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## Hanseatic Commerce in Textiles from the Low Countries and England during the Later Middle Ages:

### Changing Trends in Textiles, Markets, Prices, and Values, 1290–1570

#### **Late-Medieval German Commerce in Woollens from the Low Countries and England**

Of all the manufactured commodities entering into German Hanseatic commerce during the later medieval era, none was more important than woollen cloth. Ultimately, by the late 15<sup>th</sup> century, for reasons now well known, English woollen broadcloths and kerseys had gained an overwhelming ascendancy in German, Central and Eastern European markets; and merchants of the Cologne-led Rhenish Hanse in particular had played an important role in helping the English cloth trade achieve its most decisive breakthrough: that based upon Antwerp and the Brabant Fairs, from the 1420s<sup>1</sup>.

Prior to that commercial breakthrough, however, the draperies of the Low Countries had enjoyed pre-eminence in German textile markets, chiefly thanks to the loyalty of other groups of Hanseatic merchants from the Baltic-based Wendish, Prussian, and Livonian leagues. For they had rightly deemed the trade in Flemish, Brabantine, and then Dutch woollens to be a vital component of their long-held commercial hegemony in the Low Countries' populous and generally lucrative markets. Indeed many of them retained that loyalty long after compara-

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1 John H. MUNRO, *Patterns of Trade, Money, and Credit*, in: *Handbook of European History, 1400–1600. Late Middle Ages, Renaissance and Reformation, 1: Structures and Assertions*, ed. Thomas A. BRADY, jr., Heiko O. OBERMAN, James D. TRACY, Leiden, New York, Cologne 1994, pp. 147–149; IDEM, *Textiles, Towns, and Trade. Essays in the Economic History of Late-Medieval England and the Low Countries* (Variorum Collected Studies series, CS 442), Aldershot, Brookfield/Vt. 1994; IDEM, *Anglo-Flemish Competition in the International Cloth Trade, 1340–1520*, in: *L'Angleterre et les Pays Bas bourguignonnes. Relations et comparaisons, XVe–XVIe siècle*, ed. Jean-Marie CAUCHIES (Publication du Centre Européen d'Etudes Bourguignonnes, 35), Neuchâtel 1995, pp. 37–60; IDEM, *The Symbiosis of Towns and Textiles. Urban Institutions and the Changing Fortunes of Cloth Manufacturing in the Low Countries and England, 1270–1570*, in: *Journal of Early Modern History. Contacts, Comparisons, Contrasts 3* (1999), pp. 1–74; IDEM, *Textiles as Articles of Consumption in Flemish Towns, 1330 to 1575*, in: *Bijdragen tot de geschiedenis 81* (1998), pp. 275–288.

tive advantages in both production and trade had shifted from the Low Countries to England, whose consequences can be seen in Tables 1 and 2 (in the Appendix). They clearly demonstrate both the expansion in English cloth exports, in which the Hanseatic share continued to rise (to almost 30 percent) until the 1490s, and also the stark decline in the Flemish-Brabantine cloth production indices, especially from the 1430s.

If these long-standing ties of mutual dependence in Flemish-Hanseatic trade did not prevent but merely postponed the inevitable demise of the traditional urban draperies of the southern Low Countries, these Hanseatic ties had nevertheless proved to be much more effective in rescuing the fortunes of the Flemish and Brabantine urban cloth industries much earlier, in the early to mid-14<sup>th</sup> century, well before the rise of English competition (and also before the rise of the Dutch cloth industry). For, during the very late 13<sup>th</sup> and early 14<sup>th</sup> century, the spreading stain of chaotic European warfare had deprived most draperies, in not only the Low Countries, but also in England and northern France, of their major and most important markets: in the densely populated, highly urbanized Mediterranean basin.

As I have sought to demonstrate in other publications, the consequences of that chronic warfare, in steeply rising transportation and transaction costs for north-west Europe's long-distance trade in textiles with the Mediterranean basin during the early 14<sup>th</sup> century, were fourfold<sup>2</sup>. The first was to cripple, or virtually to cripple, the export-oriented production of the very cheap and light fabrics that had comprised the bulk of northern textile shipments to this region. Of the northern producers of cheap says, worsteds, and other *draps légers*, so prominent in the 13<sup>th</sup> century, only Arras and Hondshoote survived, almost totally restricted to northern markets. The second was, therefore, to encourage most draperies in the Low Countries, northern France, and England to shift their export-oriented cloth production more and more towards high-priced ultra-luxury quality woollens. Their far higher values allowed such cloth-exporters greater success in sustaining rising transportation and transaction costs, all the more so since luxury

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2 See sources in n. 1, and also John MUNRO, *Industrial Transformations in the North-West European Textile Trades, c. 1290-c. 1340. Economic Progress or Economic Crisis?*, in: *Before the Black Death. Studies in the ›Crisis‹ of the Early Fourteenth Century*, ed. Bruce M.S. CAMPBELL, Manchester, New York 1991, pp. 110–148, repr. in: MUNRO, *Textiles, Towns and Trade* (see note 1), no 8; IDEM, *The Origins of the English ›New Draperies‹. The Resurrection of an Old Flemish Industry, 1270–1570*, in: *The New Draperies in the Low Countries and England, 1300–1800*, ed. Negley B. HARTE (Pasold Studies in Textile History 10), Oxford, New York 1997, pp. 35–127; IDEM, *The ›Industrial Crisis‹ of the English Textile Towns, 1290–1330*, in: *Thirteenth-Century England*, 7, ed. Michael PRESTWICH, Richard BRITNELL, Robin FRAME, Woodbridge/UK 1999, pp. 103–141; MUNRO, *The Low Countries' Export Trade in Textiles with the Mediterranean Basin, 1200–1600. A Cost-Benefit Analysis of Comparative Advantages in Overland and Maritime Trade Routes*, in: *International Journal of Maritime History* 11 (1999), pp. 1–30.

producers were, by their very nature, ›price-makers‹, engaging in ›monopolistic competition‹, by differentiating their products, rather than ›price-takers‹, as had been the case with producers of undifferentiated cheap textiles. But such luxury woollens were necessarily woven exclusively from the finer English wools, then the world's finest; and that requirement necessarily increased the economic dependence of the Flemish and Brabantine (and later Dutch) woollens industry on England. The third consequence was to give the Italian and Catalan cloth industries, who were then similarly reorienting their production away from cheap, light textiles, a comparative advantage in Mediterranean markets for most woollens, including all but the most costly, because of their relatively lower transport and transaction costs.

Finally, therefore, and with such overwhelming Italian-Catalan dominance in Mediterranean cloth markets, the fourth consequence was to force most of the cloth industries in the Low Countries and England to incur yet another economic dependence: on Hanseatic merchants and towns for their cloth exports, most certainly by the time that the Hanseatic League had become a more formally established institution: if not by the mid-14<sup>th</sup> century, certainly by the 1370s. Ironically, one of the major initial events in the formation of the League had been a Hanseatic boycott of their most important commercial entrepôt, the major Flemish port and drapery town of Bruges (in 1358–60)<sup>3</sup>. But thereafter, the Flemish and Brabantine draperies enjoyed, especially for their now more luxury-oriented textile products, an access to these German markets that did involve much shorter-distance, generally more peaceful and secure trading routes, with lower transaction costs, than had the former trade with the Mediterranean zone. So did the nascent Dutch woollen cloth industry, led by Leiden, which began to expand only from the 1360s<sup>4</sup>.

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3 The two most decisive events leading to more formal Hanseatic Union were: (1) the Hansetage of 1356, which sent representatives of the Wendish-Saxon, Westphalian-Prussian, and Gotland-Livonian town circles to Bruges, in order to subject its *kontor* to the combined authority of these towns in their dispute with Flanders over reparations for piracy damages, which in turn led to the Hanseatic embargo of Bruges in 1358–60; and (2) the Hanseatic War with Valdemar IV of Denmark, in 1362–69, involving the creation of the Cologne Confederation in 1367 (formally enduring to 1385), and resulting in the Hanse victory over Denmark in September 1369, and the Peace of Stralsund in May 1370, giving the Hanse effective control over Scania and the Sund's commercial traffic. See Phillipe DOLLINGER, *La Hanse, XIIe–XVIIe siècles*, Paris 1964, pp. 85–96; reissued in revised and updated form as: *The German Hansa*, transl. and ed. Dennis Salway AULT, Sigfrid Heinrich STEINBERG, London 1970, pp. 62–78; Rolf HAMMEL-KIESOW, *Die Hanse* (Beck Wissen, 2131), Munich 2000, pp. 61–67.

4 See Nicolaas Wilhelmus POSTHUMUS, *Geschiedenis van de Leidsche laken-industrie*, 1–3, The Hague 1908–1939, 1: *De Middeleeuwen, veertiende tot zestiende eeuw*; John MUNRO, *Medieval Woollens: The Western European Woollen Industries and their Struggles for International Markets, c. 1000–1500*, in: *The Cambridge History of West-*

The Hanseatic markets, to be sure, did not offer the trading volumes, concentrated urban densities, and indeed the purchasing power that the northern draperies, the Flemish especially, had found in the earlier Mediterranean markets. For these reasons, along with a much colder climate, the Baltic was never able to provide as effective a market for the cheap, light textiles, though certainly some says, worsteds, and cheap kerseys were periodically sold in this region, in small numbers<sup>5</sup>. Nor, of course, were the Hanseatic markets – with the possible exception of Poland – immune to the forces of the later-medieval demographic contractions and economic depressions, which struck northern Europe with considerable power, not just at the time of the Black Death, but even more so, a generation later, from the 1370s.

Even worse was to come for the Baltic-based Hanseatic regional town leagues. By the end of this century, both English and Dutch seafaring and cloth-bearing merchants were making serious inroads into Baltic commerce, and thus into the prime markets for Flemish and Brabantine woollens, so important for the Hanse. Some of the blame for those inroads must be placed upon both the Flemish Civil War of 1379–85 (also known as the Second Artevelde Revolt), and its major consequence: yet another Hanseatic embargo of Bruges, from 1388 to 1392, to enforce demands for war-time reparations. For those events obviously allowed both the English and the Dutch to increase the Baltic sales of their woollen cloths, to some degree at least. For, at the same time, in the later 14<sup>th</sup> century, piracy (*Die Vitalienbrüder*) and warfare were also becoming more and more destructive and costly to Baltic Hanseatic trade, and thus also to the fortunes of the cloth industries from all these regions.

But, surprisingly, the seemingly ominous English threat to the Hanseatic Baltic markets quickly waned, by as early as 1410, when, along with the aforementioned

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ern Textiles, ed. David JENKINS, Cambridge, New York 2003, 1, pp. 228–324. See also nn. 6 and 93 below.

5 In English textile exports, worsteds, which by number or volume had amounted to 23 percent of broadcloth exports in the 1350s, had fallen to just about 1 percent of broad-cloth exports by the 1380s, and generally remained at that low thereafter, throughout the 15<sup>th</sup> and early 16<sup>th</sup> centuries. Kerseys were woollens and not worsteds, and generally more expensive than worsteds and says. Though their exports did increase from the 1380s, while worsted exports declined, they accounted for no more than 20 percent of English cloth exports at the end of the 15th century (as received at the Antwerp market). See England's Export Trade, 1275–1547, ed. Eleanora M. CARUS-WILSON, Olive COLEMAN, Oxford 1963; John MUNRO, Bruges and the Abortive Staple in English Cloth. An Incident in the Shift of Commerce from Bruges to Antwerp in the Late Fifteenth Century, in: *Revue belge de philologie et d'histoire/Belgisch tijdschrift voor filologie en geschiedenis* 44 (1966), pp. 1137–1159; reprinted in: IDEM, *Textiles, Towns, and Trade* (see note 1), no. 6, pp. 1137–1159; IDEM, *Industrial Transformations* (see note 2), p. 134; IDEM, *Symbiosis of Towns and Textiles* (see note 1), pp. 1–74; IDEM, *Industrial Crisis* (see note 2), pp. 103–142.

military disturbances, England's political and economic conflicts with the Prussian towns led to a severe decline in her once promising cloth export-trade to the Baltic zone, which never really recovered its former levels in this century<sup>6</sup>. The combined consequences of population decline, warfare, piracy, and periodic depressions, upon both the English wool trade and cloth production in the southern Low Countries, can also be seen in the accompanying Tables 1 and 2. The former reveals a 42.84 percent decline in the mean annual aggregate volume of English wool and cloth exports (combined), from 1356–60 to 1411–15; and the sharp decline in wool exports is in itself a key indicator of the sharp decline in the southern Low Countries' textile production, also indicated by other indirect indices in Table 2<sup>7</sup>.

But the fortunes of the English cloth trade again quickly changed, again to the detriment of both the Baltic-based Hanse (though certainly not to those of the Rhenish Hanse), and the draperies of the southern Low Countries, when, in 1421, as indicated earlier, the Merchants Adventurers of London established their overseas cloth staple (compulsory market) at Antwerp – rather than Bruges, because of the long-standing Flemish ban on any English cloth imports. By this decisive breakthrough, the English gained direct access to even larger German and Central European markets; and, just as important, they also gained access to the highly-skilled cloth-finishing industries of Brabant and Holland<sup>8</sup>. From the mid 1420s,

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6 The Hanseatic failure to ratify and enforce the 1409 Anglo-Prussian treaty (in effect, a confirmation of the 1388 Anglo-Prussian Treaty of Marienburg), chiefly because the Teutonic Order in the very next year, 1410, suffered a humiliating defeat by Polish armies at the Battle of Tannenberg, marks the beginning of the English commercial decline in the Baltic. For the Flemish Revolt of 1379–1385 and the Hanseatic Embargo of 1388–92, the expansion of Dutch competition, warfare and piracy in the Baltic, etc., see Stuart JENKS, *England, die Hanse und Preußen: Handel und Diplomatie, 1377–1474* (Quellen und Darstellungen zur Hansischen Geschichte, NF 38), 1–3, Cologne, Vienna 1992, 1: Handel, pp. 66–98; 2: Diplomatie, pp. 484–550; 3: Anhänge; Terence H. LLOYD, *England and the German Hanse, 1157–1611. A Study of Their Trade and Commercial Diplomacy*, Cambridge 1991, pp. 74–130; Wim P. BLOCKMANS, *Der holländische Durchbruch in der Ostsee*, in: *Der Hansische Sonderweg? Beiträge zur Sozial- und Wirtschaftsgeschichte der Hanse* (Quellen und Darstellungen zur Hansischen Geschichte, NF 39), ed. Stuart JENKS, Michael NORTH, Cologne, Vienna 1993, pp. 49 to 58; David NICHOLAS, *Medieval Flanders*, London 1992, pp. 227–231, 302–303; DOLLINGER (see note 3), pp. 78–82, 281–295; and see also my publications in nn. 1–2 above.

7 See Anthony R. BRIDBURY, *The Black Death*, in: *Economic History Review* 2nd ser. 26 (1973), pp. 557–592; and the essays in: MUNRO, *Textiles, Towns, and Trade* (see note 1); and IDEM, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350–1500*, London 1992; and also the sources cited in nn. 1–2. Another factor to be noted now, but discussed later, is the harmful consequences of the English taxation of wool exports, from 1336, discussed below, on pp. 124; see also n. 57, below.

8 For the Flemish cloth ban (from at least 1359), see John MUNRO, *Industrial Protectionism in Medieval Flanders. Urban or National?*, in: *The Medieval City*, ed. Harry A.

the English cloth trade began a long upswing – though briefly interrupted by the mid-century depression (from the 1440s to the 1460s) – one that would ultimately swamp all its continental rivals, before finally culminating in the mid-16<sup>th</sup> century<sup>9</sup>. As Table 1 indicates, aggregate English exports rose from a mean annual average of 40,274.60 broadcloths (24.0 by 1.75 yards) in 1421–25 to one of 135,189.50 broadcloths in the quinquennium of peak exports, in 1536–40. In that latter quinquennium, English denizen merchants accounted for 55.83 percent of these cloth exports (almost all going to Antwerp) and German Hanseatic merchants for 28.14 percent.

### **Evidence for the Textile Trades: the Cloth Price Series and their Nature in England and the Low Countries**

We are now so well informed about the changing fortunes of the English cloth trade, in its rivalries with the various draperies of the Low Countries, chiefly because The National Archives of the United Kingdom in Kew, Surrey (formerly known as the Public Record Office) have retained a source unique in the annals of medieval commerce: the virtually unbroken series of the Enrolled Customs Accounts, along with a sizeable number of Particulars accounts, which, as tax records, detail the specific quantities of woolsacks exported from the Old Custom of 1275 and woollen broadcloths, though in full only from a later date, the Cloth Custom of 1347 (with cloth exports by aliens recorded from the New Custom of 1303)<sup>10</sup>.

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MISKIMIN, David HERLIHY, Abraham L. UDOVITCH, New Haven-London 1977, pp. 229 to 267, esp. Tables 13.3–13.5, pp. 257–267, repr. in: MUNRO, *Textiles, Towns, and Trade* (see note 1), no. 7; IDEM, *Bruges and the Abortive Staple* (see note 5), pp. 1137 to 1159. For these other events, see IDEM, *Anglo-Flemish Competition* (see note 1), pp. 37–60; IDEM, *Symbiosis of Towns and Textiles* (see note 1), pp. 1–74; IDEM, *The West European Woollen Industries* (see note 4), pp. 228–324; Eleanora M. CARUS-WILSON, *The Origins and Early Development of the Merchant Adventurers' Organization in London*, in: *The Economic History Review* 1<sup>st</sup> ser. 4 (1933), pp. 147 to 176, repr. in: *Medieval Merchant Venturers. Collected Studies*, ed. EADEM, London 1954, pp. 143–176.

9 See nn. 1–2, above; and pp. 126 below. For the mid 15<sup>th</sup>-century depression, see John HATCHER, *The Great Slump of the Mid-15th Century*, in: *Progress and Problems in Medieval England*, ed. Richard BRITNELL, John HATCHER, Cambridge, New York 1996, pp. 237–272; and Pamela NIGHTINGALE, *England and the European Depression of the Mid-15th Century*, in: *The Journal of European Economic History* 26 (1997), pp. 631–656.

10 The National Archives, Public Record Office (Kew, Surrey) (hereafter TNA: PRO), Exchequer, Lord Treasurer's Remembrancer (LTR), E 356 series; King's Remembrancer, E122 series. These English customs accounts, for the exports of wool and cloth, have now been calendared and published as follows: *The Enrolled Customs Account* (TNA: PRO E 356, E 372, E 364) 1279/80–1508/09 (1523–1524) (The List and Index Society, 303, 306, 307, 313, 314), 1–5, ed. Stuart JENKS, Chippenham 2004–2006, 1: E 372/124–

No such custom accounts exist, unhappily, for the Low Countries. For estimates of this region's textile production and possible exports, we must instead utilize the far more imperfect evidence from the various sales of cloth seals and of tax-farms, i.e., the right to collect certain excise duties imposed on cloth-production in various urban draperies. The fact that normally these tax-farms were sold at auction annually gives us some confidence that they may reflect the historic reality of this cloth production. These constitute the basis for the data presented on Flemish, Brabantine, and Dutch cloth production, as presented in Tables 2–3<sup>11</sup>.

Nevertheless, for a considerable number of the Flemish, Brabantine, and Dutch urban draperies, equally unique and valuable records on textile values (market prices) are available for an even longer span of time: entries in their civic treasurers' accounts for purchases of textiles, often including various woollens supplied from draperies outside the town as well. Furthermore, many of these purchase records also specify the costs of dyeing and finishing the better quality woollens; and those that do usually also indicate the colours, styles, and dimensions of the textiles purchased. They also list the civic officials (or foreign dignitaries) who received these cloths. These accounts therefore provide a wide range of textile prices from the cheaper to the most luxurious woollens, of which the ›scarlets‹ were by far the most costly – as costly as the better silks – each forming consistent and consecutive annual series<sup>12</sup>. Of course, economic historians would welcome even more consistent and continuous series of prices for these cloths when they were sold in foreign markets. Obviously, such continuous series do not

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125, E 372/133–134, E 372/143, E 372/145–146, E 372/149, E 356/1–4 (2004); 2: E 356/5, E 356/6, E 356/7, part 1 (2005); 3: E 356/7, part 2, E 356/8 (2005); 4: E 356/9–13 (2006); 5: E 356/14, E 346/3, E 364/5–7, E 364/14–15, E 364/17, E 364/22, E 364/35, E 364/119 (2006). The complete data on wool and cloth exports have also been published in: CARUS WILSON and COLEMAN (see note 5), with graphs for estimates of annual exports.

11 For a further discussion of these statistical sources, see Peter STABEL, ›Dmeeste, Oirboirlixste ende proffitelixste let ende neringhe‹. Een kwantitatieve benadering van de lakenproductie in het Laatmiddeleeuwse en Vroegmoderne Vlaanderen, in: *Handelingen der Maatschappij voor Geschiedenis en Oudheidkunde te Gent*, new series 51 (1997), pp. 113–153; and also IDEM, *Décadence ou survie? Economies urbaines et industries textiles dans les petite villes drapières de la Flandre orientale (14e-16e s.)*, in: *Draperies Production in the Late Medieval Low Countries. Markets and Strategies for Survival, 14th-16th Centuries*, ed. Marc BOONE, Walter PREVENIER, Leuven, Appeldorn 1993, pp. 63–84.

12 See John MUNRO, *The Medieval Scarlet and the Economics of Sartorial Splendour*, in: *Cloth and Clothing in Medieval Europe. Essays in Memory of Professor Eleanora M. Carus-Wilson*, ed. Negley B. HARTE, Kenneth G. PONTING (Pasold Studies in Textile History, 2), London 1983, pp. 13–70, repr. In: MUNRO, *Textiles, Towns, and Trade* (see note 1), no 5, pp. 13–70; and also IDEM, *The Anti-Red Shift – to the Dark Side. Colour Changes in Flemish Luxury Woollens, 1300–1550*, in: *Medieval Clothing and Textiles 3* (2007), pp. 55–95.

exist (or have not yet been found) for such markets. Nevertheless, various Italian merchant firms, chiefly Florentine, have left us fairly voluminous commercial records of at least sporadic sales prices of Flemish and Brabantine woollens in Italian, Catalan, Byzantine, and Levantine markets, supplemented by various Polish records for eastern Europe, enough at least to justify our confidence in the prices recorded in the Flemish and Brabantine town accounts<sup>13</sup>. For the Hanseatic commercial zone, the most valuable records are the commercial books of the Vickos von Geldersen firm (1367–92), those of the Veckinhusen firm (1410–20), and the *Pfundzollbücher von Lübeck*, for 1492–96, as well as various scattered references published in the *Hansisches Urkundenbuch* and the *Curlandische Urkundenbuch*<sup>14</sup>.

### Archival Sources for cloth prices: the Low Countries

Over the past 40 years, I have collected tens of thousands of these textile prices from the treasurers' accounts of various towns in the Low Countries, from the early 14<sup>th</sup> to mid-16<sup>th</sup> centuries: (1) in the county of Holland, for Leiden, from 1372 to 1570<sup>15</sup>; (2) in the duchy of Brabant, for Leuven, from 1345 to 1500<sup>16</sup>; and in

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13 See the various sets of cloth-price tables in MUNRO, *Industrial Protectionism* (see note 8), Tables 13.3–13.5, pp. 257–267, IDEM, *Industrial Transformations* (see note 2), Appendix 4.1, pp. 143–148; IDEM, *Origins of the English New Draperies* (see note 2), Table 3, pp. 42–44; and IDEM, *Medieval Scarlet* (see note 12), pp. 13–70.

14 See in particular *Das Handlungsbuch Vickos von Geldersen, 1367–1392*, ed. Hans NIRRNHEIM, Hamburg, Leipzig, 1895; *Die Handelsbücher des hansischen Kaufmannes Veckinhusen*, ed. Michail P. LESNIKOV (*Forschungen zur mittelalterlichen Geschichte*, 19), Berlin 1973; Friedrich BRUNS, *Statistik des Lübecker Schiffverkehrs und Warenhandels in 1492–96*, in: HGBll 5 (1904), pp. 109–131; 8 (1907), pp. 457–499; 9 (1908), pp. 357–407. For a general survey, see Simonne ABRAHAM-THISSE, *Le commerce des draps de Flandre en Europe du Nord. Faut-il encore parler du déclin de la draperie flamande au bas moyen-âge?* in: *La draperie ancienne des Pays Bas. Débouchés et stratégies de survie (14<sup>e</sup>-16<sup>e</sup> siècles)*. Actes du colloque tenu à Grand le 28 avril 1992 / *Draperies Production in the Late Medieval Low Countries. Markets and Strategies for Survival (14<sup>th</sup>-16<sup>th</sup> Centuries)*. Proceedings of the Colloquium Ghent, April 28<sup>th</sup> 1992 (*Studies in Urban Social, Economic and Political History of the Medieval and Modern Low Countries*), ed. Marc BOONE, Walter PREVENIER, Leuven, Appeldorn 1993, pp. 167–206; and even more important, Hektor AMMANN, *Deutschland und die Tuchindustrie Nordwesteuropas im Mittelalter*, in: HGBll 72 (1954), pp. 1–63.

15 Bronnen tot de Geschiedenis van de Leidsche textielnijverheid, ed. Nicolaas Wilhelmus POSTHUMUS, 1: 1333–1480 (*Rijks geschiedkundige publicatiën*, 8), The Hague 1910, doc nos. 14–96, pp. 24–11 [for cloth prices 1371–1424]; Gemeente Archief Leiden, Archief der Secretarie van de Stad Leiden, 1253–1575, nos. 511–640 (for cloth prices from 1391–1570).

