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June 18, 1998

WORKING PAPER
NUMBER UT-ECIPA-MUNRO5-98-02

The 'Industrial Crisis' of the English Textile Towns, c.1290 - c.1330

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On-line version:

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The debate about England's 'urban industrial crisis' in the later thirteenth century

Most historians -- with the notable exception of A. R. Bridbury[2] -- acknowledge that the old, traditional textile-manufacturing towns of medieval England were suffering from a severe 'industrial crisis' by the later thirteenth century; but few can agree on the causes of such a supposed crisis, chiefly because the nature of English cloth manufacturing during the twelfth and thirteenth centuries is so ill understood. Let us begin with the basic facts as they are now understood. The majority though not all of the leading textile towns lay in a broad arc along the eastern seaboard region, from Northumberland, Yorkshire, Lincolnshire, East Anglia, westwards into the Midland lowlands plain, and then into the southern and Home Counties. The most prominent were certainly also amongst the most populous towns of thirteenth-century England, few though they were: York, Louth, Beverley, Lincoln, Stamford, Northampton, Leicester, Huntingdon, Norwich, Colchester, Oxford, Winchester, and London itself. From the twelfth but most especially during the booming thirteenth century, many of these towns gained a high degree of international renown for exporting a wide variety of textile products to continental Europe, and to the Mediterranean basin in particular, an achievement often forgotten by historians focusing on the very different textile industry of later-medieval England.

Descriptions of English textiles in thirteenth-century literature

In his masterful survey of textiles to be found in medieval literature, Raymond Van Uytven comments that 'until the end of the thirteenth century, Flemish cloths ... had practically no competition', so that rarely did

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[1] I wish to acknowledge my particular indebtedness to Derek Keene, not only for his invaluable personal comments and advice on this paper, but also for his magisterial publications on Winchester and its cloth industry, cited in many of the notes below.

[2] See below, pp. 17 and 24, and nn. 86, 131.

literary writers mention any other region, with one major exception: England.[3] Thus, for example, at the end of the twelfth century, the famed trouvère poet Chrétien de Troyes had praised London for its many textiles, especially *de panes veires et grises*, in his *Conte del Graal* (Story of the Holy Grail).[4] From this very same era (c.1190), the German writer Hartman van Aue spoke approvingly in his poem *Erec* of 'the best broadcloth to be found in all of England' (*den besten brûtlach den man vant uber allez Engellant*).[5] Subsequently, in the mid-thirteenth century, his fellow German writer Seifried Helbing refers to perhaps the most famous English textile of this era: *einem guoton stampfhair* -- a good *stamfort* (*stanforte*)[6]. That name may be derived from Stamford in SW Lincolnshire (near Rutland and Northants), which certainly was an important textile town during this era; but the more likely source is the Latin *stamen forte*, meaning 'strong warp yarn'. For this widely manufactured or widely imitated cloth belonged to a specific and very highly popular *genre* of thirteenth-century textiles: the low to medium-priced worsted-woollens, a light-weight hybrid fabric with a

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[3] Raymond Van Uytven, 'Cloth in Medieval Literature of Western Europe', in Negley Harte and Kenneth Ponting, eds., *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E. M. Carus-Wilson*, Pasold Studies in Textile History no. 8 (1983), 151-83.

[4] Van Uytven, 162: citing Crapelet, ed., *Proverbes et dictons populaires* (n.d.), 14; and W. Foerster and A. Hilka, eds., *Chrétien de Troyes: Perceval ou le Conte del Graal* (Halle, 1932), v.5781.

[5] Van Uytven, 161, however, translates this passage incorrectly as 'the best scarlet that was found in all England' [citing E. Schwarz, ed., *Hartmann von Aue. Erc. Iwein* (Darmstadt, 1967), 58, vv. 1986-7]. The term *brûtlach* clearly means 'broad-cloth', while the Old High German for scarlet -- finely finished and very costly woollens dyed 'in grain' with that vivid red colour extracted from the eggs of kermes-bearing insects -- was *Scharlach[en]*, as in 'Scharlach von Gint [Ghent'], which Van Uytven cites on 158. Indeed, the earliest recorded use of the term 'scarlet' in western Europe is to be found in the Old High German commentary *Summarium Heinrici*, composed at Worms c.1007-1032, as a gloss upon a corrupt text of Isidore of Seville: *ralla vel rullo que vulgo rasilis dicitur -- scarlachen*. Nevertheless, J.B. Weckerlin cited another and only slightly later text of c.1050 referring to *tres pannos scarlitinos anglicanos*, which Emperor Henry III gave to the Count of Cleves; and this is clearly an English-made cloth, rather than one woven from English wools. See J.B. 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); John Munro, 'The Medieval Scarlet and the Economics of Sartorial Splendour', in N.B. Harte and K.G. Ponting, eds., *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E.M. Carus-Wilson* (1983), 13-70, reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries(*1994).

[6] Van Uytven, 'Cloth', 161, citing T.G. von Karajan, ed., 'Seifried Helbing', *Zeitschrift für deutschen Alterthum* (1844), iv. 43: v.73.

strong, long-fibred, double-twisted, 'dry' worsted warp yarn and a soft, weak, loosely spun greased woollen weft yarn, much like a contemporary Flemish say (also called a 'serge').[7]

About the same time, two other German writers, Bertold von Holle and Ulrich von dem Türlin, make particular mention of English *Scharlachen*: i.e. the vastly more expensive scarlet, by far the most expensive of all European woollen textiles, second only to Asian silks in price. Their extremely high cost was due not just to their very fine wools, the finest English wools (from Herefordshire, Shropshire, Cotswolds), which were also the best to be found in medieval Europe and used everywhere in their manufacture, but more especially to the large quantities of its rare dyestuff, *kermes,* extracted from the desiccated granular eggs of the Mediterranean scale-insect genus *Kermococcus vermilio*, universally called 'grain' (*granum*).[8] Indeed, an

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[7] Van Uytven, 161, more modestly states: 'possibly derived from *stamen forte*'; but Carus-Wilson asserts more strongly that stamfords 'have been thought to be either cloths made at Stamford [Lincs.] or [continental] imitations of them, but it seems very probable this word is actually derived from *stamen forte* ("of strong warp thread," i.e. a species of worsted)': in E.M. Carus-Wilson, 'The English Cloth Industry in the Twelfth and Thirteenth Centuries', *Economic History Review*, 1st ser. 14 (1944), reprinted in E. M. Carus-Wilson, *Medieval Merchant Venturers: Collected Studies* (London, 1954), 211-38. See also E.M. Carus-Wilson, 'The Woollen Industry', in M. M. Postan and E. E. Rich, eds., *Cambridge Economic History*, Vol. II: *Trade and Industry in the Middle Ages* (Cambridge, 1952), reissued, with a few revisions in M.M. Postan and Edward Miller, eds., *The Cambridge Economic History of Europe*, Vol. II, 2nd rev. edn. (Cambridge, 1987), 633. Supporting this latter view are Patrick Chorley, 'The Cloth Exports of Flanders and Northern France During the Thirteenth Century: A Luxury Trade?' *EcHR*, 2nd ser. 40 (1987), 349-79; John Munro, 'Industrial Transformations in the North-West European Textile Trades, c. 1290 - c. 1340: Economic Progress or Economic Crisis?' in Bruce Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester, 1991), 110 - 14, reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries(*1994); John Munro, 'The Origins of the English "New Draperies": The Resurrection of an Old Flemish Industry, 1270 - 1570', in Negley Harte and Donald Coleman, eds., *The New Draperies*, Pasold Studies in Textile History (Oxford, 1997), 53-7. In 13th-century France, it was more commonly called *estainfort*; and *l'estain* was the then current French term for warp, derived of course from *stamen* (in modern French: la chaîne). For the older opposing 'place-name' view, see L. F. Salzman, *English Industries of the Middle Ages*, new edn. (Oxford, 1923), 197-200; Natalie Fryde von Stromer, 'Stamford Cloth and Its Imitations in the Low Countries and Northern France during the Thirteenth Century', in Erik Aerts and John Munro, eds., *Textiles of the Low Countries in European Economic History* (Leuven, 1990), 8-13; Guy De Poerck, *La draperie médiévale en Flandre et en Artois: Technique et terminologie*, 3 vols. (Bruges, 1951), i. 214-16 (though conceding points to the alternative etymology); ii.80 ('sans doute contrefaçon d'un drap d'abord fabriqué en Angeleterre'); iii. 147.

[8] Van Uytven, 'Cloth', 162, citing A. Schulz, ed., *Das höfische Leben zur Zeit der Minnesinger* (Leipzig, 1889), i.354. See Munro, 'Medieval Scarlet', 13-70; and John Munro, 'Wool-Price Schedules and the Qualities of English Wools in the Later Middle Ages, ca. 1270 - 1499', *Textile History*, 9 (1978), 118-69 reprinted in John Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval*

anonymous French poem of about the same era (c.1250) cites the most renowned English scarlet of the day, the *Escarlate de Nichole* (Lincoln). Also listed in this poem are *Blaunkets de Blye* (blankets of Blyth, coastal Northumberland), *Russets de Colcestre* (cheap russets of Colchester, in Essex), and the *Haubergé de Estanford* (Stamford) -- which, as the equally ubiquitous *haberget*, was definitely a light worsted textile.[9] Finally, another French poem of this very same era, *Dit de l'apostoile*, refers *inter alia* to white cloths from Lincoln.

But somewhat surprisingly, no mention of any English textiles can be found in the famous French treatise *Dit du Lendit*, written about sixty years later, in the early fourteenth century, to describe the current commerce of the Lendit Fair, at Compiègne near Paris, which was now superseding the declining international Champagne Fairs -- at least as a major regional French market.[10] Was that merely a francocentric omission from a list that enumerated about 80 textile-manufacturing centres, from the Loire north to Escaut (Scheldt) estuary and north-east to the Meuse (Maas)? Or had some set of adverse circumstances beset the English cloth export trade, or the English textile towns themselves, by the later thirteenth century?

English textiles in Mediterranean commerce during the twelfth and thirteenth centuries

Indeed, from various commercial and legal records, there is considerable and widespread evidence that most English textiles, after having played a prominent role in various Mediterranean markets during the twelfth and thirteenth centuries, had virtually disappeared from almost all of those markets by the early fourteenth

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*England and the Low Countries(*1994); and n. 3 above.

[9] Van Uytven, 'Cloth', 162, citing D.C. Douglas, ed., *English Historical Documents*, iii (1975); and Carus-Wilson 'Cloth Industry', 212-13; and E.M. Carus-Wilson, 'Haberget: A Medieval Textile Conundrum', *Medieval Archeology*, 13 (1969), 148-66. For the earlier medieval Scandinavian *habergets*, see Margaret Nockert, 'A Scandinavian Haberget?' in N.B. Harte and K. G. Ponting, eds., *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E. M. Carus-Wilson* (1983), 100-07; and also in this same volume, Agnes Geijer, 'The Textile Finds from Birka', 80-99. For the sale of Stamford *habergets* in 1235 (19 Henry III), possibly those of a higher value, dyed scarlet 'in grain', see *Calendar of Close Rolls 1234-37*, 73: 'tres bonas blaunchettas et tres bonos haubergettos et eos, cum facti fuerint, bene tingi faciatis in grana...(which may however apply only to the *blaunchettas*); Waltero de Tynkicot' de Stamford' de tribus bonis haubergettis et tribus bonis blanchettis'.

[10] Van Uytven, 'Cloth', 163-4; see below, pp. 27-9 and nn. 11, 119-25.

centuries, certainly by the 1320s.[11] Such evidence -- or the absence of evidence of their continued presence -- acquires credibility and gains significance only in the light of data on the importance of these English and other similar cheap northern textiles in the two preceding and relatively peaceful centuries in the Mediterranean basin, which then provided the most numerous and densely populated urban markets, with the greatest aggregate purchasing power and lowest transaction costs available to western producers. Furthermore, while many Mediterranean and adjacent regions, especially in the Balkans, Anatolia, and Iraq-Persia, had mountainous or elevated plateau lands with cold winters that made them suitable markets for heavy-weight woollens, many other regions, especially in Italy, southern France, Iberia, and North Africa, from Morocco to Egypt, and the Levantine coast, had very hot Spring and summer climates that made them the best markets for the light-weight European textiles, certainly much more so than north-eastern Europe and the Baltic zone.

