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Sugar in Spain

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Sugar has attracted attention from economic historians, particularly because of its significance in the organisation of labour – notably the role of sugar in the development of slavery in the New World. In a Mediterranean setting, the links to slavery are less obvious, but the gradual westward transfer of sugar technology from the Levant to Sicily (under Muslim rule, and later under Aragonese rule) and to Spain reflects seismic changes in the Mediterranean economy. This was a luxury product and, as demand in western Europe grew, European merchants sought sources of supply closer to home than the eastern Mediterranean. Their reluctance to trade in the Levant reflected political uncertainties in the period when Turkish power was rising in the region. In southern Spain, Valencia (under Christian rule) and Granada (under Muslim rule) became major suppliers to northern Europe by the 15th century. Paradoxically, the survival of the last Muslim state in Spain, Granada, was made possible through the injection of capital by Italian and other merchants trading in sugar. However, the discovery of the Atlantic islands, especially Madeira, gave the Portuguese an opportunity to develop sugar production on a massive scale, again targeting Flanders and northern Europe. The article concludes with the arrival of sugar in the Caribbean, in the wake of Columbus.

The economic role of sugar in the Middle Ages

Sugar has been described as 'the colonial crop *par excellence*'. It is associated in a lengthy historiography with the development of the trans-Atlantic trade not just in sugar but in the slaves who were put to work, often in exceptionally unpleasant conditions, on the sugar plantations and in the sugar mills of Brazil, the Caribbean and eventually North America. Yet the history of sugar is also the history of its transfer from the Far East through the eastern Islamic world to the Mediterranean. Exactly when it began to be cultivated on a significant scale in Spain is an open question, as we shall see; however, by the late 14th century it had become a prized product of areas such as Cyprus, Sicily and parts of the Iberian peninsula, from

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where its cultivation spread in the 15th century to the newly discovered Atlantic islands ruled by the Portuguese and the Spaniards – Madeira, the Azores, the Canaries, Cape Verde, São Tomé.[1] A pivotal role in these developments was played by Spain, understood in its widest sense (as often employed in this period) to include the kingdoms of Portugal and Granada as well as the Catalan-Aragonese kingdom of Valencia.

However, the economic importance of sugar lies not just in its widespread use as an article of trade, but also in the organisation of the sugar industry, requiring considerable investment in order to ensure adequate supplies of fuel and labour, and to pay for elaborate milling machines. The conversion of sugar-cane into cakes of powdered sugar and its by-products (notably molasses) is a labour-intensive process that involves the crushing of the canes in mills, the extraction of liquid, the boiling of the liquid, and the production of a finished product of differing levels of purity, depending on how many times the liquid was boiled. It is for these reasons in particular that sugar has been seen as a harbinger of modern capitalism, and as an agent for enslavement.[2] Its arrival in the Atlantic islands on the eve of the discovery of America is seen by some historians to presage the creation of the great slave economies of the Caribbean and of the Americas, although it has also been pointed out that the use of a substantial amount of free labour in Madeira and the Canary islands differentiates these cases from those across the Atlantic.[3] Slaves were used within the labour force, but this was not a system of production based on slave labour. Indeed, studies of the sugar industry within the medieval Mediterranean have insisted that slave labour was not heavily utilised, a point made most recently and forcefully in the recently published French doctoral thesis of Mohamed Ouerfelli.[4] Another, related, feature that differentiated the Old World, including the eastern Atlantic islands, from the New World was the small size of estates and the close cooperation between nobles, merchants and mill-owners; great plantations had not yet developed, nor could they do so given the small scale of the territories in which sugar was cultivated during the late Middle Ages: river banks, marshlands, remote islands.

I propose to examine sugar from the perspective of an economic historian, looking at the broad shifts that took place in the production and exploitation of sugar in the Iberian world, and attempting to explain them in the context of seismic changes in the character of the Mediterranean, and subsequently the Atlantic economy, mainly in the late 14th and 15th centuries.[5] It has already been suggested that there is room for debate about the links between the way the eastern and western Atlantic islands were exploited around 1500. On the other hand, the ways in which foreign businessmen might gain access to precious supplies of sugar, at a time of significant structural changes in the sugar industry (marked, in particular, by the decline of the Levantine sugar industries) reveal

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a great deal about commercial strategies in the 15th century. Moreover, it is impossible to approach this subject without offering a quick reassessment of what is known about the spread of sugar from the east towards Spain and Sicily. Finally, it is impossible to make sense of the changes in the sugar industry at the end of the Middle Ages without looking at the emergence of new centres of production, in Madeira and the Canaries, whose development is generally assumed to have spelled the end of a successful Mediterranean sugar industry. Whether the Atlantic industries indeed had such an effect will be examined in due course.

The spread of sugar cultivation in the Middle Ages

Sugar-cane is thought to be native to some Pacific islands (particularly New Guinea), and sugar was little known in classical antiquity, except as an exotic product of India. Here, sugar-cane had become well established by the fourth century AD, although the production of powdered or crystalline sugar was limited, and consumption of concentrated syrups rendered down from the juice of the cane was probably much more common. Sugar cultivation in Persia probably slightly precedes the Islamic conquest of Iran; from this region came the highly prized sugar of Khuzistan.[6] Khuzistan had all the advantages a sugar-producing region should ideally possess: the area was well-watered and the forested mountains nearby provided the wood that was needed in the building of simple mills and the processing of the sugar-cane. It should be noted that mills need to be in close proximity to sugar plantations, because, once cut, the cane dries out after a couple of days; in other words, it cannot be transported for long distances in its raw state. The arrival of sugar-cane in the Mediterranean has traditionally been attributed to the Arab conquests, although Watson points out that Arabia itself was not a sugar producing region.[7] However, the Islamic conquerors carried with them large numbers of skilled artisans, and it is clear that sugar was already under production in Syria by 700, where it continued to be produced in substantial quantities until the 15th century.[8]