16 Stadsarchief Leuven, Stadsrekeningen 1345–1500, nos. 4986–5125.

Mechelen, from 1315 to 1551<sup>17</sup>; (3) in Flanders, for Ghent, for 1292, 1302<sup>18</sup> and then from 1314 to 1570<sup>19</sup>; for Bruges, from 1302 to 1496, when these cloth-price entries cease<sup>20</sup>; for Ypres (Ieper), from 1406, our earliest extant account, to 1498<sup>21</sup>; for Kortrijk (Courtrai), from 1393 to 1444 (when these price series also cease)<sup>22</sup>. The Bruges civic accounts are also valuable for supplying prices, for various years, for woollens from a wide variety of the younger so-called *nouvelles draperies*, of both Flanders and Brabant, as purchased on the Bruges markets, including: Wervik, Kortrijk, Menen, Roeselare (Roulers), Belle (Bailleul), Eeklo, Diksmuide, Armentières, Nieuwkerke (Neuve-Eglise), Hesdin, Gistel, Mesen, Oudenaarde (Audenarde), Dendermonde (Termonde), Diest, Lierre (Lier), Zichem, Linselles, and also several French draperies (Lille, Rouen, Montivilliers). The surviving accounts from the Franc de Bruges (Het Bruges Vrij), from 1395 to 1451, also supply market prices for woollens from several of these *nouvelles draperies* – especially Wervik and Kortrijk – and also from the large urban drapery in Ypres<sup>23</sup>. Similarly, the 15<sup>th</sup>-century town accounts for Aalst (Alost) and Veurne (Furnes) provide scattered prices for woollens from their own draperies but also for woollens from the Flemish *drie steden*, i.e., Ghent, Bruges, Ypres, and other draperies, as purchased on the open markets<sup>24</sup>. Thus such accounts from the smaller drapery towns provide, at least periodically, a good and proper check on

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17 Stadsarchief Mechelen, Stadsrekeningen 1315–1499, Series I:3–169; Algemeen Rijksarchief [België], Rekenkamer, doc. nos. 41,205–279.

18 Recueil de documents relatifs à l'histoire de l'industrie drapière en Flandre, I<sup>e</sup> partie. Des origines à l'époque bourguignonne, ed. Georges ESPINAS, Henri PIRENNE, 1–4, Brussels, 1906–1924, 2, doc. no. 405, p. 385; Cartulaire de l'ancienne estaple de Bruges. Recueil de documents concernant le commerce intérieur et maritime, les relations internationales et l'histoire économique de cette ville, ed. Louis GILLIODTS-VAN SEVEREN, 1–6 (Bruges 1904–1909), 1, doc. no. 167, pp. 101–103.

19 Stadsarchief Gent, Stadsrekeningen 1314/15–1569/70, Reeks 400: 1–77.

20 Stadsarchief Brugge, Stadsrekeningen 1302/03 to 1496/97, supplemented by accounts in Algemeen Rijksarchief, Rekenkamer, doc. nos. 32,461–550. From October 1496, the accounts record only cash allowances provided for textile purchases, but no further individual cloth prices.

21 Algemeen Rijksarchief [België], Rekenkamer, doc. nos. 38,636–721 [Ieper stadsrekeningen 1406–1500]. Because of the destruction of the Ypres' archives in World War I, the only extant civic accounts are the copies of those deposited in the Burgundian Chambre de Comptes at Lille, beginning in 1406. From 1499, cash allowances only are provided in the accounts, as was the case in Bruges (but not Ghent).

22 Algemeen Rijksarchief [België], Rekenkamer, doc. nos. 33,148–190 [Kortrijk stadsrekeningen 1393–4 to 1437–8].

23 Algemeen Rijksarchief [België], Rekenkamer, doc. nos. 42,521–563: Brugge Stadsrekeningen.

24 Algemeen Rijksarchief [België], Rekenkamer, doc. nos. 31,412–485 (Aalst: 1395 to 1500); 34,536–648 (Veurne: 1395–1520).

the cloth prices recorded in the civic accounts of the *drie steden*, along with the aforementioned cloth prices periodically recorded in foreign markets.

### Archival Sources for cloth prices: England

The available archival evidence for contemporary English cloth prices is far less detailed and complete, sporadic rather than generally consecutive, though by no means meagre, and certainly sufficient to provide some valid comparisons with the Flemish, Brabantine, and Dutch price data of this era. Cloth prices or evaluations are available from both the Enrolled Customs Accounts and the Particular Accounts, for the following English ports: Boston (1365–6, 1390, 1409, 1412, 1436–9, 1461, 1467–9)<sup>25</sup>; Bridgewater (1460–1, 1485)<sup>26</sup>; Bristol (1376–9, 1391, 1402–4, 1407–8, 1461, 1465–7, 1469–70, 1473–5, 1479–81, 1483)<sup>27</sup>; Exeter–Dartmouth (1393, 1398–9, 1410–1, 1415, 1460–3, 1468–71, 1480–1)<sup>28</sup>; Hull (1383–4, 1391–2, 1395–6, 1398–9, 1401, 1436–7, 1461, 1466, 1471–7, 1483–4)<sup>29</sup>; Ipswich (1386–8, 1397–8, 1400–1, 1404, 1406, 1410–1, 1413–4, 1436–7, 1447–8, 1455–9, 1461–9, 1470–3)<sup>30</sup>; King’s Lynn (1388, 1390–3, 1405, 1457, 1461, 1464–8)<sup>31</sup>; London (1383, 1389–90, 1426–33, 1442–3, 1446, 1449–50, 1461–83, 1485–8, 1494–5, 1506–14)<sup>32</sup>; Newcastle (1388, 1401–3, 1406–7, 1436–7)<sup>33</sup>; Plymouth (1378–83, 1400, 1410–1, 1435–8, 1456–7, 1461–3, 1479–82, 1486, 1499–1500, 1504–8, 1511–2, 1519–20)<sup>34</sup>; Poole (1459–62, 1465–73, 1487–8, 1492–3, 1525–

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25 TNA: PRO, KR Exchequer, E 122/7/10; 122/7/21; 122/8/17; 122/8/21a–b; E 356/18; 356/19; 356/21; E 122/10/7; E 122/10/11. See note 10 above.

26 TNA: PRO, LTR Exchequer, E 356/21–23. See note 10 above.

27 TNA: PRO, E 122/15/18; 122/16/4; 122/16/21; 122/17/6; 122/17/8; 122/17/10; 122/17/37; E 356/20; E 122/19/1–7, 10, 14–15; 122/162/5; 122/20/1; E 356/22. See note 10 above.

28 TNA: PRO, E 122/40/18; 122/40/23; 122/40/30–31; 122/40/35; 122/40/10; E 356/21; E 122/41/2–3; E 356/22. See note 10 above.

29 TNA: PRO, E 122/59/8; 122/59/19; 122/59/23–25; 122/59/11; 122/60/2; E 356/19; E 122/62/1; E 356/21; E 122/62/17; 122/62/9; E 356/22. See note 10 above.

30 TNA: PRO, E 122/50/30; 122/50/33; 122/193/33; 122/51/11; 122/51/15; 122/51/27; 122/51/39; E 356/18–21; E 122/52/42; 122/52/45; 122/176/6; 122/52/46; 122/52/48–49; E 356/22. See note 10 above.

31 TNA: PRO, E 122/94/9; 122/94/12–14; 122/94/23; 122/95/8; 122/95/12; 122/95/27; E 356/20–21; E 122/97/3–4, 7–8. See note 10 above.

32 TNA: PRO, E 122/71/8; 122/71/13; 122/76/13; 122/74/11; 122/77/1; 122/73/5; 122/74/4; 122/73/20; 122/73/23; 122/73/25; 122/94/14–18; E 356/21–23; E 122/78/7; 122/79/5; E 356/24; E 122/81/1–2; 122/83/2. See note 10 above.

33 TNA: PRO, E 122/106/19; 122/106/3; 122/106/32; 122/106/42; E 356/18. See note 10 above.

34 TNA: PRO, E 122/190/1; 122/113/4; 122/113/2; 122/183/19; E 356/20; E 122/114/1–2; 122/114/11; 122/114/3; 122/114/14; 122/115/3, 8, 10, 12; 122/206/1, 3. See note 10 above.

6)<sup>35</sup>; Sandwich (1386–7, 1457, 1461, 1466, 1469–70, 1478–9)<sup>36</sup>; Southampton (1371–2, 1383–4, 1403–4, 1424–5, 1430–4, 1436–44, 1447–9, 1454–61, 1463–4, 1467–76, 1480–1, 1487–92, 1496–7, 1500–1, 1512–7)<sup>37</sup>; and Yarmouth (1388, 1392–3, 1396–1401, 1413, 1418, 1447–9, 1452–3)<sup>38</sup>.

These custom-account prices can be usefully supplemented with price data from several other English sources: the London Aulnagers' accounts of cloth sales (1408–10, 1413–29, 1432–47, 1452–6, 1462–3, 1467–70, 1482–3)<sup>39</sup>; cloth prices recorded in the Alien Hosting Accounts (London: 1440–4)<sup>40</sup>; cloth purchases by several of the London guild houses (Brewers Guild: 1418–39; Grocers Guild: 1448–70)<sup>41</sup>. Finally there are the invaluable series of Royal Wardrobe accounts: for Edwards I–III (1304–6, 1311–2, 1323–9, 1342–3, 1361–2, 1369–70)<sup>42</sup>; for Henry IV and V (1406–13, 1419–20)<sup>43</sup>; and for Henry VI and Richard III (1422–3, 1438–44, 1483–4)<sup>44</sup>. For domestic sales of English woollens, we do possess the important but little used series of prices that J. A. Thorold Rogers collected from the purchase accounts of Winchester Cathedral and various colleges at Cambridge (see Table 8)<sup>45</sup>.

For many years, my research on these cloth price and cloth-output data had been unaided by either computers or research assistants. Those deficiencies have been remedied more recently, however, with research grants from the Social Sciences and Humanities Research Council of Canada, and most recently with a grant from the *Forschungsstelle für die Geschichte der Hanse und des Ostseeraums*, in the Hansestadt Lübeck, drawing upon funds from the Volkswagen-Stiftung, both of which have permitted me to employ research

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35 TNA: PRO, E 356/21; E 122/119/2, 5, 7–12, 15, 19; 122/120/3–4; 122/207/2. See note 10 above.

36 TNA: PRO, E 122/126/6; E 356/20–22; E 122/128/16. See note 10 above.

37 TNA: PRO, E 122/137/19; 122/138/11; 122/139/4, 7–9; 122/141/4; 122/141/21–22; E 356/18, E 122/209/1; 122/141/23–25; E 356/19; E 122/140/62; 122/141/29–36; 122/209/8; E 356/21–24; E 122/141/38; 122/142/1–3, 8, 10, 11–12; 122/143/1; 122/209/2. See note 10 above.

38 TNA: PRO, E 122/149/22, 27, 28, 33–34; 122/150/2, 5; 122/151/21; 122/194/9; 122/151/70. See note 10 above.

39 TNA: PRO, E 101/340/30; 101/341/2–21; 101/342–2.

40 TNA: PRO, E 101/128/30–31. See note 10 above.

41 Corporation of the City of London, Guildhall Manuscripts Library, Ms. no. 5440 (Brewers); Ms. no. 11,571 (Grocers).

42 TNA: PRO, E 101/368/6; 101/368/12; 101/374/19; E 361/3–4. See note 10 above.

43 TNA: PRO, E 101/405/14; 101/405/22; 101/406/9; 101/407/1; E 361/6. See note 10 above.

44 TNA: PRO, E 101/407/13; 101/409/2, 6, 12; LC 9/50. See note 10 above.

45 James A. THOROLD ROGERS, *History of Agriculture and Prices in England, from the Year after the Oxford Parliament (1259) to the Commencement of the Continental War (1793)*, 1–7, Oxford 1866–1902, 1: 1259–1400, Oxford 1866; and 4: 1401–1582, Oxford 1882.

assistants to enter the previously collected data, from my handwritten records, into computer-based spreadsheet programmes.

### **The Ghent Cloth Prices Series (1294–1570): Types of Woollen Textiles**

We have now completed the Ghent cloth price data (1294–1570), which is the most continuous and complete and the most highly detailed in its entries, in describing the cloths so purchased for civic officials and their aristocratic guests (as presents). These cloth price data for Ghent are presented in Tables 4–7, 9, 11, and 12a and 12b). The cloths were usually purchased by the piece, according to the standard and officially prescribed dimensions; but if not, the accounts record the ells (1 ell = 0.70 metre = 70 cm) or part-cloths (halves, quarters, thirds) so purchased. In the 14<sup>th</sup> century, a standard, fully finished broadcloth (*breedelaken*) was 35–36 ells in length (=24.5 m to 25.2 m). By the very early 15<sup>th</sup> century, throughout Flanders, the standard length had been reduced to 30 ells (21 m). Whether or not that meant much more intensive fulling and shrinkage or whether it meant that cloths were woven to a shorter length on the loom, i.e., with lesser amounts of wool, we cannot really tell, though the former reason seems more likely. We know that by this time very extensive fulling had reduced the width – much more proportionally than the length – of Ghent *dickedinnen* broadcloths from 3.625 ells on the loom to 2.375 ells (1.663 m), and shrunk the overall area by just over half: 53.8 percent (from 75.5 m<sup>2</sup> to 34.913 m<sup>2</sup>)<sup>46</sup>.

Throughout the 14<sup>th</sup> and early 15<sup>th</sup> century, the Ghent drapery produced three types of heavily fulled and felted woollen broadcloths. The most popular, and certainly the predominant cloth of the later 15<sup>th</sup> and 16<sup>th</sup> centuries, was the *pleine dickedinnen*, which literally means a ›plain‹ cloth (not square, as in modern Dutch), dyed in one colour, that was ›thick and thin‹ in texture or weave. It was evidently woven in 2/1 or 1/2 [one weft over and under two warps] twill, using a three-treadle, triple-shed loom – even if most other fulled broadcloths had a standard tabby [1/1] weave. A second, variant, and usually also a *dickedinnen*, was the *ghemingden laken* (*drap mellé*): a medley cloth, composed of differently coloured wools. The third type, which achieved its greatest popularity in the 14<sup>th</sup> and early

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46 See Table 13; and Collection des Keuren ou Statuts de tous les métiers de Bruges, ed. Joseph Octave DELEPIERRE, Jan Frans WILLEMS (Recueil de chroniques, chartes et autres documents concernant l'histoire et les antiquités de la Flandre Occidentale, ser. 3), Ghent 1842; Nieuwe teksten over de Gentse draperie. Wolaanvoer, productieijze en controlpraktijken (ca. 1456–1468), ed. Marc BOONE, in: Bulletin de la Commission royale d'Histoire, 154 (1988); Recueil des ordonnances des Pays Bas. Deuxième série: 1506–1700 (Recueil des ordonnances de la Belgique, etc.) 5: 1543–1549, ed. Charles LAURENT ET AL., Brussels 1893, Brussels 1910, pp. 272–283; M. Georges WILLEMSSEN, La technique et l'organisation de la draperie à Bruges, à Gand, et à Malines au milieu du XVI<sup>e</sup> siècle (Annales de l'Académie royale d'Archéologie de Belgique, 68), 1920, pp. 5–69, 109–175.

15<sup>th</sup> century, though it continued to be manufactured until well into the 16<sup>th</sup>, was the *strijptelaken* (*drap rayé*): a rayed cloth, a true woollen cloth, probably in a twilled weave, whose warps appeared as differentially coloured stripes (i.e., different from the weft background).

Fortunately, many documents provide quite explicit and specific information about the production of the Ghent *dickedinnen* in both the 15<sup>th</sup> and 16<sup>th</sup> centuries, unchanged between 1456 and 1546, and indeed almost certainly unchanged from the 1340s or 1350s<sup>47</sup>. Table 13 compares the composition, dimensions, and weight of a Ghent *dickedinnen* broadcloth with those for the following textiles: an English broadcloth (Sussex); a fine *oultreffin* woollen from the leading *nouvelle draperie* of Armentière; a lightweight, semi-worsted Flemish say from Hondschoote; an even lighter, full-worsted Flemish say from Bergues-St-Winoc; and an English worsted (mid 16<sup>th</sup> century) from Essex. For the later 15<sup>th</sup> century, Table 15 provides prices of English wools, in pounds sterling and pounds *groot* (gros) Flemish, per English sack weight of 364 lb (or 165.11 kg), at the Calais Staple, the obligatory staple for the sale of all such wools of northern Europe (see below, pp. 111-112); and Table 14 provides the mean prices (quinquennial means) of all better quality wools exported from England, from 1211-15 to 1496-1500. Each sack furnished the wool for about 4 1/3 English broadcloths, or rather those manufactured from the later 14<sup>th</sup> century. In turn, from each of these woollen broadcloths, a tailor was then able to cut and to produce about three full suits for a well-dressed, fully garbed medieval man<sup>48</sup>.

A more detailed explanation of the tables on textile prices and values, most of which use quinquennial (five-year) means, now needs to be provided. Table 4 presents the prices, in pounds *groot* Flemish, of the luxurious Ghent *dickedinnen*, from 1331 to 1570. Table 5 provides the values of the Ghent *dickedinnen* woollen broadcloths expressed in terms of Flemish and Brabantine commodity baskets (those used to calculate the Consumer Price Indexes), from 1331 to 1570: i.e., the number of such commodity baskets whose aggregate values equal the value of one such textile. Tables 6 (1331–1500) and 7 (1401–1570) present the value of various Ghent woollens in terms of the purchasing power of master masons (i.e., calculating the number of days' wages that a master mason would have had to pay for

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47 See Table 13, and its sources; see also John MUNRO, *Textile Technology*, in: *The Dictionary of the Middle Ages*, ed. Joseph R. STRAYER et al., 1–13, New York 1982–88, 11: *Scandinavian Languages to Textiles, Islamic* [693–711], New York 1988, pp. 1–27; repr. in: MUNRO, *Textiles, Towns, and Trade* (see note 1), no 1; IDEM, *Medieval Woollens. Textiles, Textile Technology, and Industrial Organization, c. 1000–1500*, in: *The Cambridge History of Western Textiles*, ed. David JENKINS, Cambridge, New York 2003, pp. 181–227, and MUNRO, *The West European Woollen Industries and their Struggles* (see note 8), pp. 181–227, 228–324.

48 That is indicated in many of the cloth-purchase accounts in the medieval Low Countries, especially frequently in the 15<sup>th</sup>-century Mechelen town accounts. See the sources for the Tables.

each woollen cloth); Tables 9 and 10 compare the prices and relative values of Ghent *dickedinnen* broadcloths with those for woollens produced in other Flemish and Brabantine draperies, from 1351 to 1550. Table 11 compares the prices of Ghent *dickedinnen* broadcloths with those for Hondschoote's worsted-type *says* (far cheaper, and far lighter) in the decade 1535–1544. Finally, Tables 12a and 12b present the full range of cloth prices, for all types of woollens, produced in the Ghent drapery in the 1360s: from relatively cheap *strijptelaken* to ultra-luxurious *scarlaken* (scarlets). Table 8, as noted earlier, presents the prices and relative values of first and second quality woollens at Cambridge and Winchester; and also the mean values of English cloth exports (quinquennial means), from 1351–55 to 1516–20. Without such a combination of all this comparative information, these Ghent cloth price series would be of rather dubious value.

These tables also reveal clearly that the woollen broadcloths from Ghent, Armentières, and Sussex weighed two to three times as much as the Flemish *says* or English worsteds; and, per square metre, these broadcloths weighed somewhat more than a modern-day heavy woollen overcoat. The Flemish Hondschoote *say*, it should be noted, was a hybrid with a long-stapled dry worsted warp and a short-stapled greased woollen weft, while the much lighter weight *say* from Bergues-St-Winoc was a pure worsted *say*, in both warp and weft. It should also be noted that virtually all wool-based textiles made today, for both men's and women's dress, are worsted rather than woollen, except for overcoats and the robes of cardinals at the Vatican<sup>49</sup>. The heavy weight of a true woollen broadcloth is a function of both the density of the very short (2 cm) curly fibres that compose the warp and weft yarns and of the extent of the fulling: i.e., of the shrinkage and felting, which forces those fibres to be both highly compressed and interlocked. True worsteds underwent virtually no fulling beyond a simple cleansing; and the straighter, coarser, thinner worsted fibres were much lighter (despite the higher warp count in the weaves)<sup>50</sup>.

### **Textile Prices and Manufacturing Costs: Wools, Dyestuffs, and Labour**

These tables together also clearly demonstrate how extremely expensive the true woollen broadcloths were, especially those of Ghent and Mechelen – or had become by the 16<sup>th</sup> century; and also how relatively cheap were the worsted *says*. Thus in 1540, a Ghent *dickedinnen* would have cost a highly skilled master mason in Antwerp, a relatively high status craftsman, more than a year's full pay: 284 days' wages, when the normal working year in Antwerp then consisted of about

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49 For a discussion of the evidence for these cloth weights, see MUNRO, *Origins of the English New Draperies* (see note 2) pp. 35–127; IDEM, *Industrial Crisis* (see note 2), pp. 109–115.

50 See MUNRO, *Textile Technology* (see note 47), pp. 693–711; IDEM, *Origins of the English New Draperies* (see note 2), pp. 35–53; IDEM, *Medieval Woollens. Textiles, Textile Technology, and Industrial Organization* (see note 47) pp. 181–227.

210 days (Table 11)<sup>51</sup>. That same Antwerp mason, however, could have purchased a Hondschoote single say with just 16 days' wages: much more in accordance with our own expenditure patterns on clothing today.

### Rising Wool Costs, from the 1340s

As suggested earlier, the major factor that explains most of these large differences in textile prices is the raw-material components: both the quantity but especially the quality and thus the prices of the dyestuffs and wools – the wools above all. As Table 13 indicates, the Ghent *dickedinnen* broadcloths and also the Mechelen *rooslakenen* (and of course the Sussex/Essex broadcloths) were all made exclusively from the finest English wools, which were then and long had been unrivalled in quality, for their very short (2 cm), curly, serrated fine fibres, excellent for felting, and the most expensive in Europe. That exclusive reliance on the very finest English wools (those sold at Calais, listed in Table 15) was in fact true of all the major urban draperies throughout the Low Countries, including the Leiden drapery<sup>52</sup>. For Spanish *merino* wools, whose production did not even commence until the mid-14<sup>th</sup> century, did not sufficiently improve in quality, through cross-breeding and sheep-management (*transhumance*), to begin the challenge the supremacy of the finer English wools before the mid-16<sup>th</sup> century<sup>53</sup>.

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51 For evidence supporting this estimation of the 15<sup>th</sup>-century work-year consisting of 210 days, see John MUNRO, Wage-Stickiness, Monetary Changes, and Real Incomes in: Late-Medieval England and the Low Countries, 1300–1500. Did Money Matter?, in: *Research in Economic History* 21 (2003), pp. 185–297, esp. pp. 200–202; IDEM, Builders' Wages in Southern England and the Southern Low Countries, 1346–1500. A Comparative Study of Trends in and Levels of Real Incomes, in: *L'Edilizia prima della rivoluzione industriale*, secc. XIII–XVIII (Atti delle Settimana di Studi e altri convegni 36, Istituto Internazionale di Storia Economica Francesco Datini), ed. Simonetta CAVACIOCCHI, Florence 2005, pp. 1013–1076, esp. pp. 1028–1030; Herman VAN DER WEE, *The Growth of the Antwerp Market and the European Economy, 14th-16th Centuries*, 1–3, The Hague 1963, 1: Statistics, Appendix 48, pp. 540–544.

52 See John MUNRO, Wool-Price Schedules and the Qualities of English Wools in the Later Middle Ages, c. 1270–1499, in: *Textile History* 9 (1978), pp. 118–169; repr. in: IDEM, *Textiles, Towns, and Trade* (see note 1), no 3; and other sources cited in n. 1–2 above, and 54, 65–68 below.

53 See John MUNRO, Spanish *Merino* Wools and the *Nouvelles Draperies*. An Industrial Transformation in the Late-Medieval Low Countries, in: *Economic History Review*, 2<sup>nd</sup> ser. 58 (2005), pp. 431–484; IDEM, Origins of the English New Draperies (see note 2), pp. 33–52; Robert S. LOPEZ, The Origin of the Merino Sheep, in: *The Joshua Starr Memorial Volume. Studies in History and Philology* (Jewish Social Studies, 5), New York 1953, pp. 161–168; and also Carla RAHN PHILLIPS, William D. PHILLIPS, *Spain's Golden Fleece. Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century*, Baltimore, London 1997, chapters 1–2, which, however, fail to make clear the origins and evolution of the *merino* wools, in particular the reasons for improvements in their quality.

In the Low Countries, the first to begin using Spanish *merino* wools were the so-called *nouvelles draperies*, which had much earlier, from the mid-14<sup>th</sup> century, risen to prominence as serious competitors to the traditional and now luxury-oriented draperies of the Flemish *drie steden*, by imitating the latter's fine woollens, at a lower cost and sales price, using lesser quantities of lower-quality English (and perhaps also Scottish) wools. Thus, so readily accused of being >counterfeiters< of other fine woollens, the *nouvelles draperies* were much less reluctant than the Flemish *drie steden*, the major Brabantine, and Dutch (Leiden) drapery towns to switch to Spanish wools; but they did so only from the 1430s, only after English wools became prohibitively expensive, for reasons discussed below (pp. 125). Even so, Armentières, the 16<sup>th</sup>-century leader of the *nouvelles draperies*, still required that fine English Cotswolds, Berkshire or Lindsey wools compose a third of the wools in its *oultreffin* broadcloths<sup>54</sup>.

The Flemish *sayetteries* and similar *draperies légères* never used any English or Spanish merino wools, but only the far cheaper, coarser, straight- and long-stapled wools from Flanders, France, Germany, or Scotland and Ireland. Enjoying the macro-economic forces of economic and demographic expansion and renewed access to burgeoning Mediterranean markets, they had made a remarkable comeback to become the leading Flemish textile producers of the 16<sup>th</sup> century, as they had been in the 13<sup>th</sup> century, under very similar economic conditions, when all the draperies in the Low Countries had made a very wide range of textiles from an equally wide range of wools<sup>55</sup>.

