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## *The Changing Pattern of Europe's Pepper and Spice Imports, ca 1400-1700*

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It has long been recognised that the Venetian spice trade was not totally and irretrievably ruined by the Portuguese discovery of the Cape route to India, that the European trade with the Levant in fact revived during the course of the sixteenth century, and that the Portuguese were never able to maintain an absolute monopoly of the supply of pepper and spices on the European market.

F.C. Lane has shown that Venice was importing as much pepper from Alexandria in the 1560s as in the 1490s. For the last years of the fifteenth century he estimates Europe's pepper imports at between 1,500,000 and 2,000,000 lbs English, of which about 1,115,000 lbs was imported by Venice from Alexandria, the balance being Venetian imports from Beirut and imports by others. He also estimates Venetian pepper imports from Alexandria alone at 1,310,454 lbs in the years 1560-64 and tentatively puts total European pepper imports at upwards of 3,000,000 lbs at this time. Acknowledging that the period 1560-66 may have been the peak of the revival of the Levantine trade to Europe, Lane nevertheless concludes (in an article first published in 1940)

that the economic importance of the Cape route in the sixteenth century may have been seriously exaggerated.<sup>1</sup>

More recently N. Steensgaard has advanced the view that the trade with the Levant enjoyed a major revival which endured through the last three decades of the sixteenth century and the first two decades of the seventeenth. According to Steensgaard, about 50% of pepper imports and 60% of spice imports came through the Levant in the 1570s and 1580s, rising to 75% and 80% in the 1590s.<sup>2</sup> In his view 'the Portuguese carracks did not obtain any great economic significance as a connecting link between Europe and Asia'.<sup>3</sup>

Lane's and Steensgaard's estimates suggest that European consumption of pepper and spices rose steeply during the first half of the sixteenth century. For pepper the increases indicated are between 50% and 100% in the first sixty years (Lane) or 150% to 233% in about seventy years (Steensgaard). These rates of increase are considerably higher than the rate of population growth. Steensgaard's line of argument also entails the proposition that there was no increase in the volumes of pepper and various categories of spices imported into Europe over the following half century.<sup>4</sup> Taking a simple view of the matter, this implies an actual fall in per capita consumption between the years 1570 and 1620.

These conclusions have a variety of implications for the development of the European economy and its relations with the outer world. They are not, however, securely based in the sta-

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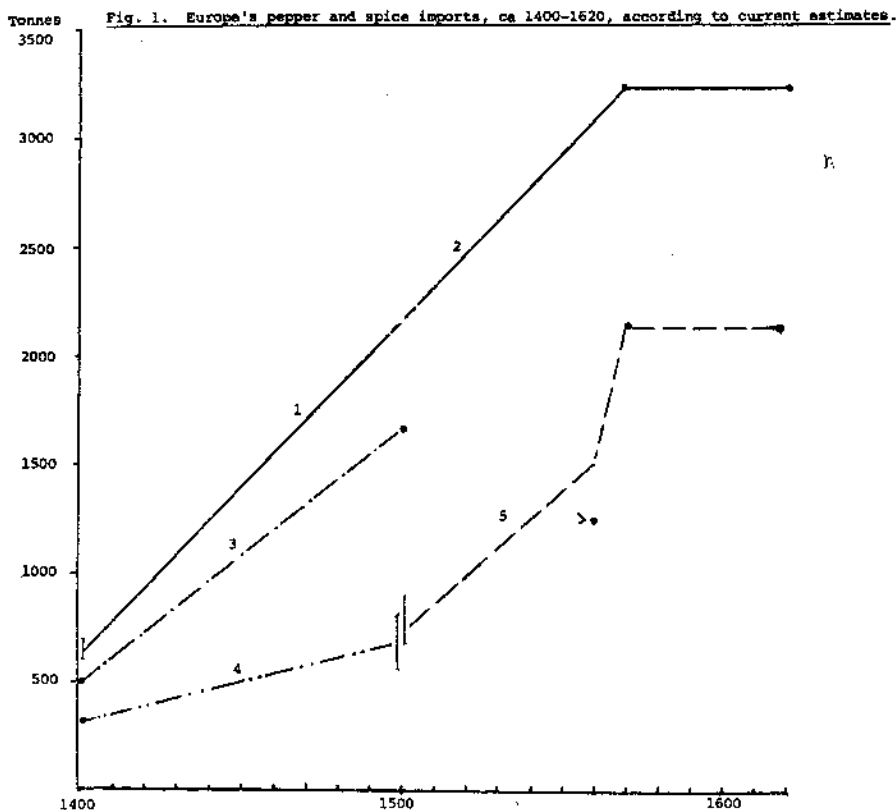
<sup>1</sup> F. C. LANE, 'Venetian Shipping during the Commercial Revolution', *American Historical Review*, vol. 38, no. 2 (January 1933), p. 228, and 'The Mediterranean Spice Trade. Further evidence of its revival in the sixteenth century', *ibid.* vol. 45, no. 3 (April 1940), p. 587, note 28, and p. 590. Both reprinted in *Venice and History. The Collected Papers of Frederic C. Lane*, Baltimore 1966, pp. 3-34, and in B. PULLAN, ed., *Crisis and Change in the Venetian Economy in the Sixteenth and Seventeenth Centuries*, London 1968, pp. 22-58. Present references are to the original publications.

<sup>2</sup> N. STEENSGAARD, *The Asian Trade Revolution of the Seventeenth Century. The East India Companies and the Decline of the Caravan Route*, Chicago 1974, pp. 155-69, 171.

<sup>3</sup> *Ibid.* p. 154.

<sup>4</sup> *Ibid.* pp. 155-58, 171.

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1. Europe's pepper and spice imports.
2. Europe's imports of pepper, Moluccan spices, drugs, indigo.
3. Venetian pepper and spice imports.
4. Europe's pepper imports.
5. Europe's pepper imports.

tistical evidence. If we plot the various separate and unrelated estimates which have been made for different periods from the end of the fourteenth century (the earliest period for which the data have statistical value) through to the seventeenth century the graphs of European pepper and spice imports appear as in Fig. 1.<sup>5</sup> How well do these represent long-term variations in

<sup>5</sup> Fig. 1 collates estimates from R. H. BAUTIER, 'Points de vue sur les relations économiques des Occidentaux avec les Pays d'Orient, au Moyen Age', in M. MOLLAT,

the rates of increase of pepper and spice imports into Europe? Did the European trade with the Levant recover to the extent that is now being suggested? Was the opening of the Cape route in reality an insignificant factor in the displacement of the centre of gravity of the European world from the Mediterranean to the Atlantic sea-board? What is at issue here is not whether the overland caravan routes linking the Indian Ocean and the Mediterranean continued to bring pepper and spices to the great marts of Syria and Egypt — clearly they did — but the extent to which this traffic supplied Europe.<sup>6</sup>

The present discussion is confined to the statistical data bearing on these questions. The object is to estimate the total volume of Europe's imports and their distribution as between the Levantine and Cape routes throughout the sixteenth century, and to place this trade in the context of developments over a longer period of time, extending from the end of the fourteenth century to the latter half of the seventeenth.

### *Venice and her Mediterranean competitors ca. 1400*

J. Heers has produced figures which show the total imports of Venice in the years 1395, 1396 and 1407: an average of 573 tonnes of pepper, spices and 'associated goods'<sup>7</sup> from Egypt,

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ed., *Sociétés et Compagnies de Commerce en Orient et dans l'Océan Indien*, Paris 1970, p. 298; E. ASHTOR, 'The Volume of Levantine Trade in the Later Middle Ages (1370-1498)', *Journal of European Economic History*, vol. 4 (1975), pp. 584 and 607; LANE, 'Venetian Shipping', p. 228, and 'Mediterranean Spice Trade', p. 587, note 28; Steensgaard, pp. 156, 163, 169, 171.

<sup>6</sup> In this connection note that Braudel's discussion of the pepper trade is in terms of the overland and sea routes which between them supplied Europe and the Mediterranean world, and that his conclusions regarding the revival of the Levant trade should not be taken to refer simply to the trade between the Levant and Europe. See F. BRAUDEL, *The Mediterranean and the Mediterranean World in the Age of Philip II*, Paris 1972, vol. 1, pp. 534-70.

<sup>7</sup> For analysis the following categories are employed: (1) 'pepper'; (2) 'spices', subdivided into (a) 'ginger' (b) 'cinnamon' (c) 'Moluccan spices' (clove, nutmeg,

Syria and the Romania, of which pepper comprised 313 tonnes, spices 123 tonnes and associated goods 137 tonnes. His estimates show that the Alexandria *muda* of 1395 brought back about 230 tonnes, valued at 155,000 ducats, as against upwards of 310, valued at 300,000 ducats, from Beirut in the same year, and as against an average for the three years of 347 tonnes, worth 306,700 ducats.<sup>8</sup> On this showing pepper made up 55% of the total trade and the Beirut trade was up to 50% larger than the Alexandria trade by volume and almost twice as large by value. R.H. Bautier concludes (largely on the basis of Heers's statistics) that Venetian imports averaged at this time around 300 tonnes of pepper and 200 tonnes of spices, and that Venice's main rivals, the Genoese and Catalans, between them imported about 100 to 200 tonnes of pepper and spices. Total European imports of pepper and spices accordingly stood at around 600 to 700 tonnes a year.<sup>9</sup>

There are reasons for believing that these estimates in fact under-rate the volume of European imports and the relative importance of both the pepper trade and the trade with Alexandria, and that they exaggerate the degree to which the Venetians dominated the trade at the end of the fourteenth century. First, there is the question of the weight values to be attributed to the 'bales' (*pondi, colli*) in which the quantities of pepper and most of the spices are expressed in the documents relating to the trade.

Heers considers that cargoes of ships were noted in units of uniform weight, irrespective of their place of origin. Thus a *pondo* of ship's cargo was (at least notionally) 300 *libbre sottili*

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mace) (d) 'other spices' (drug, dyes, aromatics and precious woods, etc.); (3) 'associated goods': sugar, silks, cotton and other Eastern textiles (pearls and gems are not included).

<sup>8</sup> J. HEERS, 'Il commercio nel Mediterraneo alla fine del secolo XIV e nei primi anni del XV', *Archivio storico italiano*, vol. 113 (1955), p. 189.

<sup>9</sup> R. H. BAUTIER, 'Points de vue', in M. MOLLAT, *Sociétés et Compagnies*, Paris 1970, p. 298.

(l.s.) of Venice whether loaded in Egypt, Syria or Romania.<sup>10</sup> There are, however, a number of objections to this view. It is Pegolotti who gives 300 l.s. as the standard weight of the *pondo*, and it is clear that he is referring to the common bale of the Syrian ports, two of which made up the Damascus cantar of 600 l.s. which was then in use for pepper and spices.<sup>11</sup> Pegolotti leaves little room for doubt that the common bale of Alexandria was larger and related to a different standard: it represented the full 'load' (*carica, sporta*) of Alexandria, which was reckoned at 750 l.s.<sup>12</sup> If there was a common unit based on the Beirut bale then a calculation was required to reduce the larger bales of Alexandria to this standard. While this is not in itself impossible, we have clear evidence that such was not the case at the end of the fifteenth century. The cargoes of the Beirut and Alexandria galleys are noted in terms of 'bales' which were clearly understood to be the actual bales of different weight, the common bales of the different ports.<sup>13</sup> That this was also the practice in earlier times, and specifically around 1400, is supported not only by what Pegolotti has to say (much earlier) but also by the contemporary evidence relating to the auction of voyages.<sup>14</sup>

In the fifteenth century both the Beirut and Alexandria bales increased in size, partly, perhaps, for convenience of handling,

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<sup>10</sup> HEERS, 'Il commercio' pp. 183 ff.; J. HEERS, ed., *Le Livre de comptes de Giovanni Piccamiglio, homme d'affaires genois, 1456-1459*, Paris 1959, pp. 24-25.