Egypt became a very important producer from the eighth century; by the 12th and 13th centuries, Egypt had become a major source of sugar, of many different qualities, for western merchants. It was praised as a source of sugar by al-Idrisi, writing in Sicily (itself a source of sugar) in the 12th century.[9] However, the lack of wood supplies must have been a major problem for the Egyptians. Thus, in the later Middle Ages, Cyprus – with its great forests – was very well placed to become a major producer for export; more will be said about this later. Perhaps this also explains the success as a sugar producer of Morocco, whose *Çoukar de Marrok* was in demand as far afield as Durham (England) at the beginning of the 14th century; the area around Ceuta, opposite Gibraltar, was an important zone for sugar production, and merchants from Gibraltar became involved in the

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sugar trade at the end of the Middle Ages.[10] There is fragmentary evidence in ibn Hawqal's account of tenth-century Palermo (Sicily) of local sugar production, although at this time it was probably on a very small scale; the Sicilian sugar industry took off successfully much later.[11]

Possibly more successful was the implantation of sugar in Muslim-ruled parts of Spain. Although sometimes attributed to the Umayyad amir 'Abd ar-Rahman I, who seized power in 756, the arrival of sugar stocks must surely be dated rather later: there are references to sugar production in a document known as the Calendar of Córdoba, of the mid 10th century, an agricultural calendar that contains exact information about the countryside of al-Andalus at this period, but which may have borrowed its references to sugar from eastern Mediterranean sources or from knowledge of agrarian conditions in Morocco. A few areas of southern Spain did apparently produce sugar along river-banks or in other wetlands; writing a little before the composition of the Córdoban calendar, the historian and anthologist ar-Razi referred to sugar at Almuñécar and Salobreña, in the vega around Granada and along the Guadalquivir at Seville.[12] The importation of eastern crops in al-Andalus was carried out on a significant scale, and yet sugar was clearly a special success story; a lengthy passage of the agronomical treatise of ibn al-Awam (who lived in the 12th century in the Wadi al-Kabir, i.e. Guadalquivir valley) deals with different ways of producing sugar, and his use of another treatise written by a Granadan suggests that the region around Granada had already developed into an important source of sugar – and so it would remain at least until the fall of Granada to the Catholic Monarchs in 1492.[13] Naturally suited to a tropical or sub-tropical climate, sugar-cane proved hostile to attempts to achieve cultivation in cooler lands such as Catalonia, but Catalan merchants were very active in the handling of eastern sugars from the 13th century onwards.[14] Yet, even if the cultivation of sugar was practised across quite a wide area of al-Andalus by about 1000, it is important to remember that sugar at this stage was a minor product, ranking far below oil, grain and fruits; it was, as Fábregas Garcia has pointed out in her excellent studies of Granadan sugar, a prestige product aimed at the luxury market. Ordinary Andalusians in search of sweeteners would turn to honey, not sugar. But honey too was not always available in sufficient quantities, and, by the 15th century, European merchants were exporting honey, especially from southern France (Jacme Olivier of Narbonne had a special account book just for honey, his *lybre de la mel*), and they were importing sugar from the Levant – a notable case being the famous and wealthy French merchant Jacques Coeur.[15] Thus, East and West exchanged the sweeteners that each region found it easiest to produce.[16]

Despite its strong reputation, Levantine sugar went into decline in the 15th century as part of a wider economic crisis in much of the region; the Turkish conquest of the region after 1500 seems to have set the seal on this.[17] In the 15th

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century, these lands, once such pioneers in sugar production, were even drawing in sugar from Spain and Sicily. These events were of fundamental importance for the development of Iberian and Atlantic sugar; and the intermediaries in these developments were the Italian and Catalan merchants, particularly the Genoese.[18] The role of Christian-ruled Cyprus in sugar production became vital; Genoese traders were handling Cypriot sugar as early as 1300.[19] For a time, during the 14th century, Cyprus became the prime sugar island of the Mediterranean.[20] But thereafter, the Genoese, despite their substantial interests in the eastern Mediterranean, had good reason to be worried at excessive reliance on Cyprus; they looked further west, to Sicily and Spain, for the supplies they needed. Their reasoning was twofold. Their rivals the Venetians exercised strong influence on the island and owned extensive sugar estates; Cyprus itself was exposed to Mamluk and Turkish raids from Egypt, Syria and southern Anatolia; most importantly, they were aiming to supply markets in the north of Europe as well as the western Mediterranean, and it made the most sense to find sources of good sugar in areas which their ships could visit en route to Bruges and London. This brought into focus the sugar of Valencia, Granada and the Portuguese Algarve.

The rise of sugar in Aragonese Sicily

However, it was another territory that eventually fell under the rule of Spanish kings which became the favoured source of sugar. The primacy of Cyprus among the Mediterranean islands gave way by 1400 to a clear Sicilian primacy, which itself gave way by 1500 to the primacy of an Atlantic island, Madeira. The westward shift in production characterised other commodities too, such as alum and dried fruits, which by the middle of the 15th century were easier to obtain in Italy (in the first case) and in Mediterranean Spain (in the second case) than in the Aegean and the Black Sea. An Islamic sugar industry probably survived in Sicily well into the 12th century – that is, the Norman period – but consisted of little more than small-scale production in the gardens of Palermo;[21] in 1239 the ruler of Sicily, Emperor Frederick II, was so concerned at the decline in sugar cultivation on the island that he asked for men to be brought from the area around Tyre to revive the industry.[22] Although there is slight evidence for continuing production, the Sicilian industry only began to succeed significantly after about 1350, at first with the help of local patrician investors.[23] In this period Sicily was ruled by an independent dynasty of Aragonese origin, following the revolt of the Sicilian Vespers in 1282, although at the end of the century the senior branch of the house of Barcelona acquired control of the island, which was thenceforth ruled by a viceroy on behalf of the king of Aragon.