But subsequently, however, during the early to mid-14th century, when the traditional urban draperies forsook the production of the relatively cheap and light textiles, at least for export, to focus more and more upon very high-priced luxury quality woollen broadcloths, most of the former rural or small town *draperies légères* followed suit, so to speak, to produce and market somewhat lower-cost and lower-priced imitations of the luxury woollens of the traditional urban draperies; and thus, as just indicated, they became known as the *nouvelles draperies*. In concentrating on this luxury production, from the 1340s, all of these draperies, old and new, necessarily become dangerously dependent upon the finer English wools – the essential determinant of luxury quality, a dependency that the English crown was neither slow nor loath to exploit in the form of rising export taxes on

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54 Recueil de Documents Relatifs à l'Histoire de l'Industrie Drapière en Flandre, II<sup>e</sup> partie.

Le sud-ouest de la Flandre depuis l'époque bourguignonne, 1-3., ed. Henri DE SAGHER, Hans VAN WERVEKE et al., Brussels 1951-66, 1, pp. 102-117, no. 36. See also MUNRO, Wool-Price Schedules (see note 52), pp. 118-169; idem, Symbiosis of Towns (see note 1), pp. 37-45; IDEM, Origins of the English New Draperies (see note 2), pp. 35-53. See also above nn. 1-2, 40, 52-53.

55 See MUNRO, Origins of the English New Draperies (see note 2), pp. 35-128; IDEM, Industrial Transformations (see note 2), pp. 110-148; IDEM, Symbiosis of Towns (see note 1), pp. 1-74; IDEM, Industrial Crisis (see note 2), pp. 103-141; IDEM, Export Trade in Textiles (see note 2), pp. 18-30.

wool<sup>56</sup>. Indeed, from the very outset of the Hundred Years' War in 1337 to the end of the 14<sup>th</sup> century, the tax burden on and thus the cost of those English wools rose steadily, to the detriment of almost all the traditional major draperies in the Low Countries (see Table 14). In order to finance his coming military campaigns, Edward III had sharply increased the export-tax levy from the traditional 6s 8d per sack (which Edward I had established in 1275) to 26s 8d, then to 40s 0d in 1338, and to 46s 8d in 1342 (50s 0d for aliens), a rate that was retained until 1362.

Initially, however, much of the wool-tax incidence was borne not only by the foreign wool buyers but also, in the form of lower wool prices, by English landlords, as wool-sellers, whose opposition finally forced Edward to adopt an alternative solution in 1363: the establishment of the Calais Wool Staple' under the control of a mercantile cartel, which eventually succeeded in shifting almost all of that tax incidence on to the foreign buyers. By 1369, that wool-export tax rate had risen to 50s 0d per sack (51s 7d with the added ›Calais levy‹). Because those wool export duties (customs and subsidies) were fixed and *specific* rather than *ad valorem*, their effective real burden rose as the nominal prices of all English wools fell from a peak of £6.422 per sack in 1371-75 to a mean of £4.266 per sack in 1391-95: a decline of 33.57 percent, about the same as the 37.26 percent decline in the Phelps Brown-Hopkins composite price-index from 162.64 to 102.04, representing general deflation over this same period (Table 14). As a consequence, the total burden of English wool-export taxes amounted to almost 50 percent of the mean domestic price of Cotswolds and Midlands wools by the 1390s; and, as a further consequence, the real price of Flemish woollens also rose, in relation to the overall Flemish price indices (and the deflation at the end of the century)<sup>57</sup>.

Unfortunately for the Low Countries, their urban draperies would suffer further and more disastrous blows from English fiscal and monetary policies in the 15<sup>th</sup> century (see below, pp. 125). Indeed, the quinquennial mean wool prices, and the related export taxes, shown in Table 14 should be compared with the wool prices in Table 15, for the Calais Staple during the late 15<sup>th</sup> century, demonstrating that the Staple's wool prices had risen to well more than double the domestic English price by the 1490s.

Not surprisingly, therefore, the cost of these English wools came to form a very high proportion of total production costs for the Flemish, Brabantine, and Dutch draperies by the early 15<sup>th</sup> century. Thus, for example, in producing a fine woollen black broadcloth at Leuven in 1434, the English wool accounted for 76.2 percent of the pre-finishing manufacturing costs and for 62.5 percent of the total cost,

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56 See above, nn. 1-2, 52-53, 57.

57 See the evidence in: MUNRO, *Industrial Protectionism* (see note 8), pp. 229-267; and IDEM, *Industrial Transformations* (see note 2), pp. 133-138; W. Mark ORMRD, *The Crown and the English Economy, 1290-1348, before the Black Death. Studies in the ›Crisis‹ of the Early Fourteenth Century*, ed. Bruce CAMPBELL, Manchester 1991, pp. 149-183. For the Phelps Brown and Hopkins price index, see n. 72 below.

while dyeing and dressing the cloth accounted for 18.0 percent of total costs – most of that in the woad and madder dyes themselves, so that the remaining share of manufacturing costs amounted to only 19.5 percent of total costs. In the Ypres drapery, the fine Cotswold wool used in producing a black woollen broad-cloth in 1500 accounted for 64.2 percent of pre-finishing manufacturing costs and for 52.0 percent of total costs. Indeed, the price for Cotswolds wool at Calais corresponds to the costs in the Ypres accounts for 1500, when one adds on transport and marketing costs. In the other manufacturing costs, the finishing process of dyeing and dressing again accounted for 19.2 percent of total costs (17.7 percent in dyes and 1.5 percent in shearing costs); but this time somewhat more extensive and skilful labour in spinning, weaving, fulling, and tentering accounted for 26.2 percent of total production costs<sup>58</sup>.

### **Dyeing Costs: and the Special Case of the Medieval Scaerlaken (Scarlets)**

The special significance of dyestuffs, and their costs, can be found in the purchase records of these Flemish and Brabantine town treasurers' accounts for what seems to be a fourth and entirely different type of textile, an incredibly expensive one known as *scaerlaken*, which, for example, in the Ghent accounts of the early 1350s would have cost a master mason or carpenter his full wages for 390 days (for just over 22 months of work). The Flemish term *scaerlaken* means ›scarlet‹; and in Italian, it is rendered as *scarlato*; in French, as *écarlate*; in Spanish and Portuguese, as *escarlat*; in modern German, as *Scharlach*; in modern Dutch, as *scharlaken*; and in modern Swedish, as *scharlakan*. It refers not to the particular or peculiar manufacture of the textile, nor – as if often claimed – to its finishing in terms of extensive shearing, but rather to its dyestuffs, which were used either to dye the wools or the cloth, usually ›in the piece‹, i.e., after fulling and tentering. That dyestuff is now known as *kermes* (from the Arabic *qirmiz*, meaning ›worm‹), which was extracted at enormous cost from the eggs of Mediterranean and Caucasian (Georgian) scale-insects of the genus *Kermococcus vermilio* (sometimes referred to incorrectly as *Coccus ilicis*); and because of the granular nature of those insect eggs, the almost universal medieval name for *kermes* was *grain* (*grano*, *grein*). For some medieval ›scarlets‹ this dyestuff cost more than the fine English wools used in weaving them.

Unfortunately, the Ghent cloth-price accounts provide very meagre data on the actual costs of dyeing and finishing *scaerlakenen* in the 14<sup>th</sup> century; but those for Mechelen provide very precise and detailed data on such costs continuously each year from 1361 to 1419. During this period, the cost of the *kermes* (grain) used in producing the *scaerlakenen* ranged from a low of 24.4 percent (1403, with 17.67 lb. grain per cloth) to a high of 62.3 percent (1379, with 51.75 lb. grain per cloth)

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58 For the data sources, see MUNRO, *Industrial Protectionism* (see note 8), Table 13.2, p. 256; and IDEM, *Medieval Scarlet* (see note 12), Table 3.12, p. 52. See also the previous note and the next note.

of the scarlet-textile's price, for an overall mean of 39.8 percent; but the mean cost of the labour involved in both dyeing and shearing was only 2.7 percent of the cloth price. In the 15<sup>th</sup>-century Ypres accounts (for 1406–86), the mean cost of the kermes dyestuffs (averaging 29.85 lb. per cloth), as a proportion of the total cloth price, was 36.1 percent; the labour cost of dyeing, 3.4 percent; and the cost of shearing and finishing, just 1.5 percent of the cloth price<sup>59</sup>.

Although the dyestuff itself is famous for its vivid orangish-red and thus scarlet colour, as is its early-modern Mexican successor *cochineal*, a ›scarlet‹, and in particular a Flemish *scaerlaken*, did not necessarily appear to be scarlet in colour, despite containing ample quantities of this dyestuff. For very frequently such textiles were woven from wools that had been dyed blue in woad-indigo, and then re-dyed in the piece, with kermes-scarlet, to provide very rich colours with hues of black, perse-blue, brown, sanguine (blood-red), and even green<sup>60</sup>. The textile itself, so transformed into a scarlet-*scaerlaken*, could have been a *strijptelaken* – and there are many examples of *strijpte scaerlakenen* in the Ghent accounts – or a *ghemijnghede (gemengd) laken*; but most were standard broadcloths, and in Ghent specifically the aforementioned *dickedinnen*; and the later-medieval *scaerlaken* seem to have been almost uniquely *dickedinnen* in Ghent or similar broadcloths in the other major draperies.

### Labour Costs and Manufacturing Time

Nevertheless, even if the major proportion of manufacturing costs lay in the raw materials, vast quantities of labour-time – reflecting a very low level of productivity – were still required to produce one of these fine Flemish woollen broadcloths, most certainly by the later 14<sup>th</sup> and 15<sup>th</sup> centuries. A typical draper, employing two male weavers (or a master-weaver employing a journeyman weaver), female warpers and weft-winders, required a minimum of two weeks (at least 12 working days, 10–12 hours per day) in order to weave one such broadcloth measuring 30 metres by 2.8 metres on the loom (42 ells by 4 ells), using 38.2 kg of wool (88 lb.: with 38 lb. warp and 50 lb. weft). At the same time, 12 or more days'

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59 See MUNRO, *Medieval Scarlet* (see note 12), pp. 13–70, in particular tables 3.4–3.5, pp. 40–41; and IDEM, *The Anti-Red Shift* (see note 12), pp. 56–77. See also Dominique CARDON, *Les ›vers‹ du rouge. Insectes tinctoriaux (Homoptera: Coccoidea) utilisés dans l'ancien monde au moyen-âge. Essai d'entomologie historique (Cahiers d'histoire et de la philosophie des sciences, no. 28. Société française d'histoire des sciences et des techniques)*, Paris 1990. For the old traditional view – in my opinion, a false view – that it meant a heavily shorn cloth, see Jean-Baptiste WECKERLIN, *Le drap ›escarlate‹ au moyen âge. Essai sur l'étymologie et la signification du mot écarlate et notes techniques sur la fabrication de ce drap de laine au moyen âge*, Lyon 1905.

60 For evidence on this, see MUNRO, *Medieval Scarlet* (see note 12), pp. 13–70, in particular tables 3.4–3.5, pp. 40–41; IDEM, *The Anti-Red Shift* (see note 12), pp. 56–77, especially tables 4.1–4.4.

labour was expended in wool-beating, carding, combing, and spinning yarns for the same cloth, involving in total the labour of 26–30 persons; and, after the cloth was woven, from three to five days (six in winter), depending on the grade of the cloth, were devoted to fulling, and another week to dyeing, shearing, and finishing. With about 210 working days a year, annual output averaged about 20 such broadcloths per loom, or 10 cloths per weaver, with a possible maximum of 30 broadcloths per loom per year<sup>61</sup>.

Unfortunately the records for the production of medieval says and similar light worsted-type textiles are far less detailed; but clearly their manufacture required far less labour-time. Thus, in 1321, the London merchant burellers' guild contended that a worsted-like *burel* (evidently 40 yards long by 1.5 yards wide) was woven in »two days or three«, though the weavers' guild was demanding the right to take four days<sup>62</sup>. In this same era (1314), furthermore, the Bruges civic govern-

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61 See Walter ENDREI, *L'évolution des techniques du filage et du tissage: du moyen âge à la révolution industrielle*, trans. by Joseph TAKACS, Jean PILISI (Ecole Pratique des Hautes Etudes-Sorbonne, V<sup>ie</sup> section. Industrie et artisanat, 4), Paris, The Hague 1968; IDEM, *Changements dans la productivité de l'industrie lainière au moyen âge*, in: *Annales: E.S.C.* 26 (1971), pp. 1291–1299; IDEM, *La productivité et la technique dans l'industrie textile du XIIIe au XVIIe siècle*, in: *Produttività e tecnologia nei secoli XII a XVII*, ed. Sara MARIOTTI, Florence 1981, pp. 253–262; ENDREI, *The Productivity of Weaving in Late Medieval Flanders*, in: *Cloth and Clothing* (see note 12), pp. 108–119; IDEM, *Manufacturing a Piece of Woollen Cloth in Medieval Flanders. How Many Work Hours*, in: *Textiles of the Low Countries in European Economic History*, ed. Erik AERTS, John MUNRO (Proceedings of the Tenth International Economic History Congress. Studies in Social and Economic History, 19), Leuven 1990, pp. 14–23; Raymond VAN UYTVEN, *Technique, productivité, et production au moyen âge. Le cas de la draperie urbaine aux Pays-Bas*, in: *Produttività e tecnologia nei secoli XII–XVII. Atti della Terza settimana di studio*, 23 aprile–29 aprile 1971, ed. Sara MARIOTTI (Pubblicazioni Istituto internazionale di storia economica »F. Datini«, Prato, Serie 2,3), Florence 1981, pp. 283–294. Productivity evidently did not increase further before the Industrial Revolution. According to an English Parliamentary commission report on woollen manufacturing in the period 1781–96, two men and a boy weaving a superfine broadcloth of 34 yards, with 70 lb. of wool, then required 364 man-hours (= 14.5 days); and another 888 man-hours were spent in wool preparation, spinning, reeling, and warping. See Ephraim LIPSON, *The History of the Woollen and Worsted Industries*, London 1921, Appendix I:A, p. 258, based upon Parliamentary Papers, London 1840, 23, p. 439 et seq; Julia DE LACEY MANN, *The Cloth Industry in the West of England from 1640–1880*, Oxford 1971, Appendix III, pp. 316–321.

62 *Munimenta Gildhallae Londoniensis. Liber Albus, Liber Custumarum et Liber Horn*, 1–2, ed. Henry Thomas RILEY, London 1859–1862, *Liber Custumarum*, II.i, lxvi–lxviii, and pp. 416–425. See also MUNRO, *Industrial Crisis* (see note 2) pp. 105–115, for evidence that other London cloths produced in this era, such as *wadmal*, had weights per piece of 11 lb. or less, compared to the weight of a later-medieval West Country or East Anglian broadcloth: 64 lb. See Table 13 and its sources.

ment limited the number of *Ghistelsayen* that any draper (who might employ several looms) could bring to the cloth-hall each year to 800<sup>63</sup>.

### Variations and Ranges in the Ghent Textile Price-Series

To appreciate the range in cloth prices for the three main varieties of woollens produced in the Ghent drapery in the mid-14<sup>th</sup> century, consider the sample spreadsheets offered in Tables 12a and 12b. The various better-quality woollens – the *strijptelaken*, *ghemijnghede laken*, *dickedinnen breede laken* – are those that the civic government had purchased in the market, chiefly from local drapers, in order to provide the required clothing or ceremonial dress for a wide range of civic officials and employees: the *schepenen*-aldermen, the clerks, the guild deans, the sergeants, musicians, and servants (*garsoene*). Presumably, from a variety of qualitative evidence, the quality and thus the price of these textiles was in accordance with the recipient's rank within the hierarchy of the civic government.

As stressed earlier, the price of these textiles was to a very large extent determined by the cost of the wools, dyestuffs, and other raw materials. As also noted earlier, the concerted policy of the Flemish *drie steden* (Ghent, Bruges, and Ypres) and of the major Brabantine drapery towns (Leuven, Brussels, and Mechelen) was certainly to concentrate on the production of very fine, luxury-quality woollens woven exclusively from the finer English wools. Nevertheless, that requirement still permitted some variations in the types and corresponding prices of English wools that were sold at the Calais Staple. As Table 15 indicates, the cheapest wool sold at Calais (in 1475–99) cost only 25 percent as much as the most expensive, the Leominster Ryelands from Herefordshire in the Welsh Marches, or 44 percent as much as standard Cotswolds wools<sup>64</sup>. In Ghent, and several other draperies, however, the range of wools that were permitted in the *dickedinnen* and comparable fine sealed woollens became ever more restricted, certainly by the 15<sup>th</sup> century, to the better, more costly Staple wools: Fine March and Middle-March wools from Herefordshire and Shropshire, fine Cotswolds (from adjacent Gloucestershire, Worcestershire, and Oxfordshire), fine ›Cotswolds Berkshires‹ to the west, and ›no others‹<sup>65</sup>. Very similar ordinances so restricting the wools to

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63 ESPINAS, PIRENNE, *Recueil de documents* (see note 18), 1, no. 141, pp. 407–412. The previous limitation, of 1284, had been 500 says per year.

64 Indeed, many other English wools – those from the northern counties of Westmorland, Cumberland, Durham, northern Yorkshire, and from the extreme south-west, in Cornwall and Devon – were excluded from the Calais Staple because they were of too poor a quality to be sold, ›bearing the charges of the Staple‹. See MUNRO, *Wool-Price Schedules* (see note 52), pp. 118–169.

65 Ghent, 1456: *Dit es dordonnantie gheorindeert bij heere ende bij wette up dmaecken ende drapieren van den finen lakenen, gheheeten dickedinnen, ende andere lakenen die men drapiert ende maect binnen der stede van Ghendt...: ghedaen int jaer M IIII<sup>e</sup> LVI: (1) Eerst, zal men maken de voorseide lakenen van fijnder maertse ende middle-maertse*

those of the finer English grades sold at the Calais Staple can be found in this era's drapery *keuren* for Bruges, Brussels, Leiden<sup>66</sup>.

### The ›Small‹ (Narrow) Cloths: with non-English wools

A closer inspection of the Ghent cloth-price data reveals rather different textile purchases for some of the lower ranks of officials, in the form of cloths called *smaele* or *smalle laken*, a term best translated not so much as ›small‹ as ›narrow‹ cloths. Indeed, unlike the true broadcloths, which required the very large and elaborate broadloom and the labour of two male weavers working side by side, these *smalle laken* were woven on the much simpler and smaller narrow loom, which conversely required only one weaver. Unfortunately, because the manufacture of these cloths was not regulated, we do not know their precise dimensions: but presumably they were no more than 1.5 ells [= 1.05 m] in width, and perhaps they can be compared with English kerseys, straits (*streit* = narrow), and dozens, which were also narrow woollens with a width of one cloth yard (37 inches = 1.343 Flemish ell = 0.94 metre). Straits and dozens were only 12 yards long – half the length of a ›short‹ broadcloth, while kerseys were 18 yards long; and possibly the Flemish *smalle lakenen* were of similar dimensions.

Not subjected to industrial regulations, their Flemish producers were free to use whatever wools they pleased. Indeed, the Bruges drapery *keuren* (industrial guild

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*wulle, fijne cootswale ende fine cootswale bartsiere ende van gheender andere...* [Fine Welsh March wools – i.e., of Herefordshire and Shropshire – or Middle March, Cotswolds, and Cotswolds Berkshire wools], in: BOONE, *Nieuwe teksten* (see note 46), p. 32: from Stadsarchief Gent, reeks 93, register KK, fo. 103, which I myself have examined. The punctuation is mine. In the Ghent *stadsrekeningen* of May 1546–May 1548, a purchase account specifies that a Ghent *dickedinnen*, priced at £16 0s 0d *groot* Flemish, contained *vandaer alder beste ende fynste Yngelscher wulle*, with one third Fine March and two thirds Cotswolds wool. Stadsarchief Gent, Reeks 400:54, fo. 280<sup>f</sup>.

66 For Leiden: see POSTHUMUS, *Bronnen Leidsche textielnijverheid* (see note 15), 1, p. 150, no. 132:ii.16 (1441); p. 156, no. 130:iii:28 (1442); p. 191, no. 166:ii:13 (1445 to 1451); p. 195, no. 166:ii:25 (1448); pp. 300–1, no. 263 (1453–72); pp. 508–509, no. 440 (1472–1541): Fine March or Fine Cotswolds only for its best quality *puiklakenen*; or at least (minimum quality) Lincolnshire wools: High Lindsey, Kesteven, or Holland, for all other sealed woollens; furthermore, a Leiden drapery *keure* forbade the importation of Scottish, Irish, Flemish, or any other wools not purchased from the English wool staple at Calais. See *ibid.*, p. 74, no. 74 (*keure* of 1423, repeated in 1434, etc. in: *ibid.*, p. 132, no. 115). For Brussels, see Stadsarchief Brussel, *Het Wit Correctieboek* no. XVI, fo. 193<sup>r</sup>: the finest March wools (Herefordshire and Shropshire), or the best Cotswolds, or at the least the best Lincolnshire Lindsey wools, for its quality sealed woollens (*lakenen van de drie staten, scaerlakenen*). But as noted in n. 70 below, Brussels did establish an entirely separate and segregated *nieuwe draperie* to produce *bellaerts*, which did permit the use of Spanish, Flemish, and other non-English wools. See MUNRO, *Wool-Price Schedules* (see note 52), pp. 118–169.

regulations), from at least the mid-14<sup>th</sup> century and then reiterated up until 1534, stated that: ›no one shall be permitted to make or prepare any Bruges's cloths other than with English wools, except for *smalle lakene*‹<sup>67</sup>. The Ghent drapery *keure* of February 1462 was more explicit in its permissiveness for such cheap cloths: while requiring each draper ›to swear on his oath that his cloths do not contain any wools other than English wools‹, it reiterated, as the one permissible exception, the ›ordinance concerning the *smalle lakenen*, which one may make from *plootwulle*, *lamwulle ende schuerlinc*‹ (waste wools, lamb's wool, wools from dead/diseased sheep)<sup>68</sup>.

Do we find such textiles on the export markets; or were they produced almost entirely for local, domestic consumption? Because their production was unregulated, they were not sealed. For after all, the purpose of the cloth seals was to indicate that these cloths had met the specified industrial standards in weaving, fulling, dyeing, and shearing, and had thus passed the official civic inspections for quality controls, to satisfy in particular foreign consumers<sup>69</sup>. Much evidence indicates that Hanseatic, Italian, and other foreign merchants were reluctant to buy *unsealed* woollens (as distinct from says and other worsted products) for the export markets; and the evidence for Flemish cloth prices on those foreign markets (certainly for the *drie steden* of Bruges, Ypres, and Ghent) does not indicate significant sales of such ›small‹ and cheap woollens. But we have no reason to doubt that some considerable volumes of these ›small‹ cheap woollens were sold within the Low Countries themselves, or at least within the local town markets.

In 15<sup>th</sup>-century Brabant, two of the formerly prominent urban draperies producing for export markets did establish a subsidiary *nieuwe draperie* using French, Scottish, and domestic wools: those of Leuven (1415) and Brussels (1443), the latter employing Spanish wools. Evidently these ›new draperies‹ produced for the domestic and regional markets; for they were kept completely segregated from the traditional draperies that still used English wools exclusively<sup>70</sup>. For Leuven (Table

67 Reconfirmation of a 14<sup>th</sup>-century Bruges drapery *keuren*, in 1408: *niemene en gheoorloft eenigher Bruchsche lakene te reedene danne van Ynghelscher wullen, ute ghedaen smalle lakene*. Text in: Collection des *keuren* ou statuts de tous les métiers de Bruges (see note 46), p. 42. See also the trial of a Bruges dyer-drapeer in November 1533, for using Flemish and Rhenish wools, *contrarie t'inhouden vanden drientseventich [73<sup>rd</sup>] article vanden keure vanden voors. ambochte dat expresslic verbiet ende interdiceert eeinghe Brugsche lakene te reedene dan van Inghelsche wulle, uutghedaen smalle lakenen*. Rijksarchief West-Vlaanderen te Brugge, Charters Blauwenummers, no. 8321; also no. 8322 (for a similar case in January 1534).

68 BOONE, *Nieuwe teksten over de Gentse draperie* (see note 46), doc. no. 3, p. 42; Stadsarchief Gent, Reeks 93, Reg. KK: article XII.

69 See Walter ENDREI, Geoffrey EGAN, *The Sealing of Cloth in Europe, With Special Reference to the English Evidence*, in: *Textile History* 13 (1982), pp. 47–76.

70 Stadsarchief Brussel, no. XVI, fo. 183<sup>r</sup>; Felicien FAVRESSE, *Note et documents sur l'apparition de la ›nouvelle draperie‹ à Bruxelles, 1441–1443*, in: *Bulletin de la*

10), we possess two distinctly different sets of textile prices for these two different draperies; and such textile prices, therefore, serve as useful indicators for the purchasing power ranges in the domestic markets compared with the export markets<sup>71</sup>.