<sup>11</sup> F. DI BALDUCCI PEGOLOTTI, *La Pratica della Mercatura*, ed. A. Evans, Cambridge, Mass., 1936, pp. 67, 69, 90-91, 97, 307. The Syrian *pondo* was 300 l.s. gross, for pepper and ginger notionally 286.88 and 284.4 l.s. nett before and after garbling, according to Pegolotti. On occasion bales equal to the Damascus cantar of 600 l.s. gross (573 and 560 l.s. nett before and after garbling) were loaded on Venetian galleys. See HEERS, 'Il commercio', p. 185 and note 19, and pp. 205-6, note 26; F. C. LANE, 'Merchant Galleys, 1300-34: Private and Communal Operations', in LANE, *Venice and History*, p. 205.

<sup>12</sup> PEGOLOTTI, pp. 71, 307-8.

<sup>13</sup> See F. C. LANE, *Venetian Ships and Shipbuilders of the Renaissance*, Baltimore 1934, p. 250, note 20.

<sup>14</sup> See note 19 below.

and partly also, we may surmise, in order to minimize import duty charged per bale. The latter consideration appears to have become predominant, for in 1450 the Venetian Senate heard complaints that the Alexandria bales had grown to as much as 1000 and 1500 l.s. and were becoming difficult to manoeuvre.<sup>15</sup> Nevertheless, the increase in size continued until a new standard eventually emerged which stabilized the Alexandria bale at around 1680 l.s. gross weight, representing a notional nett weight of around 1600 l.s.,<sup>16</sup> i.e. four *carica* of Venice, and which put the Beirut bale at around 420 l.s. gross, or 400 l.s. nett.<sup>17</sup>

A different picture of the European pepper and spice trade emerges when the data presented by Heers are re-examined in the light of these conclusions and collated with information from other sources.<sup>18</sup> Table 1 shows Venetian imports from Egypt,

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<sup>15</sup> LANE, *Venetian Ships*, p. 250; and his *Navires et constructeurs à Venise pendant la Renaissance*, Paris 1965, p. 238.

<sup>16</sup> Almost exactly right for pepper and ginger, the major items, and for nutmeg and lakka, according to Pegolotti's tares.

<sup>17</sup> According to Sanuto (*I Diarii di Marino Sanuto*, ed. R. Fulin and others, Venice 1879- , vol. 17, col. 191) the Alexandria bale was then reckoned at 10 Portuguese quintals. Ca' Masser ('Relazione de LUNARDO DA CHA' MASSER', *Archivio storico italiano*, vol. 10, Appendix, vol. 2, Florence 1845, p. 29) and Affaitada (Sanuto, vol. 5: 133) both give the Portuguese quintal as 168 *libbre*. These statements suggest 1680 l.s. (1116 lbs English) for the Alexandria bale, the value adopted here, equal to 9.84 Portuguese quintals. (Lane has 1120 lbs. See his *Venetian Ships*, p. 250, and *Navires*, p. 238, for a consideration of the problem). The ratio of four Beirut bales to one of Alexandria is deduced by Lane from the Venetian duty rates: two ducats on the Alexandria bale, half a ducat on the Beirut bale. There was also a *collo serice*, "of Syria" according to Lane, but probably "silk", for which the rate was also two ducats (LANE, *Venetian Ships*, p. 251, *Navires*, pp. 238-39. See also his evidence for *sachi* of cotton and silk of around 400 l.s.). E. ASHTOR, 'Volume of Levantine Trade', pp. 574-78, also doubts that the Alexandrian and Syrian bales were the same, but the equivalences which he tentatively proposes for the Alexandrian bale at the beginning and end of the fifteenth century, two and four Syrian *colli* of 300 l.s. (180 and 360 KG), are too low. The former equates the Alexandria bale with the Damascus *cantar* rather than the local *sporta*. The latter overlooks the increase in size of the Syrian bale and other evidence relating to the Alexandrian bale of around 1680 l.s.

<sup>18</sup> It will be apparent that the following discussion is much indebted to Heers's work on the Datini papers and also the recent publications of E. Ashtor.

Syria, and Romania in a number of years from 1394 to 1405 and annual averages for the period. While these figures cannot pretend to definitiveness, they suffice to indicate the general pattern and orders of magnitude of the Venetian trade at the end of the fourteenth century. Pepper was normally the cheapest of the Eastern spices and enjoyed a large and more steady market in Europe. For these reasons it was of prime importance in the commercial strategy of the *muda* voyages. Along with ginger, to a lesser extent, it provided the secure base of a trade in bulk which underpinned the more speculative investments in high-profit spices. Over four-fifths of the return cargoes from Alexandria consisted of pepper. The Beirut trade, on the other hand, was more diversified, with a higher proportion (and generally larger absolute quantities) of the expensive spices, and with the bulk of the trade roughly divided between pepper and ginger. Leaving aside the trade in 'associated goods' (mainly sugar and textiles) which were also brought home on the galleys from Syria, the Alexandria trade was considerably larger — nearly double in terms of weight on average (see Table 1) — though the fluctuations from year to year were large.<sup>19</sup> In terms of value the difference was much less. The averages for the years 1395, 1399 and 1404 were approximately 253,000 and 229,000 ducats for Alexandria and Beirut respectively (see Table 2). If 'associated goods' (not counting pearls and precious stones) are included, the Beirut average reaches 290,000 ducats. Moreover, because of the high proportion of spices, the rate of return on investment in the Beirut voyages was high.<sup>20</sup> Though smaller in volume,

<sup>19</sup> These conclusions, based on weight estimates, are supported by figures for the auction of voyages (*incanti*), although the latter are not an exact index of the size (or value) of homeward cargoes. In the period 1400-12 the averages for the Alexandria trade were 70% higher per *muda* and 86% higher per galley. See F. THIRIET, 'Quelques observations sur le trafic des galées vénitienes d'après les chiffres des *incanti*', in *Studi in onore di Amintore Fanfani*, vol. 3, Milan 1962, p. 511. Cf. Sanuto, vol. 3: 123; vol. 4: 49, 289, for the auction of voyages in 1500, 1501, 1502, in which again the figures per *muda* and per galley are much higher for the Alexandria trade.

<sup>20</sup> For a discussion of rates of profit see E. ASHTOR, 'Profits from trade with the Levant

the regulated galley trade with Syria was certainly not less important than the comparable trade with Alexandria.

The main rivals of the Venetians in this period were the Genoese and the Catalans. Information on the volume of their trade is sparse. Table 3 presents data on the Catalan trade with Beirut and Alexandria. The Catalan trade was at its height in the last years of the fourteenth century, when from three to five galleys of Barcelona usually voyaged to Syria each year.<sup>21</sup> Averaging the cargoes of 1391, 1397, 1399 and 1400, and assuming an average of four galleys to Beirut a year, we may estimate the Catalan imports from Beirut at around 290,000 l.s. of pepper and 490,000 l.s. of spices.<sup>22</sup> In 1388 the loading of one Catalan vessel at Alexandria was 93,700 l.s. of pepper and 248,000 l.s. of spices (including a very large amount of lakka). Catalan spice imports from Alexandria may have been considerably less a decade later. All the same, the total Catalan trade at this time can hardly have been less than 800,000 to 900,000 l.s.

Table 4 presents data on the Genoan trade with Beirut and Alexandria in the same period. In August 1395 Beltramo Mignanelli, writing from Damascus to the Datini firm in Barcelona, estimated the cargo of the two Genoan galleys at Beirut at 1500 to 1800 *pondi*.<sup>23</sup> This refers to the total of pepper, spices and associated goods. Mignanelli also estimated the cargo of the five Venetian galleys at 3500 to 4000 *pondi* — somewhat short of the 4312 *pondi* units (weighing 1.32 million l.s.) actually brought to Venice in that year. Assuming that for the Genoan galleys

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in the fifteenth century', *Bulletin of the School of Oriental and African Studies*, vol. 38 (1975) pp. 250-75.

<sup>21</sup> C. CARRÈRE, *Barcelone, centre économique à l'époque des difficultés, 1380-1462*, Paris 1967, vol. 2, pp. 644-45.

<sup>22</sup> Ashtor gives the value in dinars of Catalan pepper and spice cargoes: 3 galleys in 1395: 40,000 dinars; 5 in 1396: 175,000; 4 in 1397: 74,000 (a cargo weighing 773,000 l.s.). See ASHTOR, 'Volume of Levantine Trade', pp. 587-88.

<sup>23</sup> F. MELIS, *Documenti per la storia economica dei secoli XIII-XVI; con una nota di paleografia commerciale a cura di Elena Cecchi*, Florence 1972, p. 184.

the ratio of pepper and spices to associated goods was about the same as for the cargo of a Genoan galley from Beirut in an unknown year in the same period — i.e., about 65% of the total *pondi* units, 66% by weight (which is close to the proportion in the Venetian imports in 1395, 68% of the total, 64% by weight) — then we may tentatively put the Genoan consignment of pepper and spices at about 351,000 l.s. out of a total of 1800 *pondi*.

Pepper made up only a small part of the Genoan imports from Beirut. In the cargo of the galley of unknown year (which included an unusually large amount of cinnamon) pepper comprised 15% of the total of pepper and spices. In the cargoes of four *navi* (one of 1382 and three of unknown years) pepper made up about 35% of the total. The ratio of pepper to spices probably decreased as imports grew in size through the 1390s. Mignanelli implies that ginger made up about half of the total of pepper and spices in the galleys of 1395, so that the pepper component is unlikely to have been more than 25% of the total. On this latter assumption we may estimate the cargo of the Genoan galleys at about 88,000 l.s. of pepper and 263,000 l.s. of spices. In the same year one Genoan *nave* imported 282,750 l.s. of pepper and 33,000 l.s. of spices from Alexandria. Ashtor estimates the value of pepper and spices on two *navi* from Alexandria in this year at 33,000 and 25,000 dinars.<sup>24</sup> In this one year total Genoan imports from Beirut and Alexandria could easily have exceeded 500,000 l.s. of pepper and 300,000 l.s. of spices. Ashtor puts the total value of Genoan pepper and spice imports in 1395 at 163,300 dinars.<sup>25</sup> In the following year two Genoan galleys and three *navi* imported pepper and spices to the value of 152,000 dinars from Alexandria alone.<sup>26</sup> (Possibly Genoan imports from

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<sup>24</sup> ASHTOR, 'Volume of Levantine Trade', p. 587.

<sup>25</sup> *Ibid.*

<sup>26</sup> *Ibid.*, p. 588.

Beirut, like Venice's, were down in 1396. Catalan imports, at 175,000 dinars, were considerably up.)

Obviously these estimates should be treated with reservations. The data are insufficient for a solidly grounded view of the full character and extent of Catalan and Genoan trade in the changing circumstances of the 1390s. But bearing in mind that it is at least as likely that they under-rate the size of the trade as that they over-rate it, and that they omit both the direct trade of the Genoese from Alexandria to Northern Europe and the minor trade of the French and others,<sup>27</sup> these estimates nevertheless do have their use. They indicate quite clearly that the level of European pepper and spice imports was very much higher than Bautier's estimate of 600 to 700 tonnes. On the basis of these estimates we should put the sum of European imports at upwards of 750 tonnes (probably around 830 to 900 tonnes) for pepper and above 450 tonnes for spices. The Venetian share of this trade was probably about 60% to 70% for pepper and under 45% for spices.