Our understanding of these Mediterranean markets has benefited enormously in recent years from several important studies. In one of the earliest, the American historian Hilmar Krueger analysed the composition of Genoa's Mediterranean trade in European textiles with Sicily, the Byzantine Empire, and the Levant (Syria, Palestine, Egypt) during the second half of the twelfth century (1155-1205). He found that the says (*sagie, saie, sargie* -- i.e. serges) and *stanfortes* produced in northwestern Europe 'were exported more frequently than other type of cloths'; and thus that northern textiles in general, including the much more expensive heavy-weight woollens, predominated over almost all Mediterranean textiles, of which 'only the Lombard fustians formed an impressive item of export'.[12] According to Maureen Mazzaoui, the leading historian of this Lombard textile industry, its major fustian manufacturers in Milan, Cremona, Pavia, Brescia, Piacenza, and Verona 'mass- produced' these similarly light-weight, mixed-fibre fabrics, with linen warps and

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[11] For detailed evidence on this disappearance, see Munro, 'Industrial Transformations', 110 - 48; Munro, 'New Draperies', 35 - 127; John Munro, 'Patterns of Trade, Money, and Credit', in James Tracy, Thomas Brady Jr., and Heiko Oberman, eds., *Handbook of European History in the Later Middle Ages, Renaissance and Reformation, 1400 - 1600*, i: *Structures and Assertions* (Leiden, 1994), 147-95.

[12] Hilmar Krueger, 'The Genoese Exportation of Northern Cloths to Mediterranean Ports, Twelfth Century', *Revue belge de philologie et d'histoire*, 65 (1987), 722-5; see also R. L. Reynolds, 'The Market for Northern Textiles in Genoa, 1179-1200', *Revue belge de philologie et d'histoire*, 8 (1929), 831-50.

cotton wefts, as 'low-priced goods for popular consumption'; and, after two centuries of rapid expansion, this fustian industry reached its apogee around 1300, after which it began to experience irredeemable long-term decline.[13]

During this same expansionary era of the twelfth and thirteenth centuries, as Hidetoshi Hoshino has shown, Florence and other major Tuscan towns had also been producing some fustians but an even greater quantity of other cheap, light-weight, worsted-woollen fabrics, using low cost domestic and North African wool, often intermixed with linen and cotton fibres, in a wide variety, under such names as: *saia, saia cotonata, stametto, trafilato, tritana, taccolino*. In Italian and other Mediterranean markets they competed in the very same price range with the light-weight Franco-Flemish says and *biffes*, from Paris, Saint-Denis, Caen, Poperinge, Gistel, Ypres, Hondschoote; in early fourteenth-century Italian markets, their sales values ranged from just 10 to 30 per cent of those for the heavier-weight Flemish and Brabantine woollens;[14] and they constituted the very great majority of domestic textile sales by the Del Bene and other Florentine houses, until about the 1320s.[15]

A very similar depiction of later thirteenth- and early-fourteenth century Mediterranean cloth markets, and the roles played in them by northern textiles, are revealed in two important studies by Patrick Chorley, founded upon a very broad and meticulously analysed array of statistical data. In the first, focused on the northern Franco-Flemish industries, he came to three important conclusions. First, while a few élite towns were justly famous for producing exceptionally high-priced, most luxurious woollens, including scarlets, the majority of those who comprised the famed Franco-Flemish Hanse of the Seventeen Towns, which governed

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[13] Maureen Mazzaoui, *The Italian Cotton Industry in the Later Middle Ages, 1100 - 1600* (Madison, 1981), 59-72, 87-104, 129-37. See also Hermann Kellenbenz, 'The Fustian Industry of the Ulm Region in the Fifteenth and Early Sixteenth Centuries', in N.B. Harte and K. G. Ponting, eds., *Cloth and Clothing in Medieval Europe* (1983), 259-76; Munro, 'New Draperies', 69-71.

[14] Hidetoshi Hoshino, 'The Rise of the Florentine Woollen Industry in the Fourteenth Century', in N.B. Harte and K.G. Ponting, eds., *Cloth and Clothing in Medieval Europe (*1983), 189-91, Tables 11.1-2.

[15] See Armando Sapori, *Una compagnia di calimala ai primi del trecento*, Biblioteca storica toscana, no. 7 (Florence, 1932); Chorley, 'Cloth Exports', 349-87; Hoshino, 'Florentine Woollen Industry', 183-91.

northern cloth sales at the Champagne Fairs during much of the thirteenth century, produced only the much cheaper and generally lighter textiles, in the form of *saies (saiien), estanfortes, biffes, faudeits, afforchiés, rayés, burels,* and *tiretaines* (fustians with linen warps, woollen or cotton wefts), textiles which the 'élite towns' also produced, especially the various *saies*.[16] Second, and less surprisingly, the majority of these cheaper textiles were sent to Italy and re-exported throughout the Mediterranean basin via by Italian (chiefly Genoese) merchants based upon the Champagne Fairs. From Genoese notarial documents for the earlier thirteenth century, the two most prominent textiles were again northern *stanfortes (*stamforts), accounting for about 20 per cent of transactions and Tournai *saies* for another 15 per cent. Third, in those Mediterranean markets, with evidence chiefly from the later thirteenth century, he found --as did Hoshino -- that the prices for these northern *saies, biffes, estanforts, raiés,* were 'typically about 40-60 per cent of that of the *lowest* grade of coloured' heavy-weight woollens from the leading Franco-Flemish-Brabantine draperies; and in two Iberian lists of the 1290s, their prices were only 25 - 33 per cent of those for such heavy woollens.[17] Furthermore, two Castilian port records in the 1290s show 'an overwhelming preponderance of cheap cloth', possibly 94 per cent of total imports;[18] and the Del Bene accounts for early fourteenth-century Florence indicate

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[16] Chorley, 'Cloth Exports', 359. He contends that the Artesian drapery town of Arras chiefly manufactured cheap *estamforts,* along with some *biffes* and *saies,* but evidently not much in the way of luxury woollens, during the 13th century. He also argued (362-5) that Tournai, Saint-Omer, and Bruges specialized most strongly in says, and that 'it was only during the fourteenth century that Bruges entered the ranks of the quality producers'; and that 'none of [the remaining seventeen towns] produced cloth in the higher price bracket in any quantity -- apart from Dixmude and probably Amiens and Abbeville'. Some of the names of the fabrics given in the text above have been supplied as well from John Munro, *Wool, Cloth and Gold: The Struggle for Bullion in Anglo-Burgundian Trade, ca. 1340-1478* (Brussels, 1973), 1-9; Munro 'Industrial Transformations', 110-14; and Munro, 'New Draperies', 53-9.

[17] Chorley, 'Cloth Exports', 360-61. Hoshino, 'Florentine Woollen Industry', 190: Table 11.2, shows the same for the sale of textiles at Florence, in the early 14th century: from Caen, Orchies, Hondschoote, Arras, Paris, Poperinge, Saint-Denis, and Ghistelles.

[18] Chorley, 367: Table 9. Of these, Valenciennes's cheap textiles accounted for '53.5% by quantity and 44.5% by value'.

that these cheaper fabrics still accounted for at least 60 per cent of their transactions in northern textiles.[19]

In a supplementary article, Chorley focused his attention on English cloth exports from the later twelfth to early fourteenth centuries, with similar findings: that the preponderant majority of English textiles exported were destined for Iberian, Italian and other Mediterranean markets; and most though by no means all of these textiles were inexpensive fabrics.[20] In a more recent essay, Wendy Childs has provided some important additional evidence to buttress Chorley's views on the status of English cloths in Spanish markets for the later thirteenth century;[21] and their statistical analyses will be discussed together. In English cloth exports to this region, stamforts (*stanfortes*) strongly predominated during the first half of the thirteenth century, after which they were joined by fabrics generically known as 'Northamptons' (at Venice from 1252), and cloths from Lincoln and York, and other 'grey' and 'black' cloths, along with a few grain-dyed scarlets. For Italy, the most revealing source is the Venetian cloth-price tariff of 1265, in which English stamforts and Arras stamforts, at virtually the same price -- 0.333 *soldi* and 0.323 *soldi* per braccio (= 0.61m) -- ranked second from the bottom, after Valenciennes *saies*, as the cheapest, at 0.233 *s.* per braccio.[22] Somewhat more expensive were

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[19] Chorley, 367-68. He further notes that similar northern cloths (largely from Poperinge and Huy) accounted for 56 per cent of transactions by the Holzschüher firm of Nuremberg in 1304-5. My own analysis of the Del Bene accounts in Sapori, *Calimala*, 282-353 confirms his analyses; and a tabular analysis of cloth prices in these accounts provides similar results, for 1318-22: Flemish say prices ranged from 13 - 33 per cent of those for the best Flemish woollens (and 18 - 42 per cent of the cheaper woollens' median prices). See Munro, 'Industrial Transformations', 116-20; Munro, 'New Draperies', 53-9, and Table 5.

[20] Patrick Chorley, 'English Cloth Exports During the Thirteenth and Early Fourteenth Centuries: the Continental Evidence', *Historical Research: The Bulletin of the Institute of Historical Research*, 61:144 (February 1988), 1-10.

[21] Wendy Childs, 'The English Export Trade in Cloth in the Fourteenth Century', in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England: Essays in Honour of Edward Miller* (Cambridge, 1996), 121-147.

[22] According to Ronald Zupko, *British Weights and Measures: a History from Antiquity to the Seventeenth Century* (Madison, 1977), 170; and Florence Edler, *Glossary of Medieval Terms of Business: Italian Series, 1200-1600* (Cambridge, Mass., 1934), 52: the *braccio* was a cloth-measure equalling about two ft or 24 inches and thus 0.61 m, close to the Flemish ell of 27.56 in. or 0.70 m.; but its actual length varied from city to city: from 20.95 in. (0.53 m) in Genoa to 27.38 in (0.69 m) in Venice. Normally 3 to 4 *braccia* constituted one cloth *canna* [thus 1.829m - 2.438 m]; but other sources, discussed in Munro, 'Industrial Transformations', 147-8, indicate that the Florentine *canna* was 2.0673 m in length; Zupko does not give the

the Northamptons, at 0.407 *s.* per braccio; but they were still quite cheap when compared to Chalons woollens at 0.50 *s.* per braccio or to Ypres woollens, at 0.789 *s.* per braccio[23]. After the Valenciennes says (8*s.* 0*d.* each), the cheapest textile by the piece was in fact the Lincoln *tinto* (coloured) at 18*s.* 0*d.*; but its dimensions are unknown. In Genoa, a set of notarial documents dated 1262-64, one of the very few to provide usable cloth prices, indicates that English Northamptons were selling for virtually the same price, 3.8 *soldi* Genoese per ell, as the aforesaid Arras stamforts and Provins *rayés*, 'the two most popular of the cheaper northern cloths sold on the Genoa market at this time'; but this time the English stamforts were somewhat more expensive, if still comparatively cheap, at 5.4*s.* to 6.0*s.* per ell, closer in price to the cheaper 'blue' woollens of Chalons and Ypres.[24] In Siena, in 1277-8, some unnamed English cloths were then selling for 15 *soldi* per *braccio*, somewhat more than the price of Provins *rayés* (10*s.* - 12*s.* per *braccio*), about the same as the rather coarse Ypres' *rayés*, but well under the prices for Chalons green woollens (19*s.* - 26*s.* per *braccio*) and Cambrai reds (36*s.* per *braccio*).

Next in importance to the Italian market was the Iberian, for which the earliest price tariff is a Portuguese list of 1253. It also lists the price of English Northamptons very near the bottom, at 11*s.* per *cobitus* (ell), the same price as the Arras stamforts, just above the cheapest, which were again the Valenciennes says at 9*s.* per *cobitus*; but the Northamptons were priced well below the cheaper Bruges textiles (at 14*s.* - 15*s.* per *cobitus* -- possibly says), and far below the Dixmude whites, at 20*s.* per *cobitus* -- hardly a high grade woollen, priced the same as an unnamed English cloth, described only as *ingres*. More detailed is a Castilian list of 1268, the Cortès of Jerez Tariff, with maximum prices for 46 textiles in four price categories. The fourth

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length of the Florentine *braccio* or *canna*. It should be noted that English stamforts, when priced by the piece, may appear to be expensive -- but only because of their extreme length, measuring 72 *braccia*, or about 54.33 yds (49.68 m). The Venetian money-of-account in this tariff was presumably the *lira di piccoli*, with 12 *denari piccoli* to the *soldo* (shilling) and 20 *soldi* to the *lira* (pound).

[23] At about this time, Northamptons were also by far the cheapest cloths sold at St. Ives and other English fairs. See below, p. 24 and n. 109.