This boom in sugar production, in both Spain and Sicily, reflects the expansion in demand for luxury and semi-luxury foodstuffs that followed the Black Death,

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which may have resulted from a wider distribution of financial resources to a much shrunken population, or from a growing hedonism, even fatalism, that is said to have characterised a population that was trying to escape from the awful reality of disease.[24] Another important factor was undoubtedly the emergence of wealthy princely courts, which sought to display their powers of patronage through magnificent feasts. The creation of marvellous confections of sugar, egg and almond became almost routine at princely banquets in the Burgundian Netherlands, to which the Genoese merchants brought Granadan and Sicilian sugar in quantity. The economic impact of sugar could be felt in other ways too. The renewed extension of orange plantations in Aragonese Sicily (present earlier under the Normans, according to ibn Jubayr) may well reflect the availability of sugar for the preparation of candied orange products; it is worth asking whether a similar phenomenon can also be detected in southern Spain. As Trasselli pointed out, the bitter orange then available in the Mediterranean could only be eaten in the form of marmalades and sweetmeats: 'thus we find a parallel evolution to that linking saltpans to tunny-fishing, the link between orange groves and sugar plantations.'[25] The Sicilian industry is sometimes seen as an early example of a colonial product dominated by alien commercial interests; however, S.R. Epstein argued that the role of local investors disproves the argument that Sicilian sugar production was dominated by foreign merchants.[26] The proof of his argument supposedly lies in the considerable number of native businessmen who were active in the management of the distinctive type of mill known as *trappeti*. On the other hand, the success of this industry depended heavily on foreign demand; thus, the financier Pietro Afflitto owned a mill and sold sugar to Genoese clients.[27] Guglielmo Scabica (*Xhabica*) sold sugar from his *trappeto* mill in Palermo to the Catalan merchant Jaume Sirvent, and it is important to underline the role of Iberian merchants alongside the Genoese, both hailing from communities that received special favours from the Aragonese kings of Sicily.[28] The king was well aware of the appeal of sugar to foreign merchants; in 1451 he sent 150 *carratells* of sugar on one of two royal galleys bound for Sluys in Flanders.[29]

The sugar plantations of Valencia

Sicily is also important because it provided a model for the resurgent sugar industry of Iberia. Although there were earlier initiatives in Valencia, following its conquest by the Catalans in the middle of the 13th century, it was at the beginning of the 14th century that serious efforts were made to stimulate the Valencian sugar industry. King James II of Aragon, the ruler of Valencia, had briefly reigned in Sicily and was married to a Cypriot princess, so it comes as little surprise that he imported sugar stocks from Sicily in the hope of developing

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an industry to rival those of Sicily and Cyprus. Valencia was not, at first sight, ideal terrain for such initiatives; the climatic extremes in southern Spain pose problems, as does the periodic lack of water. On the other hand, elaborate irrigation networks, developed under Muslim rule and sustained by the Christian conquerors, ensured that water could be brought to the plants. The royal initiative faltered, however, so that sugar survived as a rather exotic luxury crop; it was only a century later, in 1407, that Nicolau Santafé began to develop intensive cultivation. Ten years later a Muslim potter was commissioned to make ceramic equipment (moulds and so on) for a Christian entrepreneur who was setting up a *trapig*, that is, a mill based on the Sicilian type of mill known as the *trappeto*. There is thus a link between the impressive development of a ceramics industry in Valencia, the home to some of the finest hispano-moresque pottery, and the development of the sugar industry; and a similar trend is visible in Granada as well.

The area around Valencia marked the major northernmost extension of sugar cultivation in the Middle Ages; it also became the focus of outside investment, as Italian, Catalan and even German merchants became involved in the sale of its sugar on the international market. The German case is particularly interesting, because in this case foreign merchants actually sought to control production, in an ambitious attempt to create an integrated system of cultivation, processing and delivery to the market. In the 1460s the Große Ravensburger Handelsgesellschaft sought to expand sugar cultivation, hoping to combine their exporting role with direct involvement in production at Gandía; the experiment did not succeed, partly because of increasing competition from the Atlantic islands, of which more shortly.[30] Ravensburg merchants were already carrying sugar overland from Spain to Germany, via the Rhône valley, in 1408. In 1432 the Ravensburg firm exported sugar worth £223 from Barcelona, although later on the firm used Valencia instead as the centre of its Spanish sugar operations.[31] With the acquisition of their own estate, however, the German merchants became still more heavily involved. From Valencia, the Ravensburg merchants were exporting significant quantities of sugar in 1475–76, by way of Barcelona; a lading document refers to voyages from Valencia in November 1475, on which two separate shipowners loaded 36 *cysta* or boxes of sugar, described as *von 3 Sorten*.[32] The next year a trading voyage to Bouc carried 36 chests of sugar, well refined (*Zucker de 3 cuits aus unserm Zuckerhaus*) which was of especially good quality, since it came from the sugar plantation of the firm at Gandía, of which more shortly.[33] Another sugar product from the same plantation was also carried on this voyage, described as *10 Kisten mit Zucker Candi*. Of course, rice, wax, cochineal-type dyestuffs and other goods also featured prominently in the exports from Valencia, but the high profile of sugar is unmistakable.[34]

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In her expert study of Valencian trade, Jacqueline Guiral pointed out that Valencian sugar was virtually all produced with an eye on the international market; but this did not result in the exclusion of local merchants. Valencia retained a large Muslim population after its conquest; even at the end of the 15th century the population of the kingdom was perhaps a third Muslim. There is plenty of evidence that Muslim merchants were active as intermediaries, selling locally processed sugar to foreign Christian merchants in Valencia in the 1480s and 1490s. Azmet Fandaig al Chicalet hailed from the *morería* of Valencia and promised to provide 100 barrels to be loaded on board ship at Denia or Xavea. In 1488, the Florentine Johan de Anyel is seen buying 50 barrels of molasses from his relative Mahomat Fandaig al Chicalet. Other business interests were represented by merchants of Siena, Avignon and the Sant Feliu de Guixols, the outport of Girona, as well as by Spanish Jewish merchants.[35]