### **Comparisons of Textile Prices with other Commodity Prices and Wages**

Nevertheless, all of these accumulated textile-price data would still be of rather limited significance if we did not possess other comparable price data, including labour in the form of daily wages. Fortunately, our project's data collection now also includes the daily wages for a wide range of craftsmen, labourers, and agricultural workers in England and the southern Low Countries, urban and rural, for the 14<sup>th</sup>, 15<sup>th</sup>, and early 16<sup>th</sup> centuries. That permits us in particular to calculate, as demonstrated in Tables 6–11, as noted earlier, the number of days' wages required, by such craftsmen, to purchase one or each of these textiles in the later-medieval and early modern eras. Furthermore, a vast range of commodity prices for southern England, Flanders, and Brabant, are now available: sufficient to permit the creation of broadly-based consumer – or ›basket-of-consumables‹ – price-indexes for these three regions. The most famous and widely used is, of course, that for southern England: the Phelps Brown and Hopkins price-index, which extends from 1264 to 1954, with those for the medieval era based upon the budgets of the Savernak household in Dorset for 1453–60 (80 percent for foodstuffs, 7.5 percent for fuel and light, 12.5 percent for clothing)<sup>72</sup>. Subsequently, Prof. Herman Van der Wee used the Phelps Brown & Hopkins model to construct a similar consumer price index for Brabant (Antwerp-Lier region) for the three centuries from 1400 to 1700<sup>73</sup>. I then used both models to construct a similar price index for Flan-

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Commission Royale d'Histoire 112 (1947), pp. 143–167; IDEM, *Les débuts de la nouvelle draperie bruxelloise, appelée aussi draperie légère*, in: *Revue belge de philologie et d'histoire* 28 (1950), repr. in: IDEM, *Etudes sur les métiers bruxellois au moyen âge*, Brussels 1961, pp. 59–74. For Leuven, see *Stadsarchief Leuven*, no. 1524, fos. 287<sup>r</sup>-9<sup>v</sup>; and Raymond VAN UYTVEN, *Stadsfinanciën en Stadseconomie te Leuven van de XIIe tot he einde der XVIe eeuw (Verhandelingen van de koninklijke Vlaamse academie voor wetenschappen, letteren en schone kunsten van België, klasse der letteren, 23)*, Brussels 1961, pp. 361–369.

71 *Stadsarchief Leuven, Stadsrekeningen 1435–1500*, nos. 5058–5125.

72 Henry PHELPS BROWN, Sheila V. HOPKINS, *Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates*, in: *Economica* 23:92 (1956), pp. 1–11; repr. in: IDEM, *A Perspective of Wages and Prices*, London 1981, pp. 13–59. See n. 78 below.

73 Herman VAN DER WEE, *Prijzen en lonen als ontwikkelingsvariabelen. Een vergelijkend onderzoek tussen Engeland en de zuidelijke Nederlanden, 1400–1700*, in: *Album aangeboden aan Charles Verlinden ter gelegenheid van zijn dertig jaar professoraat*, Wetteren 1975, pp. 413–447; repr. in English translation, but without the detailed annual tables, as: *Prices and Wages as Development Variables. A Comparison between*

ders (Bruges-Ghent region) from 1350 to 1500; but my index contained fewer commodities than the Van der Wee index; and my data sources did not permit me to construct a complete index beyond those two dates<sup>74</sup>. Nevertheless for the later Middle Ages – from the Black Death for England and Flanders, and for the entire 15<sup>th</sup> and 16<sup>th</sup> centuries as well for Brabant – we can readily compare the trends in textile prices with these price indices, as composite indices, as demonstrated in Tables 4, 5 8, and 11.

### **Prices and Changing Monetary Values: Coinage Debasements and Secular Price Trends**

Furthermore, in examining the trends in these three sets of price indices, we are much better able to understand much if not all of the nature of their fluctuations by the exact data that we now possess on the coinages and monetary systems of England, Flanders, and Brabant, with virtually complete mint indentures and mint-outputs for all three regions. The late-medieval English monetary system was characterized by remarkable stability, for the late-medieval era, with very few coinage debasements, more in the nature of defensive adjustments, about every half century: in 1351, 1411, 1464–5, 1526, and 1542–52 (the atypically aggressive ›Great Debasement‹ undertaken by Henry VIII, and continued after his death in 1547). The Flemish monetary system was subjected to a considerably greater degree of instability with far many more debasements, both defensive and aggressive – i.e., profit-seeking, though never on the scale of those that devastated late-medieval France (for which we also possess exact monetary and coinage data, though not complete mint accounts)<sup>75</sup>. The monetary history of the imperial duchy of Brabant lay in between these two, though with periodic instability that matched the French<sup>76</sup>. Fortunately for our purposes, however, the Brabantine monetary system,

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England and the Southern Netherlands, 1400–1700, in: *Acta Historiae Neerlandicae* 10 (1978), pp. 58–78, republ. in: Herman VAN DER WEE, *The Low countries in the Early Modern World*, trans. Lizabeth FACKELMAN, Cambridge, New York 1993, pp. 223–241. See also n. 78 below.

74 John MUNRO, *Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries*, in: *Münzprägung, Geldumlauf und Wechselkurse/ Minting, Monetary Circulation and Exchange Rates* (Trierer Historische Forschungen, 7: Akten des 8<sup>th</sup> International Economic History Congress, Section C-7, Budapest 1982), ed. Eddy VAN CAUWENBERGHE, Franz IRSIGLER, Trier 1984, pp. 31–122 (price-index tables in 5-year means only). See n. 78 below.

75 See Adrien BLANCHET, Adolphe DIEUDONNE, *Manuel de numismatique française*, 1–2, Paris 1916; Jean LAFaurie, *Les Monnaies des rois de France*, 1–2, Paris 1951–56, 1, Paris 1951; Raymond CAZELLES, *Quelques réflexions à propos des mutations de la monnaie royale française, 1295–1360*, in: *Le Moyen Age* 72 (1966), pp. 83–105, 251–278.

76 See John MUNRO, *Monnayage, monnaies de compte, et mutations monétaires au Brabant à la fin du moyen âge*, in: *Etudes d'histoire monétaire, XIIIe-XIXe siècles* (Etudes de

along with the Dutch, was absorbed and amalgamated with the Flemish, as part of the great Burgundian monetary reform of 1433–35: and the Brabantine money-of-account was henceforth fixed and frozen at a ratio 1.5:1 Flemish (i.e., £1 10s 0d Brabant = £1 0s 0d *groot* Flemish)<sup>77</sup>. Since, furthermore, the economy of the southern Low Countries had become quite highly integrated by 1500, we are thus permitted – *faute de mieux* – to use an adjusted Van der Wee Brabant price-index as a reasonable proxy for a Flemish price-index during the 16<sup>th</sup> century.

The price-indices for Flanders (1350–1500) and Brabant (1400–1700 – but here, to 1570) have one other significant advantage over the Phelps Brown and Hopkins price-index for England: the fact they can both be presented in the silver-based money-of-account values of the physical baskets of consumer commodities – of grains, drink, fish, livestock products, textiles (woollens, linens, canvas), fuels, candles, etc. – while the Phelps Brown and Hopkins index exists only in the form of disembodied index numbers: i.e., without any specific money values. Thus, with the Flemish and Brabantine indices, we can show how exactly many physical units of each of these two commodity baskets a Ghent *dickedinnen* or other Flemish, Brabantine, or Dutch textile was worth each year, from 1350 to 1550, as well as demonstrating how many days' wages a master mason or carpenter or a Bruges policeman would have needed to buy both the textile and the units of these commodity baskets, in Flanders and Brabant<sup>78</sup>.

### Changing Gold: Silver Mint Ratios

At the same time, the aforementioned monetary and coinage data would also permit us, if we so chose, to convert the textile prices into their precious metal equivalents: i.e., to express them in grams of silver and/or gold. But this technique, commonly employed by other economic historians, has a very dubious utility, in failing to account for two salient facts: (1) that textiles, like all other commodities, were priced in terms of silver- (or gold-) based moneys-of-account, usually based on the current local coinage, and were sold or exchanged in terms of currencies, not in bullion and thus not in terms of quantities of precious metals;

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l'Université de Paris VII et du Centre National des Lettres), ed. John DAY, Lille 1984, pp. 263–294; repr. in: MUNRO, *Bullion Flows and Monetary Policies* (see note 7).

77 See the previous note; and the various studies published in: MUNRO, *Bullion Flows and Monetary Policies* (see note 7); *A New History of the Royal Mint*, ed. Christopher CHALLIS, Cambridge 1992; VAN DER WEE, *The Growth of the Antwerp Market* (see note 51), 1: Statistics; 2: Interpretation, pp. 32–125; Louis DESCHAMPS DE PAS, *Essai sur l'histoire monétaire des comtes de Flandre de la maison d'Autriche et classement de leurs monnaies, 1482–1556*, Paris 1874. See also note 74.

78 For my own reconstructions and use of the Phelps-Brown (English), Van der Wee (Brabantine), and my own Flemish price indexes, see MUNRO, *Wage-Stickiness* (see note 51), pp. 185–297, especially Table 1, p. 231; and IDEM, *Builders' Wages* (see note 51), pp. 1013–1076, esp. Table 1, pp. 1048–1050.

and (2) that the values or purchasing powers of both gold and silver changed considerably over the later medieval and early modern eras, as did the ratios between the two metals. As for the latter, the gold: silver ratio rose, on average, in western Europe, from about 12:1 in the 1260s to over 14:1 in the 1320s, and then plummeted to almost 9:1 in the 1350s, rising to over 10:1 by 1400, rising further to about 12:1 by the mid to later 15<sup>th</sup> century; and thereafter, with the vast influxes of silver, first from Central Europe, and then from the Americas, to almost 16:1 by the 17<sup>th</sup> century<sup>79</sup>.

### Secular Price Trends: Inflations and Deflations, 1300–1600

Changes in monetary stocks and flows, as well as changes in the composition of particular national coinages, thus force us to seek deeper explanations for the major trends in secular prices in the period from 1300 to 1600: severe inflation at the beginning of the 14<sup>th</sup> century (commencing in the later 13<sup>th</sup> century); sudden and severe deflation from the 1320s to the eve of the Black Death; a very severe post-Black Death inflation, in almost all of western Europe, extending into the later 14<sup>th</sup> century (to the mid-1370s in England, to the late 1380s in the Low Countries), followed by a stark deflation into the early 15<sup>th</sup> century, which was thereafter punctuated by periodic, war-induced inflations, during the final phases of the Hundred Years' War; and then prolonged deflation, from the 1440s, until more war-induced supply shocks took place in the late 1480s and early 1490s, followed by more deflation, until the onset of the very prolonged 16<sup>th</sup>-century Price Revolution, commencing about 1520<sup>80</sup>. Thus, any conversion of textile

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79 See Peter SPUFFORD, *Money and Its Use in Medieval Europe*, Cambridge 1988, Tables 4–7, pp. 291, 295, 322, 354; and John MUNRO, *The Monetary Origins of the 'Price Revolution': South German Silver Mining, Merchant-Banking, and Venetian Commerce, 1470–1540*, in: *Global Connections and Monetary History, 1470–1800*, ed. Dennis FLYNN, Arturo GIRÁLDEZ, Richard VON GLAHN, Aldershot, Brookfield/Vt. 2003, pp. 1–34; Earl Jefferson HAMILTON, *American Treasure and the Price Revolution in Spain, 1501–1650*, Cambridge/Mass. 1934; repr. 1965 (*Harvard economic studies*, 43), Table 4, p. 71; Table 8, p. 123: indicating that the official ratios of the gold and silver coined *marcs* were: 10.11 in 1497–1536; 10.61 in 1537–65; 12.12 in 1566–1608; 13.33 in 1609–42; and 15.45 in 1643–50. For other European bimetallic ratios after 1500, see Frank SPOONER, *The International Economy and Monetary Movements in France, 1493–1725*, Cambridge/Mass. 1972, pp. 20–33, esp. Table 1, p. 21. Kirti N. CHAUDHURI, *Treasure and Trade Balances. The East India Company's Export Trade, 1660–1720*, in: *Economic History Review*, 2<sup>nd</sup> ser. 21 (1968), Table 1, pp. 497–499, which indicates, for 1661–5, a bimetallic ratio of 15.08:1 in London and 16.16:1 in India; and also IDEM, *Circuits monétaires internationaux, prix comparés et spécialisation économique, 1500–1750*, in: *Etudes d'histoire monétaire, XII<sup>e</sup>-XIX<sup>e</sup> siècles*, ed. John DAY, Lille 1984, pp. 49–68.

80 See MUNRO, *Patterns of Trade, Money and Credit* (see note 1), pp. 146–195; and the various studies in: IDEM, *Bullion Flows and Monetary Policies* (see note 7); IDEM, *The*

prices into gold and silver equivalents must be used with extreme caution in comparing such converted prices with these secular price trends, in the light of our current knowledge about both coinage debasements and these deeper monetary oscillations.

A much better and more useful expression of textile prices may be obtained by converting them into Florentine gold florins, the veritable dollar or euro of the later Middle Ages. In the first place, even when textiles were priced in terms of silver-based moneys-of-account – such as the English pound sterling, the Flemish pound *groot*, or the French *livre tournois* – they were frequently sold for gold coins; and many of the Ghent accounts, especially for the 14<sup>th</sup> century, give the prices in terms of gold coins as well as in the standard silver-based money of account (i.e., pounds *groot* Flemish). In the second place, many late-medieval Italian merchant firms recorded a wide-ranging series of textile prices in Florentine florins: a price series that readily permits a comparison of Flemish, Brabantine, Dutch, and English textile prices in silver-based moneys-of-account (i.e., pound *groot* and *sterling*) with these prices<sup>81</sup>. That task must, however, await a future publication (except for the presentation, in Table 8, of English cloth prices in Florentine florins).

### **Cloth Prices and Secular Price Trends: Late-Medieval English Fiscal Policies, Burgundian Monetary Policies, the Wool Trade, and Flemish Industrial Crises, 1340–1500**

These general analyses of monetary factors and longer-term price trends will facilitate a better understanding of changes in cloth production costs, textile prices, and the industrial fortunes of the Low Countries' draperies, and thus of Hanseatic commerce in their woollens, from the mid-14<sup>th</sup> to early 16<sup>th</sup> centuries, in four key respects.

First, as already noted, the steep rise in the taxation and thus the cost of English wools in the second half of the 14<sup>th</sup> century, which became especially burdensome by the 1390s (see above, pp. 110), led to a corresponding rise in the real price of Flemish textiles, a price rise that also reflected the reorientation towards greater luxury quality. Thus such textile prices did diverge from the more general deflationary trends of the later 14<sup>th</sup> and early 15<sup>th</sup> centuries, as indicated by the columns in Tables 4–10 for the Flemish and Brabantine price-indices, from the 1380s (for Brabant, only from 1400).

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Monetary Origins (see note 79), pp. 1–34; and especially IDEM, *Wage-Stickiness* (see note 51), pp. 1013–1076.

81 Thanks to Peter SPUFFORD, *Handbook of Medieval Exchange* (Royal Historical Society), London 1986, an invaluable source for medievalists, the textile prices in all the accounts used for this essay can readily be converted into Florentine florins, even when not given in the original sources.

Second, however, a contributory factor that exacerbated the Flemish deflation in particular was the very stark monetary reform that Duke Philip the Bold of Burgundy undertook in 1389–90, a reform that also altered the mint ratio much more strongly in favour of silver, from 10.41:1 to 9.68:1, and thus correspondingly raised the relative purchasing power of silver: as reflected in the exchange rate on the Flemish gold *noble*, which fell from 8s 6d *groot*, i.e., 102 silver pence, to 6s 0d *groot* (72d)<sup>82</sup>. In so far as Flemish drapers had to purchase English wools at Calais in gold, they derived at least a short-term benefit from this alteration in the mint ratio – and also from the use of Flemish counterfeits of English gold noble coins that Duke Philip struck for their benefit; and that change can be detected in the sharp fall in Ghent cloth prices after 1386 to 1390 (Table 4)<sup>83</sup>.

Perhaps those measures assisted the Flemish (and Brabantine) cloth industries in recovering from the even greater disasters of the Second Artevelde or Ghent Revolt of 1379–85, and the ensuing Hanseatic embargo of Bruges in 1388–92 (see above, pp. 98)<sup>84</sup>. Indeed, as the assiduous researches of Hektor Ammann on the late-medieval German cloth markets have demonstrated, the Flemish and Brabantine draperies made a remarkable comeback to regain first and second place, respectively in Hanseatic markets during the early 15<sup>th</sup> century, followed by the Dutch, with the English a distant fourth<sup>85</sup>. His survey has found some support in a more recent publication of Simone Abraham-Thisse, though one focussing on more regional studies for shorter periods, which *inter alia* indicate a broader range of textile sales, including some cheaper Flemish and Brabantine textiles<sup>86</sup>. Reinforcing Ammann's view are the production indices displayed in Table 2, which show that the Flemish and Brabantine cloth industries maintained relative prosperity until the very late 1420s, when yet another and this time much more fateful disaster struck them.

The source of that disaster was once more another set of ill-advised English fiscal policies: the notorious and nefarious Calais Staple Bullion and Partition Or-

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82 See John MUNRO, Mint Policies, Ratios, and Outputs in the Low Countries and England, 1335–1420. Some Reflections on New Data, in: Numismatic Chronicle 141 (1981) [formerly listed as: 8th series, 1], pp. 71–116, esp. pp. 85–86; repr. in: IDEM, Bullion Flows and Monetary Policies (see note 7); IDEM, Wool, Cloth, and Gold. The Struggle for Bullion in Anglo-Burgundian Trade, 1340–1478, Brussels, Toronto 1973, pp. 43–92.

83 See IDEM, Wool, Cloth, and Gold (see note 82), pp. 43–63; IDEM, Mint Policies, Ratios, and Outputs (see note 82), repr. in: IDEM, Bullion Flows and Monetary Policies (see note 7); IDEM, A Maze of Medieval Monetary Metrology. Determining Mint Weights in Flanders, France and England from the Economics of Counterfeiting, 1388–1469, in: The Journal of European Economic History 29 (2000), pp. 173–199.

84 See sources cited in nn. 1–2; Richard VAUGHAN, Philip the Bold. The Formation of the Burgundian State, London 1962, pp. 16–38, 113–150, 168–187; DOLLINGER (see note 3), pp. 72–78; NICHOLAS, Medieval Flanders (see note 6), pp. 227–231, 302–303.

85 AMMANN (see note 14), pp. 1–63; see also other sources cited in n. 14.

86 ABRAHAM-THISSE (see note 14), pp. 167–206.

dinances of 1429 (amended in 1433). Reacting against the very negative impact of Burgundian coinage debasements on English mint outputs, and desperately seeking a greater cash flow to pay the military garrison at Calais, the crown had Parliament enact the following provisions for the Calais Wool Staple. First, that credit would no longer be permitted in any wool sales, so that all wools had to be sold only for ›ready money‹, with full payment on delivery. Second, that one third of this full payment had to be made in gold bullion, to be minted at Calais, and the rest in English gold nobles. Third, that wool prices were to be sharply increased; and fourth, that sales receipts were to be partitioned amongst the merchant Staplers according to their wool stocks at the Staple, rather than their actual sales, thus benefiting the richest and most powerful Staplers, who were pledged or bribed into enforcing these onerous laws<sup>87</sup>.

After protracted negotiations had proved fruitless, Duke Philip the Good of Burgundy, now ruler of most of the Low Countries, retaliated by imposing a complete ban on the importation of English cloth into his realms (and not just Flanders): from 1434 to 1439 (during which time, from 1436 to 1439 England and Burgundy were also at war). When subsequent negotiations, after the 1439 Anglo-Burgundian Peace Treaty, also failed to convince the English to revoke these Calais Bullion Laws, Duke Philip imposed two more complete bans on the English cloth trade: in 1447–52, and 1464–67. Not until 1473 did the English Parliament finally agree to revoke these injurious ordinances (and only after the next duke of Burgundy helped Edward IV regain the English crown)<sup>88</sup>.

It was indeed these Calais Ordinances that finally forced a number of the *nouvelles draperies* to switch to, or to adopt, the use of the now improving Spanish *merino* wools. Not all were so successful in doing so, however; and some of the older more traditional *nouvelles draperies*, Wervik in particular were reluctant to

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87 See sources cited in n. 1–2; and MUNRO, *Wool, Cloth and Gold* (see note 82), pp. 65 to 126; IDEM, *Bullion Flows and Monetary Policies* (see note 7); IDEM, *Textiles, Towns, and Trade* (see note 1); Terence LLOYD, *The English Wool Trade in the Middle Ages*, Cambridge 1977, pp. 257–287.

88 For the three cloth-trade bans and the final revocation of the Calais Bullion laws, see MUNRO, *Wool, Cloth, and Gold* (see note 82), pp. 93–179; and other sources cited in nn. 1–2, and 88. For the 1473 ordinance, see *Rotuli Parliamentorum ut et petitiones et placita in Parlamento*, 1–6, London 1767–77, 6, no. 59, p. 60 (1472–73, 12 & 13 Ed. IV), now available online, with the page numbers indicated: as Eighteenth Century Collections Online. Gale Group: <http://galenet.galegroup.com/servlet/ECCO>. Gale Document Number: CW3325589105 (taken from the Harvard University Law Library). By the subsequent Anglo-Burgundian Treaty of July 1478, the English made a *pro forma* promise to renounce forever these Calais payment regulations. For this treaty, see *Foedera, conventiones, literae, et acta publica*, 1–12, ed. Thomas RYMER, 2<sup>nd</sup> edition London 1709–12, 12, pp. 74–78; and also MUNRO, *Wool Cloth, and Gold* (see note 82), pp. 171–178.

do so, before the last stage of the Calais Bullion Laws, in the 1460s<sup>89</sup>. Because the traditional draperies of the Flemish *drie steden* and other major drapery towns of the southern Low Countries were even more loath to switch to Spanish wools, lest they compromise their reputation for ultra-luxurious woollens, these long-enduring Calais Staple Bullion Ordinances had disastrous consequences for almost all of them, certainly by the 1470s.

The typical entrepreneur in these draperies was a small and capital-poor weaver-draper, who faced a sudden and sharp increase in his costs, along with great difficulties in borrowing sufficient sums of ready cash to acquire the wools. These Flemish and Brabantine drapers were forced to raise their cloth prices, just when commodity prices began to fall, and very steeply from the late 1430s to the early 1470s, as can be seen in Tables 4–10. Note in particular how this rise in Flemish and Brabantine cloth prices diverged from the more general deflationary trends that affected or afflicted the economy of north-west Europe, especially in the mid-15<sup>th</sup> century – which for some historians represents the true nadir of the late-medieval ›Great Depression‹<sup>90</sup>. Together and collectively, Tables 1 to 10 also depict the dreadful outcome for the draperies of the southern Low Countries: a catastrophic fall in their production indices, and then, especially from the 1460s, the inexorable expansion in English cloth exports, which, by the beginning of the century had effectively vanquished the luxury woollen industries in Flanders and Brabant – except for those *nouvelles draperies* that had successfully adopted Spanish wools – usually a mix of Spanish and English wools.

The English, and their Calais Staple Bullion Laws, were not, however, entirely responsible for the worsening plight of the urban draperies in the southern Low Countries. We may again cite the general macro-economic forces of true economic depression (combined with further population decline and warfare) in the mid-century<sup>91</sup>. Equally or even more devastating were the actions of the Hanseatic League itself: yet another embargo of the Bruges *kontor*, over Hanse trading

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89 See MUNRO, Spanish *Merino* Wools (see note 53), pp. 431–484; IDEM, Symbiosis of Towns (see note 1), pp. 58–66; IDEM, Anglo-Flemish Competition (see note 1), pp. 37–60; IDEM, Wool, Cloth, and Gold (see note 82), pp. 93–185. See also Peter STABEL, *De kleine stad in Vlaanderen, 14de-16de eeuwen* (Verhandelingen van de Koninklijke Academie voor Wetenschappen, Letteren en Schone Kunsten van België, Klasse der Letteren Jaargang 57), Brussels 1995; IDEM, *Dwarfs among Giants. The Flemish Urban Network in the Late Middle Ages* (Studies in Urban Social, Economic and Political History of the Medieval and Modern Low Countries, 8), Leuven, Apeldoorn 1997.

90 For important recent studies, see HATCHER, *The Great Slump* (see note 9), pp. 237–272; NIGHTINGALE, *England and the European Depression* (see note 9), pp. 631–656. See also MUNRO, *Textiles, Towns, and Trade* (see note 1); and IDEM, *Bullion Flows and Monetary Policies* (see note 7).

91 See the publications by MUNRO in nn. 1–2; and by HATCHER and NIGHTINGALE in n. 9 above.

privileges, which lasted, along with from 1451 to 1457<sup>92</sup>. That directly benefited the Dutch; and in particular the Leiden drapery, which was thus able to expand its Baltic cloth sales even more. The English, as already noted, had already been virtually excluded from the Baltic trades; but, as Table 1 clearly indicates, they also did not benefit from increased cloth exports to Antwerp, despite the termination of the second Burgundian cloth-trade ban in 1452.

That leads us to consider two partial exceptions to the plight of the traditional urban draperies in the Low Countries. The first and most important was obviously Leiden's woollen-cloth industry, which managed to thrive until the 1520s (see Table 3). For it also enjoyed the very significant advantage of support from the Dutch mercantile marine, which, at this very moment, had virtually vanquished the Wendish Hanse in gaining control of Baltic markets, while gaining support or acquiescence from the Prussian and Livonian Leagues. It also succeeded in producing very good quality *voirwollen* cloths at somewhat lower prices than those of the major Flemish and Brabantine drapery towns, evidently by using the second-rank Calais Staple wools (Tables 3 and 15)<sup>93</sup>.

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92 During this embargo, the Hanseatic League moved its *kontor* to Utrecht – until 1455, when Duke Philip the Good of Burgundy seized the Dutch town. See DOLLINGER (see note 3), pp. 298–302; HAMMEL-KIESOW (see note 3), pp. 100–102; JENKS, England, die Hanse und Preußen (see note 6), 2, pp. 655–696; John D. FUDGE, *Cargoes, Embargoes, and Emissaries. The Commercial and Political Interaction of England and the German Hanse, 1450–1510*, Toronto 1995, pp. 18–50; Dieter SEIFERT, *Kompagnons und Konkurrenten. Holland und die Hanse im späten Mittelalter (Quellen und Darstellungen zur hansischen Geschichte, NF 43)*, Cologne 1997. See also the following note.