[24] Chorley, 'English Cloth', 5.

and lowest consists almost entirely of domestic textiles -- *cardenos, viados (rayés), biffas, burels,* blankets, friezes, and various says of Avila, Segovia, Zamorea, Navarre -- confirming the views of several other scholars that the Spanish textile industries of this era produced very cheap, coarse fabrics.[25] The third price range of this tariff (i.e. second lowest) lists English *pardo* cloths -- 'greys' or brown-burnets -- priced along with the cheapest serges, *biffas (biffes)* of Bruges, Douai, Valenciennes, Saint-Omer, and domestic *burels* from Avila -- at just 6*s.* per *vara* (of 33 in.), compared to 6.5*s.* per *vara* for Arras stamforts and 5.0*s.* to 6.5*s.* for Valenciennes *biffes* and *saies*; and in the second price range, English 'black' cloths are found at the very bottom, at 10*s.* per *vara,* priced about the same as the says from Bruges and Ypres, and cheap cloths from Abbeville. Finally, a Santander customs tariff for the 1290s, lists English stamforts at the bottom of the second price category, 'comprising mainly cheaper stamforts', along with *biffas* and says and similar cheap fabrics from Saint-Omer, Tournai (then a leading say producer), and Bruges (producing both the *dinne saye* and *dicke saye*).

Evidence on the physical nature of cheaper Flemish and English textiles in the thirteenth century

As several previous and independent references have confirmed, most of the Franco-Flemish *saies* and all of the *biffes* of this same era were very cheap, coarse, and light textiles. Furthermore, both fabrics, along with *couvretures d'estanfort,* were regulated together as part of this region's *légière draperie* in the later thirteenth century, with stipulated weights that were about half (369.3 g/m^2 - 445.0 g/m^2) of those prescribed for the true and far more expensive woollen broadcloths, certainly those broadcloths manufactured in later-medieval Flanders, Brabant, and England itself (633.8 g/m^2 - 820.5 g/m^2).[26]

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[25] For those of Catalonia, Aragon, Castile, see M. Gual Camarena, 'Origenes y expansion de la industria textil lanera catalan en la Edad Media', and Claude Carrère, 'La draperie en Catalogne et en Aragon au XVe siècle', both in Marco Spallanzani, ed., *Produzione, commercio et consumo dei panni di lana, nei secolo XII - XVIII*, Istituo di Storia Economica F. Datini, Prato (Florence, 1976), 511-23, and 475-509, respectively; Manuel Riu, 'The Woollen Industry in Catalonia in the Later Middle Ages', in N. B. Harte and K. G. Ponting, eds., *Cloth and Clothing in Medieval Europe* (1983), 205-29; Munro, 'Industrial Transformations', 130-33; Munro, 'New Draperies', 68-70.

[26] See Munro, 'New Draperies', 49-51: tables 4A-4C, and Table 1 below. Thus at Douai in 1305 says were regulated together with *biffes,* which earlier (c.1250) had been called part of the *légière draperie*; and

the latter had also been called *biffe légière* at Arras (c.1300). Georges Espinas and Henri Pirenne, eds., *Recueil de documents relatifs à l'histoire de l'industrie drapière en Flandre*: Ire partie: *des origines à l'époque bourguignonne*, 4 vols. (Brussels, Commission royale d'histoire, 1906-1924), iv: 49-50, no. 929: 'biffes u roiés u autre legière draperie'; 51, no. 930 [27 Sept. 1305]. The Arras *biffes*, 40 ells long finished [28 m.], were to weigh just 30 lb., but the width is not given; and *couvretures d'estanfort*, 25 ells long, were to weigh 16 lb. *Ibid.* i: 223-5, no. 97. While the weights of these cloths are not given, industrial regulations at Valenciennes (1294-1302) for *biffes* and *renforchiés sans roies* specify weights per square ell of finished cloth -- 0.46 lb. and 0.44 lb., respectively -- that are virtually identical to those for finished says of three major towns: Ypres' *saye* (1284), at 0.43 lb.; Bruges' *dicke sayen* (1278), 0.47 lb.; and Arras's *saye endrappée* (c.1300), 0.46 lb. per square ell. Weights of other urban says, for the few that are specified, range from a low of 0.39 lb. per square ell for Bruges's *dinne saye* (1278) to a high of 0.51 lb. per square ell for Saint-Omer's saye drappée (1281). [Note: 1 square ell = 0.49 sq. m. = 0.555 sq. yd. of English cloth measure = 37 ins. The Bruges pound weighed 464 g., or 2% more than the lb. avoirdupois (454 g.)]. From *Ibid*: i. 238, no. 101 [Arras, c.1300]; i. 348-62, no. 137; 369-73, no. 139; 391, no. 141; 465-81, no. 144 [Bruges, 1277-94]; iii. 254, no. 651:148-49; 254, no. 651:166; 471; iii, 471-72, no. 756:4-11 [Ypres, 1284]; Georges Espinas, ed., *Documents relatifs à la draperie de Valenciennes au moyen âge* (Paris, 1931), 209, no. 354; 182-83, no. 296 [Valenciennes, 1294-1302]; Georges Espinas, *La draperie dans la Flandre française au moyen âge*, 2 vols. (Paris, 1923), ii. 290-92; De Poerck, *Draperie*, i. 199-200; on says, see 114-15, 216-31, 251-3. Chorley, 'Cloth Exports', 372, provides a similar range: from 0.42 to 0.47 lb. per sq. ell, including Tournai *demi-draps*. In the sixteenth century, Hondschoote and Bergues-Saint-Winoc says -- *sayetterie* products of the *draperies légères* (and progenitors of Tudor England's 'New Draperies') -- weighed about 0.28 lb. per square ell (finished), but some perhaps as much as 0.35 lb. per square ell. Bergues-Saint-Winoc says, 40 ells by 4 quarters, weighed 11 lb. See Henri De Sagher et al., eds., *Recueil de documents relatifs à l'histoire de l'industrie drapière en Flandre*, IIe partie: *le sud-ouest de la Flandre depuis l'époque bourguignonne*, 3 vols. (Brussels, 1951-66), i. 530-31, no. 163; 538, no. 165; Emile Coornaert, *Une industrie urbaine du XIVe au XVIIe siècle: l'industrie de la laine à Bergues-Saint-Winoc* (Paris, 1930), 61; Emile Coornaert, *La draperie-sayetterie d'Hondschoote, XIVe-XVIIIe siècles* (Paris, 1930), 189-218. Hondschoote says, exported to Ferrara in the 1530s, size unspecified, but probably single says, weighed on average 10 lb. See Florence Edler, 'Le commerce d'exportation des sayes d'Hondschoote vers Italie d'après la correspondance d'une firme anversoise, entre 1538 et 1544', *Revue du Nord*, 22 (1936), 255-56. The Burghley papers of 1578 ascribe a weight of 16 lb. to Flemish says of 27 yards. = 36.25 ells, the length of Hondschoote double-says; see Abbot Payton Usher, *The Industrial History of England* (Boston, 1920), 200. If their width was 6.5 quarter-ells, their weight per square ell would have been 0.27 lb. (= 0.49 lb./sq. yd.); if only 5 quarters, the width of the new *smalle dobbel sayes* (1576), then a weight of 0.35 lb. per sq. ell (0.64 lb./sq. yd.). See De Sagher, *Recueil*, ii: 362-81, nos. 290-91. Better evidence in that era can be given for England's 'new draperies', whose products varied greatly in weight; a few indeed were heavier than the medieval Flemish urban says, though still lighter than broadcloths. The following weights are given for finished Essex 'new drapery' cloths (1579) in lb. per square ell, with the corresponding lb. per square yard in parentheses. The lightest were Essex 'broad says', at only 0.15 lb. (0.27 lb.); the heaviest were Coggeshall bays (Coxalls, Minkens), at 0.58 lb. (1.05 lb.) and 'silk says' at 0.50 lb. (0.90 lb.); in between were Colchester bays -- singles at 0.36 lb. (0.65 lb.) and doubles at 0.34 lb. (0.61 lb.). In terms of the English cloth yard of 37 in.: see J.E. Pilgrim, 'The Rise of the "New Draperies" in Essex', *University of Birmingham Historical Journal*, 7 (1959-60), 36-59. Usher, *Industrial History*, 200, gives more cloth weights, though evidently less reliable ones, from the Burghley papers of 1578, in terms of lb. per sq. yd., with lb. per sq. ell (= 0.555 sq. yd.) in parentheses: double bays, 0.65 lb. (0.36 lb.); single bays, 0.40 lb. (0.22 lb.); narrow worsteds, 0.46 lb. (0.26 lb.); Norwich grograines, 0.36 lb. (0.20 lb.); double mockadoes, 0.28 lb. (0.16 lb.); plommetts, 0.42 lb. (0.23 lb.); fustians of Naples, 0.42 lb. (0.23 lb.); rasse or

Unfortunately very few English textile towns of this era have furnished comparable drapery regulations, certainly not with the same detailed scope as those of the Franco-Flemish towns. Those for London, specifically the weavers's and burellers's ordinances re-confirmed in 1299-1300 and 1321, indicate that its industry was principally devoted to the production of cheaper, coarser, and lighter fabrics, with the following specified weights for cloths, all having a width of six-quarter ells (1.5 yards): *menuet* and *andley*, 9.0 lb., 'coming from the weaver'; *bissets*, 9.5 lb.; rayed cloths (*reies*), *porreis*, and *hawes*, 10.0 lb.; and cloths woven from Spanish wools, 11.0 lb. (5.0 kg). [27]

The fact that the last were woven from Spanish wools is also indicative of the coarse and cheap nature of these predominantly light London fabrics, because they were grossly inferior predecessors of the later, justly famed *merino* wools; and their origin, evidently resulting from much later cross-breedings with North African 'Marinid' sheep (of the Banu-Marin or Beni-Merin) and complex changes in flock management, certainly to produce the finer grades, probably post-dates the final Castilian victory over the Moroccan-Marinid invaders, at Rio Salado in 1340.[28] Although the true *merino*s would outstrip the English 'March'

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staminett, 1.16 lb. (0.64 lb.). Unfortunately, we cannot compare the weights of 13th-century says and 14th-century Flemish quality woollens, with adequate evidence lacking for the latter. For the 15th and 16th centuries, however, with more abundant evidence, the weight differences were clearly significant, in terms again of lb. per square ell, after fulling or finishing: Armentières's *oultreffins* woollens, 0.87 lb. per square ell -- about double the weight of the above-listed medieval urban says; Mechelen's *gulden aeren* broadcloths (made from Herefordshire wools), 0.77 lb.; Ghent's renowned *dickedinnen* broadcloth, 0.72 lb. (in both 1462 and 1546); East Anglian woollen broadcloths (Sussex), 0.85 lb. (1.52 lb. per sq. yd.). By comparison, the heaviest modern woollen cloth, for men's overcoats, weighs about 0.62 lb. per sq. ell (1.12 lb. per sq. yd). For sources, see Munro, 'New Draperies', 50-1:Table 4C; for the Ghent *dickedinnen* weight in 1462, see Marc Boone, 'Nieuwe teksten over de Gentse draperie: wolaanvoer, productiewijze en controlepraktijken (ca. 1456 - 1468)', *Bulletin de la commission royale d'histoire de Belgique*, 154 (1988), 40, doc. no. 3:v.

[27] See the *Ordinationes Telariorum* (drafted in Anglo-Norman: 28 Edwardi I), in H. Thomas Riley, ed., *Munimenta Gildhallae Londoniensis: Liber Albus, Liber Custumarum et Liber Horn* (1859-62), II.i: *Liber Custumarum*, 121-26 (articles 18-23); and II.ii, 544-50. See also Carus-Wilson, 'Cloth Industry', 234-35; Andrew Woodger, 'The Eclipse of the Burel Weaver: Some Technological Developments in the Thirteenth Century', *Textile History*, 12 (1981), 59 - 76; and the previous note.

[28] See Robert Lopez, 'The Origin of the Merino Sheep', *The Joshua Starr Memorial Volume: Studies in History and Philology* (a publication of *Jewish Social Studies* no. 5, New York, 1953), 161-68; C.R.

(Hereford and Shropshire) and Cotswolds wools as the world's finest, by the later sixteenth century, the Spanish wools of the twelfth and thirteenth centuries were, in stark contrast, amongst the very worst produced in Europe. In early thirteenth-century Flanders their use is recorded only for weaving very cheap and coarse *saergen*;[29] and in the later thirteenth century, the Flemish draperies banned their use, or at least forbade them to be used or mixed with any other wools, classifying the Spanish wools as defective, along with water-damaged wools and waste-wools from fulling and finishing.[30] Similarly, in 1262, the weavers of Andover (NW of Winchester, in Hampshire) had prohibited these wools altogether in making cheap kerseys *(cersegis)*.[31] The London burellers's and weavers's ordinances of 1299-1300 (28 Edward I), while authorising their use, similarly forbade their intermixture with any English wools, and permitted only the Spanish wools to be dyed 'in blecche' (bleck = black dye).[32] Nevertheless the few remaining 'particulars' customs accounts indicate that a fair amount of pre-merino Spanish wool was being imported into England during the thirteenth and very early

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Phillips and W.D. Phillips, *Spain's Golden Fleece: Wool Production and the Wool Trade from the Middle Ages to the Nineteenth Century* (Baltimore-London, 1997), 40-2, 343; Munro, *Wool, Cloth and Gold*, 3-5; Munro, 'New Draperies', 45-50. For Spanish wools of Roman Andalusia-Extramadura (Baetica), and their post-Roman disappearance, see A. T. Fear, 'The Golden Sheep of Roman Andalusia', *Agricultural History Review*, 40:ii (1992), 151 - 5. For these events, see below pp. 27-8 and nn. 119-22.