The involvement of the Ravensburg merchants in the Valencian sugar industry has been seen as a conscious attempt to imitate the Venetians in Cyprus. In 1461, they entered into a deal with En Hug de Cardona, a great landowner with estates at Gandía on the west bank of the Alcoy river, appointing as manager of the plantation a man named Santafé, who was to look after the *trapig de canyes mels*, in other word the *trappeto* or sugar mill.[36] In February 1464, Jakob Vizlant, the German agent of the Humpis family of Ravensburg, prominent in the affairs of the Handelsgesellschaft,[37] petitioned the lieutenant-governor of Valencia to ensure that the factory and plantation remain in the hands of the German firm.[38] During the political crises of the 1460s, Hug de Cardona had found himself obliged to sell his estates, and in the process the purchasers laid claim to the mill, factory, manpower and traction animals used by the Germans. The document states that the property of En Hug included also *aljames*, that is, communities of Muslims under Christian rule.[39] The labourers are specifically described as *los Moros*.[40] Thus, as in the Algarve, we can be confident that it was with the help of a labour force largely consisting of Muslims that sugar was produced in the Valencia region. It is in the Valencia countryside that we occasionally find evidence for the use of a significant amount of slave labour in sugar production, taking advantage of the existence within the city of Valencia of an active slave market which, by the end of the 15th century, included black slaves and Canary islanders as well as slaves from Mediterranean and Black Sea sources. But the industry was still predominantly based on free labour. Indeed, it was the usefulness of the free Muslim labour force in Valencia and Aragon that long protected the *mudéjar* Muslims in these regions from the expulsions and land clearances long characteristic of other parts of Spain.[41]

The lieutenant-governor was convinced by the claims of the German merchants, and the animals and other items were returned subject to the condition that the planting of the new crop of sugar-cane would begin within the next 15 days. The reason for this stipulation was that the planting season always began in Spain,

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Sicily and Egypt in March;[42] the appeal to the lieutenant-governor was thus made in an emergency, when the Ravensburger merchants feared they would be unable to plant their crops without a speedy decision.[43] The land still needed to be cleared for cultivation, and orders were given a few days later that the *Moros* who worked the soil could bring their animals on to the land so it could be made ready for sowing.[44] It is plain too that the Aragonese government too had its own vested interests in the success of the sugar plantations in Valencia; there were fiscal considerations that could not be ignored, which go far to explaining the enthusiasm of the lieutenant-governor and his officials for the replanting of the estate. So sugar production continued at Gandía. Indeed, there were still seven *trapigs* there in 1550 with 55 sugar mills, employing an average of 10 men per mill and using 220 draught animals.[45]

However, the pressure of competition from the Atlantic islands seems to have become overwhelming well before 1550. For example, in 1469, the Infant Dom Fernando of Portugal issued instructions for the creation of a cartel controlling the sale of all Madeiran sugar, which until then had been produced and sold in an uncoordinated fashion.[46] Since the Große Ravensburger Handelsgesellschaft had existing interests in Madeiran sugar, it is not surprising that they eventually decided to cut their losses and turn away from Valencia towards the Atlantic; comparable Madeiran sugar was available at this period at half to two thirds of the price of Valencian, and the startling growth in production of Atlantic sugar forced down prices, thereby rendering uneconomic the production of sugar in several Mediterranean centres.[47] What proportion of Gandían production had ever been under the control of the Ravensburg bankers remains uncertain, and it would clearly be an exaggeration to suppose that they aimed at or achieved the sort of monopolistic control that the Cornaro family gained for themselves in Cyprus; they were one group among many producers in La Real de Gandía, but their attempt to move beyond the trade in sugar to its very production is certainly very striking.

The 15th century saw a whole series of schemes to promote agricultural initiatives and, in particular, to develop sugar plantations, not merely in newly settled lands claimed by Castile and Portugal, but also in the Iberian peninsula. Genoese business interests were at work in Palma del Río, in south-western Spain, in lands ceded to the Boccanegra family in the mid-14th century. This even involved the settlement of new Muslim labour in an area long ago conquered by the Christians, and the cession of guarantees to ensure that these Muslims could practise their religion freely.[48] The Genoese businessman Giovanni della Palma set up a sugar plantation in the Portuguese Algarve, receiving a privilege on 16 January 1404.[49] The enterprise seems to have succeeded, since another plantation was set up not far away by Giovanni and two close relatives in 1409; half a century later, German visitors to the area found it still flourishing.[50]

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The Granadan sugar enterprise

The re-orientation westwards of Mediterranean trade in the late 14th and 15th centuries had particular implications for the Nasrid kingdom of Granada, and for sugar production in the last Muslim state to remain on Iberian soil. Paradoxically, in moving business away from the increasingly risky markets of the Islamic eastern Mediterranean, the Genoese and their rivals boosted the finances and political strength of an Islamic state in the western Mediterranean. Not just sugar but dried fruits such as figs, raisins and almonds were extracted from Granada, as well as significant quantities of another commodity of Far Eastern origins, silk – surviving examples of which testify magnificently to the expertise of the silkweavers of the Granadan kingdom. The magnificent pottery has been mentioned already, and was another desirable object of trade. At the same time, the Granadan state was threatened by enemies to the north and south: by Christian Castile, and also intermittently by Aragon and by Portugal, which hoped to gain control of the port towns such as Almería and Málaga, all the more so as they became important export centres; and by the Marinid rulers of Morocco, who viewed Granada as a regional irritant and also aspired to control parts of its coastline. And yet the Granadans managed to play off these foes against one another with considerable success, occasionally paying tribute (*parias*) to Castile. In the late 14th century, under Muhammad V, the kingdom enjoyed a period of relative quiet, and projects such as the building of the palaces on the Alhambra hill testify to a certain degree of prosperity.

At the root of this prosperity lay alliances with Genoese, Florentine and, to a lesser extent, Catalan merchants. Italian and Catalan merchants succeeded in navigating through the Straits of Gibraltar from the 1270s onwards, largely as a result of their ability to reach an accord with the powers that controlled the exit from the Mediterranean. In sustaining the Nasrid kingdom they were also, importantly, sustaining their access to northern Europe. Although the first references to the arrival of Granadan sugar in Bruges date from 1399, it is likely that this trade had been in operation for a 100 years already; in 1399, we hear of 291 cases of sugar, loaded at Málaga and owned by rich Genoese merchants, which were seized by pirates as they were being conveyed to Flanders.[51] At the start of the 15th century, the famous trading company of Francesco di Marco Datini, the 'merchant of Prato', was loading large amounts of sugar, silk and fruit on Genoese ships in the port of Málaga.[52] There were Genoese merchants, based in the Nasrid kingdom, supervising the transport of the sugar and maintaining direct contact with the producers, for only the European merchants had the ability to transfer the goods out of the kingdom.[53] Granada therefore became integrated into the trade networks not of the Islamic world so much as those of western Europe, although some small-scale commerce with Morocco on Muslim-owned boats did continue. But it was the Genoese, in particular their United Fruit