### *The Portuguese Intrusion*

The diaries of Sanuto and Priuli throw light on the Venetian pepper and spice trade on the eve of the Portuguese discovery of the Cape route to India. The figures for imports in the years 1495/96 to 1497/98 show an average of 2,511,264 l. s. of pepper and 2,722,166 l. s. of spices (see Table 5). The pattern is quite different from what is observed for a century earlier. The Alexandria trade is now nearly three times the size of the Beirut trade (excluding 'associated goods') and has diversified through the

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<sup>27</sup> For the direct trade by Genoese from Alexandria to England and Flanders see ASHTON, 'Volume of Levantine Trade', pp. 587-590, and Bautier, 'Points du vue', in MOLLAT, *Sociétés et Compagnies*, p. 297. Bautier's figure for pepper consigned in 1394 appears too large — by a factor of ten, judging from the erroneous equivalence of 1500 Genoese cantars of cotton to 'over 700 tonnes'.

whole range of spices. Pepper imports are only about 20% higher than at the beginning of the fifteenth century, whereas the trade in spices has grown nearly thirteen-fold. The evolution of the Beirut trade has been in the opposite direction. Pepper imports have nearly doubled and the spice trade has grown by about 40%. In the over-all pattern of the Venetian trade the ratios of pepper, ginger, and the rest of the spices have changed markedly. Pepper is relatively less important, both ginger and the rest of the spices relatively more important.

For the different commodities the rates of growth over the century vary: approximately 257% by weight for ginger, 395% for cinnamon, 292% for Moluccan spices, 561% for 'other spices' — over-all an average of 321% for spices, as against 31% for pepper.<sup>28</sup> Do these rates of increase reflect primarily growth in European consumption or changes in Venice's share of the market? What was the approximate size of this market at the end of the fifteenth century? How serious were the consequences of the discovery of the Cape route for the trade of Venice and other Mediterranean importers in the sixteenth century? A comparison of statistics relating to Venetian imports in the years 1495/96 to 1497/98 and 1501/02 to 1505/06 and to Portuguese imports in the years 1503 to 1506 provides an initial approach to these questions.

In 1500, after the interruption to Venice's trade caused by the Turco-Venetian war in 1498/99 and 1499/1500, the Venetians sent five galleys to Alexandria and five to Beirut. The return cargo of pepper and spices totalled 5,661,600 l. s. — only about 7% more than the annual average in the years 1495/96 to 1497/98.<sup>29</sup> For the Venetians this was the last season of good

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<sup>28</sup> Estimates based on Tables 1 and 5, using the 1495/96-96/97 figures in Table 5 for individual spices and the 1495/96-97/98 figures for pepper and all spices.

<sup>29</sup> Venice's troubles provided an opening for rivals. For the activity of Genoese, Catalans and others in 1499 and 1500 see, e. g., Sanuto, vol. 3: 68, 476, 737, 1030, 1123, 1571, and for German purchases in Genoa, *ibid.* vol. 4: 28.

trade which clearly belongs to the pattern of the preceding century. In the following year the Mediterranean felt the full impact of Portuguese activity in the East.

There are only a few indications of the ratio of pepper to spices in the Venetian trade for 1501/02 to 1505/06. For Alexandria these are noted for the first two years. For Beirut there are itemised cargoes for 1501/02 and 1504/06. These provide a basis for an approximate estimate of Venetian trade in the years 1501/02 to 1505/06 (see Fig. 2 and Tables 6 and 7).<sup>30</sup>

Fig. 2 Average Annual Imports of Venice, in l.s., ca. 1502-06

	Pepper		Spices		Total	
Alexandria	445,200	90%	659,200	83%	1,104,400	85%
Beirut	47,800	10%	133,100	17%	180,900	15%
Total	493,000	100%	792,300	100%	1,285,300	100%

In the year 1501/02 the Beirut and Alexandria galleys returned with 1,617,000 l. s. of spices and 379,680 l. s. of pepper. For Beirut this represented 45% of the average spice import and less than 1% of the average pepper import in 1495/96 to 1497/98. For Alexandria the figures are 63% and 21% respectively. Overall the Venetian spice and pepper imports were down to 58% and 15% respectively of the averages in the earlier period. In the following decade Venice's position declined further. The pepper trade with Alexandria was practically extinguished and the Portuguese — and perhaps also Venice's Mediterranean rivals — made further inroads into the spice trade.

For a decade after 1514 the Venetian galleys' state monopoly of the carriage of pepper and spices was discontinued and voyages were irregular. Sanuto notes cargoes of Venetian galleys and

<sup>30</sup> For imports from Alexandria see Table 6. Pepper imports from Beirut were 4 and 460 *colli* in 1501/02 and 1504/05 respectively. The average for Alexandria is obtained by allowing for 1504/05 the same pepper/spices ratio as the average for 1501/02 and 1502/03, and for Beirut by allowing for 1502/03 the same as for 1501/02 and 1504/05.

*navi* for a number of years in this period. The average for spice imports which he records from Beirut in 1517/18 and 1521/22 and from Alexandria from 1518 to 1522 are 268,170 l. s. and 566,370 l. s. respectively. For pepper the figures are 24,360 l. s. and 36,960 l. s. respectively. These figures do not, of course, include all imports in these years. A better indication of the size of the trade is provided by Sanuto's notes of cargo in the years after the galleys' monopoly was restored. Average imports of pepper and spices from Alexandria in the years 1529/30 and 1531/32 and from Beirut in the years 1527/28 and 1529/30 and 1531/32 were roughly 550,000 l. s. in each case. Very little of this was pepper. Venice's pepper trade virtually vanished after 1510. The impression conveyed by the figures for individual years (see Tables 6 and 7) is that the spice trade was sporadic, subject to large fluctuations, and probably not much above the level of the first few years after 1501.

The trade of Venice's Mediterranean competitors remains almost completely in the shadows, though from Sanuto's occasional references it is apparent that they were often able to secure fully as much, vessel for vessel, as the Venetians. In June 1510 three French vessels left Alexandria with cargoes which included 600 *colli* of spices. In September 1518 a single French vessel left Alexandria for Marseilles with 160 *colli* of spices. At the same time a Venetian vessel left with 180 *colli* of spices. In December 1519, when the Venetian galleys had collected only about 40 *colli* (it was still early in the season), a Genoan vessel carried off 80 *colli* of ginger, cloves and cinnamon. In October 1531 one French vessel left with a large consignment amounting to over 1500 *colli*; again, the Venetian galleys had loaded only 40 *colli*. A year later another French vessel took off 124 *colli*, comprising 900 cantars of ginger, 300 of incense, and over 190 of clove, nutmeg, mace and cinnamon.<sup>31</sup> The impression which these figures

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<sup>31</sup> Sanuto, vol. 11: 76, 105, 268; vol. 26: 145, 163; vol. 28: 133-34, 355; vol. 55: 145, 406; vol. 57: 503; CARRÈRE, *Barcelone*, vol. 2, p. 645.

convey is that non-Venetians accounted for a substantial part of Europe's imports from the Levant in this period.

In order to estimate the total European market for pepper and spices we need to form some notion of the ratio of Venetian to non-Venetian imports in the 1490s. The sum of pepper imports of the Venetians and Portuguese in the years 1502-03 to 1506 comes to around 3.7 million l.s., which is some 1.16 million l.s. more than Venetian imports in the years 1495/96 to 1497/98. If the general level of European imports remained about the same over this decade — and there is no reason to suppose otherwise<sup>32</sup> — then Venice's share of the market in the 1490s must have been less than 68% — less by whatever amount was imported by other Mediterranean traders from the Levant in the years 1502-03 to 1506. How large, then, was this amount? In the absence of statistical evidence of the kind pertaining to Venetian and Portuguese imports any assessment of this trade must include an element of conjecture. It cannot have been large, however, for there is nothing to show that Venice's competitors were more successful than the Venetians themselves in procuring pepper in the Levant in the period up to the rupture of relations between Venice and Egypt in 1505. It is also likely that the French, Spanish and Genoese soon turned to Lisbon for supplies once the price of pepper began to rise in the Levant. Tentatively we may put their Levantine imports after 1501 at around 100,000 to 500,000 l.s., i.e., at most, about the same

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<sup>32</sup> The Portuguese could generally secure all they wanted in the East and had no intention of allowing the European market to become flooded. The flow of pepper from the Levant was reduced to a trickle and imports were kept to a level which maintained the price on the European market. As Lisbon changed from a subsidiary to a primary market prices dropped from around 80 ducats a quintal (1499) through 40 ducats (1502) to under 20 ducats (1504), i. e. to about the level obtaining at Venice before the Turco-Venetian war. (The price at Venice was about 42 to 49 ducats a *carica*, or 18 to 21 ducats a Portuguese quintal, in 1495-97). At this point prices stabilised. The Crown set the price to wholesalers at 22 ducats, later raised to 36 ducats. See J. L. AZEVEDO, *Épocas de Portugal económico; esboços de história*, 2nd ed., Lisbon 1947, p. 99; D. LACH, *Asia in the Making of Europe. Volume One: The Century of Discovery*, Chicago 1965, pp. 143-47.

as Venice's. This would put the total European market at around 1140 to 1270 tonnes and Venice's share in the 1490s at 60% to 65%, which is about the same as at the end of the fourteenth century. The growth of European imports in this case would have been within the range 30% to 55% over the century.

The growth of Venetian pepper imports was about 30% between 1400 and 1500. The very much greater increases in the growth rates of the different spice categories is partly a reflection of the more rapid rise in demand for spices and partly due to the fact that the Venetians greatly enlarged their share of the market in the fifteenth century. Assuming that Venice's share of the spice market increased from under 45% at the beginning of the fifteenth century to about 80% at the end, then the total European market should have been approximately 3.5 million l.s. by 1500. But it is doubtful that the Venetians could have engrossed the major item, ginger, to the extent that this would have entailed. Assuming that Venice held no more than 65% of the ginger trade and 70% to 80% of the trade in other spices (i.e. about 67% to 72% of the total spice trade), then the total European trade should have been approximately 3.9 to 4.1 million l.s.

The sum of average Venetian (estimated) and Portuguese (recorded) imports in the years 1502-03 to 1506 is only about 1.22 million l.s. — less than half the lowest (and least probable) of the figures mentioned above for the total market. Comparison with the figures for Venetian imports in the 1490s shows that the explanation of this very large discrepancy cannot simply be that these figures for the European market are all too high. Even if the total market were no more than 3.5 million l.s. — it could scarcely have been less — a large amount would still have to be accounted for on the improbable hypothesis that the effect of the Portuguese action was to cause nearly half of Venice's spice trade to fall into the hands of rival Mediterranean importers while the Portuguese themselves secured less than one-eighth

of the total; or alternatively, and no less improbably, that European imports dropped by about 50% in these years and remained down for the rest of the century.<sup>33</sup> At this point we should turn to examine the Portuguese trade more closely.

The most striking feature of the Portuguese trade, as it appears from the figures in contemporary reports, is that whereas a near monopoly of pepper was quickly established, imports of spices remained quite small, not only in the early years, before Portuguese power was consolidated in the East and extended to the sources of the major spices, but throughout the whole of the 'Portuguese Century' (see Fig. 3<sup>34</sup> and Table 8).