93 Hanno BRAND, *Crisis, beleid en differentiatie in de laat-middeleeuwse Leidse lakkennijverheid*, in: *Stof uit het Leidse verleden. Zeven eeuwen textielnijverheid*, ed. Jaap K. S. MOES, Boudien M. A. DE VRIES, Leiden 1991, pp. 52–65, 201–205 (notes); BRAND, *Urban Policy or Personal Government: The Involvement of the Urban Elite in the Economy of Leiden at the End of the Middle Ages*, in: *Economic Policy in Europe Since the Late Middle Ages. The Visible Hand and the Fortune of Cities*, ed. Herman DIEDERIKS, Paul HOHENBERG, Michael WAGENAAR, Leicester, New York 1992, pp. 17–34; BRAND, *A Medieval Industry in Decline. The Leiden Drapery in the First Half of the 16th Century*, in: *La draperie ancienne des Pays Bas* (see note 14), pp. 121–149; POSTHUMUS, *Geschiedenis van de Leidsche lakenindustrie* (see note 4); Bronnen tot de geschiedenis van de leidsche textielnijverheid (see note 15), 1 and 2; Taeke Sjoerd JANSMA, *L'industrie lainière des Pays Bas du Nord et spécialement celle de Hollande, du XIVE au XVIIe siècles*, in: *Produzione, commercio et consumo dei panno di lana*, ed. Marco SPALLANZANI, Florence 1976, pp. 51–56; Marian MALOWIST, *L'expansion économique des Hollandais dans le bassin de la Baltique aux XIVE et XVe siècles*, in: *Studia z dziejów rzemiosła w okresie kryzysu feudalizmu w Europie Zachodniej w XIV i XV wieku*, Warsaw 1954, republished in: *IDEM, Croissance et regression en Europe, XIV<sup>e</sup>-XVII<sup>e</sup> siècles*, Paris 1972, pp. 91–138; Wim BLOCKMANS, *The Economic Expansion of Holland and Zeeland in the 14th–16th Centuries*, in: *Studia Historica Oeconomica. Liber Amicorum Herman Van der Wee*, ed. Erik AERTS, Brigitte HENAU, Paul JANSSENS,

The other was the Brabantine drapery of Mechelen, which, like the other traditional draperies in the other Brabantine towns (Brussels and Leuven) and in the Flemish *drie steden*, had similarly suffered a very sharp decline from the impact of the Calais Staple Bullion Ordinances and the consequent sharp rise in the real cost of acquiring English wools (Tables 1–2, 14–5). From the 1460s, however, the Mechelen drapery was able to stage a powerful recovery, peaking by the end of the century, quite unlike its fellow draperies in the southern Netherlands. Evidently it did so on the basis of rapid commercial expansion along the revived transcontinental, overland trade routes, linking South Germany with both Venice and the Italian markets in the south and the Brabant Fairs in the north, an expansion that had received its strongest impetus from the contemporary Central European silver-copper mining boom, one dominated by the Fuggers and other South German merchant-banking firms. Focussing chiefly on more luxurious and thus more expensive woollens than the Leiden drapery, Mechelen proved to be aggressively successful in gaining German, Central, and eastern European markets, both via the Antwerp market and via the agency of Rhenish and South German cloth merchants who were also trading at the now burgeoning Frankfurt Fairs, a major link in the transcontinental routes<sup>94</sup>. As Mertens has recently demonstrated, Mechelen's cloth production more than doubled from an historic low in the 1450s to peak in the 1490s, almost, but not quite, regaining the level of output that it had enjoyed in the late 1420s, just before the Calais bullion laws were imposed. From about 1500, however, Mechelen's cloth production resumed its steep decline, and after 1530 the textiles of Mechelen disappeared altogether from the markets in central and eastern Europe, though some fine Mechelen woollens were still to be found on the Antwerp market in the 1570s<sup>95</sup>.

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Raymond VAN UYTVEN, Leuven 1993, pp. 41–58; Taeke Sjoerd JANSMA, Philippe le Bon et la guerre hollando-wende, 1438–1441, in: *Revue du Nord* 42 (1960), pp. 5–18; SEIFERT (see note 92); Jan DE VRIES, Ad VAN DER WOUDE, *Nederland 1500–1815. De eerste ronde van moderne economische groei*, Amsterdam 1995; republished in English translation as *The First Modern Economy. Growth, Decline, and Perseverance of the Dutch Economy, 1500–1815*, Cambridge 1996, pp. 235–362; MUNRO, *Patterns of Trade, Money, and Credit* (see note 1), pp. 160–168, 176–181; IDEM, *Medieval Woollens: The Western European Woollen Industries* (see note 4), pp. 228–324.

94 See MUNRO, *Export Trade in Textiles* (see note 2), pp. 18–30; IDEM, *Patterns of Trade, Money, and Credit* (see note 1), pp. 165–170; VAN DER WEE, *The Growth of the Antwerp Market* (see note 51), 2, pp. 32–120.

95 Wenceslaus MERTENS, *Changes in the Production and Export of Mechelen Cloth, 1330 to 1530*, in: *Textiles of the Low Countries in European Economic History*, ed. Erik AERTS, John MUNRO, Leuven 1990, pp. 114–123; Wenceslaus MERTENS, *Toenemende economische welvaart*, in: *De geschiedenis van Mechelen. Van heerlijkheid tot stadsgewest*, ed. Raymond VAN UYTVEN, Lannoo 1991, pp. 83–93; Raymond VAN UYTVEN, *La draperie brabançonne et malinoise du XIIe au XVIIe siècle: Grandeur éphémère et décadence*, in: *Produzione, commercio et consumo dei panno di lana*, ed. Marco SPALLANZANI, Florence 1976, pp. 85–97; Alfons THUIS, *Les textiles au*

Fourth, this South German-Central European silver mining boom, which proved to be such a powerful force in promoting the very rapid growth of the Brabant Fairs (Antwerp and Bergen op Zoom) and the Frankfurt Fairs, had two other momentous consequences for European commerce in textiles and more generally for the European economy as a whole. For, it proved to be decisively instrumental in propelling an eighty-year momentous boom in the English cloth-export trade, almost entirely based on the Antwerp market: a 3.7-fold growth in cloth exports from a quinquennial mean of 29,000.6 broadcloths in 1461–65 to one of 135,189.5 broadcloths in 1546–50. That constituted a veritable rising tide of exports to which even the Mechelen and Leiden draperies eventually succumbed (see Tables 1–3).

The actual catalyst sparking this cloth-export boom may have been the unintended consequences of both English and Burgundian monetary policies, in competitive debasements between 1464 and 1467. The first, the English debasement of 1464, produced a 20 percent depreciation in sterling, thus cheapening the sales prices, in English pounds sterling, of English woollens on the Antwerp market; the latter, the Burgundian response, in 1466–67, produced a sharp alteration in bi-metallic mint ratios, so strongly favouring silver that it ultimately attracted the major share of Central European silver outputs away from Venice and Danzig to the Antwerp market. Thus South German merchants who brought those increased stocks of silver and copper to the Brabant Fairs found their most desirable and profitable return cargo in the form of English woollens, principally finished in Brabantine and Dutch towns<sup>96</sup>. At the same time, this rapidly growing influx of Central European silver stocks, especially into the Antwerp market, was a major factor in terminating the late-medieval ›bullion famine‹ in north-western Europe, and, in contributing to the monetary expansion that ultimately, by the 1520s, in combination with revolutionary changes in credit, produced that century-long secular rise in prices known as the Price Revolution<sup>97</sup>.

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marché anversois au XVIe siècle, in: *Textiles of the Low Countries in European Economic History*, ed. Erik AERTS, John MUNRO, Leuven 1990, pp. 66–75; Herman VAN DER WEE, Theo PEETERS, Un modèle dynamique de croissance interseculaire du commerce mondiale, XIIe-XVIIIe siècles, in: *Annales: ESC* 15 (1970), pp. 100–128; VAN DER WEE, *The Growth of the Antwerp Market* (see note 51), 2: Interpretation, pp. 32–125. See also the next note.

96 See sources cited in nn. 1–2, 77–79; and also John MUNRO, *The Central European Mining Boom, Mint Outputs, and Prices in the Low Countries and England, 1450–1550*, in: *Money, Coins, and Commerce: Essays in the Monetary History of Asia and Europe (From Antiquity to Modern Times)*, ed. Eddy VAN CAUWENBERGH, Leuven 1991, pp. 119–183; and MUNRO, *The Monetary Origins* (see note 79), pp. 10–34; VAN DER WEE, *Growth of the Antwerp Market* (see note 51), 1: Statistics, pp. 126–128, Table XV; 2: Interpretation, pp. 80–101.

97 See the sources cited in nn. 78–79, 96; and also John MUNRO, *Bullion Flows and Monetary Contraction in Late-Medieval England and the Low Countries*, in: *Precious Metals in the Later Medieval and Early Modern Worlds*, ed. John F. RICHARDS, Durham/North

The price trends, for both textiles and a weighted ›basket of commodities‹, for both England and the Low Countries, can be seen in Tables 4–10. Note, for the Low Countries, the very anomalous rise of prices for textiles and other commodities during the very drastic and thus very inflationary debasements undertaken by Archduke Maximilian and the Flemish towns during the revolt era of the 1480s and early 1490s; but with the end of that conflict, that temporary inflation was followed by a return to a stronger coinage, with a consequent deflation. Thereafter, prices generally did remain low, in both England and the Low Countries, until about 1515–20, when, as noted, the general European 16<sup>th</sup>-century Price Revolution commenced, with a sudden and dramatic upsurge in prices, just when the South German silver-mining boom was at last in full swing<sup>98</sup>. At the same time, demographic forces leading to a renewed growth in population may also have been producing diminishing returns and thus an upward pressure on agricultural prices; for clearly these prices (for both arable and livestock products) were now rising at a much faster rate than were industrial prices, including the prices of Flemish, Brabantine, Dutch, and English textiles. But if that meant that proportionally more consumer income was spent on foodstuffs and less on industrial products, those price phenomena did not bode well for the textile industries of north-west Europe in the 16<sup>th</sup> century – unless they reflected other economic phenomena that increased employment and incomes, especially in the non-industrial sectors of the European economy.

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Carolina 1983, pp. 97–158; repr. in: MUNRO, *Bullion Flows and Monetary Policies* (see note 7); IDEM, *Patterns of Trade, Money, and Credit* (see note 1) pp. 147–157, 165–175; SPUFFORD, *Money and Its Use* (see note 79), pp. 339–377; John DAY, *The Great Bullion Famine of the 15th Century*, in: *Past and Present* 79 (1978), pp. 1–54, repr. with other important essays in monetary history, in: John DAY, *The Medieval Market Economy*, Oxford 1987, pp. 1–54; Pamela NIGHTINGALE, *Monetary Contraction and Mercantile Credit in Later Medieval England*, in: *Economic History Review*, 2<sup>nd</sup> ser. 43 (1990), pp. 560–575; EADEM, *England and the European Depression* (see note 9), pp. 631–656; Herman VAN DER WEE, *Anvers et les innovations de la technique financière aux XVIe et XVIIe siècles*, in: *Annales: E.S.C.* 22 (1967), pp. 1067–1089, republished as *Antwerp and the New Financial Methods of the 16th and 17th Centuries* in: Herman VAN DER WEE, *The Low Countries in the Early Modern World*, Cambridge 1993, pp. 145–166; John MUNRO, *English ›Backwardness‹ and Financial Innovations in Commerce with the Low Countries, 14th to 16th centuries*, in: *Internationale Handel in de Nederlanden (14de-16de eeuw). Kooplieden, Organisatie en Infrastructuur/International Trade in the Low Countries (14th-16th centuries): Merchants, Organisation, and Infrastructure* (Colloque Universiteit Gent – Universiteit Antwerpen, IUAP-Stedelijke Samenlevingen in de Laatmiddeleeuwse Nederlanden), ed. Peter STABEL, Bruno BLONDÉ, Ghent 2000, pp. 105–167.

<sup>98</sup> See sources cited in nn. 79–80, 96–97.

### Conclusion: In Defence of the Flemish and Brabantine Cloth Price Series

Finally, I must offer a defence against the charge or suggestion put forward recently by the eminent Belgian historian Marc Boone that my Ghent cloth prices, specifically ones that I had earlier published, are fallacious, if not fictitious<sup>99</sup>. In the first place, he contended that the Ghent cloth prices were unrepresentative principally because they are only those for the ultra-luxurious woollens purchased for aldermanic magistrates and other senior ›patrician‹ officials in the civic governments. That charge is, however, highly misleading; for, as was demonstrated earlier (see above, pp. 117-118), the cloth-price series from the civic records of Ghent and other major drapery towns in fact contain a very wide range of textiles and textile prices, including those purchased for musicians and other petty officials and servants. My previous publications of a necessarily very selective series of cloth-prices from many towns, subject to severe space limitations, thus did present only the upper range, those for *dickedinnen* woollens, which I nevertheless consider to be quite representative of the cloths sent to the major export markets in the 15<sup>th</sup> century. Certainly the prices given for the finer woollens from Ghent and other drapery towns in the southern Low Countries correspond well to the their prices, in terms of Florentine florins, as recorded in Mediterranean and Polish markets<sup>100</sup>.

Furthermore, as several tables have now demonstrated, the prices given even for this very selective range of Ghent textiles accord very well with the prices for rival luxury woollens from other Flemish and Brabantine textile towns<sup>101</sup>. Indeed, as an even more compelling reply, we have the actual market prices – in several instances, prices on the Antwerp and Bruges markets – for Ghent's *dickedinnen* woollens and for Ypres' broadcloths, along with other textile prices, as recorded in various accounts of several other towns, large and small: Bruges itself, Mechelen (throughout most of the 14<sup>th</sup> century), Aalst, the Franc de Bruges, and Veurne, none of which had any reason to inflate or falsify these textile prices for Ghent's and Ypres' woollens<sup>102</sup>.

Boone's case, however, essentially rests on a conspiracy theory, which, like so many other such theories, has no foundation in recorded facts, even when disguised by an umbrella of other facts. He contends from a prosopographic analysis of 260 cloth merchants identified in the Ghent accounts from 1400 to 1453 that

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99 Marc BOONE, L'industrie textile à Gand au bas moyen âge, ou les resurrections successives d'une activité réputée moribonde, in: La draperie ancienne des Pays Bas (see note 14), pp. 15–61.

100 For textile prices, see above nn. 11–22 above, and the sources for the tables.

101 See the previous note; and Tables 4–7, 9–12 for textiles prices in the southern Low Countries; and table 8, for textile prices in England.

102 Algemeen Rijksarchief (België), Rekenkamer, reg. nos. 31,414–485 (Aalst: 1402 to 1500); nos 34,547–572 (Veurne, 1410–42, with cash purchases only registered thereafter).

just 23 or 10.6 percent of them sold the town governments cloths that amounted in value to 74 percent of the aggregate purchases (thus leaving the other 89.4 percent of the merchants with a 26 percent share). Therefore, he concludes that »la possibilité d'une collusion généralisée est en soi peu suprenante dans une ville et à une époque où les relations informelles, exprimées par les dons, occupaient une place de choix dans la sociabilité«. But he offers no proof that the Ghent government, then composed of an uneasy tripartite alliance among the wealthy mercantile *poorterie*, the small industrial craft guilds (*kleine neringe*), and three drapery guilds (weavers, dyers, and shearers – the fullers were effectively excluded), actually entered into such collusion with these 23 merchant-drapers to cheat the government and the town as a whole by purchasing their textiles at prices above those prevailing in the market. We are simply asked to believe that, in »the climate of the times«, such things were possible, and therefore true. But why, we might ask in posing an alternative scenario of machinations by this civic government, were the cloth prices not set below those prevailing in the current market? In other words, might such drapers acting in collusion with the government have offered to sell their cloths for a lower price in return for certain illicit privileges or rewards? Surely one hypothetical conspiratorial hypothesis is as good as another?

The one scintilla of supposed evidence offered concerns not this period but rather the quasi-revolutionary era of 1487–88, when civic resistance against the German Habsburg ruler, Maximilian (widower of the Burgundian duchess Marie, daughter of the last Burgundian Duke, Charles the Rash) resulted in a radical change in the Ghent civic government. The newly selected *schepenen* decided to avenge themselves on some of their predecessors, those who had been supporters of Maximilian by demanding restitutions of certain cash allowances that were supposed to have been used in the purchase of some *strijptelaken*, on the grounds that they had been given sums ranging from 15d to 17d *groot* per »stripe« (i.e., *strijpte*), when the price had only been 6d per stripe. Perhaps that is evidence for civic malfeasance, but not evidence for falsification of textile prices, since only cash sums and not actual cloth purchases had been recorded; and it is worth noting that in this era, several of towns had switched from actual cloth purchases to grants of cash to allow officials to buy their own woollens<sup>103</sup>.

If we are asked to believe that the recorded textile prices have been inflated above true market values, over this entire 250 year period – and, if for the moment we also choose to ignore the evidence on actual market prices – are we then expected to believe that such efforts were consistently and uniformly successful over this entire period in all these towns? Furthermore, are we supposed to believe that all of the town officials successfully colluded with officials from other towns to record prices that were consistently in the same range, if by no means identical? Are we also to believe that these prices should also consistently rise in fall in ac-

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103 See nn. 20–21, above.

cordance with other observed economic facts? If so, they must have been amongst the most successful conspirators ever recorded in European history.

Table 1: English Wool &amp; Broadcloth Exports by Hanseatic &amp; Denizen Merchants From 1281–85 to 1546–50

Years quinquennial means	Wool Exports In Sacks (a)	Broadcloth Exports by the Hanse	Broadcloth Exports by Denizens	Broadcloth Exports by Other Aliens	Total Broadcloth Exports	Hanse Exports as % of the total	Denizen Exports as % of the total	Total Wool and Cloth Exports as Cloths
1281–85	26,897.20							116,545.57
1286–90	26,040.80							112,834.79
1291–95	27,919.20							120,973.89
1296–00	23,041.20							99,837.52
1301–05	32,344.00							140,146.55
1306–10	39,016.20							169,057.19
1311–15	35,328.60							153,078.82
1316–20	26,084.60							113,024.57
1321–25	25,315.40							109,691.63
1326–30	24,997.60							108,314.60
1331–35	33,645.60							145,786.38
1336–40	20,524.80							88,933.96
1341–45	18,075.58							78,321.47
1346–50	27,183.13		2,246.00	309.67	2,555.67	0.00%	87.88%	120,340.15
1351–55	30,750.40		1,586.20	335.00	1,921.20	0.00%	82.56%	135,162.68
1356–60	32,666.40	173.60	7,376.00	1,511.40	9,061.00	1.92%	81.40%	150,604.51
1361–65	30,129.20	1,019.80	9,099.40	1,598.00	11,717.20	8.70%	77.66%	142,267.02
1366–70	26,451.80	1,309.60	10,977.60	2,240.00	14,527.20	9.01%	75.57%	129,142.85
1371–75	25,867.80	1,240.21	9,101.50	1,869.05	12,211.40	10.16%	74.53%	124,296.58
1376–80	20,470.20	1,383.22	9,672.97	2,585.85	13,642.60	10.14%	70.90%	102,339.98
1381–85	17,517.40	2,799.80	13,949.00	5,493.20	22,242.00	12.59%	62.71%	98,144.89

1386-90	19,312.00	3,125.00	17,192.40	5,292.60	25,610.00	12.20%	67.13%	109,288.90
1391-95	18,513.80	6,345.60	22,974.40	10,205.20	39,525.20	16.05%	58.13%	119,745.50
1396-00	16,889.60	5,646.40	23,318.00	9,810.70	38,775.10	14.56%	60.14%	111,957.74
1401-05	12,904.20	6,548.40	19,450.40	8,570.80	34,569.60	18.94%	56.26%	90,483.50
1406-10	14,968.20	6,568.40	12,997.20	12,180.60	31,746.20	20.69%	40.94%	96,603.41
1411-15	13,593.20	4,980.00	12,284.40	9,919.00	27,183.40	18.32%	45.19%	86,082.74
1416-20	14,365.00	5,721.80	14,050.60	8,204.80	27,977.20	20.45%	50.22%	90,220.75
1421-25	14,245.20	6,934.60	21,180.20	12,159.80	40,274.60	17.22%	52.59%	101,999.05
1426-30	13,358.60	5,303.80	20,333.80	14,768.00	40,405.60	13.13%	50.32%	98,288.41
1431-35	9,384.60	4,062.00	25,473.60	10,491.80	40,027.40	10.15%	63.64%	80,690.87
1436-40	5,378.80	9,145.20	22,863.60	15,063.20	47,072.00	19.43%	48.57%	70,378.34
1441-45	8,029.40	11,335.80	28,163.20	16,956.80	56,455.80	20.08%	49.89%	91,247.19
1446-50	9,765.20	9,301.20	25,286.20	11,259.40	45,846.80	20.29%	55.15%	88,159.41
1451-55	8,790.80	8,214.00	20,784.60	7,701.40	36,700.00	22.38%	56.63%	74,790.54
1456-60	6,386.40	10,016.60	18,910.80	7,561.60	36,489.00	27.45%	51.83%	64,161.27
1461-65	6,386.00	8,584.40	16,045.80	4,371.40	29,001.60	29.60%	55.33%	56,672.14
1466-70	9,293.60	5,807.00	21,254.80	10,385.60	37,447.40	15.51%	56.76%	77,716.57
1471-75	8,453.40	3,414.80	20,705.40	12,417.00	36,537.20	9.35%	56.67%	73,165.78
1476-80	8,736.00	8,226.20	32,185.00	10,029.60	50,440.80	16.31%	63.81%	88,293.89
1481-85	7,621.40	13,438.80	29,191.00	11,568.00	54,197.80	24.80%	53.86%	87,221.33
1486-90	9,751.00	13,740.20	25,892.40	10,372.60	50,005.20	27.48%	51.78%	92,256.28
1491-95	6,755.20	15,100.00	29,512.60	12,332.00	56,944.60	26.52%	51.83%	86,214.88
1496-00	8,937.20	17,175.40	35,667.60	9,740.40	62,583.40	27.44%	56.99%	101,308.29
1501-05	7,806.80	17,637.80	44,802.60	14,830.40	77,270.80	22.83%	57.98%	111,097.66

1506-10	7,326.20	16,983.60	46,832.20	20,986.80	84,802.60	20.03%	55.22%	116,547.02
1511-15	7,087.20	21,620.60	49,110.00	15,861.40	86,592.00	24.97%	56.71%	117,300.84
1516-20	8,194.40	20,411.40	51,128.00	18,559.40	90,098.80	22.65%	56.75%	125,605.14
1521-25	5,131.60	18,456.80	48,675.40	15,136.60	82,268.80	22.43%	59.17%	104,504.02
1526-30	4,834.80	20,402.40	56,942.40	16,189.60	93,534.40	21.81%	60.88%	114,483.59
1531-35	3,005.20	24,274.20	53,965.60	15,847.00	94,086.80	25.80%	57.36%	107,108.33
1536-40	3,951.40	30,747.20	61,008.20	17,522.60	109,278.00	28.14%	55.83%	126,399.42
1541-45	4,576.00				118,055.60			137,883.41
1546-50					135,189.50			
1551-55					126,594.75			

a. one woolsack = 364.00 lb. = 165.45 kg.      b. one woolsack = 4.333 broadcloths (24 by 1.75 yards)

*Sources: England's Export Trade (see note 5), pp. 36-119; Anthony R. BRIDBURY, Medieval English Clothmaking. An Economic Survey, London 1982, Appendix F, pp. 118-122.*

Table 2: Production Statistics for the Woollen Draperies of the Southern Low Countries, 1316–20 to 1571–75 in quinquennial means

Years	Ghent Drapery Farms A In £ groot Flemish	Ghent Drapery Farms B In £ groot Flemish	Ypres Drapery Farms in £ groot Flemish	Ypres: No of Stalls Lakenhalle	Mechelen Drapery Farms in £ oude Groot	Mechelen No. of Cloths Taxed by the Clergie- geld	Leuven: Drapery Farms £ assisegeld rate adjusted	Leuven: Drapery Farms groot actual	Leuven: Drapery Farms Rijngulden actual
<b>1316–20</b>	186.057	186.057			1,177.169				
<b>1321–25</b>	103.423	109.893			1,210.017				
<b>1326–30</b>	85.215	119.695			1,277.818				
<b>1331–35</b>	108.485	150.283			1,563.710				
<b>1336–40</b>	87.913	123.660			1,045.045				
<b>1341–45</b>	84.015	125.070			782.313				
<b>1346–50</b>	67.240	109.378			506.862		17,004.719	250.292	
<b>1351–55</b>	68.875	114.505			707.914		16,497.318	240.809	
<b>1356–60</b>	61.720	112.785			467.723		18,670.869	351.436	
<b>1361–65</b>	55.778	96.825			496.240		25,817.384	709.398	
<b>1366–70</b>	34.590	67.425			597.661		24,072.473	803.344	
<b>1371–75</b>	22.800	47.721			540.698		15,551.400	525.557	
<b>1376–80</b>	19.355	39.311			471.236		13,558.629	564.943	
<b>1381–85</b>	14.402	22.421			397.290		9,463.952	394.331	
<b>1386–90</b>	11.743	23.550			353.349		6,218.748	259.114	
<b>1391–95</b>	missing	missing			297.670		5,393.533	224.730	
<b>1396–00</b>	missing	missing			300.804		4,091.020	169.338	
<b>1401–05</b>	5.885	15.433			270.285		3,306.440	135.072	2,252.999
<b>1406–10</b>	7.654	16.030	183.192	407.000	272.011		4,164.302	170.875	2,801.349

1411-15	7.309	15.498	266,902	426,000	275,450		3,482,166	143,177	2,374,656
1416-20	8.253	17,782	266,912	489,300	276,334		1,979,514	81,769	1,471,874
1421-25	8.623	20,619	265,633	410,000	357,119		1,426,882	58,932	989,317
1426-30	9.331	23,648	249,817	356,600	352,707				685,180
1431-35	7.267	22,314	235,327	319,400	220,532				567,118
1436-40	4.267	14,783	156,022	192,600	186,976				513,357
1441-45	4.418	14,431	176,453	182,400	190,881				344,486
1446-50	4.773	14,512	177,450	152,200	162,950				302,180
1451-55	3.454	10,899	151,017	97,000	140,627				277,769
1456-60	1.764	9,909	146,813	70,000	136,149				211,771
1461-65	1.304	11,144	93,427	63,800	154,518	2,126,670			213,642
1466-70	1.878	14,518	93,643	70,600	162,739	1,983,010			257,438
1471-75	2.760	30,600	81,987	77,800	185,386	1,410,000			286,892
1476-80	1.857	27,646	66,285	40,800	225,443	2,500,000			268,322
1481-85	1.755	29,625	69,377	24,900	235,745	2,388,000			451,771
1486-90	0.429	22,068	108,864	8,400	258,107	2,324,000			998,364
1491-95	0.190	21,533	102,951	0,000	212,673	2,068,000			458,636
1496-00	0.480	26,380	143,643	0,000	243,394	2,711,000			590,210
1501-05	0.550	36,650			224,303	2,155,050			
1506-10	0.390	41,815			224,332	1,912,000			
1511-15	0.405	43,005			185,158	1,796,000			
1516-20	0.260	46,160			190,051	2,394,000			

<b>1521-25</b>					181.206	2.307.000		
<b>1526-30</b>					143.710	2.402.000		
<b>1531-35</b>					127.511	2.594.000		
<b>1536-40</b>					94.965	1.660.000		
<b>1541-45</b>					115.402	1.540.000		
<b>1546-50</b>					87.752	1.282.000		
<b>1551-55</b>					975.694	1.172.000		
<b>1556-60</b>					799.513	1.038.200		
<b>1561-65</b>					714.670			
<b>1566-70</b>					596.300			
<b>1571-75</b>					194.500			

**Sources:** **Ghent A:** Total drapery excise farms; **Ghent B:** Excises for ›Ramen en Nieuwe Huusgeld‹ only; all from: Stadsarchief Gent, Stadsrekeningen, Reeks 400:4-43, 1335-1520; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 38,635-72; **Ypres:** Algemeen Rijks-archief België, Rekenkamer, reg. nos. 38,636-722; **Mechelen:** Stadsarchief Mechelen, Stadsrekeningen, 1316-1550, Series I: nos. 3-225; Al-gemeen Rijksarchief, Rekenkamer, reg. nos. 41,219-85; **Leuven:** Stadsarchief Leuven, Stadsrekeningen, 1345-1500, nos. 4986-5124.