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Company (*Ratio Fructe*) in the 15th century, who dominated commerce between Granada and the outside world; in typical Genoese fashion, the company was dominated by a great Genoese family, the Spinolas, since the rights had been farmed out to the Spinolas by the Genoese republic.[54] These links remained alive well into the final years of the kingdom, as the Christians stood poised to conquer all of its territory. The link to sugar is plain: sugar cultivation expanded under the Nasrid rulers, around Almuñécar, Salobreña and other centres old and new, and it was produced no longer as a sweetmeat for local consumption, medical use and so on within the kingdom, but for the international market, which was increasingly hungry for this product.[55] The expansion of southern Spanish sugar may have been made easier by an apparent decline in sugar production in Morocco, which had a long tradition of sugar production and, incidentally, favoured the use of sweeteners in complicated dishes of food. In addition, the Granadans were less favoured with land on which to grow grain crops than their Moroccan neighbours; as a result, Nasrid Granada and Marinid Morocco often exchanged sugar for wheat. That said, it is impossible to provide exact figures for production or export, as can be done for the Atlantic islands. In 1445, Filippo Spinola sent 306 cases of sugar out of Málaga, valued at over £9,000; a further 81 cases were exported by other firms, making a total of 387, more than twice the amount exported that year from Chios.[56] More than half the sugar exported by the Spinolas was certainly sent to Bruges – maybe nearly all of it.[57] Even relying on impressions though, the evidence for substantial sugar production, managed in significant measure by the Genoese, is convincing: shortly after the Christian conquest, Hieronymus Münzer, a German traveller, called Almuñécar 'famous for its sugar' and went on to say of Granada that 'it is a very rich kingdom'.[58] In fact, Granada remained an important source of sugar after its conquest by Ferdinand and Isabella, although decline set in during the early 16th century, accentuated by the large-scale emigration of skilled Muslim labour to North Africa. However, production never disappeared completely, and there were frequent new initiatives, including an attempt early in the 16th century to establish a plantation using slave labour near Algeciras. Part of the funding was supplied by a merchant from the Canary Islands, which were now becoming a significant source of sugar in their own right, as we shall see later.

The impact of the Atlantic sugar plantations

By 1500, in fact, Valencia had passed its peak as a sugar producer and Granada was entering a difficult phase. Sicily too suffered, possibly because heavy royal taxation, in order to support Aragonese military ambitions in Italy and the Mediterranean, throttled the industry in the mid-to-late 15th century. Above all, however, the decline of the Mediterranean sugar industries can be attributed to

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the success of the Portuguese and the Castilians in establishing new sugar industries in the sub-tropical climates of Madeira and the Canary islands; this also reduced dependence on eastern sources at a time when the Turkish advance threatened supplies. Indeed, as we shall see, the eastern Mediterranean began to import sugar from Granada and other western sources, as its own sugar industry declined.[59] By 1450, possibly a couple of decades earlier, Prince Henry the Navigator sent sugar cane to the newly discovered, unpopulated island of Madeira, establishing an industry that was worked largely by free labour, with the help in due course of enslaved Canary islanders; indeed, it is traditionally related that Prince Henry acquired his seed for the Madeiran enterprise from Sicily, but there were certainly sources much closer to home, notably the plantations in the Portuguese Algarve established by Giovanni della Palma in 1404.[60] By the middle of the 15th century a single Genoese landlord was able to produce 20,000 *arrobas* (285 tons) of sugar per annum on Madeira. Exponential growth in sugar production occurred: between 1454 and 1472 growth took place at a rate of 13% per annum; between 1472 and 1493 the rate was 68% per annum, and Alberto Vieira has calculated that over the whole period this amounted to a 1430% increase.[61] Among sugar traders in Madeira was the young Christopher Columbus, who effected a deal with a Flemish partner. The simple reality was that, while demand for sugar was so strong in Flanders and England, Madeira was better placed to meet these needs than was Granada or Sicily. But Italian traffic passing through the Straits of Gibraltar could load sugar in Málaga as well, while Venetian galleys on the Flanders route were able to pick up sugar in Palermo if they wished.[62] By 1456, Madeiran sugar was reaching England, by 1471 Florence; the Große Ravensburger Handelsgesellschaft and the Welsers of Augsburg took an interest as well. In 1496, exports were restricted to the still sizable quantity of 120,000 *arrobas* (1,700 tons), divided between Flanders, Italy, Chios and England. The mention of Chios is proof, if any were needed, that the eastern Mediterranean was no longer able to meet local demand for sugar.

Other Portuguese colonies also produced respectable amounts of sugar: in 1510 the Azores produced 2,000 *arrobas*, Cape Verde 4,000, against 70,000 on Madeira itself; production on the distant Portuguese colony of São Tomé in the Gulf of Guinea was also rising fast.[63] It is worth pausing to consider the case of São Tomé. In 1493, King João II conceived a brutal plan to settle the island with Jewish children, forcibly taken from their parents in order to ensure that they were baptised and brought up as Catholics; these were Jews who had fled from Spain to Portugal a year earlier at the time of the expulsion of the Jews from Spain, and who had overstayed the eight-month period the king had allowed them to remain. Since he had failed to provide them with the promised means to leave Portugal by sea, the king's cruelty was doubly painful: to all intents, they became the king's slaves and had their children torn from them. His harsh policy

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culminated under his successor Manuel in the formal expulsion of the Jews from Portugal in 1497, although once again there was no shipping to take them away; sprinkled with holy water in mass ceremonies, the Jews were deemed to have been baptised. The court chronicler Rui Pina wrote soon afterwards of João II:

> The king gave to Alvaro de Caminha the Captaincy of the island of São Tomé by right and inheritance; and as for the Castilian Jews who had not left his kingdom within the assigned date, he ordered that, according to the condition upon their entry, all the boys, and young men and girls of the Jews be taken into captivity. After having them all turned into Christians, he sent them to the said island with Alvaro de Caminha, so that by being secluded, they would have reasons for being better Christians, and the king would have a way for the island to be better populated, which, as a result, grew rapidly.[64]

According to Jewish chroniclers, about 800 Jewish children were sent to this hell-hole (although one Hebrew chronicle said 5,000); a Christian writer asserted that 2,000 were despatched, but only 600 were still alive in 1510.[65] In reality, however, the harsh conditions – the searing heat, the insect-borne diseases, the uncleared jungle, the heavy manual work involved in sugar production – killed many of the Jewish children, and it was for that reason that black slaves had to be imported to work the sugar estates.