[29] Louis Gilliodts-Van Severen, ed., *Cartulaire de l'ancienne estaple de Bruges*, 2 vols. (Bruges, 1904-8), i: 19, no. 14 [1200]; ii. 225, no. 616 [c.1300]: wools of Navarre, Aragon, Leon, Castile, Galicia.

[30] In 1284, the industrial regulations or *keuren* of the Bruges drapery stated: 'so wie die waterwulle minghet met ander wulle, jof spaensche wulle met andere wulle, jof spaensch garen met andren gaerne, jof vlocken met wullen, die hier jeghen dade his verbuerde tgoet'. Espinas and Pirenne, *Recueil*, i. 400, no. 141. See also Munro, 'Wool Price Schedules', 115-19; Munro, 'New Draperies', 45-50.

[31] Charles Gross, *The Gild Merchant: A Contribution to British Municipal History* (Oxford, 1890), ii. 4: 'de illis qui ponun lanam de Ispania in pannis tersegis [cersegis]... et promittant etaim quod nullum pannum facient, nisi dicant ballius'. See also the following note.

[32] Riley, *Liber Custumarum*, II.i, 125: art. xviii: 'qe nul ne face medle de filetz dEngleterre et dEspayne, mes lun enterement par sei..'; art. xix: 'Et qe nule leyne dEngleterre ne soit teynte en blecche, fors taunsoulement leyne dEspayne; et qe drap de leyne dEspayne soit fait soulement par soy, saunz medlure et doit peiser au meyns xi livres qaunt il vendra de teler'. According to Riley, *Ibid*., II.ii, 701: 'bleeche: probably a peculiar shade of black (from the A.S. blaec); and perhaps prepared from woad'. See Wendy Childs, *Anglo-Castilian Trade in the Later Middle Ages* (Manchester, 1978), 73-5: she speculates that faulty balances of tannic acid with iron sulphates in black dyes would damage the fibres of native English wools.

fourteenth century, with a peak import in 1308-09.[33]

Although the widths and weights of these Spanish-wool based and other similar cheap and very light London fabrics are specified, the lengths are not; but they were probably at least 25 to 30 yards. Indeed the London *burels* of this era were said to be 40 yards long; and other English *burels* were described as products of the *grant ustil*, which was undoubtedly the horizontal broad loom, designed to weave very long as well as broad cloths.[34] Subsequently, in 1328, a parliamentary statute stipulated the dimensions of rayed and coloured cloths: the former to be 28 yards long and 6 quarter-yds wide; and the latter, 26 yds by 6.5 quarters.[35] Thus an interesting comparison can be made with the specified weight for later-medieval and sixteenth-century woollen broadcloths of East Anglia, measuring 24 yds by 7 quarters when finished: 64 lb. (29.03 kg) after fulling and shearing (and 90 lb. or 40.82 kg coming from the loom).[36] Furthermore, in the fifteenth and sixteenth centuries, weaving these far heavier and true woollen broadcloths required at least two weeks, while

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[33] For details on Spanish wool imports, see Childs, *Anglo-Castilian Trade*, 73-5. The peak imports of 1308-09 amounted to 268 sacks plus 298 bales (of unknown weight), worth about £400 - £500 sterling (citing PRO, E.122/136/8). For several examples of Spanish wool imports into Sandwich (taxed by the 1303 New Custom), for Mich. 1304 - Mich. 1305, See N.S.B. Gras, *The Early English Customs System: A Documentary Study of the Institutional and Economic History of the Customs from the Thirteenth to the Sixteenth Century* (Cambridge, Mass., 1918), 312-24, doc. no. 34: e.g. Philip Furner, for £28 6s 0d worth of 'lane Hispannie', taxed 7s 1d (at the rate of 3d per pound sterling value).

[34] Edward Miller and John Hatcher, *Medieval England: Towns, Commerce and Crafts 1086 - 1348* (1995), 97, citing PRO E.101/340/4 for the dimensions [1264-65]; Derek J. Keene, *Survey of Medieval Winchester*, Winchester Studies no. 2, 2 vols. (Oxford, 1985), i. 295-97; Derek Keene, 'Textile Manufacture: The Textile Industry', in Martin Biddle, ed., *Object and Economy in Medieval Winchester*, Winchester Studies, vol. 7.ii (Oxford, 1990), 206-07; Derek Keene, 'Textile Terms and Occupation in Medieval Winchester', *Ler historia*, 30 (1996), 138-40. See below nn. 34-9; and also below, pp. 22-3 and nn. 103-07.

[35] *Statutes of the Realm*, i. 260: 2 Edwardi III, c. 14 (Statute of Northampton). In Anglo-Norman *aunes* (ells); in the English translation *Yards*, which, for cloths, were then identical. See Zupko, *British Weights*, 21. The *Compositio ulnarum et perticarum*, written between 1266 and 1303, stipulated that all linear measures were to be based upon the 'iron ulna' = 1 yard = 36 inches (but the later cloth yard = 37 inches).

[36] *SR* IV:i, 136-7 (statute 5-6 Edwardi VI, c.6). In Flanders and Brabant, the following woollen broadcloths of this era were required to have similar weights coming from the loom (i.e. before fulling): Leuven *Oppersten Zegel*, 90 lb. (42.090 kg); Armentières *Oultreffin*, 88 lb. (40.823 kg.), and 52.0 lb. fully finished (24.12 kg); Diksmuide *Grooten Claus*, 84 lb. (38.968 kg), and 50 lb. fully finished (23.195 kg); Haubourdin *Oultreffin*, 82 lb. (35.826 kg), and 48 lb. fully finished (22.267 kg). See Munro, 'New Draperies', 49-51, Tables 4A and B.

the London merchant-burellers had contended, in 1321, that their burels could be woven in 'two days or three'.[37]

The London burels were also evidently quite similar to those manufactured in Winchester, Huntingdon, Bedwyn, and Marlborough; and indeed they were, along with worsted-style *chalons* and *tapets*, Winchester's chief speciality from c. 1170 (or earlier) to c. 1300. [38] *Burel* is of course a generic term for a very common, cheap wool-based fabric, 'well suited for use as coarse clothing by soldiers and others', widely manufactured across western Europe in the thirteenth century; and the presence of Spanish *burels* in the very bottom range of the 1268 Castilian (Jerez) price-list has already been noted.[39] In the once great Flemish drapery town of Douai, these cloths were regulated in the industrial *keuren* of 1247 and again in 1266, in the *bans des buriaux, et des roiés sans ointure, et des biffes* [44 ells for the full and 22 ells for the *demi* = 30.8m and 15.4m], as part of Douai's then prominent *légière draperie*.[40] Similarly, at Ypres, the civic industrial *keuren* issued in June

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[37] Riley, *Liber Custumarum*, II.i, lxvi-lxviii, and 416-25:the London burellers had complained that the Weavers's guild had been stipulating that burels and other such cloths be made in no less than four days, 'whereas the same cloth could many a time be made in two days or three'. For the production of later-medieval Flemish woollen broadcloths, see n. 34 above; and Walter Endrei, 'Manufacturing a Piece of Woollen Cloth in Medieval Flanders: How Many Work Hours?', in Erik Aerts and John Munro, ed., *Textiles of the Low Countries in European Economic History*, Studies in Social and Economic History vol. 19 (Leuven: 1990), 14-24 (minimum of 130 man-hours per cloth); Walter Endrei, 'Changements dans la productivité de l'industrie lainière au moyen âge', *Annales: E.S.C.*, 26 (1971), 1291-99 ; Walter Endrei, 'La productivité et la technique dans l'industrie textile du XIIIe au XVIIe siècle', and Raymond Van Uytven, 'Technique, productivité, et production au moyen âge: le cas de la draperie urbaine aux Pay-Bas', both in Sara Mariotti, ed., *Produttività e tecnologie nei secoli XII-XVII*, Istituto internazionale di storia economica 'Francesco Datini', Atti della Settimane di Studio no. 3 (Florence: 1981), 253-62, 283-94; Walter Endrei, 'The Productivity of Weaving in Late Medieval Flanders', in N.B. Harte and K. G. Ponting, eds., *Cloth and Clothing in Medieval Europe: Essays in Memory of Professor E. M. Carus-Wilson* (1983), 108-19 (with a maximum output of 20 - 25 broadcloths per year).

[38] Keene, *Survey*, i. 295. In 1171-72, Henry II sent 2,000 ells of burel from Winchester to his soldiers in Ireland (citing *Pipe Roll 25 Henrici II*, 91, which is unavailable to me). For Marlborough, Winchester, and Bedwyn's burel production, see also Miller and Hatcher, *Medieval England*, 98-107; Ellen Wedemeyer Moore, *The Fairs of Medieval England: An Introductory Study*, Studies and Texts no. 72, Pontifical Institute of Mediaeval Studies (Toronto, 1985), 39-47, 153-54.

[39] See above p. 6 and nn. 20-5, 38. The reference is to Winchester burels.

[40] Espinas-Pirenne, *Recueil*, ii. 23 [1247]; 47-8, no. 928 [June 1266], 49-50, no. 929 [c.1250-75: 'biffes u roiés u autre legière draperie]; 91 [c.1250]; 173 [1299]; See also De Poerck, *Draperie médiévale*,

1295 for *des draps dits estamforts* included ordinances for *bureels* (amended for the last time in April 1309); and as noted above, such stamforts were also part of the Flemish semi-worsted light or *lichte draperie* (along with *enforchiés, biffes, sayes*). They specify that the final length (*livrer as marcheans*) of the full-sized stamforts and burels was to be 40 ells (28 m) and thus of the corresponding *demi-draps,* 20 ells (14 m), all with a width of 2.125 ells (1.49 m); and, and further, that the full-sized burels and stamforts were to be fulled within two days, the *demi-drap,* in one day. In contrast, the later-medieval Flemish woollen broadcloths, measuring just 30 ells (21 m) by 2.375 ells (1.66 m), were to be fulled within three to five days, depending on the quality. [41]

The other revealing evidence about English cloth manufacture in this era comes from a writ of the London Mayor and Sheriffs, dated August 1315, concerning the king's appointment of one John Pecok as the royal Aulnager for 'canvas, linen cloth, napery, wadmell [sic: wadmal, wadmol], Heydok, Mendeps [West Country], Kerseys, says of Louth [Lincs., Lindsey district], Worsted, Norwich, Ireland, and Causton, and all other says and scarlets, and all kinds of cloth of Lincoln, Essex, Norfolk, Suffolk, Kent, Stamford, Beverley, St. Osith, Devon, and Cornwall'.[42] Some of these textiles -- wadmal, worsteds, russets, kerseys, mantel-cloaks,

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ii:*Glossaire français,* 30. The term 'sans ointure' means ungreased or 'dry' wools, thus indicative of worsted or semi-worsted products of the *draperie sèche* or *drooge draperie*, which was also the 'light drapery', while the true heavy woollens were woven from very fine, short-stapled highly greased wools. See Munro, 'New Draperies', 37-53.

[41] Espinas-Pirenne, *Recueil,* iii.466-69, doc. no. 754, especially sections 14-15 (21.5 ells for the *demi-drap* on the tentering frame); also 469-72, doc. nos. 755-756 (vols i-iii *passim* for later medieval woollens). See also De Poerck, *Draperie,* i. 299-300; ii, 30; Keene, 'Textile Manufacture', 206; Octave Delepierre and M.F. Willems, eds., *Collection des keuren ou statuts de tous les métiers de Bruges* (Ghent, 1842); Marc Boone, 'Nieuwe teksten', 32-43, nos. 2-3; Endrei, 'Manufacturing', 14-23; John Munro, 'Textile Technology',in Joseph Strayer, et al., eds., *Dictionary of the Middle Ages,* xi: *Scandinavian Languages to Textiles, Islamic* (New York, 1988), 693-711; reprinted in Munro, *Textiles, Towns, and Trade: Essays in the Economic History of Late-Medieval England and the Low Countries(*1994). A Ghent *dickedinnen* broadcloth of 1462 measured 42.5 ells by 3.625 ells on the loom (88 lb in 75.5 sq m); and 30 ells by 2.375 ells after fulling (34.91 sq m). Semi-worsted textiles, with greased woollen wefts, necessarily underwent some fulling, if only for degreasing rather than for any extensive felting. See also n. 36 above.