Fig. 3 Average Annual Portuguese Imports, in quintals

	Pepper	Spices	Total
1503-06	18,825	2,543	21,368
1513-19	29,866	7,627	37,493
1526-31	18,102	2,498	20,600
1547-48	30,119	3,831	33,950
1571-80	20,768	6,174	26,942
1581-90	19,819	5,887	25,706
1591-1600	11,018	3,302	14,320

But are the contemporary figures for Portuguese spice imports all-inclusive? Steensgaard's view, upon which his assessment of the relative importance of the Portuguese and Levantine trades is to a considerable extent based, is that they are, at

<sup>33</sup> Portuguese harassment of the Indian Ocean trade may have reduced the supply available in the Levant for export to Europe, but if failing supplies from this quarter had not been off-set by Portuguese imports we should expect substantial price rises in the Levant. None occurred until after 1511, when the main cause will have been unsatisfied demand within the Muslim world resulting from Portuguese pressure on the Indian Ocean trade. For prices at Cairo see V. MAGALHÃES-GODINHO, *L'Economie de l'empire portugais aux XV<sup>e</sup> et XVI<sup>e</sup> siècles*, Paris 1969, p. 725.

<sup>34</sup> Figures for 1547-48 are based on Magalhães-Godinho, p. 704, and those for 1571-1600 (but not totals) are from Steensgaard, p. 168.

least for the post-1570 period.<sup>35</sup> The weight of evidence, however, is on the side of V. Magalhães-Godinho, who takes a contrary view.<sup>36</sup>

The ultimate sources of the contemporary figures were the cargo lists of the *escrivao da nao* or similar documents. As Ca' Masser notes of the 1506 fleet,<sup>37</sup> the registers of the *escrivao* did not include the 'boxes' of the mariners. These lists should in fact be taken as referring with certainty only to cargo carried in the holds on behalf of the Crown and certain Crown licencees,<sup>38</sup> and not to merchandise imported by mariners and royal officials as perquisites of office.<sup>39</sup> Although the royal monopoly extended formally over pepper and all the major spices, thus affirming the principle that none but the king had rights in this trade, it was only in the case of pepper that the monopoly was actually enforced. The Crown dominated the spice trade in Asia and took some part in the trade to Europe, but in general the latter was conceded as a perquisite of office to the Crown's servants in the East, for whom, indeed, this was a major source of income and the principal inducement to service in the *Estado da Índia*.<sup>40</sup>

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<sup>35</sup> Steengsgaard, p. 164.

<sup>36</sup> Magalhães-Godinho, p. 701. See also his extended discussion of the Portuguese trade round the Cape, pp. 665-709 (to which the following is indebted), especially his discussion of contraband (pp. 697-98).

<sup>37</sup> CA' MASSER, 'Relazione', p. 23.

<sup>38</sup> These were (1) entrepreneurs who fitted out ships in the early years and paid duty or a share of the cargo to the Crown, and (2) the 'Asian Contractors' who took the place of the Crown in importing pepper (for a while some spices, also) from the 1570s, and who sold to the Crown in Lisbon. This was all official trade and was noted in the official cargo registers. A different class of Crown licencees comprised nobles and officials, in Portugal and in the East, who made private importations by royal permit.

<sup>39</sup> Possibly also included in the official cargo lists were the pepper imports (*quintaladas*) allowed to mariners and officials as part of their salary (and officially abolished in 1517). These were managed by the Crown in the early years (for some details see *The Voyage of Pedro Alvares Cabral to Brazil and India*, transl. & introd. by W. B. Greenlee, Hakluyt Society, second series, no. 81, London 1937, pp. 192-93).

<sup>40</sup> The Crown benefitted by being able to reduce its payments to remunerate officials and buy spices. Private funds were tapped for the spice trade, but the Crown still profited by obliging private traders to obtain supplies from the royal factors, and then by buying

Some indication of the extent of the trade can be gained from a comparison of cargo lists and the carrying capacity of vessels in the *carreira da Índia*. In October 1512 Albuquerque proposed to send the king 38,000 quintals of pepper and spices in five newly built vessels, each with a rated capacity for the freight of pepper and spices of 7,500 to 8,000 quintals. In fact, about 42,000 quintals was despatched in seven vessels.<sup>41</sup> Even assuming that two of these were older vessels which could carry only about 6,000 to 6,500 quintals, it appears that the hold capacity of the fleet exceeded the stated cargo by some 7,000 to 10,000 quintals, so that some 15% to 20% of the hold space was available for the private imports of officials. Private trade in addition took up room in living quarters and above deck areas, to an extent which Magalhães-Godinho estimates as equal to as much as a quarter of hold capacity.<sup>42</sup>

In Albuquerque's day the *naos de carreira* were commonly of around 400 to 500 *toneladas*. By mid-century they had grown to 600 *toneladas* and over, representing a hold capacity for pepper and spices of some 9,000 to 9,600 quintals.<sup>43</sup> The cargo lists fail to show a corresponding increase in the size of consignments over this period. Yet these vessels were notoriously overladen

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back or taxing imports on arrival in Lisbon, though not all these devices were necessarily in use at all times. (For an illustration of how the Crown profited from the grant of *quintaladas* to high officials see Azevedo, p. 104, note 2. For the organisation of the Moluccan spice trade see Magalhães-Godinho, pp. 794-812).

<sup>41</sup> Magalhães-Godinho, p. 702; R. A. DE BULHAO PRATO, ed., *Cartas de Afonso de Albuquerque*, Lisbon 1884, vol. 1, p. 83.

<sup>42</sup> Magalhães-Godinho, p. 677.

<sup>43</sup> I follow Magalhães-Godinho on the size of vessels in *toneladas* (pp. 674, 677). The estimate of carrying capacity, a conservative one, is on the assumption that Albuquerque's figures of 7500 to 8000 quintals refer to a 500 *tonelada* vessel. The value of the *tonelada* as a measure of ship's capacity is unknown. Magalhães-Godinho (p. 676) cites evidence to suggest that it weighed 13½ new quintals (i. e. the same as the *tonelada* of 1728 *arrateis* used for weighing heavy goods) and estimates carrying capacity on the assumption that this was the weight of the *tonelada* (measure of volume) of pepper and spices. But the weight of a *tonelada* of pepper or spices cannot be gauged if the volumetric value of the *tonelada* is unknown. The problem of the Portuguese ton of ship's measure remains unsolved.

on the homeward journey. The increase in the size of the carriers is a sure indication of the growth of the private trade of officials and mariners in the service of the Crown.<sup>44</sup>

In assessing the size and significance of the Portuguese spice trade in the sixteenth century we have to reckon with a private trade which went unrecorded in the official cargo lists, which flourished throughout the century and which was practically confined to spices and associated goods, since the pepper monopoly was effectively enforced.<sup>45</sup> The private trade probably accounted for at least 30% of total imports in the early part of the century and more in the later period. For 1503-06 the average annual spice import, official and private, may have amounted to 12,000 to 15,000 quintals, approximately 2.0 to 2.5 million l.s.<sup>46</sup> In 1513-14, at a fairly conservative estimate, it may have been as much as 21,900 to 25,000 quintals, about 3.7 to 4.2 million l.s.<sup>47</sup>

A wide margin of uncertainty must be allowed for in any estimate of the European spice market at the beginning of the sixteenth century. Assuming that the Venetians held close to 70% of the total (excluding pepper) in the 1490s, and bearing in mind that the trade of other Mediterranean importers may have suffered proportionately less than Venice's and that the dislocation of established trading patterns may have resulted in a small and temporary drop in total imports in the early years of Portuguese activity, the probability is that the European spice

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<sup>44</sup> A contemporary observer explicitly attributes the increased size of the vessels to the demands of private trade of officials and mariners. See Magalhães-Godinho, pp. 675-76.

<sup>45</sup> For the trade in goods other than pepper and spices see Magalhães-Godinho, pp. 707-09.

<sup>46</sup> Allowing for a private trade amounting to 15% to 20% of hold space and space equal to 25% of hold outside the hold.

<sup>47</sup> 10 vessels imported annual averages of 20,200 quintals of pepper and 11,500 of spices (see Table 8). Assuming only half were new vessels, average annual cargo capacity should be around 33,700 to 36,200 quintals, with cargo outside the hold amounting perhaps to 8,400 to 9,000 quintals. Average annual cargo for these years is computed to be 42,100 to 45,200 quintals. Cf. the estimates of return cargoes in the sixteenth century in Magalhães-Godinho, pp. 700-709.

market was between 1200 and 1350 or possibly 1500 tonnes at this time. About half the market was probably being supplied by the Portuguese in the years 1503-06, and much more a decade later, and this mainly through the private trade which went unrecorded in the official cargo lists. A great part of this trade must have been in ginger, which figures insignificantly in the recorded imports and could not have been imported through the Levant in sufficient quantities to satisfy European demand.<sup>48</sup> Later in the century, as Europe came to be supplied from the West Indies and Portugal's Atlantic Islands, ginger was gradually displaced in the Portuguese private trade by a growing volume of the more expensive spices and associated goods. The Portuguese trade was always of major importance, even at the times when the Levantine revival was at its height. Around 1560-64 imports via the Cape still probably accounted for more than half the spices which found their way into Europe from the East.<sup>49</sup>

### *The Cape Route and the Levant Trade*

Between 1531 and 1587 there are only a scattering of figures for Portuguese pepper imports. It is possible, however, to estimate general levels of imports from the statistics of Portuguese shipping. For the period 1587 to 1609 Steensgaard shows that, so far as

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<sup>48</sup> Ginger remained the major item in the much reduced Levantine trade. The total Venetian intake in 1522 was 311,600 out of 745,900 l. s. — 42% of the total, as against 51% in 1496-98 (see Sanuto, vol. 32: 297, 438-39). Relatively stable ginger prices at Venice early in the sixteenth century (see Magalhães-Godinho, pp. 719-20), when local supplies were low, suggest that European demand was being met from other markets.

<sup>49</sup> Assuming that the pepper/spice ratio of the cargo of the "Croce" (59% to 65% pepper) is typical of Venice's Alexandria imports in 1560-64 (see Laue, 'Mediterranean Spice Trade', p. 583, note 8) the spice imports from Alexandria may tentatively be estimated at around 1.3 million l. s. Imports from Syria were small. Total Marseilles imports may have been around 150,000 to 300,000 l. s. Portuguese imports of spices and associated goods may have been as much as 3.0 million l. s. (since the average annual Portuguese pepper consignment was 18,800 quintals in 3.2 × 600-tonelada vessels with a total hold capacity of about 29,800 quintals, leaving space for 11,000 quintals of spices in the hold and about 7,400 quintals, i. e. 25% of hold capacity, outside the hold).

as can be ascertained, pepper consignments averaged about 4,834 quintals per vessel.<sup>50</sup> For 1547-48 the figure is 6,024.<sup>51</sup> 6,000 quintals was the notional norm in the 1580s, when, in theory, 30,000 quintals of pepper should have been dispatched to Lisbon in five vessels each year.<sup>52</sup> To estimate levels of imports we shall use a figure of 6,000 quintals per vessel for the 1540s, 5,872 for the 1550s and 1560s, and 5,000 to 5,353 for the 1570s and 1580s.<sup>53</sup>

On this basis the average annual consignment of pepper in the 1540s, and probably also in the 1530s, is estimated at around 24,000 quintals. Allowing for shrinkage, spoilage and losses, the *Casa da India* may have received around 22,000 quintals of pepper in marketable condition.<sup>54</sup> Imports dropped considerably in the 1550s. In 1558 the annual consignments were reckoned at 26,423 quintals,<sup>55</sup> representing, theoretically, four and five ship's loadings of 5872 quintals in alternate years. A remarkably high proportion of this was lost to the Crown through spoilage, speculation, shipwreck and other misadventure. Out of 45 ships which set out from India between 1551 and 1560, as many as 12 to 14 were lost.<sup>56</sup> In the following decade losses at sea were

<sup>50</sup> Steensgaard, pp. 164-65.

<sup>51</sup> Magalhães-Godinho, p. 704.

<sup>52</sup> *Ibid.*, pp. 680-81, 692-93.