In the Canaries, where the colonists had to cope with an often hostile native population, the extension of sugar cultivation took longer, and was in the early stages dependent on Portuguese know-how; there are references to significant quantities of sugar in documents from 1487 onwards, including land planted with sugar-cane on Gran Canaria in 1494.[66] Here again, the Welsers played a significant role in the management of the early sugar estates.[67] But, as ever, it was the Genoese, such as the Riberol family (later prominent in the sugar industry of Hispaniola), who attempted to gain a dominant position in the sugar industry of the Canary Islands, resulting in a xenophobic backlash against them, and attempts to restrict the scale of their holdings. All this would suggest that the cumulative weight of Canarian and Madeiran sugar, as Canary sugar became readily available around 1500, was too heavy for the competing Mediterranean industries to bear. In 1493, Columbus apparently took sugar-cane from La Gomera in the Canaries to Hispaniola, although several attempts were necessary before the Caribbean sugar industry took off. The first serious attempts to start sugar production in Hispaniola began in 1501, but growth was slow, depending as it did on securing experts from the Canaries who could advise on the machinery needed in the mills, and, even more importantly, on the availability of capital, which in fact was in short supply, even on an island supposedly rich in gold.[68] Labour, too, was scarce, since the native Taíno population was facing rapid extinction from disease and from overwork in the gold mines, and the importation of black slaves from Africa was only gradually beginning. Thus, it

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was the sugar of the eastern Atlantic and not of the western Atlantic that led to the decline of production in Sicily and Valencia.

A taste for profit

Tastes changed during the Middle Ages. What had been a recondite spice became the essential ingredient of *haute cuisine* at the courts of the English and other kings. The vast quantities of sugar imported into England, for use in 14th-century *blancmanges* of rice, chicken breasts and sweet flavourings, were paralleled by the developing trade within the Mediterranean in sweetmeats. Whether the marzipans of modern Sicily and Spain have a continuous history going back to the Middle Ages is not entirely clear; but the 14th-century merchant Pegolotti makes plain the importance of the trade in syrups and packaged sweetmeats out of the Levant, and marzipans were certainly on sale in the western Mediterranean in the 15th century. In addition, the medical uses of sugar were widely established. By 1500, sugar had become the most hotly sought after sweetener in the upper and middle levels of society, relegating honey to the secondary position it has held ever since. This reflected the social changes that were taking place in 15th-century Europe, as a wealthy upper middle class emerged, taking advantage of the economic transformations that had succeeded the Black Death. Renewed economic expansion in the 15th century, and maybe earlier, reflected rising demand for luxury goods among Europeans and a great growth in interest in non-staple foodstuffs such as sugar.[69]

Mediterranean Spain was well placed to meet the growing demand for luxury foodstuffs at the end of the Middle Ages. Since sugar could not viably be produced north of Valencia, the sugar producers of southern Spain found themselves in a privileged position on the international markets; meanwhile, merchants from northern Spain, particularly Catalonia, were active in the sale and transport of sugar.[70] More complex is the problem of the economic significance of the shift westwards into the Atlantic of sugar production, and its impact on Iberia. For what we see is not merely the decline of production in Spain and also Sicily, but the increasingly powerful role of businessmen drawn from communities that had earlier played a limited part in the sugar industry: the Castilians and the Portuguese (although with the strong backing of Genoese settlers and financiers). Madeira and to a lesser extent the other eastern Atlantic islands were better placed to service the needs of consumers in northern Europe, and there can be little doubt that, whatever the local difficulties experienced within Sicily and Valencia, which have been described here, it was Atlantic sugar that displaced and undermined the sugar industries of the western Mediterranean at the end of the 15th century. These were the first beginnings of an Atlantic economy in which sugar would eventually acquire a commanding role.[71]

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References and Notes

1. N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall) which contains a surprising number of inaccuracies despite its impressive geographical range and botanical knowledge, and deserves to be replaced; E. v. Lippmann (1929) *Geschichte des Zuckers*, 2nd edn (Stuttgart); also my own preliminary thoughts in D. Abulafia (1998) Zucker, -rohr, *Lexikon des Mittelalters* (Munich: Lexma) **19**(3) cols. 679–82 and, with an emphasis on Sicily and Valencia, D. Abulafia (2000) La produzione dello zucchero nei domini della Corona d'Aragona. In: G. Rossetti and G. Vitolo (eds) *Medioevo Mezzogiorno Mediterraneo: studi in onore di Mario del Treppo*, 2 vols (Naples: Liguori) **2**, 105–119. But all these have been surpassed by the encyclopaedic study of M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill).
2. S. W. Mintz (1985) *Sweetness and Power: the Place of Sugar in Modern History*. (New York: Penguin Books).
3. F. Fernández-Armesto (1982) *The Canary Islands after the Conquest* (Oxford: Clarendon Press), distinguishes himself on this basis from the assumptions of C. Verlinden conveniently gathered together in: C. Verlinden (1970) *The Beginnings of Modern Colonization* (Ithaca, NY: Cornell University Press).
4. This is the strongly-held opinion of Ouerfelli (2008); for revisionist views of the role of slavery in the Atlantic sugar industry as well, cf. H. Klein (2004) The Atlantic slave trade to 1650. In: S. Schwartz (ed.) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press), pp. 201–236 and J. J. McCusker and R. R. Menard (2004) The sugar industry in the seventeenth century: a new perspective on the Barbadian 'Sugar Revolution'. In: S. Schwartz (ed.) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press), pp. 289–330.
5. Cf. the debates about Sicilian sugar: C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia); H. Bresc (1986) *Un monde méditerranéen: économie et société en Sicile (1300–1450)*, 2 vols (Rome and Palermo: École Française de Rome and Accademia di Arti Scienze e Lettere di Palermo); S. R. Epstein (1992) *An Island for Itself: Economic Development and Social Change in Late Medieval Sicily* (Cambridge: Cambridge University Press; Italian edition 1996: *Potere e mercanti in Sicilia*, Turin: Einaudi).
6. N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall), **1**, pp. 68–72; W. D. Phillps Jr (2004) Sugar in Iberia. In: S. Schwartz (ed.) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press), pp. 28–29.
7. A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), p. 26; M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill), pp. 15–30.
8. N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall), **1**, p. 74.