[42] Reginald Sharpe, ed., *Calendar of Letter-Books Preserved Among the Archives of the Corporation of the City of London at the Guildhall: Letter-Book E, ca. A.D. 1314-1337* (1903), 53-54; also discussed in Childs, 'Export Trade', 122-23.

along with *Candelwykstretes* (evidently burels) -- appear in Edward II's royal wardrobe accounts, as purchases for the lower household servants and some as alms for the poor.[43] Wadmal (wadmol), another London speciality, was a cheap, coarse, worsted-type textile, with a 2/2 twill, that had once been woven on the ancient upright (vertically-slanted) warp-weighted loom, which, by the twelfth century, or earlier, had been almost completely displaced by the horizontal treadle-loom in western Europe;[44] and those sold to the Royal Wardrobe in 1323 cost 7*d.* per ell (i.e. yard = 0.914 m), compared to 12*d* per ell for 'cloths [burels] of Candelwick Street', 18*d.* per ell for *tapet* bedhangings, and up to 55.5*d.* per ell for coloured broadcloths, and 125*d.* per ell for the best scarlets.[45]

English textiles in the early fourteenth-century customs accounts: values and volumes of bipolar exports

An even wider range of cheap textiles also appears in the early fourteenth-century 'particular' custom accounts, which Wendy Childs has recently analysed in her study of English overseas commerce during that century. Amongst those most widely listed are worsteds and Louth says;[46] and the latter may have been a serge fabric with a worsted warp and woollen weft. In the earlier accounts, up to the early 1320s, wadmal was valued at even less than those in the Royal Wardrobe accounts, at 3.5*d.* the ell or yard, and thus 7*s.* 0*d.* for 24 yds,

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[43] PRO, E.361/3, m. 1 [1323-24], 2, 5, 7, 9. Some continued into the wardrobe accounts of Edward III; but the last recorded purchase of wadmal/ wadmol is in the account for Jan. 1333 - Aug. 1334 (m. 24), with 7 ells. Candlewick Street was in fact the headquarters of the London weavers' guild, especially for weaving burels (known thus as 'Candlewicks'); and its name was later corrupted into the current Cannon Street. See Moore, *Fairs*, 24-47.

[44] In northern Scandinavia and Iceland, the warp-weighted loom continued to be the primary loom up to the 18th-century. On wadmal, see Martha Hoffmann, *The Warp Weighted Loom: Studies in the History and Technology of an Ancient Implement*, Studia Norvegica no. 14 (Oslo, 1974), 194-226; and also for *vaðmál* in Iceland, see Elsa Guðjónsson, 'Some Aspects of the Icelandic Warp-Weighted Loom, Veftaður', *Textile History*, 21:2 (Autumn 1990), 165-79. See also 'Wadmal, wadmol', in S. William Beck, *The Draper's Dictionary: A Manual of Textile Fabrics, Their History and Applications* (1882), 364. For the warp-weighted loom in England, see also below pp. 22-3 and nn. 103-07.

[45] Moore, *Fairs*, 44-5, Table 5 (based on Royal Wardrobe account 1323-24, in PRO, E.101/389/12).

[46] Childs, 'Export Trade', 121-47. Childs treats this ell as the different and later one for other fabrics, at 45 inches; but it is in fact the same as the yard. See the sources in n. 35, for the king's 'iron ell' whose length was specified as 36 in. between 1266 and 1303; see also Moore, *Fairs, 38*, for this identity.

as the measure for full-sized cloths (21.95 m); worsteds, at 3.5*d.* to 4.5*d.* per yd, or 7*s.* 0*d.* - 9*s.* 0*d.* for 24 yds; standard says had values as low as 2.5*d.* the yd (5*s.* 0*d.* for 24 yds), but Louth says were given the higher value of 8.5*d.* per yd, though that still amounted to only 17*s.* 0*d.* for 24 yds.[47] Woollen broadcloths were worth a great deal more, many valued at 24*d.* to 29*d.* per yd (i.e. £2 4*s.* 0*d.* to £2 18*s.* 0*d.* for 24 yds), while some red broadcloths (*pannus rubeus*) were valued at 48*d.* the yd, or £4 16*s.* 0*d.* for the full-sized cloth.[48] At the extreme upper end were the woollen scarlets: those exported from Lynn (Lincs.) were valued on average at 84*d.* the yd (£8 8*s.* 0*d.* for 24 yds); but some Lincoln scarlets exported from London had values of £13 10*s.* 0*d.* to £16 13*s.* 4*d.* each, or about 136*d.* to 166*d.* (11*s.* 4*d.* to 13*s.* 10*d.*) the yard.[49]

Certainly English and specifically the Lincoln scarlets were tariffed in at least two of the previously discussed Iberian cloth-price lists: in the 1253 Portuguese tariff and the 1268 Castilian Cortès tariff. In both they were, in fact, more expensive than even the renowned Flemish scarlets of this era.[50] In the Portuguese tariff, the English scarlets were priced at 70*s.* per *cobitus* compared to 60*s.* for the Flemish scarlets (and just 11*s.* for the Northampton cloths); in the Castilian tariff, the Lincoln scarlet was priced at 5 *maravedis* (or 100*s.*) per *vara*, compared to 4 *maravedis* (80*s.*) per *vara* for the Ghent scarlet (and just 6*s.* for the English *pardo* or 'greys'). Both lists also contained English woollen broadcloths in half-grain (*kermes*), comparably priced to similarly dyed Flemish woollens.[51]

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[47] Childs, 'Export Trade', 141-43. Some Louth says, valued at 8.5d the ell/yd, sold for £1 11*s.* 0*d.* the piece, indicating that the piece or bolt was 54.71 yards. Similarly, some says valued at 2.5*d.* the ell/yd sold for 8*s.* 0*d.* to 12*s.* 0*d.* the piece or bolt, indicating lengths of 48 to 72 yards. For the exports of wadmal (wadmol) from the port of Boston (or imports into) for 12 Feb - Mich 1303, see the account published in Gras, *Early English Customs*, 288-302, no. 33.

[48] For exports of kerseys in this period, see the 'particulars' account for the New Custom for Sandwich, Mich. 1304 - Mich 1305, published in Gras, *Early English Customs*, 302-46: esp. 343: 'pro xxvii soldatis panni de kerseye, iiii*d.*'.

[49] See Childs, 'Export Trade', 127-33, 141-43.

[50] See Munro, 'Medieval Scarlet', 13-70, especially tables 3.1-3.10.

[51] See n. 25 above. But the Santander tariff of the 1290s does not refer to any English scarlets or other grain-dyed cloths, nor do subsequent cloth-price lists.

The significance to be attached to such evidence on English scarlets is difficult to estimate. On the one hand, as noted earlier, thirteenth-century literary references abound in references to Lincoln scarlets, in particular; but on the other, their extremely high prices limited the demand for such elegant woollens, whose purchase would have required from about three to six years' annual wage incomes for a master mason or carpenter.[52] Thus, very few scarlets were exported from later medieval England -- or, for that matter, imported. Only from 1303, with the imposition of the *Carta Mercatoria,* by which alien merchants were taxed on both imports and exports of woollen broadcloths by the piece, do we have adequate statistical evidence on England's cloth trade.[53] From February 1303 until 5 October 1311, when the Lords Ordainer suspended the *Carta Mercatoria,* alien merchants exported an annual mean of only 84.46 scarlets (with a peak export of 116.0 in Michaelmas 1305-06) and imported an annual mean of 138.52 scarlets, presumably Flemish and Brabantine, with an annual peak of 465.75 in Mich. 1304-05.[54] But although those alien imports represented

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[52] A master mason at Oxford then earned *3d. sterling* per day; and with about 220 days of annual employment would earn £2 15*s.* 0*d.* per year. He would thus have required 6.06 years' wage income to purchase that aforementioned Lincoln scarlet valued at £16 13*s.* 4*d.*; and for those exported from Lynn worth about £7 0*s.* 0*d.* would have required 2.55 years' wage income. In Flanders, in 1292, a vermilion scarlet (*escallate vermeille)* sold for £33 18*s.* 3*d.* parisis = £10 12*s.* 2*d.* sterling; and the Oxford master mason would have required 3.86 years' wage income to purchase that Flemish scarlet. Espinas-Pirenne, *Recueil,* ii. 405; Henry Phelps Brown and Sheila Hopkins, *A Perspective of Wages and Prices* (1981), 11; Munro, 'Medieval Scarlet', 66, Table 3.14.

[53] See Gras, *Early English Customs*, 66-72, 257-413. For both imports and exports by aliens, full-grained scarlets were taxed at 2*s.* 0*d.* the piece; woollen broadcloths dyed in grain with other colours, 1*s.* 6*d.* the piece; and broadcloths without grain (normally dyed in some other colours), 1*s.* 0*d.*

[54] PRO, E.356/2, 9 (KR Enrolled Customs). See graphs 1 and 2, below; and Terence Lloyd, *Alien Merchants in England in the High Middle Ages* (London, 1982), 24-60 (on the alien trade and *Carta Mercatoria),* 211-16 (tables for individual ports). Denizen exports are not recorded until the imposition of the 1347 Cloth Custom. See also n. 5 and Munro, 'Medieval Scarlet', 13-70. Where Lloyd has amended or added to some statistics from the Enrolled Customs by using data from scattered Particulars accounts, I have accepted his changes; but in some other accounts, I have corrected Lloyd's data by adding data for Haverford and Melcombe, missing from his accounts, and by correcting some figures in the London and a few other accounts, by reconciling the tax payments listed with the number of cloths recorded; furthermore, he has not provided annual aggregate exports/imports, and his individual port tables do not separate scarlets and cloths dyed in partial grain from the total figures. Nor does Table 7.1, in Child, 'Export Trade', 126 (cloth exports only, which also does not note the corrections in Lloyd's data); and while I have apportioned the export data from accounts for uneven periods to run for Michaelmas years (by taking the daily average of the accounts), she has evidently not done so in her table.

only 1.33 per cent of their total cloth imports, their smaller volume of scarlet exports represented 24.63 per cent of their total cloth exports: a mean of just 306.97 cloths (with a peak of 604.38 cloths in Mich. 1304-05).[55] From the resumption of the *Carta Mercatoria* and thus the taxation of the alien cloth trade, in July 1322, to the end of the decade (Mich. 1329), their average annual export of scarlets had dropped sharply to just 21.05 full-grained cloths, 13.67 per cent of their total mean export of 153.88 broadcloths for that decade. By the end of the 1330s, which of course also witnessed the commencement of the Hundred Years' War (1337-1453), average annual alien exports of scarlets had dropped again, to just 15.4 cloths, which now, however, represented 70.48 per cent of their miserable mean annual export of just 21.85 broadcloths for that gloomy decade -- and just 5.17 per cent of mean exports for the initial period 1303-09.

What conclusions should be drawn from these rather astounding trade statistics? That so very few cloths were exported, even at the beginning of the century, would hardly seem to justify the rosy view that thirteenth-century England had once boasted an array of important textile-exporting towns along its eastern seaboard -- unless we are to conclude that these industrial towns had suffered a devastating collapse in cloth sales some time before *Carta Mercatoria*, say in the early 1290s. A second and far less tenable conclusion to be suggested is that aliens were handling only a small portion of the export trade in English textiles; but other general evidence for this era suggests the contrary: that Italian, Hispanic, and Gascon merchants then dominated the export trade to the south, while Hanseatic merchants controlled the exports to northern Europe.[56]

A third alternative conclusion to be drawn, and one complementary to the first, is that the export statistics from *Carta Mercatoria* represent only a very small portion of England's cloth export trade in this era:

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[55] With an annual mean export of 10,453.39 broadcloths; see note 54 for these and the following data.