<sup>53</sup> 5,000 is the average for 12 vessels in 1587-89, excluding one of the 1586 fleet carrying 2,586 quintals of pepper, which Kellenbenz has returning in 1589 and Steensgaard in 1587 (Magalhães-Godinho, p. 705; Steensgaard, p. 166; H. KELLENBENZ, 'Autour de 1600: Le commerce du poivre des Fugger et le marché international du poivre', *Annales: économies, sociétés, civilisations*, vol. 11 (1956), p. 3). 5,353 is the average of the 1558 figure and 4,834, Steensgaard's average for 1587-1609.

<sup>54</sup> On the basis that an average of four vessels, each carrying 6,000 quintals, reached Lisbon each year and that the spoilage rate was 7.5%, i. e. about the same as for 1587-98 (see note 58 below). Cf. the figures for Portuguese pepper consignments to Antwerp in F. EDLER DE ROOVER, 'The Market for Spices in Antwerp. 1538-1544', in *Revue belge de philologie et d'histoire*, vol. 17 (1938), pp. 212-21. Consignments included 22,913 quintals in June 1538 and 14,000 in December 1539. These are probably near enough to the total annual consignment, though Edler de Roover's view is that they represent only about half the annual import.

<sup>55</sup> Magalhães-Godinho, pp. 635-37.

<sup>56</sup> These and following shipping statistics are from data in Magalhães-Godinho, p. 673.

much reduced, but since the annual fleets were also reduced in size the number of vessels to reach Lisbon scarcely altered — an average of 3.2, as against 3.1 in the 1550s. In these decades Portugal may have received on average no more than about 17,100 quintals of pepper a year in good condition.<sup>57</sup> Reforms in the organisation of the trade produced a substantial recovery in the 1570s and 1580s, when an average of 4.2 vessels a year arrived at Lisbon with around 19,500 to 20,800 quintals of pepper in good condition.<sup>58</sup> Shipwreck again took a heavy toll in the following decade — 16 out of 39 vessels between 1591 and 1600 were lost — and the average annual import of marketable pepper dropped to around 9,300 quintals.<sup>59</sup>

What proportion of the European market do these imports represent? Lane has shown that there was a strong revival of the Levantine trade in mid-century.<sup>60</sup> Steensgaard argues that the Levantine trade continued in full strength until after the Northern European nations made their appearance in the East. In his view European consumption of both pepper and spices rose considerably between 1500 and 1570 and the Levantine revival kept pace with this rise while Portugal's trade stagnated.<sup>61</sup> Having estimated Portuguese pepper imports at roughly 2.0 million lbs (about 20,000 quintals) in the 1570s and 1580s and 1.0 million lbs (about 11,000 quintals) in the 1590s, Steensgaard suggests

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<sup>57</sup> See Magalhães-Godinho, pp. 637, 706, for a contemporary under-estimate: 14,797 quintals, the residue of 26,423 quintals after deductions for 30% spoilage and the loss of one ship in five. Actual losses were 1.4 out of 4.5 ships (30%) and probably about 7.5% spoilage.

<sup>58</sup> In this case assuming a spoilage of 7.23%, the average for 1587-98 (see the figures in Magalhães-Godinho, p. 705).

<sup>59</sup> This estimate is derived from figures in Magalhães-Godinho, p. 705 (1591-99), and Steensgaard, p. 166 (1600), with a spoilage factor of 6.34% (the 1592-98 average). Cf also Steensgaard's slightly higher figures (pp. 163, 168) which make no allowance for spoilage.

<sup>60</sup> LANE, 'Venetian Shipping' and 'Mediterranean Spice Trade'.

<sup>61</sup> Steensgaard, p. 154.

that the total European market was around 5.0 million lbs at this time and that the Levantine trade must have accounted for about 3.0 million lbs in the 1570s and 1580s and 4.0 million lbs in the 1590s.<sup>62</sup> The figure of 5.0 million is, however, derived from contemporary estimates relating to the 1620s.<sup>63</sup> To support the view that this was also the level of imports throughout the preceding half century Steensgaard cites contemporary references to quantities of pepper and spices reaching the Middle East — a Portuguese estimate of 40,000 to 50,000 quintals of pepper and spices coming into Jeddah each year, made in 1585, and references to 30,000 kantara and 40,000 quintals arriving in Cairo in 1593 and 1601 respectively.<sup>64</sup> These figures, however, must be understood to relate to a trade which supplied the Muslim world as well as Europe, and the Muslim world first of all. They cannot be equated with imports into Europe. In so far as they suggest anything about the size of the Levantine trade to Europe it is to cast doubt on Steensgaard's estimate.<sup>65</sup>

Konrad Rott, holder of the 'European contract' for Portuguese pepper in the years 1575-80, estimated the European market at 28,000 quintals. A later estimate, prepared for the Spanish king in 1611, put the total at no more than 30,000 quintals.<sup>66</sup> These figures surely refer to Europe as a whole, for, as

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<sup>62</sup> *Ibid.*, p. 163.

<sup>63</sup> *Ibid.*, pp. 155-56.

<sup>64</sup> *Ibid.*, pp. 163-64. If *cantar forfori*, the latter two estimates equal 2.82 and 3.76 million lbs English. Cf the contemporary estimate of 40,000 Portuguese quintals (4.5 million lbs) of pepper and spices reaching Alexandria ca 1560 (LANE, 'Mediterranean Spice Trade', p. 585). Both Lane, *ibid.*, pp. 583-86, and Kellenbenz, 'Autour de 1600', p. 3, also imply that these quantities may be equated with imports into Europe.

<sup>65</sup> The Datini papers give figures which Heers interprets as referring to a caravan reaching Alexandria from Tor shortly after 1400: 4800 *pondi* of pepper and 2844 *pondi* of spices — a total of about 5.7 million l. s. at a time when Europe's imports from Alexandria were not more than about 2.5 million l. s. (HEERS, 'Il commercio', p. 176. Cf. E. ASHTOR, *Les métaux précieux et la balance des paiements du Proche-Orient à la basse époque*, Paris 1971, p. 120, for the view that the figures relate to a Venetian galley voyage).

<sup>66</sup> H. KELLENBENZ, 'Autour de 1600', pp. 7-8. The estimates provide a breakdown by countries. Their chief discrepancy is in the amounts shown for Italy (Rott: 6000;

Braudel demonstrates, Europe already formed a single unified market for the sale of pepper.<sup>67</sup> The size of Portuguese consignments was set in a pattern of bureaucratic activity which was slow to change. In the 1550s the Portuguese Crown aimed to buy 27,240 quintals of pepper in India each year; in the 1580s the figure was 30,000 quintals.<sup>68</sup> When allowance is made for a normal rate of losses, it appears that the Portuguese pursued a cautious policy of slightly under-supplying the market. The object was to maintain firm prices and ensure ease of sale for the Crown and its contractors. It was left to the Venetians and others to take the risk of filling in the margins with imports from the Levant.

The Levantine trade ebbed and flowed with the changing fortunes of Portuguese enterprise. The Portuguese could always procure as much pepper in the East as they were ready to pay for, and they could generally count on their own imports taking precedence on the European market. More than anything else, it was the size of this importation, arriving usually between June and September,<sup>69</sup> which influenced the scale of Levantine purchases by Venetians and others later in the year.<sup>70</sup> It is clear from Magalhães-Godinho's study that the prime determinant of how much Portuguese pepper actually reached the European market from year to year was the efficiency of Portuguese shipping. The Levantine trade accordingly flourished in periods of Por-

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1611 report: 2000) and northern and central Europe (Rott: 12,000; 1611 report: 20,000). The likely explanation is that since Rott's figure for the latter explicitly refers to the section of the market supplied from the Netherlands, his estimate for Italy should be taken to include re-exports to central Europe. Rott's figure also excludes the British Isles, included in the 1611 estimate for Germany 'and the other northern countries'.

<sup>67</sup> BRAUDEL, *The Mediterranean*, vol. 1, pp. 547-48.

<sup>68</sup> Magalhães-Godinho, pp. 635-36, 652; KELLENBENZ, 'Autour de 1600', p. 2. That 30,000 quintals was the limit of the market is implicit in Philip II's plan to centre the trade at Venice and in Venice's response to the plan. See Braudel, pp. 558-60.

<sup>69</sup> Magalhães-Godinho, p. 668.

<sup>70</sup> For evidence of this in the years 1587-90 see Steensgaard, pp. 53-55.

tuguese inefficiency and waned when the Portuguese were able to overcome their problems of organisation and transport.<sup>71</sup>

In the early 1560s, when Portuguese pepper imports were down to around 17,100 quintals (2.9 million l.s.), the Venetians were importing as much as 2.0 million l.s. a year from Alexandria.<sup>72</sup> Europe's imports through Marseilles may have been about 300,000 to 500,000 l.s. in 1560 (as against Venice's 1.4 million l.s.) and 200,000 to 350,000 l.s. in 1563 (as against Venice's 2.3 million l.s.) — an average of 250,000 to 420,000 l.s. for the two years.<sup>73</sup> The sum of average imports of Venice and Marseilles for the years 1560 and 1563 and the twenty-year average for Portuguese imports comes to 4.9 to 5.17 million l.s., equivalent to 28,700 to 30,000 quintals, or 3.25 to 3.43 million lbs, figures which should be compared with the figure for Portugal's purchases in the East (27,240 quintals) and Lane's tentative estimate of upwards of three million lbs for the total European market.<sup>74</sup>

The Venetian revival was cut short by the Cyprus war of 1570-73, which coincided with the recovery in the Portuguese trade. Marseilles for a time supplanted Venice as the major Mediterranean importer, but in the face of renewed Portuguese competition the Levantine trade rapidly declined. J. Billioud estimates

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<sup>71</sup> Cf, for example, Lach, pp. 127-31, for the contrary view that the Levantine trade revived because of a decline in Portuguese power in the East.

<sup>72</sup> LANE, 'Venetian Shipping', pp. 228-29, and 'Mediterranean Spice Trade', p. 581. The trade with Syria was then insignificant. See A. STELLA, 'La crisi economica veneziana della seconda metà del secolo XVI', *Archivio veneto*, series 5, vol. 53, no. 93 (1956), pp. 39-43.

<sup>73</sup> J. Billioud estimates value of Marseilles pepper and spice imports in 1560 and 1563 at about 200,000 and 133,333 *écus* respectively (in G. RAMBERT, ed., *Histoire du commerce de Marseille*, Paris 1949, vol. 3, p. 555). His statistics for imports in 1586 and 1589-92 show pepper comprising about 60% by value (64% by weight) and 74% by value (over 77% by weight), respectively, of the totals (*ibid.* pp. 448, 450). He estimates pepper was 66% by value of the total in 1571-77 (*ibid.* pp. 443, 446, 555). Compare the cargo of the "Croise", in which pepper was 59% to 65% by weight (see note 49 above). Billioud gives prices equal to two *livres* of pepper to the *écu* in the 1540s, an average of 2.4 (range of 2.00 to 3.33) to the *écu* in 1589-92, and about the same for the 1570s (*ibid.* pp. 440-41, 446-47, 450).

<sup>74</sup> LANE, 'Mediterranean Spice Trade', p. 587, note 28.

Marseilles imports at around 1.0 million *livres* — 1.29 million l.s. — in the years 1571-77.<sup>75</sup> The sum of estimates of Portuguese and Marseilles imports at this time comes to 27,500 quintals — just under Rott's figure for the total European market.

