-O. Lorenz, P. Udluft, K.-U. Heussner, and B. J. Walker, "Soils and Land Use in the Decapolis Region (Northern Jordan): Implications for Landscape Development and the Impact of Climate Change," *Zeitschrift des Deutschen Palästina-Vereins* (forthcoming); Øystein S. LaBianca, "A Forest that Refuses to Disappear: Cycles of Environmental Degeneration and Regeneration in Jordan," Report to the National Geographic Society, Research Grant Number 5758–96, www.casa.arizona.edu/MPP/ngs_report/ngs_rep.html. There is

analyses suggest, then, that reduced rainfall and cash crop farming together may have contributed, in the long term, to environmental degradation and crop failures.

The abandonment of villages and fields also contributes to desertification, as long-term fallow land is vulnerable to erosion.¹²⁰ While in the long run climatic shifts may account for this abandonment, the immediate causes in the late fourteenth and early fifteenth centuries in Jordan, according to contemporary sources, were the armed conflicts among amirs posted there and their poor (short-sighted) administration of the lands under their supervision. These rebellions seem to have peaked during Faraj's reign and were worst in the region around Karak.¹²¹ There are, thus, dialectical and complex relations among political turmoil, settlement decline, and environmental decline.

AGRICULTURAL HISTORY FROM A SOIL SCIENCE PERSPECTIVE

Archaeological surveys verify the general decline of Jordan during the fifteenth century, which is characterized "on the ground" by marked demographic decline. It is a striking characteristic of the period from an archaeological perspective that the rapid growth of villages and intensive water use during the fourteenth century (on a scale unparalleled since the Byzantine period) is followed in the fifteenth by abandonment of villages in some parts of the country and a marked reduction in population in those villages that continued to be occupied through the sixteenth century.

The Northern Jordan Project, one of two archaeological projects I direct in the country, was launched in 2003 to identify the human and climatic factors behind the demographic fluctuations of the period.¹²² The project began a research collaboration last summer with soil specialists and palaeobotanists from Germany, Jordan, and the U.K. with the goal of measuring soil development (and specifically

still no archaeological or soil scientist consensus on the factors behind deforestation in Jordan. It may have been the combined result of overexploitation of timber for fuel and industrial activities (most notable in the Iron Age and Roman periods) and possible clearance of forests to create olive orchards and grain fields, along with climate change and irregular rainfall, which militated against regeneration of forests. For discussions on the relationships between olive cultivation and deciduous forests, see U. Baruch, "The Late Holocene Vegetational History of Lake Kinneret (Sea of Galilee), Israel," *Paléorient* 12, no. 2 (1986): 37–47, and Reinder Neef, "Introduction, Development and Environmental Implications of Olive Culture: The Evidence from Jordan," in *Man's Role in the Shaping of the Eastern Mediterranean Landscape*, ed. S. Botteme, G. Entjes-Nieborg, and W. van Zeist (Rotterdam 1990), 303–5.

¹²⁰Carlos Cordova, "Pollen Samples from Malkā, Jordan: Preliminary Report," unpublished lab report, Northern Jordan Survey project files, 2004; Lucke et al., "The Abandonment of the Decapolis."

¹²¹Walker, "Review of Ḥujjah," 221–22; Ḥujjah, *Al-Tārīkh al-Siyāsī*, 250 ff.

¹²²Walker, "Northern Jordan Survey."

erosion), in combination with archival research (primarily *waqfīyāt*) and archaeological survey and excavation, to identify changes in crops grown and climatic conditions and their relationship, if any, with the political circumstances of the day.¹²³ Preliminary results of these seasons suggest that the combined effect of drought and political instability damaged the agricultural sector in the geographically exposed lowlands and plateaus and that demographic decline was far from universal for the region.

CONCLUSIONS—DECLINE OR TRANSFORMATION?

“Decline” is in the eye of the beholder. From the vantage point of Jordan, what characterizes the fifteenth century is not urban violence, high taxes on industry, changing trade routes, and confiscation of property—the conditions traditionally cited for Egypt—but climatic and political conditions that made it difficult to farm and to maintain traditional village life. Drought and civil unrest, caused by the amiral conflicts in Karak, seem to have the greatest negative impact on village life and the economy in general in southern Bilād al-Shām. The endowment of the most productive estates in the region during this period may have staved off the worst consequences of both, by allowing for centralized control (and a consistent land management policy), creating security (political, military, and economic), and providing a venue for financial investment in the region (in irrigation canals and dams, roads, storage facilities, etc.) While such endowments did rob the Bayt al-Māl of important tax revenues, it also funneled them into what may have been more effective financial channels. That these were successful enterprises is indicated by their administration in the early Ottoman period: it was more lucrative for the Ottoman state to keep these estates intact than to break them into much smaller *timārs* or *zi‘āmet*s. While the evidence is thus far meager, what sources we do have at our disposal suggest that the process of creating rural *awqāf* from former state lands may have been a form of land development, sponsored by the state to respond to and recover from agricultural crises, such as drought, famines, and plague. Seen in this light, the fifteenth century was more a period of rural transformations than decline of the state.

¹²³Lucke et al., “Soils and Land Use.”