[56] See Lloyd, *Alien Merchants*, esp. chapters 3-7; Child, *Anglo-Castilian Trade*, 11-39, 71-103; 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', *Revue belge de philologie et d'histoire*, 44 (1966), 1137-59; John Munro, 'Industrial Protectionism in Medieval Flanders: Urban or National?' in Harry Miskimin, David Herlihy, and A. L. Udovitch, eds., *The Medieval City* (New Haven, 1977), 229-68, both reprinted in Munro, *Textiles, Towns, and Trade* (1994). Note that the Flemish did not begin to ban English cloth imports until the 1350s, after which they were permanently excluded (until 1540); and Brabant and Holland did so only briefly, in 1428-30.

namely, just that devoted to true woollen broadcloths. For the unadorned Latin term *pannus* in the customs accounts is clearly restricted to woollen broadcloths alone; and the specific tax of 1*s*. 0*d*. for each *pannus sine grano* was then a substantial one, representing four days' wages for a master mason, and thus indicative of the relatively high average value of these heavy broadcloths (as noted above). But the other much cheaper and generally lighter textiles that England was then or had been exporting -- the various says, serges, burels, worsteds, worsted beds, blankets, chalons, kerseys, wadmals, stamforts, 'Northamptons', etc. -- were not subjected to this *specific* export tax, but rather to an *ad valorem* tax of 3*d*. per pound of estimated value, i.e. just 1.25 per cent of 240*d*. Unfortunately only the aggregate values of the 3*d*. 'New Custom' tax are recorded in the Enrolled Customs. While the very few surviving 'particulars' accounts do indicate transactions of specific merchants, they rarely record the actual quantity of the various textiles exported, but generally just their estimated total values, often unhappily combined with values those for other commodities in the same shipment; and in many instances, export and import values are not distinguished from each other.[57]

Three final conclusions may be drawn from these English export data. First, the English cloth export trade, at least that handled by aliens, demonstrated a surprising bipolar tendency: the export of many very cheap and coarse textiles -- constituting the physical bulk of exports -- and a few extremely costly scarlets. Second, the export data for the relatively few woollen broadcloths, including scarlets and other grain-dyed woollens, demonstrate a very stark decline over the first three decades of the fourteenth century, plunging much more than alien cloth imports, to the eve of the Hundred Years' War, which itself had, from the very outset, a disastrous effect on both cloth exports and imports. Third, many of the very cheap, coarse, and light textiles -- such as stamforts, says, burels, and wadmals, etc. -- disappear from the records of English cloth exports

[57] A valiant attempt to produce minimum and maximum estimates for English cloth-export values (by aliens) in the first quarter of the fourteenth century can be found in Childs, 'Export Trade', 132:Table 7.2. But her table lacks export data from the very major ports of Boston, Lynn, and London, and the differences between minimum and maximum estimates are often large, ranging from 1249.3% in 1304-05 to just 0.38% in 1325-26 (with one of the lowest estimated export values). Furthermore, it is not clear whether she has used complete Michaelmas years, or has used the time periods indicated for the major accounts. Her table does, however, suggest a decline in the value of exports in the later 1320s.

during the early fourteenth century. Subsequently, the far more complete data that become available with the imposition of the Cloth Custom in 1347 (when denizen cloth exports were first taxed and thus recorded) reveal that of the very cheap textiles only some worsteds and kerseys remained viable exports, chiefly to Germany and the Baltic, in the middle decades of the fourteenth-century; and thereafter few worsteds though more kerseys appear in the customs accounts.[58] Furthermore, as Derek Keene has noted, burels can no longer be found in the Winchester records after the beginning of the fourteenth century; nor, for that matter, can any records of Flemish *bureels* be found after 1309.[59] Finally, only small quantities of Spanish wools -- the coarse pre-merino wools that had been used in those cheap and light London textiles -- were imported after 1310, and none at all (recorded) after 1330-31, when just three bales were landed at Southampton.[60]

The internal evidence for an 'industrial crisis' in the English textile towns, c.1290 - c.1330

These data, and the trends deduced from then, therefore do present a *prima facie* case for an industrial and commercial crisis that was afflicting the English textile towns from the later thirteenth century, a crisis

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[58] In the first year of the new Cloth Custom, 1347-48, the number of worsted textiles of all varieties exported exceeded the quantity of broadcloth exports: 7,256 worsteds and 4,423 broadcloths; but thereafter the worsteds' share of total cloth exports dropped very sharply. If worsteds of varying types and dimensions are equated to broadcloths by their relative export taxes (1*d.* per single worsted and 14*d.* for each *pannum sine grano* by denizens), then total worsted exports fell from 23 per cent of aggregate textile exports in the 1350s to less than 1 per cent by the 1380s. From PRO, E.101/457/19-23; E.356/7, m. 7; E.356/14, 17, 18, 20-3; E.M. Carus-Wilson and Olive Coleman, *England's Export Trade, 1275-1547* (Oxford, 1963), 199-200. Admittedly this conversion ratio based on export taxes understates the volume of worsted exports (ignoring cloth size) but not the relative values of exports. See also p. 31 and n. 128 below, for an analysis of the worsted export trade in the fourteenth century, and possible reasons for its sudden decline from the 1370s. Kerseys (18 yds by 1 yd), whose export was taxed at the rate of three kerseys per broadcloth, in terms of their relative size, did not become a major export in this era; and in Bergen-op-Zoom registers of English cloth imports into the Brabant Fairs, for 1495 to 1498, they amounted to 11,115 kerseys or 24.8 per cent of the 44,752 English woollen broadcloths imported. See Munro, 'Bruges', 1157: Table II; Munro, 'Industrial Transformations', 133-34; Munro, 'New Draperies', 64-9.

[59] Keene, *Survey*, i. 298: burels 'disappear from local records after the early years of the fourteenth century, and when the city's industry expanded again during the second half of the fourteenth century its main product was probably the standard broadcloth simply described as pannus'; Keene, 'Textile Terms', 137-38; Espinas-Pirenne, *Recueil*, iii.466-72, and *passim.* See n. 41 above.

[60] Childs, *Anglo-Castilian Trade*, 106: Table 14. In testimony before the Itinerant Justices, in 1321 (14 Edward II), the London Weavers' guild contended that provisions concerning Spanish wools were then outdated and irrelevant. See Riley, *Liber Custumarum*, II.i, 423-5.

that in particular seems tied to the changing fortunes of the cheap-textile producers and their overseas markets. But first to be considered is the evidence that had led the older school of historians to believe that the traditional cloth towns were experiencing a virtually irredeemable industrial decline by the late thirteenth or early fourteenth century, and the explanations that they had adduced to explain it.

Their primary evidence is internal, from the old cloth towns themselves, as a litany of two sets of interrelated complaints from the weavers's and fullers's guilds. From the early twelfth century (c.1130) they had sought independence from town governments and mercantile guilds by obtaining royal charters of guild incorporation, for which they paid an annual fee or 'tax farm' (from £6 to £16 sterling a year); and from the later thirteenth and early fourteenth century those of Winchester, Oxford, Lincoln, and York in particular repeatedly and more insistently complained of their inability to pay these annual fees, variously because of dire economic straits, declining numbers, unfair competition from other producers, etc. Individually such complaints are not too convincing, since any self-respecting and self-interested corporate body would seek and so cite any plausible justification for tax reductions. Our credibility is all the more strained when we learn that the Winchester weavers and fullers, having defaulted as early as 1198, were in arrears, *super paupertatem*, in 1202, when the entire export industry was clearly flourishing (nearing its 'zenith', according to some historians);[61] and indeed Derek Keene has commented that the concessions that the town gained that year from King John should be seen in light 'of the city's overall decline [especially as a royal administrative centre] since the early 12th century, rather than of [any] specific problems of the clothing industry'.[62] Similarly we find that the York weavers's guild was in arrears to the sum of £60, shortly after, in 1212, for the same suspicious

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[61] See Miller and Hatcher, *Medieval England*, 107-08; Edward Miller, 'The Fortunes of the English Textile Industry in the Thirteenth Century', *EcHR*, 2nd ser. 18 (1965), 68-70. See also the next note.

[62] Quotation from Keene, 'Textile Manufacture', 200 n. 6; see also pp. 200-14; Keene, *Survey*, i. 86-100, 295-9. Between the reigns of Henry I and Henry II, Winchester's tax farm had been raised from £80 to £140 a year; in 1204-05, John permitted Winchester to count revenues from the fullers and weavers (£20 13*s*. 4*d*. a year) towards the farm; and in 1228, Henry III reduced the city's farm to £80; and in 1260, it was reduced again to 100 marks (£66 13*s*. 14*d*.).

reasons; by 1309, however, its arrears had soared to £790.[63]

Somewhat more convincing, by their very specificity and dating, are complaints about dwindling numbers of artisans, especially when they come from those cloth towns or guilds not directly seeking a reduction in royal taxes.[64] Thus the Oxford weavers's guild asserted in 1290 that their membership had fallen from 60 (before 1275) to just 9; and by 1323, none was to be found. In 1300, the London burellers (as mercantile entrepreneurs) complained that the weavers had arbitrarily imposed a production stint by prohibiting any weaving between Christmas and Candlemas (2 February). Subsequently, in a deposition before justices in the *Iter* (Itinerant Justiciar) of 1321, the burellers contended that the number of looms had fallen from 380, 'thirty years earlier', in the reign of Edward I, to just 80 in the present day.[65] The following year, in 1322, the civic leaders of Leicester asserted before a royal Inquisition that no fullers then remained in the town, 'save one only, and he is poor'.[66] In 1327, Winchester's civic leaders petitioned Edward III for a reduction in their annual farm, which much earlier, under Henry III (1216-72), had been £140 a year, from the current £66 13s 4d to

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[63] Louis Francis Salzman, *English Industries of the Middle Ages*, new edn. (Oxford, 1923), 202-03; Ephraim Lipson, *The Economic History of England, Vol. I: Middle Ages*, 8th edn. (1937), 449-51; E.M. Carus-Wilson, 'An Industrial Revolution of the Thirteenth Century', *EcHR*, 1st series 11 (1941), reprinted in her *Medieval Merchant Venturers: Collected Studies* (London, 1954), 204-06; Carus-Wilson, 'The Woollen Industry', 372-428/614-90 (n. 7 above); and especially Miller, 'English Textile Industry', 69-71.

[64] For the following complaints, see the sources cited in nn. 60-2, and in the following notes.

[65] Arthur H. Thomas, ed., *Calendar of Early Mayor's Court Rolls Preserved Among the Archives of the City of London at the Guildhall, A.D. 1298 - 1307* (Cambridge, 1924), 53-55; Riley, *Liber Custumarum*, II.i, lxvi-lxviii, and 416-25, esp. p. 421. The burellers and the King's Sergeant contended that the Weavers' Guild had deliberately reduced the number of looms, for their own private profit and advantage: 'Et dicit, quod dudum fuerunt in eorum Gilda circiter trecenta ustilementa et amplius, praedicti telarii jam de novo ministerium illud restrinxerunt, pro singulari proficuo suo, ad grave damnum totius populi, quod vix quater viginiti [80] hujusmodi ustilamenta nunc inter ipsos textores remaneant ad operandum' . But subsequently (p. 424), they contend that 'quod cum ab antiquo, et ante xxx annos jam clapsos, fuerunt in eorum ministerio in civitate circiter ccc et lxxx ustilamenta ad texendum, et modo non sunt inter eosdem telarios nisi lxxx hujusmodi ustilamenta...' Lipson, *Economic History*, i. 450, also cites another source to the effect that the original number of looms was 280: F. Consitt, *The London Weavers' Company* (1933), i. 23.

[66] A.E. Bland, P.A. Brown, and R.H. Tawney, eds., *English Economic History: Select Documents* (1914), 131, no. v.12: but the complaint was directed against the late Thomas Earl of Leicester, who had reputedly forced the former fullers to pay 40*s.* a year to practise their craft.

£53 6s 8d (i.e. 100 to 80 marks), because of the now very substantial decline in the town's commercial revenues and in the number of fee-paying weavers. Winchester's historian Derek Keene leaves no doubt that by this era, or perhaps well before, the town's cloth industry was in very serious decay[67]. In 1334, Northampton's town leaders similarly contended that, while the town used to boast as many as 300 weavers, in the reign of Henry III, not a single one was now left[68]. In April 1348, in a deposition before the King's Exchequer, representatives for Lincoln's weavers' guild contended that no payments of its tax farm or of its arrears amounting to £160 13*s*. 4*d*. had been paid or even levied since 1322, 'because there were no weavers working in the same city, and the suburb and circuit thereof, before the fifth year of the present king [1331], from which year down to the nineteenth year [1345] there were only a few working spinners denizen there, whereas at the time of the grant by Henry II [1157] they were more than two hundred in number...' [69]

Finally, Ellen Wedemeyer Moore, in her recent exhaustive study of the thirteenth-century English fairs, has demonstrated that most of them -- St. Ives, St. Giles (Winchester), Stamford, and Northampton -- were experiencing a precipitous decline in their commercial transactions and incomes from the 1290s, a very drastic decline indeed for the last three fairs in those cloth towns. Thus at St. Ives, court incomes fell from £8 9*s*. 2*d*. in 1287 to £2 7*s*. 6*d*. in 1302. At Winchester's St. Giles Fair, commercial revenues had dropped from £84 16*s*. 0*d*. in 1291 to £44 1*s*. 0*d*. in 1314; as early as 1291 their formerly reliable income from Lincoln cloth

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[67] Keene, *Survey*, i. 94-5: 'The petition shows how heavily the revenue for the [tax] farm depended upon trade, for great concern was expressed at the loss of weavers who had contributed important dues and at the freedom from tolls enjoyed by citizens of Salisbury and other towns'; Keene, 'Textile Terms', 135-36; Keene, 'Textile Manufacture', 200: 'Winchester may have shared what appears to have been a general depression in the English urban clothing industry in the late thirteenth century... It is certain nevertheless that the city's trade as a whole declined in this period...' But he also notes that 'the Winchester weaving industry as a whole expanded during the later 13th century', though the evidence seems to be in terms of *chalons* or *tapets*, for bed clothing, rather than in burels. For burels, see nn. 37-8, 60 above.