https://doi.org/10.1017/S1062798708000148 Published online by Cambridge University Press

9. A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), p. 28; al-Idrisi (1866) *Description de l'Afrique et de l'Espagne*, R. Dozy and M. J. de Goeje (eds) (Leiden), pp. 51–53, 177, 180, 187.
10. N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall), **1**, p. 87; A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), p. 28; M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill), pp. 31–140.
11. A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), pp. 28–29.
12. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), pp. 86–88.
13. Extract in ibn al-Awam (1979) *A Moorish Calendar*, transl. P. Lord (Wantage: Black Swan Press), p. 16; also cited at greater length by N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall) **1**, pp. 80–81; also see A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), p. 29; for the operations of Italian merchants in this region, see F. Melis (1956) Málaga nel sistema economico del XIV e XV secolo, *Economia e Storia*, **3**, 19–59, 139–163, reprinted in: F. Melis (1976) *Mercaderes italianos en España (investigaciones sobre su correspondencia y su contabilidad)* (Seville: Universidad de Sevilla), pp. 3–65.
14. M. Gual Camarena (1976) *Vocabulario del comercio medieval*, 2nd edn (Barcelona: Ediciones Albir), pp. 433–434.
15. David Abulafia (1987) Narbonne, the lands of the Crown of Aragon and the Levant trade 1187–1400, *Montpellier, la Couronne d'Aragon et les pays de Langue d'Oc (1204–1349): actes du XII^{o} Congrès d'Histoire de la Couronne d'Aragon, Montpellier, 26–29 septembre 1985=Mémoires de la Société archéologique de Montpellier*, **15**, 199–200.
16. See generally David Abulafia (1997) in D. Agius and I. R. Netton (eds) The impact of the Orient: economic interactions between East and West in the medieval Mediterranean, *Across the Mediterranean Frontiers: Trade, Politics and Religion, 650–1450* (Turnhout: Brepols), pp. 1–40.
17. E. Ashtor (1981) Levantine sugar industry in the late Middle Ages: a case of technological decline. In: A. L. Udovitch (ed.) *The Islamic Middle East, 700–1900* (Princeton, NJ: Princeton University Press), pp. 91–132.
18. M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill), pp. 141–228.
19. F. B. Pegolotti (1936) *La pratica della mercatura*, A. Evans (ed.) (Cambridge MA: Mediaeval Academy of America).
20. N. Deerr (1949–50) *History of Sugar*, 2 vols (London: Chapman and Hall), pp. 83–86.

https://doi.org/10.1017/S1062798708000148 Published online by Cambridge University Press

21. H. Bresc (1972) Les jardins de Palerme, *Mélanges d'Histoire et d'Archéologie de l'École française de Rome – Moyen Âge*, **74**, 55–127, for the later evolution of Palermo's gardens and their agricultural importance.
22. D. Abulafia (1988) *Frederick II: a Medieval Emperor* (London: Allen Lane), p. 336.
23. Text in C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), pp. 176–179.
24. M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill), pp. 503–568.
25. C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), pp. 80–81; A. Watson (1983) *Agricultural Innovation in the Early Islamic World* (Cambridge: Cambridge University Press), pp. 45–46.
26. S. R. Epstein (1992) *An Island for Itself: Economic Development and Social Change in Late Medieval Sicily* (Cambridge: Cambridge University Press; Italian edition 1996: *Potere e mercanti in Sicilia*, Turin: Einaudi), pp. 210–212.
27. C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), p. 92.
28. C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), p. 139.
29. C. Marinescu (1959) Les affaires commerciales en Flandres d'Alphonse V d'Aragon, roi de Naples, *Revue Historique*, **221**, 45, doc. 4.
30. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, 518–521.
31. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **2**, p. 172.
32. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 31 (iii) p. 232.
33. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 31 (v) p. 233; see also **2**, p. 175.
34. See for example A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 31 (vii) p. 234; for the cloth trade, and A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 33, pp. 235–237. An overview of Valencian trade through the Ravensburg merchants is provided in A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **2**, pp. 181–187.
35. J. Guiral-Hadziïossif (1986) *Valence, port méditerranéen au XVe siècle (1410–1525)* (Paris: Publications de la Sorbonne), pp. 327–328.
36. This person must be a member of a family of sugar makers who appear earlier in the 15th century; see G. Camarena (1976) *Vocabulario del comercio medieval*, 2nd edn (Barcelona: Ediciones Albir), p. 434, who

https://doi.org/10.1017/S1062798708000148 Published online by Cambridge University Press

refers to R. Chabás Llorens (1886–7) La cosecha de azúcar en el reino de Valencia. *El Archivo* (Denia) **1**, pp. 43–44, 53–54, 59–61.