Table 3: Cloth Production Indices for the Hondschoote Sayetterie (Flanders) & the Leiden Woollen Industry, in quinquennial means, 1376-80 to 1566-70

Years	Hondschoote Sayetterie Tax Farm £ parisis	Says represented by tax farm 8d. per cloth	Hondschoote Cloth Sales: Exports of Says	Leiden: Woolfells Imported	Leiden: Outputs of Halve- Lakenen
1378-80	44.00	1,320.00			
1381-85	29.60	888.00			
1386-90	37.60	1,128.00			
1391-95	39.20	1,176.00			
1396-1400	50.00	1,500.00			
1401-05	54.80	1,644.00			
1406-10	78.00	2,340.00			
1411-15	85.60	2,568.00			
1416-20	117.60	3,528.00			
1421-25	152.80	4,584.00			
1426-30	165.80	4,974.00			
1431-35	172.00	5,160.00			
1436-40	176.00	5,280.00			
1441-45	180.00	5,400.00			
1446-50	278.00	8,340.00		171,393.00	
1451-55	345.60	10,368.00		288,911.40	
1456-60	388.00	11,640.00		308,069.80	
1461-65	404.00	12,120.00		297,906.00	
1466-70	435.20	13,056.00		286,951.50	14,745.00
1471-75	464.00	13,920.00		342,359.90	16,555.50

1476-80	424.00	12,720.00		409,500.12	24,198.50
1481-85	455.00	13,650.00		402,846.80	24,259.70
1486-90	488.70	14,661.00		240,073.45	21,289.00
1491-95	399.95	11,998.50		129,472.00	20,780.00
1496-1500	424.00	12,720.00		321,236.60	22,223.60
1501-05	588.00	17,640.00		290,307.40	25,148.20
1506-10	667.20	20,016.00		298,237.30	23,782.80
1511-15	757.60	22,728.00		324,643.20	24,673.20
1516-20	980.00	29,400.00		344,888.40	26,244.90
1521-25	1,071.60	32,148.00		190,610.60	24,334.60
1526-30	1,163.20	34,896.00	31,583.44	194,221.00	23,094.20
1531-35	1,452.80	43,584.00	41,184.50	168,948.00	17,257.60
1536-40	1,439.20	43,176.00	42,761.40	228,837.00	16,646.20
1541-45	1,580.80	47,424.00	44,547.60	190,428.81	14,971.00
1546-50	1,634.80	49,044.00	45,453.40		11,747.00
1551-55	2,228.80	66,864.00	57,387.40		
1556-60	2,472.40	74,172.00	67,026.20		
1561-65	2,946.40	88,392.00	89,699.60		
1566-70	2,987.20	89,616.00	93,057.20		

*Sources: Leiden: POSTHUMUS, Geschiedenis (see note 4), 1, pp. 370-425; 2, pp. 317-320; Hondshoote: Émile COORNAERT, La draperie-sayetterie d'Hondshoote, XIVe-XVIIIe siècles, Paris 1930; calculated from Appendix IV, pp. 485-490.*

Table 4: Prices and Values of Ghent Woollen Cloths Purchased for the Civic Aldermen and for the Tournai Festival: In pounds groot of Flanders, with Cloth Price Indexes and the Flemish Commodity Basket Price Indexes in quinquennial means, 1331–5 to 1566–70

Table 4a:

Years Ending (5 years)	Schepenen Dickedinnen Large: in £ groot Flem	Dickedinnen Price Index: 1451–75=100	Flemish Price Index 1451–75=100	Dickedinnen Real Price Index 1451–75=100 Harmonic Means	T o u r n a i F e s t i v a l : Schepenen Dickedinnen Large: Tournai in £ groot Flem	Dickedinnen Price Index: 1451–75=100
<b>1331–35</b>	2.747	34.712				
<b>1336–40</b>	2.788	35.235				
<b>1341–45</b>	3.512	44.387				
<b>1346–50</b>	2.874	36.326	50.571	68.676		
<b>1351–55</b>	3.749	47.378	60.646	77.362		
<b>1356–60</b>	4.330	54.723	87.540	62.287		
<b>1361–65</b>	4.857	61.389	94.425	64.858		
<b>1366–70</b>	5.377	67.956	107.401	63.066		
<b>1371–75</b>	5.333	67.395	115.222	58.578		
<b>1376–80</b>	6.890	87.078	111.662	76.628		
<b>1381–85</b>	7.500	94.787	119.193	83.846		
<b>1386–90</b>	7.192	90.890	124.719	72.096		
<b>1391–95</b>	5.538	69.991	88.510	79.077		
<b>1396–00</b>	5.759	72.783	89.796	81.054		
<b>1401–05</b>	5.856	74.009	88.531	83.105		
<b>1406–10</b>	5.843	73.851	105.261	69.632	5.800	76.000

<b>1411-15</b>	5.853	73.972	95.309	77.612	5.681	74.443
<b>1416-20</b>	6.077	76.798	107.381	71.409	5.590	73.248
<b>1421-25</b>	5.997	75.790	112.182	67.583	5.530	72.462
<b>1426-30</b>	6.047	76.419	117.773	64.910	5.490	71.935
<b>1436-40</b>	7.182	90.763	140.166	65.055	6.764	88.631
<b>1441-45</b>	8.008	101.213	113.504	88.653	6.992	91.624
<b>1446-50</b>	7.719	97.558	109.984	88.543	6.762	88.611
<b>1451-55</b>	6.828	86.296	100.902	84.594	6.350	83.207
<b>1456-60</b>	7.857	99.294	117.855	84.126	7.185	94.151
<b>1461-65</b>	8.000	101.107	88.705	113.980	7.885	103.324
<b>1466-70</b>	8.188	103.476	96.520	107.107	8.553	112.067
<b>1471-75</b>	8.690	109.827	96.017	114.312	8.185	107.251
<b>1476-80</b>	9.063	114.535	117.213	97.812	8.860	116.096
<b>1481-85</b>	10.998	138.991	156.853	86.244	10.275	134.638
<b>1486-90</b>	16.914	213.767	184.511	114.407	15.575	204.086
<b>1491-95</b>	14.367	181.571	144.981	124.509	12.025	157.569
<b>1496-00</b>	14.667	185.366	100.255	184.894	11.593	151.903
<b>1501-05</b>	14.667	185.366			11.770	154.227
<b>1506-10</b>	14.130	178.582			12.485	163.596

1511-15	13.000	164,298			13.000	170,344
1516-20	13.130	165,941			13.135	172,113
1521-25	13.225	167,142				
1526-30	13.595	171,818				
1531-35	13.775	174,093				
1536-40	13.950	176,305				
1541-45	13.820	174,662				
1546-50	16.900	213,588				
1551-55	20.300	256,558				
1556-60	20.933	264,562				
1561-65	26.050	329,228				
1566-70	28.000	353,873				

Sources: *Ghent Cloth: Stadsarchief Gent, Stadsrekeningen, Reeks 400: 1-58; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 34,862. Flemish Commodity Basket Price Index: MUNRO, Wage Stickness (see note 51), pp. 185-297; and IDEM, Builders' Wages (see note 51), pp. 1013-1076.*

Table 4b:

Years (5 years)	Tournai Dickedinnen		Strijpte Laken Schepenen		Strijpte Laken Schepenen		Real Price Index 1451-75=100		Tournai Festival: Strijpte Laken Schepenen		Tournai Strijpte Price Index		Tournai Laken Real Price Index:	
	Real Price Index 1451-75=100	Harmonic Means	£ groot Flemish	Price Index 1451-75=100	Price Index 1451-75=100	Price Index 1451-75=100	Price Index 1451-75=100	Harmonic Means	in £ groot Flem	Price Index 1451-75=100	Price Index 1451-75=100	Price Index 1451-75=100	Price Index 1451-75=100	Harmonic Means
1331-35			1.550	36.079										
1336-40														
1341-45														
1346-50			1.742	40.540										
1351-55			3.375	78.558		129.535								
1356-60			2.944	68.530		78.285								
1361-65			3.449	80.285		85.024								
1366-70			4.469	104.027		96.859								
1371-75			5.705	132.793		115.250								
1376-80			6.977	162.398		145.437								
1381-85			6.998	162.879		136.652								
1386-90														
1391-95			7.758	180.587		204.030								
1396-00														
1401-05														
1406-10	71.728		4.000	93.106		88.453		5.145		95.601		85.620		
1411-15	78.198		4.065	94.610		99.266		4.805		89.287		93.640		
1416-20	68.340		4.088	95.143		88.603		4.935		91.703		85.633		
1421-25	64.489							4.871		90.511		80.587		
1426-30	61.000		4.173	97.141		82.481		5.226		97.107		82.304		

1431-35	65.565	4.398	102.359	82.874	5.433	100.948	81.728
1436-40	63.556	4.557	106.064	75.670	5.533	102.821	73.432
1441-45	80.675	4.621	107.557	94.760	5.661	105.191	92.570
1446-50	80.689	4.621	107.557	97.793	5.700	105.918	96.303
1451-55	81.718	4.621	107.557	106.595	5.635	104.711	103.632
1456-60	78.602	4.535	105.559	89.567	5.656	105.098	89.066
1461-65	115.787	4.100	95.434	107.585	5.207	96.751	109.134
1466-70	116.083	3.945	91.826	95.137	4.890	90.867	94.072
1471-75	111.101	4.280	99.624	103.756	5.520	102.574	106.044
1476-80	99.438	4.560	106.141	90.554	6.715	124.779	106.309
1481-85	83.328	4.555	106.025	67.595	8.460	157.205	98.706
1486-90	110.593	6.640	154.556	83.765	12.260	227.818	123.239
1491-95	109.201	7.050	164.100	113.187	12.850	238.781	166.410
1496-00	151.568	6.160	143.384	143.019	11.500	213.695	212.618
1501-05		6.110	142.220		11.100	206.262	
1506-10		6.180	143.849		11.740	218.155	
1511-15		6.420	149.436		12.750	236.923	
1516-20		6.600	153.625		13.500	250.859	

*Sources: Ghent Cloth: Stadsarchief Gent, Stadsrekeningen, Reeks 400: vols. 1-58; Algemeen Rijksarchief België; Rekenkamer, reg. nos. 34-86; Flemish Commodity Basket Price Index: MUNKRO, Wage Sickness (see note 51), pp. 185-297; and IDEM, Builders' Wages (see note 51), pp. 1013-1076; Harmonic Mean: In computing quinquennial, decennial, or other such mean values, the harmonic mean must be used, not the arithmetic mean. See HAROLD SLON, Arnold ZURCHER, A Dictionary of Economics, 3<sup>rd</sup> edn., New York 1953, pp. 149-150; the harmonic mean is  $\times$ a calculated average computed by finding the reciprocal of the arithmetic mean of the reciprocals of the numbers to be averaged. In economic computation the harmonic mean is used in averaging such data as time rates and rate-per-dollar prices.*

Table 5: Prices & Values of Ghent Woollen Cloths in Relation to the Values of a Flemish Commodity Basket & a Brabant Commodity Basket & their Composite Price Indexes. Prices in Pounds & Pence Groot of Flanders & Brabant in quinquennial means, 1331–35 to 1566–70

Years Ending (5 years)	Schepenen Dickedinnen Large: in £ groot Flemish	Dickedinnen Price Index: 1451–75= 100 £7.91244 groot Flemish	Flemish Price Index 1451–75= 100	Value of Flemish Commodity Basket in d. groot Flemish	Value of Ghent 1 <sup>st</sup> Quality Dickedinnen In Flemish Commodity Baskets: Harmonic M	Value of Brabant Commodity Basket in d. groot Flemish	Brabant Price Index 1451–75= 100 155.016d Commodity Baskets: 100 Harmonic M	Value of Ghent 1 <sup>st</sup> Quality Dickedinnen in Brabant Commodity Baskets:
1331–35	2.747	34.712						
1336–40	2.788	35.235						
1341–45	3.512	44.387						
1346–50	2.874	36.326	50.571	63.868	10.856			
1351–55	3.749	47.378	60.646	76.593	11.632			
1356–60	4.330	54.723	87.540	110.558	9.366			
1361–65	4.857	61.389	94.425	119.255	9.752			
1366–70	5.377	67.956	107.401	135.641	9.483			
1371–75	5.333	67.395	115.222	145.519	8.808			
1376–80	6.890	87.078	111.662	141.024	11.522			
1381–85	7.500	94.787	119.193	150.534	11.957			
1386–90	7.192	90.890	124.719	157.514	10.840			
1391–95	5.538	69.991	88.510	111.784	11.890			
1396–00	5.759	72.783	89.796	113.407	12.187			
1401–05	5.856	74.009	88.531	111.810	12.496	149.440	96.403	9.642

<b>1406-10</b>	5.843	73.851	105.261	132.939	10.470	159.400	102.828	8.785
<b>1411-15</b>	5.853	73.972	95.309	120.370	11.670	155.882	100.559	9.008
<b>1416-20</b>	6.077	76.798	107.381	135.616	10.737	164.113	105.868	8.867
<b>1421-25</b>	5.997	75.790	112.182	141.680	10.162	168.089	108.433	8.562
<b>1426-30</b>	6.047	76.419	117.773	148.741	9.760	179.277	115.651	8.091
<b>1431-35</b>	7.061	89.242	123.512	155.989	10.869	175.173	113.003	9.673
<b>1436-40</b>	7.182	90.763	140.166	177.022	9.782	194.440	125.432	8.853
<b>1441-45</b>	8.008	101.213	113.504	143.350	13.330	163.507	105.477	11.706
<b>1446-50</b>	7.719	97.558	109.984	138.904	13.313	154.360	99.577	12.011
<b>1451-55</b>	6.828	86.296	100.902	127.434	12.720	152.760	98.545	10.647
<b>1456-60</b>	7.857	99.294	117.855	148.845	12.649	177.613	114.577	10.585
<b>1461-65</b>	8.000	101.107	88.705	112.030	17.138	141.173	91.070	13.600
<b>1466-70</b>	8.188	103.476	96.520	121.900	16.105	150.293	96.953	13.076
<b>1471-75</b>	8.690	109.827	96.017	121.264	17.188	153.240	98.854	13.605
<b>1476-80</b>	9.063	114.535	117.213	148.034	14.707	187.093	120.693	11.642
<b>1481-85</b>	10.998	138.991	156.853	198.097	12.968	241.440	155.752	10.628
<b>1486-90</b>	16.914	213.767	184.511	233.028	17.202	269.880	174.098	14.366
<b>1491-95</b>	14.367	181.571	144.981	183.104	18.721	206.507	133.216	16.626
<b>1496-00</b>	14.667	185.366	100.255	126.617	27.801	178.813	115.352	19.686
<b>1501-05</b>	14.667	185.366				194.467	125.449	18.101

1506-10	14.130	178.582					177.960	114.801	19.060
1511-15	13.000	164.298					213.773	137.904	14.595
1516-20	13.130	165.941					232.933	150.264	13.527
1521-25	13.225	167.142					278.933	179.938	11.377
1526-30	13.595	171.818					276.733	178.519	11.791
1531-35	13.775	174.093					269.720	173.995	12.252
1536-40	13.950	176.305					287.773	185.641	11.523
1541-45	13.820	174.662					322.960	208.340	10.267
1546-50	16.900	213.588					309.133	199.420	13.140
1551-55	20.300	256.558					403.840	260.515	12.014
1556-60	20.933	264.562					466.160	300.717	10.770
1561-65	26.050	329.228					486.653	313.937	12.846
1566-70	28.000	353.873					493.400	318.290	13.620

*Sources: Ghent Cloth: Stadsarchief Gent, Stadsrekeningen, Reeks 400: vols. 1-58; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 34.862; Flemish Commodity Basket Price Index: MUNRO, Wage Stickiness (see note 51), pp. 185-297; and MUNRO, Builders' Wages (see note 51), pp. 1013-1076; Brabant Commodity Basket Price Index: VAN DER WEE, Prijzen (see note 73), pp. 413-35, with index numbers based on the publications of MUNRO, as listed above; See the note on the harmonic mean in the sources for the previous table.*

Table 6: Prices & Values of Ghent Woollen Cloths in Relation to the Purchasing Power of a Master Mason's Wages in Bruges. Prices & Wages in pounds & pence groot of Flanders in quinquennial means, 1331-5 to 1496-1500

Years Ending (5 years)	Schepenen Dickekennen Large: Civic in £ groot Flemish	Price Index: 1451-75=100 7.91244d groot Flemish	Tournai Festival: Strijpte Laken for the Schepenen In £ groot Flemish	Price Index: 1451-75=100 Laken Strijpte Laken 5.3815d gr. Flemish	Flemish Price Index 1451-75= 100 126.2949d Flemish	Bruges: Master Mason's Daily in d. groot Flemish	No. of Days' Wages For Bruges Master Mason to buy one Dickekennen Harmonic Means	No. of Days' Wages for Bruges Master Mason to buy one Strijpte Laken Harmonic Means
1331-35	2.747	34.712						
1336-40	2.788	35.235						
1341-45	3.512	44.387						
1346-50	2.874	36.326			50.571	5.000	131.885	
1351-55	3.749	47.378			60.646	5.200	171.457	
1356-60	4.330	54.723			87.540	6.000	171.811	
1361-65	4.857	61.389			94.425	6.850	169.459	
1366-70	5.377	67.956			107.401	8.000	160.559	
1371-75	5.333	67.395			115.222	8.000	159.725	
1376-80	6.890	87.078			111.662	8.800	186.733	
1381-85	7.500	94.787			119.193	8.800	204.545	
1386-90	7.192	90.890			124.719	10.867	158.835	
1391-95	5.538	69.991			88.510	9.000	147.680	
1396-00	5.759	72.783			89.796	9.850	140.319	
1401-05	5.856	74.009			88.531	10.000	139.732	
1406-10	5.843	73.851			105.261	10.000	139.902	123.475
1411-15	5.853	73.972	4.805	89.287	95.309	10.000	140.431	115.320

1416-20	6.077	76.798	4.935	91.703	107.381	10.000	145.620	118.440
1421-25	5.997	75.790	4.871	90.511	112.182	10.000	143.910	116.900
1426-30	6.047	76.419	5.226	97.107	117.773	10.000	145.085	125.420
1431-35	7.061	89.242	5.433	100.948	123.512	10.800	156.874	120.873
1436-40	7.182	90.763	5.533	102.821	140.166	11.000	156.377	120.727
1441-45	8.008	101.213	5.661	105.191	113.504	11.000	174.258	123.509
1446-50	7.719	97.558	5.700	105.918	109.984	11.000	168.268	124.364
1451-55	6.828	86.296	5.635	104.711	100.902	11.000	147.761	122.945
1456-60	7.857	99.294	5.656	105.098	117.855	11.000	171.175	123.400
1461-65	8.000	101.107	5.207	96.751	88.705	11.000	174.545	113.600
1466-70	8.188	103.476	4.890	90.867	96.520	11.000	178.562	106.691
1471-75	8.690	109.827	5.520	102.574	96.017	11.000	189.568	120.436
1476-80	9.063	114.535	6.715	124.779	117.213	11.000	197.580	146.509
1481-85	10.998	138.991	8.460	157.205	156.853	11.000	237.068	184.582
1486-90	16.914	213.767	12.260	227.818	184.511			
1491-95	14.367	181.571	12.850	238.781	144.981			
1496-00	14.667	185.366	11.500	213.695	100.255			

Sources: **Ghent Cloth:** Stadsarchief Gent, Stadsrekeningen, Reeks 400: 1-58; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 34,862; **Bruges Masons Wages:** Stadsarchief Brugge, Stadsrekeningen 1350-51 to 1485-85; Algemeen Rijksarchief, Rekenkamer, reg. nos. 32,461 to 32532; MUNRO, *Wage Stickiness* (see note 51), pp. 185-297; and IDEM, *Builders' Wages* (see note 51), pp. 1013-1076.

Table 7: Prices & Values of Ghent Woollen Cloths in Relation to the Purchasing Power of a Master Mason's Wages in Antwerp and the Brabant Commodity Basket Price Index. Prices & Wages in pounds & pence groot of Flanders & of Brabant in quinquennial means, 1401–05 to 1566–70

Years Ending (5 years)	Schepenen Dickedimmen Large: in £ groot Flemish	Dickedimmen Price Index 1451–75= 100	Tournai Festival: Strijple Laken for Schepenen in £ groot Flemish	Tournai Festival: Strijple Laken Price Index: 1451–75=100	Brabant Price Index 1451–75= 100	Antwerp: Mean Craftsman's Daily Wage in d. Groot Flemish	No. Days' Wages for a Master Mason in Antwerp to buy one Ghent Dickedimmen: Harmonic Means	No. Days' Wages for a Master Mason In Antwerp To buy one Ghent Strijple Laken: Harmonic Means
1401–05	5,856				96,403	7,313	192,063	
1406–10	5,843	73,851	5,145	95,601	102,828	7,500	186,989	164,633
1411–15	5,853	73,972	4,805	89,287	100,559	6,817	206,020	169,161
1416–20	6,077	76,798	4,935	91,703	105,868	6,573	221,421	180,106
1421–25	5,997	75,790	4,871	90,511	108,433	6,012	239,385	194,021
1426–30	6,047	76,419	5,226	97,107	115,651	5,775	251,180	216,688
1431–35	7,061	89,242	5,433	100,948	113,003	6,403	264,981	203,518
1436–40	7,182	90,763	5,533	102,821	125,432	6,333	271,603	209,628
1441–45	8,008	101,213	5,661	105,191	105,477	7,200	266,947	188,646
1446–50	7,719	97,558	5,700	105,918	99,577	7,500	246,793	182,400
1451–55	6,828	86,296	5,635	104,711	98,545	7,500	216,716	180,221
1456–60	7,857	99,294	5,656	105,098	114,577	7,500	251,057	180,862
1461–65	8,000	101,107	5,207	96,751	91,070	7,500	256,000	166,493
1466–70	8,188	103,476	4,890	90,867	96,953	7,500	261,890	156,425

1471-75	8.690	109.827	5.520	102.574	98.854	7.500	278.034	175.480
1476-80	9.063	114.535	6.715	124.779	120.693	7.500	289.784	213.296
1481-85	10.998	138.991	8.460	157.205	155.752	7.500	347.700	268.930
1486-90	16.914	213.767	12.260	227.818	174.098	8.100	479.198	353.271
1491-95	14.367	181.571	12.850	238.781	133.216	7.500	459.576	410.465
1496-00	14.667	185.366	11.500	213.695	115.352	7.700	457.153	357.799
1501-05	14.667	185.366	11.100	206.262	125.449	7.750	454.204	343.622
1506-10	14.130	178.582	11.740	218.155	114.801	7.750	436.505	363.340
1511-15	13.000	164.298	12.750	236.923	137.904	8.600	362.791	356.316
1516-20	13.130	165.941	13.500	250.859	150.264	9.250	340.660	350.270
1521-25	13.225	167.142			179.938	9.500	334.173	
1526-30	13.595	171.818			178.519	9.750	334.571	
1531-35	13.775	174.093			173.995	9.350	353.629	
1536-40	13.950	176.305			185.641	11.100	297.893	
1541-45	13.820	174.662			208.340	12.950	255.453	
1546-50	16.900	213.588			199.420	14.850	272.778	
1551-55	20.300	256.558			260.515	15.000	323.077	
1556-60	20.933	264.562			300.717	16.200	310.073	
1561-65	26.050	329.228			313.937	27.000	231.869	
1566-70	28.000	353.873			318.290	21.750	308.966	

Sources: **Ghent Cloth Prices:** Stadsarchief Gent, Stadstrekeningen, Reeks 400: vols. 1-58; **Algemeen Rijksarchief België, Rekenkamer, reg. nos. 34,862; Brabant Commodity Prices:** VAN DER WEE, Prijzen (see note 73), pp. 413-435.; **Antwerp Wages:** VAN DER WEE, Growth of the Antwerp Market (see note 51), 1: Statistics, Appendix 2: Wages, pp. 457-460.