[68] See *Rotuli Parliamentorum* (1767-77), ii. 85b-86a, no. 54: 'noment adonqes a Norhampton furent demourauntz ccc overours de draps...'. Northampton, however, was then unable to pay its own tax farm to the crown, which had amounted to £120 a year; and the bailiffs responsible for the payments were allegedly impoverished and 'reduced to beggary'.

[69] *Calendar of Patent Rolls 1348-50*, 120 [23 April 1348]; see also Lipson, *Economic History*, i. 450; Miller, 'English Textile Industry', 70, with a more positive view, for the 1330s.

merchants had ceased; and by 1302 so had those from the York merchants. While adducing many causes for this decline (including the dwindling attendance of Flemish merchants and the more aggressive role of London's commercial sector), Moore notes that all the fairs' fortunes were closely to tied to those of the eastern textile-manufacturing towns, whose cloths had provided a major item of their commerce.[70] While London had certainly succeeded in enlarging its commercial role in the English economy by the later thirteenth century, Pamela Nightingale has recently demonstrated that London was experiencing a severe commercial depression (with some depopulation) by the 1320s, one that probably had begun somewhat earlier.[71]

The 'Old School' thesis: Flemish competition and state intervention to lure Flemish weavers

For the earliest, and one might say founding, school of economic historians -- William Cunningham, William Ashley, Ephraim Lipson, and Louis Salzman -- the fundamental cause of this industrial crisis or malaise was the inability of English clothiers to produce cloths good enough in quality and yet low enough in price to withstand the supposedly superior Flemish competition. Evidently oblivious of England's thirteenth-century success in marketing very high-grade scarlets in Iberia and Italy, some also cited the views of an old historian (Thomas Fuller, 1655) that 'their best clothes then being no better than friezes, such was their coarseness for want of skill in the making'. All four mercantilist-minded historians saw that the 'ideal solution' therefore lay in state intervention, with various protectionist measures, especially those designed to lure foreign artisans with supposedly superior skills.[72] Thus, on 1 June 1326, Edward II issued the Ordinance of the Staple,

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[70] Moore, *Fairs*, 204-22.

[71] Pamela Nightingale, 'The Growth of London in the Medieval English Economy', in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England: Essays in Honour of Edward Miller* (Cambridge, 1996), 89-106. For example, London's share of taxable national wealth fell from 3.5 per cent in 1307 to 2.1 per cent in 1315, retaining that low figure in 1334 assessment; in her view, the recession lasted until the 1360s.

[72] William Cunningham, *The Growth of English Industry and Commerce* (Cambridge, 1890), i: *During the Early and Middle Ages*, 282-85; William J. Ashley, *An Introduction to English Economic History* (1893, 1st edn; 4th edn. 1906), ii: *the End of the Middle Ages*, 193: stating that in the thirteenth century, 'as compared with the Low Countries and the great Rhenish cities, the manufacture was in a very backward condition. No cloth was manufactured for export; and a great part of even the English demand for cloth -- indeed, the whole of the demand for the finer qualities -- was met by importation'. Salzman, *English Industries,*

which forbade anyone not of noble or high ecclesiastical rank or anyone else not receiving at least £40 in landed income to use any foreign-made cloths, banned the export of dyestuffs and teasels, transferred the wool staple from Bruges to home ports; and, finally, it offered free crown franchises to any weavers, fullers, dyers or other cloth-workers who would seek them.[73] The following year, on 1 May 1327, just after ascending to the throne, Edward III reconfirmed these ordinances, 'to encourage people to work on cloths'; and in September 1332, 'in view of the decay of the art of weaving', he reissued that qualified ban on foreign textiles, but for just two years from Christmas.[74] He also granted letters of protection to the immigrant Flemish weaver John Kempe, in 1331, followed by several other letters of safe-conduct for Flemish and other Netherlander artisans over the next ten years. But his most famous and controversial measure was the 1336-7 statute 11 Edwardi III.1-5, which (1) prohibited all wool exports, (2) prohibited all foreign cloth imports, and (3) promoted the immigration of foreign cloth artisans, under 'the king's protection and safe conduct to dwell in the same lands choosing where they will', freely offering the king's 'franchises' to all those who would seek them.[75]

197-205; Ephraim Lipson, *The History of the Woollen and Worsted Industries* (1921), 8-17; Ephraim Lipson, *A Short History of Wool and Its Manufacture, Mainly in England* (1953), 56-61, in particular: 'It appeared a better plan to meet the rivalry of Flanders by improving the quality of domestic production...Hence the only way in which a native cloth manufacture could be successfully fostered was by inducing foreign craftsmen to settle in the realm and impart their technical knowledge and skill to native artisans' (p. 57); he also provided the reference to Thomas Fuller (in both the 1921 and 1953 publications); see also Lipson, *Economic History*, i. 448-56.

[73] *CCR 1323-27*, 565 (1 June 1326)*; CPR 1324-27,* 269 (referring to the copy of 1 May 1327, in *CPR 1327-30*, 98-9*)*. See the next note, and also sources cited in n. 63, 72.

[74] *CPR 1327-30*, 98-9 (1 May 1327): crown grants of 'suitable franchises to fullers, weavers, dyers and other cloth workers... whenever such franchises are asked for'; *CPR 1330-34*, 362-63 (16 Sept. 1332), raising the exemption to the ban to 100 marks annual income (£66 13*s*. 4*d*.); and this edict also reconfirmed the home staples for wool exports.

[75] *SR* i. 280-81: statute 11 Ed. III, sections 1-5: of 1336-37; sect. 5: 'That all the Cloth-workers of Strange Lands... which will come into England, Ireland, Wales, and Scotland ... shall come safely and surely, and shall be in the King's Protection and safe Conduct to dwell in the same Lands choosing where they will .. and our Sovereign Lord the King will grant them Franchises, as many and such as may suffice them'. Cf., for example, Cunningham, *Growth of English Industry*, i. 285: 'Whether all this protection was necessary to secure a footing for the new manufacture or not.....the fact remains that he [Edward III] did introduce the manufacture of the 'old drapery,' which was prosecuted so successfully that the export of raw wool declined as the home manufacture came to flourish more and more'. Cf. also Lipson, *Wool*, 57-59: 'Edward's work

Though the Cunningham-Ashley-Salzman-Lipson interpretation has found favour with many modern historians, most recently with Andrew Woodger[76], others have been quick to point out that the 1337 statute was really designed to coerce the Flemish into joining Edward's campaign against France and also to set the stage for organizing a royal wool-export monopoly as the chief mechanism for financing that warfare. Indeed first the cloth import and then the wool export bans were allowed to lapse. For this reason several historians, beginning in 1918 with George Unwin, have scorned the idea that Edward III (or any other medieval monarch) ever entertained any serious protectionist motives in policies that were in fact primarily strategic and fiscal.[77] Subsequently Herbert Heaton and Eleanora Carus-Wilson assiduously investigated the role of Flemish immigrants in restoring the English cloth industry, and found it wanting. Heaton discovered, from the town records on the recovery of York's cloth industry from the mid fourteenth century, that 'there were more cloth workers from Lincoln than from the whole of the Low Countries'.[78] Carus-Wilson concluded that most of the Flemish immigrants 'seem to have settled in eastern and southern England, so that they probably contributed

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was not to create a new manufacture but to revive an old one which was decaying'; and 'The experiment of Edward III was attended with complete success'. Ashley, *Introduction*,196-98, while recognizing the political motives of the statute (see the next note), and its subsequent exemptions, stated that 'a few years later the stream of immigration was swollen by the advent of hundreds of banished and refugee craftsmen, principally weavers, who were forced to quit Flanders upon the restoration of oligarchic rule'. He is indeed correct to observe that the Flemish civil wars, and their brutal terminations, of 1323-28, and 1336-49, did result in the banishment, exile, or flight of many artisans -- but to what effect? For this 1336-37 statute, see also n. 114 below.

[76] See for example, Maud Sellers, 'Textile Industries', in William Page, ed., *Victoria County History of the Counties of England: A History of the County of York* (1912-13), ii. 406-29; and 'Social and Economic History', in iii. 435-86; Woodger, 'Burel Weaver', 59-76. For a somewhat more neutral view, see Miller and Hatcher, *Medieval England*, 122-23.

[77] George Unwin, 'Introduction', in George Unwin, ed., *Finance and Trade Under Edward III* (Manchester, 1918), xiv-xxi: an attack on Cunningham. See also in the same volume his chapter on 'The Estate of Merchants, 1336-1365', 179-225, noting also that in May 1337 the Brabantines were licensed to buy wools and sell their cloths in England. See also Salzman, *English Industries*, 204.

[78] Herbert Heaton, *The Yorkshire Woollen and Worsted Industries From the Earliest Times up to the Industrial Revolution*, 2nd edn. (Oxford, 1965), 8-21 (quote on p.16).

little to the development of the newer industrial districts'.[79]

Carus-Wilson and the fulling-mills: the 'Industrial Revolution' of the thirteenth century

Carus-Wilson, the next major combatant in this ongoing debate, largely ignored the role of Flemish competition, to focus instead upon domestic competition from the surrounding countryside, ultimately involving, in her view, a wholesale shift of English cloth production from the towns of the eastern seaboard to the rural uplands of the north (West Riding Yorkshire) and the West Country. She contended that the principal mechanism of this cataclysmic shift, and one that spelled doom not only for the old traditional urban cloth industries of eastern England but also, ultimately, for England's cross-Channel rivals in Flanders and Brabant, was the water powered-fulling mill, whose prime locations were on the upland streams of these two major textile-producing regions. At the same time, she also firmly stated that the traditional view 'of arrested growth and even of decay is not, however, borne out' by the sources, which instead 'reveal rather the expansion and rapid development of the industry up to the eve of the accession of Edward III'. But that Panglossian view that is not supported by the customs accounts, certainly not given her corollary view that the future of the English cloth industry lay with the heavily fulled, high-quality, large woollen broadcloths.[80]

Carus-Wilson's famous thesis that the spread of fulling-mills -- originating in late-tenth century Italy, and thus hardly an innovation for this era--[81] constituted a veritable 'Industrial Revolution' for thirteenth-

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[79] Carus-Wilson, 'Woollen Industry', 677. She does admit that the Flemish civil wars of 1323-28 and 1339-49 did lead to several emigrations of Flemish textile artisans, some of whom did find refuge in England; and she did find a few that ended up in the West Country (Stow-on-Wold) and West Riding of Yorkshire; but see the previous note. Cf. also John Clapham, *A Concise Economic History of Britain from the Earliest Times to 1750* (Cambridge, 1949), 158: 'Some of these [new] men were Flemings, the encouragement of whom by the Edwards, especially by Edward III, was important in the history of the [cloth] industry, but not so important as was once supposed'. For similar views on the minimal importance of Flemings in the revival of Winchester's cloth industry from the 1350s, see Keene, 'Textile Terms', 135-47; Keene, 'Textile Industry', 200-14; Keene, *Survey*, i. 299-318.

[80] Carus-Wilson, 'Industrial Revolution',183-210. See also Carus-Wilson, 'Woollen Industry', 669-90.

[81] See Paolo Malanima, 'The First European Textile Machine', *Textile History*, 17 (1986), 115-28; Munro, 'Textile Technology', 697-714.

century England is too well known to require any reiteration here; but some questionable views of her critics on fulling-mills, which have been too readily accepted, must be re-examined, even if a further refutation of her thesis might otherwise favour some ideas to be advanced in this essay. Her first major critic was Edward Miller, who also sought to revalidate the older view of a general, prolonged, and irredeemable decline of the traditional textile towns during the later thirteenth and early fourteenth centuries.[82] While endorsing Carus-Wilson's view that a rural-based cloth industry did undermine and eventually supersede the traditional urban industries, he could not agree that the fundamental motor of this industrial transformation had been the fulling-mill. In his view, its slow but steady diffusion was achieved only long after the rural draperies had grown to prominence, evolving over a century and finally underselling the urban draperies for entirely different and more important reasons.