37. He is described as 'mercader Alemany mercantilvolment resident en Valencia axi com a regent la gran companyie de micer Jous Ompis': A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **2**, p. 173; **3**, doc. 159, p. 519.
38. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **2**, pp. 173, 177–178; **3**, doc. 159, pp. 518–521; also printed in German in E. Schmitt and C. Verlinden (eds) (1986) *Die mittelalterliche Ursprünge der europäischen Expansion: Dokumente zur Geschichte der europäischen Expansion* (Munich) doc. 30, pp. 169–72.
39. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 159, p. 519.
40. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 159, p. 520.
41. M. Meyerson (1991) *The Muslims of Valencia in the Reign of Fernando and Isabel* (Berkeley and Los Angeles: University of California Press).
42. C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), pp. 84–85.
43. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 159, p. 520.
44. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 159, pp. 520–521.
45. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **2**, p. 173.
46. E. Schmitt and C. Verlinden (eds) (1986) *Die mittelalterliche Ursprünge der europäischen Expansion: Dokumente zur Geschichte der europäischen Expansion* (Munich) doc. 33, pp. 177–9.
47. A. Schulte (1923) *Geschichte der Großen Ravensburger Handelsgesellschaft*, 3 vols (Stuttgart/Berlin: Deutsche Verlagsanstalt) **3**, doc. 8, p. 105.
48. L. P. Harvey (1991) *Islamic Spain, 1250–1500* (Chicago: University of Chicago Press), pp. 70–73.
49. C. Verlinden (1970) *The Beginnings of Modern Colonization* (Ithaca, NY: Cornell University Press), pp. 20, 102.
50. C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), pp. 243–244.
51. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), pp. 258–259.

https://doi.org/10.1017/S1062798708000148 Published online by Cambridge University Press

52. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), p. 260.
53. J. Heers (1957) Le royaume de Grenade et la politique marchande de Gênes en Occident (XVe siècle). *Le Moyen Âge*, **63**, p. 109; A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), p. 274.
54. J. Heers (1957) Le royaume de Grenade et la politique marchande de Gênes en Occident (XVe siècle). *Le Moyen Âge*, **63**, p. 109.
55. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), pp. 113–114.
56. J. Heers (1957) Le royaume de Grenade et la politique marchande de Gênes en Occident (XVe siècle), *Le Moyen Âge* **63**, 110–111.
57. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), p. 263 [table].
58. A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada), p. 116.
59. E. Ashtor (1981) Levantine sugar industry in the late Middle Ages: a case of technological decline. In: A. L. Udovitch (ed.) *The Islamic Middle East, 700-1900* (Princeton, NJ: Princeton University Press).
60. For the sugar of Madeira, see V. Rau and J. de Macedo (1962) *O Açúcar da Madeira nos fins do século XV* (Lisbon and Funchal: Junta-Geral do Distrito Autónomo de Funchal); R. Carita (1989) *Historia da Madeira (1420–1566): povoamento e produção açucareira* (Funchal: Governo Regional da Madeira). See infra for the sugar plantations in southern Portugal; also C. Trasselli (1982) *Storia dello Zucchero siciliano* (Caltanissetta: Sciascia), pp. 250–251.
61. A. Vieira (2004) Sugar islands: the sugar economy of Madeira and the Canaries, 1450–1650. In: S. Schwartz (ed.) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press), p. 48.
62. On the trade of Málaga see J. Heers (1957) Le royaume de Grenade et la politique marchande de Gênes en Occident (XVe siècle). *Le Moyen Âge*, **63**, 87–121; R. Salicru i Lluch (1995) *El sultanat de Granada i la Corona d'Aragó, 1410–1458* (Barcelona: CSIC); B. Garí and R. Salicru i Lluch (1998) Las ciudades del triangulo: Granada, Málaga, Almería y el comercio mediterráneo de la Edad Media. In: D. Abulafia and B. Garí (eds) *En las costas del Mediterráneo occidental: las ciudades de la Península Ibérica y del reino de Mallorca y el comercio mediterráneo en la Edad media* (Barcelona: Omega), pp. 171–211; A. Fábregas García (2000) *Producción y comercio de azúcar en el Mediterráneo medieval: el ejemplo del reino de Granada* (Granada: Universidad de Granada).
63. J. Marinho dos Santos (1989) *Os Açores nos sécs. XV e XVI*, 2 vols (Maia and São Miguel: Universidade dos Açores) **1**, pp. 301–302; R. Garfield

https://doi.org/10.1017/S1062798708000148 Published online by Cambridge University Press

(1992) *A History of São Tomé Island, 1470–1655: the Key to Guinea* (San Francisco CA: Edwin Mellen Press), pp. 62–87. .

64. J. W. Blake (1942) *Europeans in West Africa*, 2 vols (London: Hakluyt Society) **1**, doc. ix, pp. 86–87.
65. On the anti-Jewish policies of João II and Manuel I see now F. Soyer (2007) *The Persecution of the Jews and Muslims of Portugal: King Manuel I and the End of Religious Tolerance* (Leiden: Brill). I am very grateful to Dr Soyer for his advice on this point.
66. E. Aznar Vallejo (1981) *Documentos canarios en el Registro del Sello (1476–1517)* (La Laguna: Instituto de Estudios Canarios) docs. 113, 368.
67. F. Fernández-Armesto (1982) *The Canary Islands after the Conquest* (Oxford: Clarendon Press), p. 167; E. Aznar Vallejo (1983) *La integración de las Islas Canarias en la Corona de Castilla* (Seville: Universidad de Sevilla), pp. 260–264.
68. M. Ratekin (1954) The early sugar industry in Española. *Hispanic American Historical Review*, **34**, 1–19; Rodríguez Morel (2004) The sugar economy of Española in the sixteenth century. In: S. Schwartz (ed.) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press), p. 87.
69. M. Ouerfelli (2008) *Le sucre: production, commercialisation et usages dans la Méditerranée médiévale* (Leiden: Brill), pp. 503–658; and more generally for evidence of economic expansion see M. del Treppo (1958) *I mercanti catalani e l'espansione della Corona d'Aragona* (Naples: L'Arte Tipografica).
70. P. Iradiel (1998) Valencia y la expansión mediterránea de la Corona de Aragón. In D. Abulafia and B. Garí (eds) *En las costas del Mediterráneo occidental: las ciudades de la Península Ibérica y del reino de Mallorca y el comercio mediterráneo en la Edad media* (Barcelona: Omega), pp. 154–169; and the valuable essays by Verlinden, Guiral, Mainoni, Lapeyre and many others collected by A. Furió (1985) *València, un mercat medieval* (Valencia: Diputació Provincial).
71. For later developments in the Atlantic, see now S. Schwartz (ed.) (2004) *Tropical Babylons: Sugar and the Making of the Atlantic World, 1450–1680* (Chapel Hill, NC: University of North Carolina Press).

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