Table 8a: Prices & Relative Values of English Woollen Broadcloths at Cambridge and Winchester in pounds sterling, and values expressed in equivalent number of baskets of consumables, and the number of days wages for master masons required to purchase one cloth in quinquennial means (arithmetic and harmonic), 1361–65 to 1556–60

5 year Periods	Cambridge		Winchester		SE England		Value of		Cambridge		Winchester		Value of		
	1st quality in £ sterling	2nd quality in £ sterling	1st quality in £ sterling	1st quality in £ sterling	Master Mason's Wage in d	PBH Basket In d st	Price Index 1451–75 =100	1st Quality: No. Days Wages	1st Quality: No. Days Wages	1 <sup>st</sup> Quality: in PBH Baskets	1st Quality: in PBH Baskets	1 <sup>st</sup> Quality: No. Days Wages	1st Quality: No. Days Wages	1 <sup>st</sup> Quality: in PBH Baskets	1st Quality: in PBH Baskets
<b>1361-65</b>	2.232	1.771	2.030	2.030	5.000	155.637	137.976	101.600	92.396	3.311	3.011				
<b>1366-70</b>	2.437	1.933	2.216	2.216	5.000	153.928	136.460	113.554	103.266	3.660	3.328				
<b>1371-75</b>	2.200	1.745	2.001	2.001	5.000	143.646	127.345	101.566	92.364	3.475	3.161				
<b>1376-80</b>	2.430	1.928	2.210	2.210	5.000	123.958	109.891	115.769	105.281	4.701	4.275				
<b>1381-85</b>	2.808	2.227	2.553	2.553	5.000	127.679	113.190	133.491	121.398	5.232	4.758				
<b>1386-90</b>	2.140	1.698	1.946	1.946	5.000	114.191	101.233	101.565	92.364	4.458	4.054				
<b>1391-95</b>	1.952	1.548	1.867	1.867	5.000	117.259	103.953	93.658	89.161	3.986	3.781				
<b>1396-00</b>	2.033	1.613	2.050	2.050	5.000	124.812	110.648	97.403	98.353	3.899	3.940				
<b>1401-05</b>	2.128	1.812	2.080	2.080	5.100	127.073	112.653	100.149	97.892	4.018	3.924				
<b>1406-10</b>	2.160	1.989	2.443	2.443	5.800	123.998	109.927	89.050	100.114	4.174	4.721				
<b>1411-15</b>	2.136	2.178	2.464	2.464	6.000	122.119	108.261	85.384	97.783	4.193	4.802				
<b>1416-20</b>	2.100	1.855	2.349	2.349	6.000	128.139	113.598	84.000	93.941	3.933	4.405				
<b>1421-25</b>	2.113	1.875	2.314	2.314	6.000	117.020	103.740	84.499	92.553	4.333	4.746				
<b>1426-30</b>	2.423	1.970	2.185	2.185	6.000	127.025	112.610	92.705	87.373	4.330	4.132				
<b>1431-35</b>	2.468	1.985	2.240	2.240	6.000	123.090	109.122	97.878	89.579	4.770	4.365				
<b>1436-40</b>	2.080	1.885	2.218	2.218	6.000	140.118	124.218	83.150	88.696	3.566	3.799				
<b>1441-45</b>	2.273	1.905	2.360	2.360	6.000	104.424	92.574	89.012	94.389	5.092	5.424				

1446-50	2.502	1.815	2.398	6.000	114.200	101.241	98.059	95.900	5.166	5.039
1451-55	2.380	1.893	2.400	6.000	114.774	101.750	93.873	96.000	4.905	5.019
1456-60	2.758	1.985	2.400	6.000	110.500	97.961	109.254	96.000	5.921	5.213
1461-65	2.933	1.875	2.400	6.000	114.489	101.497	112.166	96.000	5.872	5.031
1466-70	3.375	1.830	2.520	6.000	115.869	102.720	129.444	100.478	6.685	5.202
1471-75	2.520	2.230	2.520	6.000	108.370	96.072	100.414	100.645	5.536	5.556
1476-80	3.400	3.000	2.642	6.000	104.529	92.667	135.054	105.682	7.795	6.067
1481-85	3.400	2.560	2.663	6.000	136.921	121.383	127.273	106.519	5.688	4.668
1486-90	3.380	2.660	2.667	6.000	114.232	101.269	126.502	106.666	6.605	5.603
1491-95	3.630	2.586	2.667	6.000	115.671	102.545	136.537	106.667	7.102	5.533
1496-00	3.493	2.514	2.765	6.000	111.152	98.538	132.033	110.095	7.135	5.944
1501-05	3.448	2.561	2.883	6.000	120.005	106.386	132.730	114.756	6.626	5.753
1506-10	3.408	2.570	3.060	6.000	118.499	105.052	127.466	122.172	6.444	6.183
1511-15	3.710	2.920	2.883	6.000	119.584	106.014	147.253	114.812	7.433	5.771
1516-20	4.120	3.060	3.024	6.000	139.678	123.827	162.628	119.465	6.948	5.148
1521-25	3.213	3.350	3.998	6.000	165.804	146.989	124.224	157.297	4.483	5.671
1526-30	4.448	4.120	4.461	6.000	180.336	159.872	174.786	177.095	5.832	5.897
1531-35	3.245	2.584	5.100	6.000	183.709	162.862	120.992	202.794	3.913	6.609
1536-40	4.296	3.173	5.680	6.500	173.368	153.694	157.426	209.563	5.896	7.862
1541-45	5.799	3.250	6.320	6.900	202.607	179.615	200.508	219.408	6.854	7.490
1546-50	6.400	3.390	7.778	7.200	259.509	230.060	209.890	258.852	5.861	7.174
1551-55	7.210	3.240	8.211	8.400	306.956	272.123	204.683	234.565	5.609	6.425
1556-60	6.897	3.643	8.272	9.600	361.264	320.268	172.453	206.815	4.580	5.492

Table 8b: Values of English Woollen Cloths (24 yds by 1.75 yds): Those Purchased for Scholars & Servants: at Cambridge and Winchester and Those Exported from London & Southampton & from All English Ports, 1360–1520

Year Ending	Cambridge 1st quality in £ sterling	Cambridge 2nd quality in £ sterling	Winchester 1st quality in £ sterling	Exported London and Southampton in £ sterling	Mean Value in £ groot Flemish	Cloth Exports from all ports in £ sterling	Mean Value in £ groot Flemish	Mean in Florins (Florence)
1361-65	2.232	1.771	2.030					
1366-70	2.437	1.933	2.216					
1371-75	2.200	1.745	2.001	1.751	1.611	1.751	1.611	11.673
1376-80	2.430	1.928	2.210			2.314	2.240	15.427
1381-85	2.808	2.227	2.553	2.265	2.522	2.161	2.406	14.405
1386-90	2.140	1.698	1.946	1.887	1.979	1.857	1.974	11.966
1391-95	1.952	1.548	1.867			1.694	1.741	11.001
1396-1400	2.033	1.613	2.050			1.403	1.471	9.350
1401-05	2.128	1.812	2.080	2.618	2.745	1.769	1.855	11.791
1406-10	2.160	1.989	2.443			1.536	1.542	10.237
1411-15	2.136	2.178	2.464			1.501	1.193	9.003
1416-20	2.100	1.855	2.349			1.200	1.178	7.200
1421-25	2.113	1.875	2.314	2.402	2.505	2.402	2.505	14.412
1426-30	2.423	1.970	2.185	1.669	1.860	1.669	1.860	10.011
1431-35	2.468	1.985	2.240	2.299	2.638	2.299	2.638	13.456
1436-40	2.080	1.885	2.218	2.735	3.019	2.091	2.308	11.947
1441-45	2.273	1.905	2.360	2.194	2.422	2.180	2.406	11.625
1446-50	2.502	1.815	2.398	2.532	2.795	2.243	2.476	11.962

1451-55	2.380	1.893	2.400	2.228	2.460	1.614	1.782	8.608
1456-60	2.758	1.985	2.400	2.227	2.459	2.111	2.313	11.175
1461-65	2.933	1.875	2.400	2.113	2.333	1.856	2.041	9.860
1466-70	3.375	1.830	2.520	2.140	2.158	1.866	1.881	8.956
1471-75	2.520	2.230	2.520	2.048	2.177	1.877	2.002	9.011
1476-80	3.400	3.000	2.642	2.598	3.306	2.385	3.044	11.262
1481-85	3.400	2.560	2.663	2.799	4.295	2.274	3.435	10.498
1486-90	3.380	2.660	2.667	2.427	4.605	2.427	4.605	11.200
1491-95	3.630	2.586	2.667	2.822	3.684	2.822	3.684	12.898
1496-1500	3.493	2.514	2.765	2.271	3.332	2.271	3.332	10.002
1501-05	3.448	2.561	2.883	2.975	4.379	2.975	4.379	12.982
1506-10	3.408	2.570	3.060	3.502	5.155	3.502	5.155	15.283
1511-15	3.710	2.920	2.883	3.606	5.308	3.606	5.308	15.735
1516-20	4.120	3.060	3.024					

**Sources:** *London Cloth Export Prices*: TNA: PRO, King's Remembrancer Exchequer, Particulars Accounts: Customs E 122/76/13, 74/11, 77/11, 73/23, 73/25, 194/14-18, 78/7, 79/5, 81/1-2; *Lord Treasurer's Remembrancer, Enrolled Customs*, E 356/19-24; *Southampton Cloth Export Prices*: TNA: PRO, K.R. Exchequer, Customs E 122/139/4/ 1397-8, 141/4, 141/21-22, 209/1, 141/25, 140/62, 141.29, 141/31, 141/33, 141/35-36, 209/8, 141/38, 142/1, 142/3, 142/8, 142/10, 143/1, 142/11-12, 209/2, and L.T.R. Enrolled Customs E 356/19-24.; *Cambridge & Winchester cloth prices: Archives of the British Library of Political and Economic Science (London)*, Phelps Brown Papers Collection, Box Ia. 324; *THOROLD ROGERS, History of Agriculture (see note 45)*, I, 1866, pp. 587-592; 4, 1882, pp. 583-588; *William BEVERIDGE, Prices and Wages in England from the Twelfth to the Nineteenth Centuries*, I: *Price Tables: Mercantile Era, London 1939*, repr. London 1965); *Prices for master masons in south-eastern England*: PHELPS BROWN, HOPKINS, *Seven Centuries (see note 72)*, pp. 195-206; repr. in: *IDEM, Perspective of Wages and Prices (see note 72)*, pp. 1-12; *English Price Index numbers: extracted from the working papers in the Phelps Brown Papers Collection, Box Ia.324*, in *Archives of the British Library of Political and Economic Science. They differ, and often differ markedly, from those that are published PHELPS BROWN, HOPKINS, Seven Centuries (see note 72)*, pp. 296-314, which they republished in: *IDEM, Perspective of Wages and Prices (see note 72)*, pp. 13-39 (with component price indexes not in the original).

Table 9: The Flemish Composite Price Index (1451–75): and Prices of Various Flemish Woollen Broadcloths, in pounds groot Flemish in quinquennial means, 1351–55 to 1546–50

Years	FLANDERS Composite Price Index	GHEENT Price of First Quality Ghent	YPRES Fine Dyed Woolens for Magistrates Broadcloths	BRUGES Fine Dyed Woolens May	BRUGES Fine Dyed Woolens October	WERVIK Prices of First Quality woollens prices	KORTRIJK Prices of First Quality woollens in £ groot Flemish	NIEUW-KERK NIEPKERK Prices of First Quality woollens in £ groot Flemish
1351–55	60.646	3.749						
1356–60	87.540	4.330						
1361–65	94.425	4.857						
1366–70	107.401	5.377						
1371–75	115.222	5.333						
1376–80	111.662	6.890						
1381–85	119.193	7.500						
1386–90	124.719	5.958						
1391–95	88.510	5.538		8.143	5.538	3.591	3.600	
1396–00	89.796	5.759		8.143	5.466	3.756	3.343	
1401–05	88.531	5.980		8.341	6.239	3.512	3.251	
1406–10	105.261	5.843	5.435	7.264	6.088	3.742	3.462	
1411–15	95.309	5.853	5.280	6.585	5.585	3.460	3.403	
1416–20	107.381	6.077	5.303	6.800	4.969	3.131	3.523	
1421–25	112.182	5.997	5.200	7.100	4.940	3.194	3.500	
1426–30	117.773	6.047	5.110	6.915	5.416	3.800	3.900	1.974
1431–35	123.512	7.061	6.000	6.775	6.478	4.197	4.200	2.201

1436-40	140.166	7.182	6.528	7.319	7.149	4.198	3.725	2.079
1441-45	113.504	8.008	6.658	7.775	7.057	3.878	4.215	2.243
1446-50	109.984	7.719	7.408	7.881	6.860	3.875	3.942	2.227
1451-55	100.902	6.828	7.197	7.655	7.390	3.672	3.977	2.310
1456-60	117.855	7.857	7.768	7.951	7.418	3.444		1.878
1461-65	88.705	8.000	7.886	8.032	6.994	3.889		2.291
1466-70	96.520	8.188	7.608	8.811	6.567			2.009
1471-75	96.017	8.690	7.553	9.937	6.574			
1476-80	117.213	9.063	7.742	8.604	7.664			
1481-85	156.853	10.998	10.715	11.552	8.986			
1486-90	184.511	16.914	11.287	17.023	14.268			
1491-95	144.981	14.367	13.710	9.558	9.937			
1496-00	100.255	14.667	12.252	10.560	9.900			
1501-05		14.667						
1506-10		14.130						
1511-15		13.000						
1516-20		13.130						
1521-25		13.225						
1526-30		13.595						
1531-35		13.775						
1536-40		13.950						
1541-45		13.820						
1546-50		16.900						

Sources: **Flemish Commodity Price Index**: see sources for Tables 4-5; **Ghent Cloth Prices**: Stadsarchief Gent, Stadsrekeningen, Reeks 400: 11-44; Algemeen Rijksarchief België, Rekenkamer, reg. nos. 38,635-72; **Bruges Cloth Prices**: Stadsarchief Brugge, Stadsrekeningen 1390-91 to 1499-1500; Algemeen Rijksarchief België, Rekenkamer, nos. 32,461-564 (stadsrekeningen Brugge, from 1406); **Ypres Cloth Prices**: Algemeen Rijksarchief België, Rekenkamer, registers nos. 38,635-722 (stadsrekeningen Ieper); **Cloth Prices for Wervik, Kortrijk, Nieuwerkerk, Nieperkerke**: see the sources for the Bruges cloth prices: prices recorded on the Bruges market.

Table 10: The Brabant Composite Price Index (1451–75): & Prices of Various Brabantine Woollen Broadcloths, in pounds groot Flemish, with the number of days' wages for an Antwerp mason to buy a Mechelen woollen broadcloth in quinquennial means, 1351–55 to 1515–20

Years	LEUVEN Dyed Price In £ groot Flemish	MECHELEN Mean Price of Dyed Woolleens in in £ groot Flemish	MECHELEN Mean Price of Dyed Zwartlakens in £ groot Flemish	MECHELEN No. of days Wages for Antwerp Master Mason to buy one Zwartlakens: harmonic mean	BRABANT Commodity Price Index 1451–75=100 155,016d groot Flemish
1351–55					
1356–60					
1361–65					
1366–70		5.375			
1371–75		6.716			
1376–80		7.211			
1381–85		7.957			
1386–90		8.780			
1391–95		6.524			
1396–00		5.972			
1401–05	3.226	8.631			96.403
1406–10	3.683	9.418			102.828
1411–15	3.787	9.694			100.559
1416–20	3.944	8.411			105.868
1421–25	4.520	7.618			108.433
1426–30	5.057	8.631			115.651
1431–35	6.086	8.528			113.003
1436–40		6.523			125.432

1441-45	4.067	6.706				105.477
1446-50	4.082	6.538				99.577
1451-55	3.788	6.703				98.545
1456-60	4.086					114.577
1461-65	5.412					91.070
1466-70	5.698	5.624				96.953
1471-75	5.517	6.129	6.930		140.522	98.854
1476-80	5.955	7.826	8.053		171.450	120.693
1481-85	6.531	7.475	6.893		136.157	155.752
1486-90	7.682	6.205	6.876		127.495	174.098
1491-95	7.907	8.478	8.524		178.007	133.216
1496-00		9.821	9.604		199.557	115.352
1501-05		10.012	9.919		204.716	125.449
1506-10		10.116	10.119		208.788	114.801
1511-15		10.941	10.954		204.030	137.904
1516-20		11.310	11.348		196.131	150.264
1521-25		10.976	11.159		187.998	179.938
1526-30		10.807	11.067		181.607	178.519
1531-35		11.025	11.165		191.028	173.995
1536-40		11.295	11.373		164.074	185.641
1541-45		11.109	11.107		136.384	208.340
1546-50		12.202	11.996		128.952	199.420

Sources: **Mechelen Cloth Prices:** Stadsarchief Mechelen, Stadsrekeningen, 1316-1550, Series I: nos. 3-225; Algemeen Rijksarchief, Rekenkamer, reg. nos. 41,219-85; **Leuven Cloth Prices:** Stadsarchief Leuven, Stadsrekeningen, 1345-1500, nos. 4986-5124. **Brabant Commodity Prices:** VAN DER WEE, Prijzen en lonen (see note 73), pp. 413-435; **Antwerp Wages:** VAN DER WEE, Growth of the Antwerp Market (see note 51), I: Statistics, Appendix 2: Wages, pp. 457-460.

Table 11: Prices of Hond schoote Says and Ghent Diekedinnen Woollens, in pence pounds groot Flemish compared with the Purchasing Power an Antwerp Master Mason's Daily Wages, 1535-44

Year	Hond schoote Single Says: Prices in £ groot	Hond schoote Double Says: Prices in £ groot	Ghent Diekedinnen Woollens: Prices in £ groot	Daily Wage of an Antwerp Master Mason	No. Days' Wages of a Master Mason to Buy a	No. Days' Wages of a Master Mason to Buy a	Value of the Brabant Basket of Consumables in d. groot	Value of Single Say in Baskets of Consum-	Value of Ghent Diekedinnen Baskets of Consum-
1535			14.150	9.750		348.308	268.733		12.637
1536			14.250	10.250		333.659	297.467		11.497
1537			14.500	10.250		339.512	254.333		13.683
1538	0.967	2.278	14.500	11.000	21.098	316.364	295.533	0.785	11.775
1539	0.945	2.184	15.000	12.000	18.900	300.000	300.400	0.755	11.984
1540	0.835	1.961	11.500	12.000	16.700	230.000	291.133	0.688	9.48
1541	0.879	2.015	12.000	12.000	17.580	240.000	278.000	0.759	10.36
1542	0.838	2.005	14.600	12.000	16.760	292.000	293.600	0.685	11.935
1543	0.783	1.775	14.000	13.000	14.455	258.462	324.200	0.580	10.364
1544	0.908	1.942	14.000	13.500	16.142	248.889	351.067	0.621	9.571

*Sources: Ghent: Stadsarchief Gent, Stadsrekeningen 1534/5-1544/5, Reeks 400: nos. 46-52; Mechelen: Stadsarchief Mechelen, Stadsrekeningen 1534/5-1544/5, nos. 209-19; Antwerp: VAN DER WEE, Growth of the Antwerp Market (see note 51), 1:457-68 (Appendix 39); Hond schoote: Recueil de documents relatifs à l'histoire de l'industrie drapière en Flandre, deuxième série, 2, ed. Henri DE SAGHER et al, Brussels 1954, pp. 362-369, no. 290; pp. 378-381, no. 291; p. 415, no. 299; Émile COORNAERT, La draperie-sayetterie d'Hond schoote, XIVe-XVIIe siècles, Paris 1930; calculated from Appendix IV, pp. 485-490; Florence EDLER, Le commerce d'exportation des sayes d'Hond schoote vers l'Italie d'après la correspondance d'une firme anversoise, entre 1538 et 1544, in: Revue du Nord 22 (1936), pp. 249-265.*

Table 12a: The Purchase Prices of Ghent Woollens: by rank order of values, 1360–69. Values in £ groot Flemish, units of Commodity Baskets of equivalent value, and the number of a master mason's day's wages required to purchase each cloth

Year	Name of the Cloth	Description of the Cloth in the Stadsrekeningen	Purchase Price in £ groot Flem	Price in Florins	Value of Florin in d. gros
1362	Striped Cloth	Strijpten	1.4000	15.273	22.000
1360	Striped Cloth	Strijpten	1.5833	17.273	22.000
1365	Striped Cloth	Strijpten	1.6125	14.333	27.000
1365	Striped Cloth	Strijpten	1.6125	14.333	27.000
1361	Striped Cloth	Strijpten Lakekenen	1.6194	17.667	22.000
1366	Striped Cloth	Strijpten	1.8275	16.244	27.000
1367	Striped Cloth	Strijpten	2.0425	18.156	27.000
1360	Medley Dickedinnen	Ghemingden Dickedinne	2.0458	22.318	22
1362	Small Dickedinnen	Smaele Dickedinne	2.0500	22.364	22.000
1365	Small Dickedinnen	Smaele Dickedinne	2.1500	19.111	27.000
1366	Half (?) Dickedinnen	Alvere Dickedinne	2.1500	19.111	27.000
1362	Striped Cloth	Strijpten	2.1625	23.591	22.000
1362	Medley Dickedinnen	Ghemingden Dickedinnen	2.1958	23.955	22.000
1368	Striped Cloth	Strijpten	2.2042	19.593	27.000
1361	Medley Dickedinnen	Ghemingden Dickedinnen	2.2667	24.727	22.000
1365	Striped Cloth	Strijpten Laken	2.3111	20.543	27
1369	Striped Cloth	Strijpten	2.3111	20.543	27.000
1366	Striped Cloth	Strijpten	2.3139	20.568	27.000
1361	Medley Dickedinnen	Ghemingden Dickedinne	2.3500	25.636	22.000
1365	Dickedinnen	Dickedinne	2.3667	21.037	27.000
1365	Dickedinnen	Dickedinne	2.3667	21.037	27.000
1365	Dickedinnen	Dickedinne (alve)	2.3667	21.037	27

1361	Red Dickedinnen	Roeden Dickedinne	2.4000	26,182	22.000
1365	Dickedinnen	Dickededinnen	2.4183	21,496	27
1366	Small Dickedinnen	Smaele Dickedinne	2.4188	21,500	27.000
1360	Dickedinnen	Dickedinne	2.4750	27,000	22.000
1367	Dickedinnen	Dickedinne	2.4750	22,000	27.000
1360	Striped Cloth	Striipen	2.4750	27,000	22.000
1361	Striped Cloth	Striipen Lakenen	2.4833	27,091	22.000
1362	Striped Cloth	Striipen Lakenen	2.4833	27,091	22.000
1362	Dickedinnen	Dickedinne	2.4833	27,091	22.000
1361	Medley Dickedinnen	Ghemingden Dickedinnen	2.4833	27,091	22.000
1362	Dickedinnen	Dickedinne	2.4833	27,091	22.000
1365	Dickedinnen	Dickededinnen	2.5792	22,926	27.000
1367	Dickedinnen	Dickedinne	2.5792	22,926	27.000
1360	Medley Dickedinnen	Ghemingden Dickedinne	2.5833	28,182	22.000
1362	Striped Cloth	Striipen Lakene	2.5917	28,273	22.000
1366	Green Dickedinnen	Groenen Dickedinnen	2.7417	24,370	27.000
1366	Dickedinnen	Dickedinne	2.7958	24,852	27.000
1366	Dickedinnen	Dickedinne	2.7958	24,852	27.000
1368	Dickedinnen	Dickedinnen	2.7958	24,852	27.000
1360	Striped Cloth	Striipen	2.8000	30,545	22.000
1369	Dickedinnen	Dickedinne	2.8500	25,333	27.000
1360	Striped Cloth	Striipen Lakene	2.8792	31,409	22.000
1367	Dickedinnen	Dickedinne	2.9028	25,802	27.000
1367	Dickedinnen	Dickedinne	2.9042	25,815	27.000
1366	Striped Cloth	Striipen	2.9042	25,815	27.000
1367	Striped Cloth	Striipen	3.0083	26,741	27.000
1367	Striped Cloth	Striipen	3.0125	26,778	27.000
1368	Dickedinnen	Dickedinnen	3.0625	27,222	27.000