Marseilles could hold so large a share of the Levantine trade only so long as the Italians were in difficulties. In the 1580s the traffic flowed back to Venice. Billioud's estimates suggest that Marseilles imports were around 550,000 to 920,000 l.s. in 1583 and down to about 180,000 to 230,000 l.s. by 1589-92.<sup>76</sup> By this time Portugal's trade had entered its final, irremediable period of decline. In 1591 the whole of the annual pepper consignment — some 34,459 quintals in five vessels — was lost en route; in 1592-94 an average of only 6,700 quintals reached Lisbon in saleable condition.<sup>77</sup> It was for this reason that such a keen interest was shown at Venice (and by the Fugger) in the state of the Egyptian market in 1592 and 1593.<sup>78</sup> As Portugal's trade foundered in a welter of maritime disaster the Venetian trade enjoyed a revival which lasted through the first decade of the new century, and ended when the Dutch and English re-established the supremacy of the Cape route.<sup>79</sup>

### *The seventeenth century*

Throughout the sixteenth century Portugal aimed to maintain a high price for pepper on the European market. Compe-

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<sup>75</sup> Billioud, in RAMBERT, *Histoire du commerce*, p. 446.

<sup>76</sup> The 1583 estimate is based on Billioud's figures in *écus* (*ibid.* p. 443), assuming pepper comprised 60% to 65% by value and a price of 2.4 *livres* to the *écu*. The 1589-92 estimate is from Billioud's figures in *livres* and *écus* (*ibid.* pp. 444, 450), assuming pepper comprised 74% by value and a price of 2.4 *livres* to the *écu* (see note 73 above). For the Marseilles trade see also R. GASCON, 'Un siècle du commerce des épices à Lyon, fin XVe - fin XVIe siècles', *Annales*, 15, 4 (1960), pp. 638-66.

<sup>77</sup> Magalhães-Godinho, p. 705; KELLENBENZ, 'Autour de 1600', p. 3.

<sup>78</sup> See KELLENBENZ, 'Autour de 1600', pp. 4-5.

<sup>79</sup> Venetian imports were at least 905,184 l.s. in 1605 and reached 5.76 million l.s. in 1606, according to STELLA, 'la crisi economica', p. 64.

tion from the Levant was met by action in the East to diminish the flow of traffic and raise the cost of transport along the Indian Ocean and Red Sea sections of the Asian trade route which were vulnerable to Portuguese interference. It was not necessary for the Portuguese to undercut the Levantine market so long as supplies reaching Levant could be prevented from rising appreciably above the level of the requirements of the Muslim regions served by the major marts in Egypt and Syria. The effectiveness of the strategy adopted by the Portuguese had its limits, however; beyond a certain point the cost of raising their competitor's costs began to outweigh the benefits.<sup>80</sup> The Portuguese reached the point of equilibrium in their contest with the Asian trade route in the second decade of the sixteenth century, when the Crown succeeded in raising the import price of pepper from 22 ducats to around 35-38 ducats a quintal. This set the rate for the rest of the century, not only for supplies reaching Europe through the *Casa da India* but also for the Levantine imports. The Portuguese could push the price higher only at the risk of losing their dominant position on the European market. (In real terms the price obtained by the Portuguese Crown declined in the period of monetary inflation, though the general trend of prices to consumers was upwards.)<sup>81</sup> Conversely, at any price much below the level of 35-38 ducats a quintal Levantine imports were no longer competitive.

A hundred years after the Portuguese pioneered the Cape route the old fear of the Venetians that their trade would be ruined by cheaper imports was finally realised. The flood of pepper which poured into Europe in the early years of the seventeenth century caused both the import price and the price to consumers to fall. The Levantine trade was destroyed and the

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<sup>80</sup> See LANE, 'The Cost of Protection', in *Venice and History*, pp. 373-428.

<sup>81</sup> J. E. THOROLD ROGERS, *A History of Agriculture and Prices in England*, Oxford, 1866, vol. 3, pp. 521-22, vol. 5, p. 476.

European market, now dominated from Amsterdam, expanded with a rush.

The Portuguese import price of 36-38 ducats a quintal represented, in the early 1590s, about 1.00 gulden per pond Amsterdam (about 22<sup>a</sup> sterling per lb English). At this time retail prices in Antwerp were around 1.50 to 1.70 gulden a pond (33<sup>a</sup> to 37<sup>a</sup> a lb), and according to Thomas Mun the price in England was "seldom or never" less than 42<sup>a</sup> a lb.<sup>82</sup> When the Dutch and English began importing in large quantities the Amsterdam and London prices quickly fell below the Portuguese import price. Between 1609 and 1624 the annual average at Amsterdam stood at around 0.80 gulden a pond.<sup>83</sup> In 1625-27 it dropped to 0.58 gulden. The importations of the English East India Company (EIC) in 1616 to 1618 sold for an average of 24 ½<sup>a</sup> a lb. In the 1620s the London price was around 18<sup>a</sup>.<sup>84</sup> Between 1626 and 1648 the Amsterdam annual average was usually between 0.58 and 0.70 gulden a pond (12 ½<sup>a</sup> to 15<sup>a</sup> a lb). A new level of prices now ruled on the European market. In terms of silver prices this was approximately 30% to 40% below the import price maintained by the Portuguese in the preceding century. This was sufficient to end the Levantine trade of the Venetians and other Mediterranean importers.

Equally significant was the drop in the price to consumers. In England the price on the domestic market fell from around 46<sup>a</sup> a lb in the decade 1593-1602 to 28<sup>a</sup> in 1603-12.<sup>85</sup> A similar decline is apparent in figures for retail prices in Bruges between

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<sup>82</sup> From data in C. VERLINDEN, ed., *Dokumenten voor de Geschiedenis van Prijzen en Lonen in Vlaanderen en Brabant (XVc - XVIIIe eeuw)*, Bruges 1959, p. 333, and T. MUN, 'A Discourse of Trade from England unto the East Indies', in J. R. McCULLOCH, ed., *Early English Tracts on Commerce*, London 1856, reprinted Cambridge 1952, p. 35.

<sup>83</sup> This and following Dutch prices are from N. W. POSTHUMUS, *Inquiry into the History of prices in Holland*, vol. 1, Leiden 1946, pp. 174-75.

<sup>84</sup> BAL KRISHNA, *Commercial Relations between India and England (1601 to 1757)*, London 1924, p. 295; K. N. CHAUDHURI, *The English East India Company. The Study of an Early Joint-Stock Company 1600-1640*, London 1965, pp. 160-64.

<sup>85</sup> Thorold Rogers, vol. 5, p. 476.

1602-05 and 1609-12<sup>86</sup> and in Pibram's series for Vienna in the late sixteenth and early seventeenth centuries.<sup>87</sup>

The fall in the price to consumers was accompanied by a dramatic surge in European consumption. As late as 1611 the market was judged to be no more than 30,000 quintals (3.4 million lbs).<sup>88</sup> By 1615 and through the following years the Dutch East India Company (VOC) was ordering 70,000 to 80,000 and as much as 100,000 Bantam bags of pepper a year from the East<sup>89</sup> — the equivalent of around 3.9 to 5.5 million pond (4.2 to 6.0 million lbs).<sup>90</sup> At the beginning of 1621 the VOC put the European market at around 20,000 bales (7.2 million lbs).<sup>91</sup> Portugal's imports were estimated at 4,000 bales (1.4 million lbs) but were probably less — according to Magalhães-Godinho approximately 9,000 quintals (1.0 million lbs) in the period 1611-26.<sup>92</sup> The EIC imported about 896,000 lbs on average in the years 1615-21.<sup>93</sup> If the Dutch achieved their annual order of around 80,000 bags the Europe's total import must have averaged at least 6.7 million lbs at this time. Even if we have some reservations about the

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<sup>86</sup> Verlinden, p. 114.

<sup>87</sup> Cited in Lach, p. 146.

<sup>88</sup> KELLENBENZ, 'Autour de 1600', pp. 7-8.

<sup>89</sup> See H. T. COLENBRANDER, ed., *Jan Pietersz. Coen, Bescheiden omtrent zijn bedrijf in Indie*, vol. 4, 's-Gravenhage 1922, pp. 321-22, 333, 357, 368, and 'Aanwysinge en particuliere memorie van de goederen, die, uyt Oost-Indiën komende, hier te lande jaarlijcx koumen vertiert en verkoght werden', in PIETER VAN DAM, *Beschryvinge van de Oostindische Compagnie*, 1e Boek, deel II, ed. F. W. Stapel, 's-Gravenhage 1929, pp. 138-39.

<sup>90</sup> Six Bantam bags of 60 pond gross made one *bahar* ('load') of 360 pond Troy of Holland. Pepper was consigned in these bags or in bales of 360 pond gross which, allowing 7½% weight loss for drying on the voyage, weighed about 333 pond on arrival in Europe. On sale the bales had a nominal nett weight (allowing a total of 15% for 'losses', a conventional tare of 4 pond, and 2 pond for good weight) of 300 pond. Between 1640 and 1690 the bale weighed a *bahar* of 480 pond on consignment, about 444 pond on arrival, and nominally 400 pond nett on sale. The figures used for comparison with Venetian and Portuguese imports are for gross weight on arrival.

<sup>91</sup> See Van Dam, 1e Boek, deel II, p. 167, and COLENBRANDER, *Coen*, vol. 4, p. 482. Though stated to be 350 pond in Van Dam, the bale is here taken to be 360 pond on consignment and 333 pond on arrival (see note 90 above).

<sup>92</sup> Magalhães-Godinho, p. 706.

<sup>93</sup> See Chaudhuri, p. 148.

accuracy of these estimates, it is evident that a very large increase in consumption occurred within a relatively short space of time.

The European market was in fact unable to sustain this level of imports without a further decline in prices. As the market weakened in the 1620s, first at Amsterdam and a few years later in London, the Companies responded by reducing imports. The VOC attributed the slump to the outbreak of the Thirty Years War. Setting the total market at currently no more than 12,000 to 14,000 bales, the Heeren XVII scaled down their order to 8,000 bales a year in December 1621.<sup>94</sup> For some years thereafter the VOC restricted its sales on the European market to 6,000 bales (2.2 million lbs) a year.<sup>95</sup> The EIC was able to increase its imports to an average of 1.5 million lbs in the latter half of the decade, but the price then dropped on the London market and imports were reduced to around 0.88 million lbs in the 1630s.<sup>96</sup> In the following decade imports again rose, the VOC's (1641-56) to an average of 4.6 million pond and the EIC's (1638-53) to around 1.4 million pond.<sup>97</sup> The trade of the Portuguese continued, if on a much diminished scale, along with that of Danes and others, so that total European imports were probably as high as 7.0 million lbs at this time. In the years 1668-82 VOC and EIC imports averaged about 4.00 and 3.24 million lbs respectively. By 1688, according to the VOC's estimate, the total European market stood at around 18,000 bales (8.6 million lbs).<sup>98</sup>

The decline in pepper prices and the great increase in the European market were the direct result of Anglo-Dutch compe-

<sup>94</sup> COLENBRANDER, *Coen*, vol. 4, pp. 532-33. See also pp. 542, 544.

<sup>95</sup> W. A. VAN HORST, 'De Peperhandel van de Vereenigde Oostindische Compagnie', *Bijdragen voor Vaderlandsche Geschiedenis en Oudheidkunde*, 8th series, vol. 3 (1942), p. 98, and K. GLAMANN, *Dutch-Asiatic Trade, 1620-1740*, Copenhagen 1958, pp. 77-78. For the development of the Dutch pepper trade see ch. 5 in Glamann, *op. cit.*

<sup>96</sup> See Chaudhuri, p. 148.

<sup>97</sup> Glamann, pp. 80, 82.

<sup>98</sup> The 1668-82 averages are from EIC imports in Glamann, p. 84, and VOC decisions as to quantities to be offered on sale in Van Dam, *te Boek*, deel II, pp. 223-48. For the 1688 estimate see Van Dam, *ibid.* p. 261, and note 90 above.

tion. Where the English were unable to offer effective competition, notably in the cinnamon and Moluccan spices trades, the stimulus to consumption of a fall in prices was lacking.<sup>99</sup>

### *Conclusion*

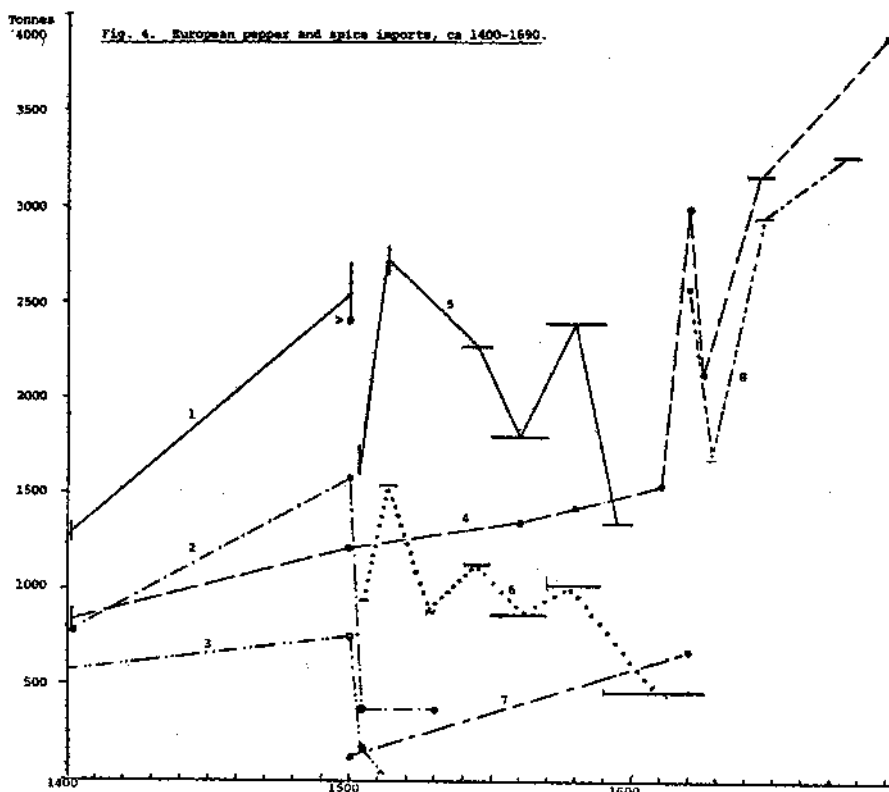
Fig. 4 presents the revised view of the European pepper and spice trade which emerges from the preceding discussion.<sup>100</sup> The level of imports was considerably higher at the beginning of the period, and the relative importance of both pepper and the trade with Alexandria considerably greater, than previous estimates have suggested. Annual imports were upwards of 750 tonnes — probably around 830 to 900 tonnes (worth about 412,000 to 450,000 ducats) — for pepper and upwards of 450 tonnes (worth more than 455,000 ducats) for spices. By 1500 European demand stood at around 1200 tonnes for pepper and upwards of 1200 tonnes for spices. The Venetians dominated this trade in the fifteenth century. At a tentative estimate they held between 60% and 70% of the pepper trade and under 45% of the spice trade at the beginning of the century. By 1500 their share of the spice market had risen probably to around 70%.

The fifteenth century was a period of considerable expansion in European spice consumption. The long-term growth rate for pepper consumption, however, was relatively low both in this and the following century. On the figures presented here, the increase in pepper imports was at most about 64% in the fifteenth century, and more likely under 45% (as against upwards of 177% for spices), and about 27% in the sixteenth century. Rather than rising, per capita pepper consumption possibly declined in Europe in the sixteenth century. What the pattern for the spice trade as a whole was in the sixteenth century is

<sup>99</sup> See Thorold Rogers, vol. 5, pp. 476-77, for English retail prices, and Posthumus, pp. 147-63, for Amsterdam market prices.

<sup>100</sup> Line 6 is from estimates of carrying capacity, assuming vessels of 600 toneladas from the 1540s (see note 49 above). For line 7 see note 101 below.

*The Changing Pattern of Europe's Pepper and Spice Imports, ca. 1400-1700*



1. Europe's pepper and spice imports.
2. Venetian pepper and spice imports.
3. Venetian pepper imports.
4. Europe's pepper imports.
5. Portuguese imports of pepper, spices, etc.
6. Portuguese pepper imports.
7. Europe's Moluccan spice imports.
8. VOC and EIC pepper imports.

not known, though there are indications of a high rate of growth in one sector at least — the trade in Moluccan spices, which appears to have grown by as much as 500% between 1500 and 1620.<sup>101</sup> Since pepper was the item of more common use, the trend towards

<sup>101</sup> Assuming that Venetian imports were 75% of the total, the European market for Moluccan spices was around 410,000 l. s. (250,000 pond) in the 1490s. Before the

reduced pepper consumption and increased spice consumption is suggestive of the varied impact of economic change on the living standards of different social classes in the sixteenth century.

The early seventeenth century price fall triggered a massive expansion of the market for pepper. Though checked by the outbreak of the Thirty Years War, the trend in imports continued steeply upwards during the remainder of the century. After this a long period of slow growth ensued before another major price fall, the result of American free traders' success in undermining the Dutch and English East India Companies' position, stimulated a further rapid increase in consumption in the late eighteenth century.

If the tendency at one time was to under-rate the persistence of the Levantine trade, the need is now to re-affirm the reality of Portugal's dominance of the carrying trade between India and Europe and to re-assess the economic and political significance of the Cape route in the sixteenth century. It is necessary to distinguish between the overland trade as a whole, which continued to supply the needs of the Muslim Middle East throughout the sixteenth century — in part, at least, by arrangement with the Portuguese authorities in the East, who taxed this trade — and the subsidiary trade between the Levant and Europe. The fact that Portuguese action against Muslim traders in the East caused only a temporary interruption to the flow of pepper and spices along the caravan routes does not itself mean that the Levantine trade to Europe revived.

The view that Portuguese shipping achieved no great economic significance as a connecting link between Europe and Asia is a mistaken one. Steensgaard exaggerates the size and im-

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effects of the Thirty Years War were felt the VOC estimated the market at the equivalent of about 1.4 to 1.5 million pond and aimed to import (in the years 1615-17) as much as 1.26 million pond. See COLENBRANDER, *Coen*, vol. 4, pp. 321-22, 452; Van Dam, 1e Boek, deel II, pp. 138, 163. The VOC's and Mun's estimates of the European market cited in Steensgaard, p. 155, refer to the period when the market was affected by the war. See COLENBRANDER, *Coen*, vol. 4, pp. 482, 490, 542-44, 563; Van Dam, 1e Boek, deel II, p. 163.

portance of the Levantine trade in the latter half of the sixteenth century, first by over-estimating the size of the European pepper market at this time, and secondly by under-estimating the extent of the Portuguese spice trade. For the greater part of the sixteenth century — up to about 1550 and again in the 1570s and 1580s — the Portuguese accounted for upwards of 75% of Europe's pepper imports and probably as much or more of the spices imported from the East. Even in the mid-century period of Portuguese maritime misadventure, Portugal's pepper and spice imports outweighed those of the Mediterranean importers. Line 5 in Fig. 4 shows an estimate of total imports of pepper, spices and other Eastern goods in Portuguese vessels between 1503 and 1600. From a peak between 1510 and 1520 total imports declined down to the middle of the century. This was the period when ginger was giving way to more precious cargo in the Portuguese trade so that the total value of the trade will not have dropped in proportion. It may, in fact, have risen. The evident downward trend in Portugal's pepper imports in the second half of the century (Line 6), whereby an increasing share of the European market was let slip to the Levantine importers, reflects a gradual shift in the ratio of pepper to spices and other cargo in the Portuguese trade. It is comparable to a similar shift in the trade of the Venetians in the fifteenth century and is not at all an index of economic decline. On the contrary, the fall in pepper imports was more than off-set by the growth of the richer trade in spices and associated goods.

The Levantine trade was always marginal to the trade of the Portuguese and could flourish only when, and insofar as, Portuguese imports were affected by losses at sea. So far as Venice is concerned, recognition of the minor role of the Levantine pepper and spice trade points up the significance of other developments, including the development of other branches of the European trade with the Levant, which went to sustain the Venetian economy in the sixteenth century.

## VENETIAN GALLEY IMPORTS 1394-1405 (by bales and in l.s.)

TABLE I

C. H. H. Wake

	1394	1395	1396	1397	1399	1404	1405	Total		Annual Average l.s.
								bales	l.s.	
<i>From Alexandria</i>										
(1) Pepper	2,190	2,100	1,926		2,100	?1,317		9,633	7,224,750	1,444,950
(2) Ginger	138	190	220		130	?113		791	593,250	118,650
(3) Cinnamon	—	130	35		?	?3.5		168.5	106,492	26,623
(4) Moluccan Spices	11	—	(0.96)		(1.15)	?—		13.11	9,832	1,966
(5) Other Spices	1	94	(22.46)		(1.92)	?1.5		120.88	90,660	18,132
(2) - (5) Total Spices										165,371
(1) - (5) Grand Total										1,610,321
<i>From Beirut</i>										
(1) Pepper	1,912	2,000	1,447		220	1,724	844	8,147	2,444,100	407,350
(2) Ginger	316	646	310		2,420	920	823	5,435	1,630,500	271,750
(3) Cinnamon	97	280	—		277	14	61	729	273,375	45,562
(4) Moluccan Spices	53	—	52		1,080	194	161	1,540	462,000	77,000
(5) Other Spices	> 200	—	?158		150	296	268	> 1,072	> 332,850	55,475
(2) - (5) Total Spices										449,787
(1) - (5) Grand Total										857,137
<i>From Romania</i>										
(1) Pepper		96	—	459	377	200		1,132	339,600	67,920
(2) Ginger		—	—	?	45	40		85	25,500	6,375
(3) Cinnamon		—	—	?	—	60		60	22,500	5,625
(4) Moluccan Spices		—	—	?	—	—		—	—	—
(5) Other Spices		—	74	?	60	200		334	125,250	31,312
(2) - (5) Total Spices										43,312
(1) - (5) Grand Total										111,232

Sources: HEBERS, 'Il Commercio', pp. 166, 168-69, 186-89; E. ASHTOR, *Les métaux précieux et la balance des paiements du Proche-Orient à la basse époque*, Paris 1971, pp. 118-20; BAUTIER, 'Points de vue', in MOLLAT, *Sociétés et Compagnies*, pp. 295-96; F. MELIS, *Aspetti della vita economica medie-*

vale (studi nell'Archivio Datini di Prato, vol. 1, Siena, 1962, p. 383. Bales of Alexandria are taken to be 750 l.s. gross, except for cinnamon (632 l.s.). The figures for spices in 1404 are approximate values derived by subtraction from the table in Heers, p. 189. Bales and cases of Beirut are taken to be 300 l.s. gross, except for the cinnamon bale and bales and cases of indigo, which are taken to be 375 l.s. (The figures for 1404 and 1405 include 117 and 33 *pondi* respectively of indigo). All the figures for 1395 have been converted from cantars of 600 l.s. to *pondi* of 300 l.s. except in the case of cinnamon, where a cantar of 750 l.s. is assumed. The Beirut figures for 1396 are approximate values derived by subtraction from the table in Heers, p. 189. In addition to pepper and spices, large quantities of 'associated goods' figured in the galley imports from Beirut. The annual averages for 1395-1405 were around 8900 l.s. of silks, 66,900 l.s. of other textiles, and 84,100 l.s. of sugar. It is assumed that bales loaded in Romania conformed to the standards of Syria.