<b>1365</b>	Striped Cloth	Strijpten	3.1167	27.704	27.000
<b>1365</b>	Striped Cloth	Strijpten	3.1167	27.704	27.000
<b>1368</b>	Dickedinnen	Dickedinne	3.2250	28.667	27.000
<b>1368</b>	Dickedinnen	Dickedinne	3.2250	28.667	27.000
<b>1361</b>	Striped Cloth	Strijpte Lakenen	3.2389	35.333	22.000
<b>1368</b>	Striped Cloth	Strijpten	3.3333	29.630	27.000
<b>1369</b>	Dickedinnen	Dickedinnen	3.3333	29.630	27.000
<b>1360</b>	Red-Orange cloth	Roede Haraengeren [laken]	3.4958	38.136	22.000
<b>1362</b>	Striped Ghesterts Cloth	Srijpten Ghesteert	3.6000	39.273	22.000
<b>1367</b>	Blue Striped Cloth	Blauwen Strijpte	3.7625	33.444	27.000
<b>1369</b>	Striped Cloth	Strijpten	3.9792	35.370	27.000
<b>1360</b>	Blue cloth	Blaeuwen Sticwerke	4.0000	43.636	22.000
<b>1365</b>	Geleiden Cloth	Gheleiden Lakenen	4.0375	35.889	27.000
<b>1365</b>	White Cloth	Witten Sticwerke	4.2500	37.778	27.000
<b>1362</b>	Dickedinnen Broadcloth	Breedten Dickedinnen	4.3208	47.136	22.000
<b>1366</b>	White Striped Cloth	Witten Strijpten	4.4083	39.185	27.000
<b>1361</b>	Brownish Cloth	Buxhoernen Lakenen Sticwecken	4.5000	49.091	22.000
<b>1368</b>	Striped Cloth	Strijpte Lakene	4.5167	40.148	27.000
<b>1368</b>	Striped Cloth	Strijpten	4.8375	43.000	27.000
<b>1369</b>	Striped Cloth	Strijpten Lakenen	5.1625	45.889	27.000
<b>1360</b>	Brown Striped Scarlet	Bruene Scaerlakene Strijpte	6.7833	74.000	22.000
<b>1362</b>	Brown Striped Scarlet Cloth	Bruenen Scaerlakenen Strijpten	7.5000	81.818	22.000
<b>1360</b>	Striped Scarlet	Strijpten Scaerlakene	7.5250	82.091	22.000
<b>1362</b>	Red Striped Scarlet	Roeden Strijpten Scaerlakene	7.9917	87.182	22.000
<b>1365</b>	Red Striped Scarlet	Roeden Strijpten Scaerlakenen	8.4917	75.481	27.000
<b>1362</b>	Red Scarlet Cloth	Roeden Scaerlakenen	8.7778	95.758	22.000
<b>1361</b>	Striped Scarlet	Scaerlaken Strijpten	9.1537	99.859	22.000
<b>1360</b>	Brown Scarlet	Bruunen Scaerlakene	9.7500	106.364	22.000

1361	Perse Scarlet Broadcloth	Breeden Persen Scaerlaken	10.0000	109.091	22.000
1365	Brown Scarlet	Brunen Scaerlakenen	10.6167	94.370	27.000
1366	Red Scarlet	Roeden Scaerlakenen	11.1222	98.864	27.000
1367	Brown Striped Scarlet	Brunen Scaerlakenen Strijpte	11.8250	105.111	27.000
1366	Gheleiden Cloth	Gheleiden Lakene	12.0000	106.667	27.000
1367	Perse Scarlet	Persn Scaerlakenen	13.5000	120.000	27.000
1369	Brown Striped Scarlet	Brunen Scaerlakenen Strijpte	13.5458	120.407	27.000
1368	Red Striped Scarlet	Roeden Strijpen Scaerlakenen	13.9000	123.556	27.000
1369	Red Scarlet	Roeden Scaerlakenen	14.0000	124.444	27.000
1368	Brown Scarlet	Brunn Scaerlakenen	14.0000	124.444	27

Table 12b: The Purchase Prices of Ghent Woollens: by rank order of values, 1360–69. Values in £ groot Flemish, units of Commodity Baskets of equivalent value, and the number of a master mason's day's wages required to purchase each cloth

Year	Name of The Cloth	Value of Commodity Basket in d groot Fl.	Flemish Price Index 1450–74=100	Units of CB per Cloth	Daily Wage of Master Mason in d. groot Flemish	Days' Wages to Buy One Cloth: Master mason
<b>1362</b>	Striped Cloth	89.20	69.92	3.767	6.75	49.78
<b>1360</b>	Striped Cloth	124.08	97.26	3.063	6.00	63.33
<b>1365</b>	Striped Cloth	131.57	103.13	2.941	7.50	51.60
<b>1365</b>	Striped Cloth	131.57	103.13	2.941	7.50	51.60
<b>1361</b>	Striped Cloth	145.08	113.72	2.679	6.00	64.78
<b>1366</b>	Striped Cloth	124.59	97.66	3.520	8.00	54.83
<b>1367</b>	Striped Cloth	136.52	107.01	3.591	8.00	61.28
<b>1360</b>	Medley Dickedinnen	124.08	97.26	3.957	6.00	81.83
<b>1362</b>	Small Dickedinnen	89.20	69.92	5.516	6.75	72.89
<b>1365</b>	Small Dickedinnen	131.57	103.13	3.922	7.50	68.80
<b>1366</b>	Half (?) Dickedinnen	124.59	97.66	4.142	8.00	64.50
<b>1362</b>	Striped Cloth	89.20	69.92	5.818	6.75	76.89
<b>1362</b>	Medley Dickedinnen	89.20	69.92	5.908	6.75	78.07
<b>1368</b>	Striped Cloth	142.87	111.99	3.703	8.00	66.13
<b>1361</b>	Medley Dickedinnen	145.08	113.72	3.750	6.00	90.67
<b>1365</b>	Striped Cloth	131.57	103.13	4.216	7.50	73.96
<b>1369</b>	Striped Cloth	117.75	92.30	4.711	8.00	69.33
<b>1366</b>	Striped Cloth	124.59	97.66	4.457	8.00	69.42
<b>1361</b>	Medley Dickedinnen	145.08	113.72	3.888	6.00	94.00

<b>1365</b>	Dickedinnen	131.57	103.13	4.317	7.50	75.73
<b>1365</b>	Dickedinnen	131.57	103.13	4.317	7.50	75.73
<b>1365</b>	Dickedinnen	131.57	103.13	4.317	7.50	75.73
<b>1361</b>	Red Dickedinnen	145.08	113.72	3.970	6.00	96.00
<b>1365</b>	Dickedinnen	131.57	103.13	4.411	7.50	77.39
<b>1366</b>	Small Dickedinnen	124.59	97.66	4.659	8.00	72.56
<b>1360</b>	Dickedinnen	124.08	97.26	4.787	6.00	99.00
<b>1367</b>	Dickedinnen	136.52	107.01	4.351	8.00	74.25
<b>1360</b>	Striped Cloth	124.08	97.26	4.787	6.00	99.00
<b>1361</b>	Striped Cloth	145.08	113.72	4.108	6.00	99.33
<b>1362</b>	Striped Cloth	89.20	69.92	6.682	6.75	88.30
<b>1362</b>	Dickedinnen	89.20	69.92	6.682	6.75	88.30
<b>1361</b>	Medley Dickedinnen	145.08	113.72	4.108	6.00	99.33
<b>1362</b>	Dickedinnen	89.2	69.92	6.682	6.75	88.30
<b>1365</b>	Dickedinnen	131.57	103.13	4.705	7.50	82.53
<b>1367</b>	Dickedinnen	136.52	107.01	4.534	8.00	77.38
<b>1360</b>	Medley Dickedinnen	124.08	97.26	4.997	6.00	103.33
<b>1362</b>	Striped Cloth	89.20	69.92	6.973	6.75	92.15
<b>1366</b>	Green Dickedinnen	124.59	97.66	5.281	8.00	82.25
<b>1366</b>	Dickedinnen	124.59	97.66	5.386	8.00	83.88
<b>1366</b>	Dickedinnen	124.59	97.66	5.386	8.00	83.88
<b>1368</b>	Dickedinnen	142.87	111.99	4.697	8.00	83.88
<b>1360</b>	Striped Cloth	124.08	97.26	5.416	6.00	112.00
<b>1369</b>	Dickedinnen	117.75	92.30	5.809	8.00	85.50
<b>1360</b>	Striped Cloth	124.08	97.26	5.569	6.00	115.17
<b>1367</b>	Dickedinnen	136.52	107.01	5.103	8.00	87.08
<b>1367</b>	Dickedinnen	136.52	107.01	5.105	8.00	87.13
<b>1366</b>	Striped Cloth	124.59	97.66	5.594	8.00	87.13

<b>1367</b>	Striped Cloth	136.52	107.01	5.289	8.00	90.25
<b>1367</b>	Striped Cloth	136.52	107.01	5.296	8.00	90.38
<b>1368</b>	Dickedinnen	142.87	111.99	5.145	8.00	91.88
<b>1365</b>	Striped Cloth	131.57	103.13	5.685	7.50	99.73
<b>1365</b>	Striped Cloth	131.57	103.13	5.685	7.50	99.73
<b>1368</b>	Dickedinnen	142.87	111.99	5.418	8.00	96.75
<b>1368</b>	Dickedinnen	142.87	111.99	5.418	8.00	96.75
<b>1361</b>	Striped Cloth	145.08	113.72	5.358	6.00	129.56
<b>1368</b>	Striped Cloth	142.87	111.99	5.599	8.00	100.00
<b>1369</b>	Dickedinnen	117.75	92.30	6.794	8.00	100.00
<b>1360</b>	Red-Orange cloth	124.08	97.26	6.762	6.00	139.83
<b>1362</b>	Striped Ghesterts Cloth	89.20	69.92	9.686	6.75	128.00
<b>1367</b>	Blue Striped Cloth	136.52	107.01	6.614	8.00	112.88
<b>1369</b>	Striped Cloth	117.75	92.30	8.110	8.00	119.38
<b>1360</b>	Blue cloth	124.08	97.26	7.737	6.00	160.00
<b>1365</b>	Geleiden Cloth	131.57	103.13	7.365	7.50	129.20
<b>1365</b>	White Cloth	131.57	103.13	7.753	7.50	136.00
<b>1362</b>	Dickedinnen Broadcloth	89.20	69.92	11.626	6.75	153.63
<b>1366</b>	White Striped Cloth	124.59	97.66	8.492	8.00	132.25
<b>1361</b>	Brownish Cloth	145.08	113.72	7.444	6.00	180.00
<b>1368</b>	Striped Cloth	142.87	111.99	7.587	8.00	135.50
<b>1368</b>	Striped Cloth	142.87	111.99	8.126	8.00	145.13
<b>1369</b>	Striped Cloth	117.75	92.30	10.522	8.00	154.88
<b>1360</b>	Brown Striped Scarlet	124.08	97.26	13.121	6.00	271.33
<b>1362</b>	Brown Striped Scarlet Cloth	89.20	69.92	20.179	6.75	266.67
<b>1360</b>	Striped Scarlet	124.08	97.26	14.555	6.00	301.00
<b>1362</b>	Red Striped Scarlet	89.20	69.92	21.502	6.75	284.15
<b>1365</b>	Red Striped Scarlet	131.57	103.13	15.490	7.50	271.73

<b>1362</b>	Red Scarlet Cloth	89.20	69.92	23.617	6.75	312.10
<b>1361</b>	Striped Scarlet	145.08	113.72	15.143	6.00	366.15
<b>1360</b>	Brown Scarlet	124.08	97.26	18.859	6.00	390.00
<b>1361</b>	Perse Scarlet Broadcloth	145.08	113.72	16.543	6.00	400.00
<b>1365</b>	Brown Scarlet	131.57	103.13	19.366	7.50	339.73
<b>1366</b>	Red Scarlet	124.59	97.66	21.425	8.00	333.67
<b>1367</b>	Brown Striped Scarlet	136.52	107.01	20.788	8.00	354.75
<b>1366</b>	Gheleiden Cloth	124.59	97.66	23.116	8.00	360.00
<b>1367</b>	Perse Scarlet	136.52	107.01	23.733	8.00	405.00
<b>1369</b>	Brown Striped Scarlet	117.75	92.30	27.609	8.00	406.38
<b>1368</b>	Red Striped Scarlet	142.87	111.99	23.350	8.00	417.00
<b>1369</b>	Red Scarlet	117.75	92.30	28.535	8.00	420.00
<b>1368</b>	Brown Scarlet	142.87	111.99	23.518	8.00	420.00

*Sources: Stadsarchief Gent, Stadsrekeningen, Reeks 400: vols. 9–10; SPUFFORD, Handbook (see note 81), pp. 215–221 (with some extrapolations from values for virtually identical Genoese genoins or florins and Venetian ducats); MUNRO, Mint Outputs (see note 74), pp. 31–122.*

Table 13: The Dimensions, Compositions, & Weights of Selected Woollens and Says in the 16<sup>th</sup> Century: England and the southern Low Countries

<b>Drapery: City/Region</b>	<b>Gent</b>	<b>Mechelen</b>	<b>Essex</b>	<b>Hondschoote</b>	<b>Bergues-St-Winoc</b>	<b>Essex</b>
<b>Date of Ordinance</b>	<b>1456 and 1546</b>	<b>1544</b>	<b>1552</b>	<b>1571</b>	<b>1537</b>	<b>1579</b>
<b>Name of Textile</b>	Dickedinnen	Gulden Aeren	Short Broadcloth	Double Say	Narrow Say	Says:
<b>Additional Names</b>	Five Seals	Five Seals	Suffolk; Essex	Small	Fine	Broad
<b>Origin of Wools</b>	England	England; Herefords.	England	Flanders, Friesland	Flanders, Artois	English:
<b>Wool Types</b>	March, Cotswolds	Lemster Ore	short-stapled	Scotland, Pomerania	Long-stapled	long-stapled
<b>Length on Loom: ells/yds</b>	42.500	48.000	n.s.	40.000	n.s.	n.s.
<b>Length on Loom: metres</b>	29.750	33.072	n.s.	28.000	n.s.	n.s.
<b>Width on Loom: ells</b>	3.625	4.000	n.s.	1.438	n.s.	n.s.
<b>Width on Loom: metres</b>	2.538	2.756	n.s.	1.006	n.s.	n.s.
<b>Weight on Loom: lb.</b>	88.000	n.s.	n.s.	n.s.	n.s.	n.s.
<b>Weight on Loom: kg.</b>	38.179	n.s.	n.s.	n.s.	n.s.	n.s.
<b>Final Length: ells/yds</b>	30.000	30.000	24.000	36.750	40.000	10.000
<b>Final Length : metres</b>	21.000	20.670	22.555	25.725	28.000	9.398
<b>Final Width: ells/yds</b>	2.375	2.500	1.750	1.250	1.000	1.000
<b>Final Width: metres</b>	1.663	1.723	1.645	0.875	0.700	0.940
<b>No. of Warps</b>	2066.000	3120.000	n.s.	1800.000	1400.000	n.s.
<b>Warps per cm (fulled)</b>	12.427	18.113	n.s.	20.571	20.000	n.s.
<b>Area in m2</b>	34.913	35.604	37.095	22.509	19.600	8.833
<b>Final Weight in lb.</b>	51.000	58.000	64.000	16.000	11.000	2.750
<b>Final Weight in kg</b>	22.126	27.217	29.030	7.257	5.103	1.247
<b>Weight per m2 in grams</b>	633.766	764.421	782.575	322.421	260.352	141.193

*a. Flemish ell in metres: 0.700; b. Ghent pound in grams: 433.850; c. Bruges pound in grams: 463.900; d. Mechelen ell in metres: 0.689; e. Mechelen pound in grams: 469.250; f. English pound avoirdupois: 453.593; g. English cloth yard (37 in.): m: 0.94.*

Sources: *a. Ghent 1456*: BOONE, *Nieuwe teksten* (see note 46), pp. 1–61; *b. Ghent 1546*: *Recueil des ordonnances* (see note 46), pp. 272–283; *c. England woollens*: *Statutes of the Realm, 1–6: Great Britain (Record Commission)*, London 1810–22, 4:1, pp. 136–137, *Statute 5–6 Edward VI c. 6; d. England says*: John E. PILGRIM, *The Rise of the New Draperies in Essex*, in: *University of Birmingham Historical Journal 7* (1959–60), pp. 36–59; Abbott Payson USHER, *Industrial History of England*, Boston 1920, p. 200; *e. Mechelen*: *Le règlement général de la draperie malinoise de 1544*, ed. M. Georges WILLEMSEN, in: *Bulletin du cercle archéologique de Malines 20* (1910), pp. 156–190; *f. Hond schoote*: *Recueil de documents relatifs à l'histoire* (see note 54), 2, no. 290 pp. 362–390, no. 291 pp. 378–381, no. 299 p. 415. *Emile COORNAERT, La draperie-sayetterie d'Hond schoote, XIVe-XVIII siècles*, Paris 1930; *g. Bergues-St-Winoc*: *Recueil de documents relatifs à l'histoire* (see note 54), 1, no. 163 pp. 530–531, no. 165 p. 538, nos. 176–7 pp. 561–567; *Emile COORNAERT, Une industrie urbaine: du XIVe au XVIIe siècle. L'industrie de la laine à Bergues-Saint-Winoc*, Paris 1930.

Table 14: Prices of English Wools per Sack, in Pounds Sterling English, Wool Export Duties in shillings, Price Indexes for Wools, Livestock Products & the Phelps Brown and Hopkins Composite Price Index, in quinquennial means: from 1211–15 to 1496–1500

Woolsack = 364 lb. = 165.45 kg      Mean of Prices 1451–75 = 100

Year	Mean Prices per Sack all Wools	Index 1451–75 = 100 £3.4917	Mean Price Sack Better Wools	Index 1451–75 = 100.00 £4.8544	Phelps Brown & Hopkins Composite 1451–75 = 100	PB&H Livestock Index 1451–75 = 100	Denizen Export Duties on Wool Sacks in shillings	Denizen Export Duties as Percent of Wool Prices	Alien Export Duties on Wool Sacks in shillings	Alien Export Duties as Percent of Wool Prices
<b>1211–15</b>	2.399	68.700	2.616	53.890						
<b>1216–20</b>	2.586	74.060	2.645	54.480						
<b>1221–25</b>	2.766	79.210	2.970	61.170						
<b>1226–30</b>	2.570	73.610	2.713	55.890						
<b>1231–35</b>	3.903	111.770	3.988	82.160						
<b>1236–40</b>	3.679	105.360	3.832	78.950						
<b>1241–45</b>	3.839	109.960	3.809	78.460						

1246-50	3,784	108,380	4.052	83,460								
1251-55	3,251	93,120	3.610	74,370								
1256-60	3,930	112,550	3.948	81,320								
1261-65	4,950	141,770	4.184	86,190	82,440	88,000						
1266-70	4,634	132,720	4.689	96,590	81,250	76,600						
1271-75	4,887	139,970	5.061	104,250	103,840	96,600	5,334	5,27%	5,334	5,27%		
1276-80	6,692	191,640	6.791	139,900	96,610	100,800	6,667	4,91%	6,667	4,91%		
1281-85	5,616	160,830	5.700	117,410	104,800	93,200	6,667	5,85%	6,667	5,85%		
1286-90	6,059	173,530	6.281	129,390	80,520	84,530	6,667	5,31%	6,667	5,31%		
1291-95	5,107	146,260	5.402	111,280	107,450	82,270	14,66	13,58%	14,667	13,58%		
1296-1300	5,520	158,100	5.508	113,470	102,340	91,600	22,667	20,58%	22,667	20,58%		
1301-05	5,498	157,470	5.441	112,080	92,350	90,000	6,667	6,13%	6,667	7,96%		
1306-10	7,063	202,270	7.006	144,320	109,810	104,170	6,667	4,76%	10,000	7,14%		
1311-15	5,775	165,390	6.087	125,390	115,330	122,530	6,667	5,48%	6,667	5,48%		
1316-20	6,734	192,840	7.017	144,440	161,910	132,000	8,332	5,94%	9,166	6,54%		



1391-95	4.266	122.17 0	4.95 3	102.04 0	106.33 0	102.80 0	49.830	50.30 %	53.163	53.66%
1396-1400	4.814	137.86 0	5.24 1	107.97 0	110.84 0	109.00 0	50.000	47.70 %	56.555	53.95%
1401-05	5.065	145.05 0	5.70 2	117.46 0	114.84 0	107.20 0	51.187	44.89 %	61.187	53.66%
1406-10	4.974	142.44 0	5.75 9	118.64 0	111.23 0	108.47 0	50.000	43.41 %	60.000	52.09%
1411-15	5.426	155.38 0	5.95 4	122.65 0	108.11 0	107.53 0	50.000	41.99 %	60.000	50.39%
1416-20	4.155	119.00 0	4.59 2	94.590 0	113.40 0	107.50 0	50.000	54.45 %	68.000	74.05%
1421-25	4.205	120.42 0	5.26 9	108.54 0	101.48 0	94.260 0	43.841	41.60 %	62.658	59.46%
1426-30	4.613	132.11 0	5.01 5	103.30 0	112.27 0	102.38 0	40.000	39.88 %	53.333	53.18%
1431-35	4.928	141.13 0	5.61 3	115.63 0	108.48 0	101.40 0	40.000	35.63 %	57.103	50.86%
1436-40	4.440	127.16 0	5.32 2	109.63 0	122.01 0	106.80 0	40.000	37.58 %	62.267	58.50%
1441-45	4.188	119.93 0	5.20 1	107.15 0	92.530	98.800	40.000	38.45 %	63.333	60.88%
1446-50	4.119	117.96 0	5.37 9	110.80 0	100.90 0	106.20 0	40.000	37.19 %	63.333	58.88%
1451-55	3.184	91.190 0	4.69 9	96.790 0	100.25 0	97.400 0	42.981	45.74 %	77.244	82.19%
1456-60	2.923	83.710 0	3.77 5	77.770 0	97.060 0	100.80 0	50.000	66.22 %	110.000	145.6%
1461-65	4.056	116.17 0	5.18 5	106.82 0	102.73 0	100.00 0	48.833	47.08 %	106.110	102.31



Table 15: Prices of English Wools, by Sack Weight, at the Calais Staple, in 1475 and 1499

No.	Name of Wool: County of Origin	1475 Calais Weight in £ sterling	1475 English Sack Weight in £ ster	1475 English Sack Weight in £ groot Flemish	1499 Calais Weight in £ sterling	1499 English Sack Weight in £ ster	1499 English Sack Weight in £ groot Flemish	1499 Index % of Leominster Wool Price
1	Leominster, Hereford				22.333	25.807	37.498	100.0
2	March Wools, Shropshire/Hereford	13.333	15.407	18.134	17.000	19.644	28.543	76.1
3	Middle Leominster				15.667	18.104	26.305	70.2
4	Fine Cotswolds (Glouc., Worc. Oxf.)	12.000	13.867	16.321	13.000	15.022	21.827	58.2
5	High Lindsey, Lincolnshire	11.000	12.711	14.961	9.333	10.785	15.670	41.8
6	Fine Berkshire	11.000	12.711	14.961	11.667	13.482	19.589	52.2
7	Leominster Refuse				11.000	12.711	18.469	49.3
8	Middle March: Shropshire/Hereford				11.000	12.711	18.469	49.3
9	Fine Young Cotswolds				10.333	11.940	17.349	46.3
10	Middle Cotswolds				9.000	10.400	15.111	40.3
11	Low Lindsey, Lincolnshire				9.000	10.400	15.111	40.3
12	Kesteven, Lincolnshire	10.333	11.940	14.054	8.667	10.015	14.552	38.8
13	Wiltshire	10.333	11.940	14.054				
14	Oxfordshire: Henley	10.333	11.940	14.054				
15	Nottinghamshire	10.000	11.556	13.601				

16	Clay Wolds	10,000	11,556	13,601					
17	Nottinghamshire: Hatfield	9,833	11,363	13,374					
18	Warwickshire	9,833	11,363	13,374					
19	Lindsey Marsh, Lincolnshire	9,833	11,363	13,374					
20	North Holland, Lincolnshire	9,833	11,363	13,374	8,333	9,629	13,991	37.3	
21	South Holland, Lincolnshire	9,833	11,363	13,374	8,333	9,629	13,991	37.3	
22	Leicestershire	9,667	11,170	13,148					
23	Rutland	9,667	11,171	13,148	8,333	9,629	13,991	37.3	
24	March Refuse				8,333	9,629	13,991	37.3	
25	Middle Berkshire				8,333	9,629	13,991	37.3	
26	Staffordshire	9,500	10,978	12,921					
27	Buckinghamshire	9,333	10,785	12,694					
28	Northamptonshire	9,333	10,785	12,694					
29	Bedfordshire	9,333	10,785	12,694					
30	Huntingdonshire	9,333	10,785	12,694					
31	Hertfordshire	9,167	10,593	12,467					
32	Cambridgeshire	9,167	10,593	12,467					
33	Derbyshire	9,167	10,593	12,468					
34	Hampshire	9,167	10,593	12,467					
35	Surrey	8,833	10,207	12,014	7,333	8,474	12,313	32.8	
36	Yorkshire Wolds	8,833	10,207	12,014					
37	Derbyshire: Peak District	8,333	9,629	11,334					
38	Dorset	8,667	10,015	11,787					

39	Essex	8.333	9.630	11.334					
40	Sussex	8.333	9.629	11.334					
41	Kent	8.000	9.244	10.881	7.667	8.860	12.873	34.3	
42	Norfolk	7.667	8.859	10.427	7.333	8.474	12.312	32.8	
43	Yorkshire	7.000	8.089	9.521					
44	Middle Young Cotswolds				7.000	8.089	11.753	31.3	
45	Cotswolds Refuse				6.333	7.318	10.634	28.4	
46	Middle Kesteven				6.000	6.933	10.074	26.9	
47	Middle Holland				5.666	6.547	9.513	25.4	
48	Middle Rutland				5.667	6.548	9.514	25.4	

*Calais sack* = 315 lb.

*English sack weight* = 364 lb.

**Sources:** 1475: *British Library, Cotton Vespasian E. ix. fo. 106r-7r.: Nounbre of Weyghtes, cf. Stuart JENKS, Werkzeug des spätmittelalterlichen Kaufmanns: Hansen und Engländer im Wandel von memoria zur Akte (mit einer Edition von The Nounbre of Weyghys), in: FS Alfred Wendehorst zum 65. Geburtstag gewidmet von Kollegen, Freunden, Schülern, 1. ed. Jürgen SCHNEIDER, Gerhard RECHTER (JFL, 52/3), Neustadt a.d. Aisch 1992, pp. 283–319, 1499: *Algemeen Rijksarchief België, Rekenkamer, reg. no. 1158, fo. 226; MUNRO, Wool-Price Schedules* (see note 52), pp. 118–169; repr. in: *DEM, Textiles, Towns, and Trade* (see note 1).*