TABLE 2

## VENETIAN GALLEY IMPORTS BY VALUE (in ducats)

Galleys	1395		1399		1404		Averages	
	Beirut	Alexandria	Beirut	Alexandria	Beirut	Alexandria	Beirut	Alexandria
	5	3	5	3	3	2		
(1) Pepper	91,000	236,000	10,600	250,800	58,800	111,000	53,500	199,300
(2) Ginger	101,000	73,400	137,600	18,300	68,600	20,600	102,200	37,400
(3) Cinnamon	29,900	24,100	20,300	—	1,100	4,800	17,100	9,600
(4) Moluccan Spices	—	—	98,800	Negligible	26,900	—	41,900	Negligible
(5) Other Spices	—	21,000	13,600	Negligible	28,800	Negligible	14,100	7,000
(2) - (5) TOTAL SPICES	130,900	118,500	270,300	18,300	124,800	> 25,400	175,400	54,000
(6) Assoc. goods	> 80,000		> 28,600		74,600		61,000	
(1) - (6) GRAND TOTAL	301,900	354,500	> 309,500	> 269,100	258,200	> 136,400	> 289,900	> 253,000

Information on prices is from HEERS, 'Il commercio', pp. 202-09. Values are calculated from the nett weight of imports in accordance with rates given in Pegolotti, pp. 300,307-14.

## SOME CATALAN IMPORTS FROM ALEXANDRIA AND BEIRUT (by bales and in l.s.)

Vessels	1379	1388	1391	1397	1399	1400	Average per vessel (l.s.)	
	Beirut 1	Alexandria 1	Beirut 1	Beirut 4	Beirut 1	Beirut 1		
(1) Pepper	201	125	297	1,000	262	131	73,450	
(2) Ginger	99	165	134	1,000	229	422	76,550	
(3) Cinnamon	40	38	nil	150	105	13	15,502	
(4) Moluccan Spices	nil	nil	nil	120	64	14	6,600	
(5) Other Spices	some	134	much	270	102	93	27,116	
(2) - (5) TOTAL SPICES								
	bales	> 139	337	> 134	1,540	500	542	
	l.s.	> 44,700	248,266	> 40,200	473,250	157,875	167,625	125,768
(1) - (5) GRAND TOTAL								
	bales	> 340	462	> 431	2,540	762	673	
	l.s.	> 105,000	342,016	> 129,300	773,250	236,475	206,925	199,218

Sources: HEERS, 'Il Commercio', pp. 170-75; CARRÈRE, *Barcelone*, p. 644; ASHTOR, *Métaux précieux*, pp. 120-22. The original figures are in *pondi, colli*, etc., of Beirut and Alexandria.

SOME GENOAN IMPORTS FROM ALEXANDRIA (by bales and in l.s.)

TABLE 4

Year	1379	1383	1386	1391	1394	1395	?	?
Vessels	1 nave	2 galleys	1 nave	1 nave	2 navi	1 nave	1 nave	1 nave
(1) Pepper	743	398	187	238	26	377	380	884
(2) Ginger	162	96	93	91	51	44	112	5
(3) Cinnamon	some	—	—	—	45	—	44	109
(4) Moluccan Spices	?	1	—	—	—	—	—	—
(5) Other Spices	some	—	—	—	some	some	—	6
(2) - (5) TOTAL SPICES								
bales	> 162	97	93	91	> 96	> 44	156	120
l.s.	> 121,500	72,750	67,750	68,250	> 66,690	> 33,000	111,808	77,138
(1) - (5) GRAND TOTAL								
bales	> 905	495	280	329	> 122	> 421	536	1,004
l.s.	> 678,250	371,250	208,000	246,750	> 86,190	> 315,750	396,808	740,138

SOME GENOAN IMPORTS FROM BEIRUT (by bales and in l.s.)

Year	1382	1395	?	?	?
Vessels	1 nave	2 galleys	1 nave	2 navi	1 galley
(1) Pepper	6	?	85	122	122
(2) Ginger	16	600	162	108	255
(3) Cinnamon	some	?	9	28	215
(4) Moluccan Spices	—	?	some	—	> 55
(5) Other Spices	some	?	—	57	122
(2) - (5) TOTAL SPICES					
bales	> 16	> 600	> 173	193	> 647
l.s.	> 4,800	> 180,000	> 51,975	60,000	> 210,225
(1) - (5) GRAND TOTAL					
bales	> 22	> 600	> 258	315	> 769
l.s.	> 6,600	> 351,000	> 77,745	96,600	> 246,825

Sources: See under Table 3. For the 1395 Beirut total see pp. 103-4 above.

TABLE 5

VENETIAN GALLEY IMPORTS 1496-98  
(by bales and in l.s.)

	From Alexandria			From Beirut		
	1496	1497	1498	1496	1497	1498
(1) Pepper	950	1,250	933	2,600	1,170	[1,635.6]
(2) Ginger	600	776	709	550	640	
(3) Cinnamon	350	136	117	180	46	
(4) Moluccan Spices	102	126	87	352	162	[+ 120]
(5) Other Spices	[399]	[112]	[309]	470	139	
				[+ 148]	[+ 362]	
(2)-(5) TOTAL SPICES						
bales	1,451	1,150	1,222	1,700	1,469	[1,364.4]
l.s.	2,437,680	1,932,000	2,052,960	714,000	616,980	[573,048.0]
(1)-(5) GRAND TOTAL						
bales	2,401	2,400	2,155	4,300	2,639	3,000
l.s.	4,033,680	4,032,000	3,620,400	1,806,000	1,108,380	1,260,000

Sources: *I Diarii di Girolamo Priuli, Rerum Italicarum Scriptores*, nuova edizione, tomo XXIV, parte III, Città di Castello 1912- vol. 1, ed. A. Segre, pp. 59-60, 73, 109; Sanuto, vol. 2, 112, 128, 165-66, 172. Bales of Alexandria and Beirut (including *fardi* of cinnamon) are taken to be 1680 and 420 l.s. respectively. For Beirut in 1497 the 482 *colli* of 'nutmeg, mace and other spices' are arbitrarily distributed: 120 to 'Moluccan Spices' and 362 to 'Other Spices'.

VENETIAN IMPORTS FROM ALEXANDRIA 1501/02-1531/32  
 (by bales)  
 (incomplete for the years 1517/18 to 1523/24)

	1501/02*	1502/03*	1503/04*	1504/05*	1505/06*	1506/07	1507/08*	1508/09	1509/10*	1510/11*	1511/12*
Pepper	225	500									70
Spices	800	602				no voyage		no voyage		no voyage	1,120
Total	1,025	1,102	nil	1,160	nil		1,100		900		1,190
	1512/13*	1517/18	1518/19*	1519/20*	1521/22*	1522/23	1523/24*	1524/25	1529/30*	1530/31*	1531/32*
Pepper		nil		nil	88			nil			
Spices		180	150	225	344	120		200	> 800		
Total	300	180	150	225	432	120	114	200	> 800 + 100	nil	80

\* Galley voyages.

Sources: See under Table 7.

VENETIAN IMPORTS FROM BEIRUT 1501/02-1531/32  
(by bales)  
(incomplete for the years 1514/15 to 1523/24)

	1501/02	1502/03	1503/04	1504/05	1505/06	1506/07	1509/10	1511/12	1512/13	1513/14	1514/15
Pepper & spices	654	400	nil	1,100	nil	2,000			800		1,969
Silks	11	200	90	100	nil	300	200		300		70
Total	665	600	90	1,200	nil	2,300		1,600	1,200	1,200	2,039

	1516/17	1517/18	1519/20	1520/21	1521/22	1523/24	1525/26	1527/28	1528/29	1529/30	1531/32
Pepper & spices	1,800	750	280		643	60	600		700		2,190
Silks	250	117	> 70	300	450	80	120		400		206
Total	2,050	867	> 220		1,093	140	720	1,300	1,100	1,600	2,396

*Sources:* Sanuto, vol. 4: 232, 265 (1501/02); vol. 5: 31-32, 64, 78 (1502/03); vol. 6: 129 (1504/05); vol. 7: 591 (1507/08); vol. 10: 486, 799, vol. 11: 57 (1509/10); vol. 14: 25-26 (1511/12); vol. 15: 418, vol. 16: 177, 225 (1512/13); vol. 17: 504 (1513/14); vol. 19: 446-47 (1514/15); vol. 24: 256 (1516/17); vol. 25: 621, vol. 26: 145, 163 (1517/18); vol. 27: 511, 529 (1518/19); vol. 28: 113, 168, 459 (1519/20); vol. 32: 99 (1520/21); vol. 32: 438-39 (1522/23); vol. 35: 217, 332, vol. 36: 172-73 (1523/24); vol. 37: 441 (1524/25); vol. 41: 35 (1525/26); vol. 46: 354-55 (1527/28); vol. 49: 263 (1528/29); vol. 53: 114, 127, 138, 142-43 (1529/30); vol. 55: 145, 406, 511, vol. 56: 89-90 (1531/32); vol. 56: 89 (1530/31); Priuli, vol. 2, ed. R. Cessi, Bologna, p. 197 (1501/02); p. 295 (1502/03); pp. 335, 340 (1503/04); pp. 363-64, 374, 415-16 (1506/07); p. 417, 424 (1505/06); R. FULIN, ed., *Diarii e diaristi veneziani*, Venice 1881, p. 209 (1509/10); pp. 246-47 (1511/12).

TABLE 8

RECORDED IMPORTS OF PORTUGAL FROM INDIA 1503-31  
(in quintals)

Year	1503	1504	1505	1506	1513	1514	1518	1519	1523	1526	1530	1531
Vessels	16	3	13	5	5	5	6	8	5	5	3	4
(1) Pepper	26,000	10,000	22,000	17,300	20,020	20,414	44,032	35,000	7,500	> 20,000	15,438	18,870
(2) Ginger	?	130	450	725	4,007	4,063	2,470	300	2,300	≅ 1,000	899	341
(3) Cinnamon	?	500	350	—	1,268	813	315	800	200	> 1,000	726	523
(4) Moluccan Spices	?	452½	187	73	7,427	5,047	204	820	> 2,010	> 800	992	798
(5) Other Spices	?	952½	165	193	142	440	1,041	453	> 60	> 250	109	54
(2)-(5) TOTAL SPICES	6,000	2,035	1,147	991	12,844	10,363	4,030	2,373	> 4,570	≅ 3,050	2,726	1,716
(1)-(5) GRAND TOTAL	32,000	12,035	23,147	18,291	32,844	30,777	48,062	37,373	> 12,070	≅ 23,050	18,164	20,586

Sources: Sanuto, vol. 5: 132, and see col. 133, Ca' MASSER, 'Relazione', p. 17, Priuli, vol. 2, p. 305 (1503); Ca' Masser, p. 19 (1504); *ibid.* p. 20, Priuli, vol. 2, p. 389 (1505); Ca' Masser, p. 23, Sanuto, vol. 6: 373 (1506). The table follows Ca' Masser for pepper and ginger totals, Sanuto for other items. Cf. Priuli, vol. 2, pp. 423-24, 427; Sanuto, vol. 17: 191, vol. 18: 143 (1513). Two of the five vessels arrived early in 1514). The figure for Moluccan spices should possibly be emended to 4697. See Sanuto, vol. 17: 191; Sanuto, vol. 18: 409, as emended by Magalhães-Godinho, p. 702 (1514); Sanuto, vol. 25: 594-95 (1518); vol. 27: 641 (1519); Magalhães-Godinho, p. 703 (1523); Sanuto, vol. 42: 453-54 (1526). The figure for ginger is an estimate from one vessel; vol. 54: 131 (1530); vol. 55: 63 (1531).