First, in responding to Carus-Wilson's argument that manorial lords had been instrumental in building fulling mills themselves, or in converting grain mills to that purpose, in order to attract urban cloth artisans to their rural estates, Miller contended that manorial lords would not have risked such substantial capital investments without already possessing a large clientele of rural drapers.[83] Secondly, in noting Carus-Wilson's failure to supply any concrete evidence on comparative costs, he rejected her view that mechanised fulling 'could have had the large [economic] consequences attributed to it', when 'fulling then accounted for about 7-12 per cent of the cost of the main manufacturing processes'.[84] In further denying any significant cost savings,

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[82] Miller, 'English Textile Industry', 64-82; with the main arguments reiterated in Miller and Hatcher, *Medieval England*, 93-127.

[83] Miller, 'English Textile Industry', 72. He notes that the Bishop of Taunton recovered his capital investment in a fulling mill within four years, thus indicating that many rural drapers and weavers were evidently already working in the vicinity.

[84] Miller, 'English Textile Industry', 71-2; but subsequently, in Miller and Hatcher, *Medieval England*, 96, Table 2.1, they provided data to indicate that fulling and finishing together accounted for 16 per cent of manufacturing costs at Beaulieu Abbey (1270) and 20 per cent at Laleham (1294-95). See also T.H. Lloyd, 'Some Costs of Cloth Manufacture in Thirteenth-Century England', *Textile Industry*, 1 (1968-70), 332-6. The data do not indicate, however, whether the fulling was undertaken by a water-mill or by the fullers' feet.

he pointed out that manorial lords, especially if they had exercised the monopoly powers over the tenants that Carus-Wilson attributed to them, would have sought substantial 'rents' by charging relatively high fees at their fulling-mills.[85]

Subsequently, Anthony Bridbury joined the argument to support Miller, at least on this particular point, while rejecting the whole concept of a late-thirteenth century 'urban industrial crisis'.[86] In his reasonably argued view, any resort to fulling-mills in the heavily overpopulated England of the later thirteenth and early fourteenth centuries -- the era of the purported 'industrial crisis' -- would have increased, not decreased, cloth-production costs because very expensive capital would have been substituted for what had now become dirt-cheap labour. Furthermore, in the thickly settled, grain-growing or mixed farming regions in the Midlands, East Anglia, and the south-east, manorial lords would presumably have earned much greater profits from corn (grain) mills than from fulling mills. More recently, in the first comprehensive survey of medieval English mills, Richard Holt fully supported Bridbury's contention that in these very regions corn mills were indeed far more profitable than fulling-mills, thus explaining their virtual absence there; and then he supplied the *coup de grâce* by asserting that no 'power revolution' ever took place in medieval Europe.[87]

Nevertheless, there are credible arguments and additional evidence to be adduced in support of Carus-Wilson's seemingly discredited thesis. First and foremost, two recent studies, involving comparisons of textile production in late-medieval, early-modern Holland, Brabant, and Italy demonstrate that mechanised fulling provided a three- to four-fold productivity gain over traditional foot-fulling. Since traditional foot-fulling in

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[85] Cf. Carus-Wilson, 'Industrial Revolution', 199: '..it could be made a manorial monopoly, to which the tenants owed suit;' and on p. 201: 'the [manorial lords] insisted also that all cloth made on the manor must be brought to the manorial mill and there fulled by the new mechanical method...'

[86] Anthony R. Bridbury, *Medieval English Clothmaking: An Economic Survey*, Pasold Studies in Textile History no. 4 (1982), 16-26; see also his earlier *Economic Growth: England in the Later Middle Ages* (1962), 23-82.

[87] Richard Holt, *The Mills of Medieval England* (Oxford, 1988), 158; see also Terry S. Reynolds, *Stronger Than a Hundred Men: A History of the Vertical Water Wheel*, Johns Hopkins Studies in the History of Technology, new series no. 7 (Baltimore, 1983), 82-3, 113-14; Leslie Syson, *British Water-Mills* (1965), 76-82.

the Low Countries then accounted for about 20 per cent of the industrial draper's value-added manufacturing costs, such cost-savings (i.e. with only 5 per cent for mechanical fulling) might have determined the difference between his profit and loss, depending upon the type and value of cloth being marketed.[88]

Secondly, Carus-Wilson's critics have not effectively responded to her contentions that the economics of mechanical fulling favoured locations in the western upland regions, and more especially those in more sparsely populated rural districts, i.e. in the West Riding and the West Country (Devon, Somerset, the Mendips, the Cotswolds, Wiltshire, Berkshire), over the older, traditional textile towns along the eastern seaboard and in the adjacent Midlands plains. To be sure, thousands of corn mills had long been situated on the slow-moving stretches of many rivers in these eastern lowland regions, in or near towns; but fulling mills, which necessarily had to convert the rotary power of grain mills into reciprocal power, with cam shafts and trip-hammers that alternately lifted and dropped the heavy oaken stocks (fulling hammers), were technologically far more complex than corn mills. The original standard fulling mills used undershot wheels, which revolved by the direct impact of the water flow on the veins or paddles attached to the wheel; and mills situated on slow-moving lowland rivers presumably could not have achieved the comparable speed and power of those on fast-moving upland streams, unless they came to utilise overshot wheels, which evidently were not introduced into England before the 1330s.[89] They were much more efficient than undershot wheels, requiring

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[88] Raymond Van Uytven, 'The Fulling Mill: Dynamic of the Revolution in Industrial Attitudes', *Acta Historiae Neerlandica*, 5 (1971), 1-14; John Munro, 'Industrial Entrepreneurship in the Late-Medieval Low Countries: Urban Draperies, Fullers, and the Art of Survival', in Paul Klep and Eddy Van Cauwenberghe, eds., *Entrepreneurship and the Transformation of the Economy (10th - 20th Centuries): Essays in Honour of Herman Van der Wee* (Leuven, 1994), 377-88. Traditional foot-fulling, in the medieval Low Countries, required the labour of three male fullers (master and two journeymen) for a period of three to five days, depending upon the quality of the woollen and the season; mechanical fulling (England, Italy) required only one operative who could supervise the fulling of several broadcloths in about a day or even less. While foot-fulling constituted about 20 per cent of the draper's value-added manufacturing costs at Leuven and Leiden, mechanical fulling in Florence (combined with tentering) accounted for only 5 per cent of such costs. See Raymond De Roover, 'A Florentine Firm of Cloth Manufacturers', *Speculum*, 16 (Jan. 1941), reprinted in Julius Kirschner, ed., *Business, Banking, and Economic Thought in Late-Medieval and Early Modern Europe: Selected Studies of Raymond De Roover* (Chicago, 1974), 118 (Appendix IV).

[89] Reynolds, *Water-Wheel*, 10-14, 25-6, 36-46, 97-102; Syson, *Water-Mills*, 76-82 (see overshot wheel in figure 28, p. 64, from Agricola, *De Re Metallica* of 1556); Holt, *Mills*, 128-31: with an overshot

only about one-quarter as much water as undershot wheels, and for their power depended upon the weight of the water falling on to the buckets on the wheel rather than upon the speed of the stream. On they other hand, they were also very capital costly: they were far larger and required canals to divert river waters into mill ponds, and then mill races, with sluice-gates and high wooden chutes, to pour the water over the top of the wheel onto the revolving buckets. Town governments, moreover, might have rejected the use of mills with overshot wheels, if the canals and mill-ponds meant impeding river navigation or precluded alternative urban uses of the water or that river site. In general, the opportunity cost, and hence the rent, as well as the capital cost, of locating simple undershot wheels on streams in more sparsely settled rural upland regions, such as the West Country, should have been lower than in the densely populated East Anglian lowlands plain.[90]

Nevertheless, despite such potential cost and/or power disadvantages, many fulling-mills, evidently almost all of them with undershot wheels, were indeed to be found in the East Anglian valleys of the Colne and Stour, the latter forming the boundary of Suffolk and Essex, either in or more commonly just outside the textile towns.[91] Carus-Wilson is thus to be faulted for ignoring their presence in this region, and more generally for

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wheel shown in Plate 3, p. 130, of the 14th-century Luttrell Psalter; and an overshot wheel was used in a mill built in the same era at Batsford, Sussex. In England, very few overshot water-wheels were in use before the sixteenth century.

[90] Holt, *Mills*, 157: 'The "swift, clear streams" of the south-west did not power mills that were any more profitable'; but see contrary evidence on p. 21 below and nn. 96-8. In support of Carus-Wilson's view that the more thinly settled and chiefly pastoral regions of south-western, western and northern, north-western England were better suited to fulling mills, the comprehensive map in R. A. Pelham, *Fulling Mills*, Society for the Protection of Ancient Buildings, no. 5 (1958), reprinted in Bridbury (1982), 18, does indeed demonstrate that these regions contained the overwhelming majority of fulling-mill sites. In response Bridbury retorted (p. 17) 'that mills were frequently situated in parts of the country where labour supplies were least satisfactory, where raw materials were poor, and where markets were relatively inaccessible', such as Cornwall, southern Wales, and the Lake District, which never became important cloth-manufacturing centres. Quite true; but nevertheless many fulling mills were also located in those regions that did become, from the early to mid fourteenth century, major centres of the new or revived woollen cloth industry, especially in the West Country, and also, if to a much lesser extent, in the West Riding. Furthermore, since the continental evidence cited above is based on slower-moving rivers, namely the Arno near Florence, possibly the swifter West Country steams provided an even greater cost advantage than these figures indicate.

[91] For a verification of the location of fulling-mills in, especially the small towns of Suffolk and Essex, see the map published in Pelham, *Fulling Mills*, which shows 11 such mills (and 2 more in Norfolk). See nn. 96-9 and 133 below.

slighting the importance of Essex and Suffolk as England's second most important broadcloth producing region by the fifteenth century. With its many urban and village draperies, it was certainly far more important than the West Riding of Yorkshire, let alone her vaunted Lake District.[92]

Miller's counter-thesis (1): rural competition with industrial freedom and cheap labour

For Edward Miller, whose arguments would indeed be valid for East Anglia, the true and primary advantages of a rural location for cloth-making in later thirteenth century England, were twofold: (1) freedom of enterprise, in particular freedom from urban government and guild regulations, and from oppressive urban taxes; and (2) much lower labour costs, not only because of these rural 'freedoms' but more because of the lower living and opportunity costs for most rural artisans, those who had their own agricultural holdings and worked in textile crafts as a subsidiary 'bye-employment'. Carus-Wilson herself, however, had cited all of these rural advantages, in her earlier publications, though presenting them as much less important than the diffusion of fulling mills, with one important exception: the freedom from urban guilds, which, she believed, would have bitterly opposed these labour-saving and thus labour-displacing machines.[93] For Miller, lower wages for wool preparation, combing (for warps), carding (for wefts), spinning (by drop-spindles and wheels), and weaving provided far greater savings than did mechanical fulling, when those other processes together accounted for at least 70 and more likely 90 percent of the labour costs in cloth-manufacturing, before finishing.[94]

Miller further differs from Carus-Wilson in stressing the much earlier development of strong and

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[92] See the sources cited above in n. 80-90. The evidence for urban fulling mills, contradicting her assertions on their absence, is considered below in n. 134.

[93] Carus-Wilson, 'Industrial Revolution', 194-209; Carus-Wilson, 'Woollen Industry', 667-73. While the London fullers attempted, in 1298, to forbid anyone from using fulling mills (all outside the town), they succeeded only in forbidding anyone who was not the owner of the cloth to do so. See Riley, *Liber Custumarum*, II.i, 128-29: 'ne face porter, mener, ne bailler, hors de la cite nul drap pur foller as molins, fors ceux memes a qui les draps serront, et les queus draps il voillent pur lour avower'. (26 Edward I). For Winchester and other urban draperies that did use fulling mills, see nn. 96-99 and 133-4 below.

[94] Miller, 'English Textile Industry', 72-4, 77; Miller and Hatcher, *Medieval England*, 107-14, 120-7; and especially 95, Table 2.1. Miller estimated that spinning, presumably including combing and carding, accounted for 40 - 50 percent of production costs, and weaving for another 30 - 40 percent.

vibrant rural draperies, whose importance for his own thesis lay therefore in offering those clothiers who were seeking better opportunities in the countryside an already abundant and highly-skilled labour force, with long, well-honed traditions in those aforementioned textile arts of combing, carding, spinning, and weaving processes. Nevertheless neither Miller nor Carus-Wilson provided any convincing evidence that 'oppressive' urban taxes (or tax farms), industrial regulations, or any other factors led to rising production costs and thus to higher textile prices in any of the cloth-manufacturing towns in late-thirteenth century England.[95] Even if their economic theory is valid in suggesting that *wage rates* in rural textile-producing centres should have been lower than urban wages, that does not mean that labour *costs* were necessarily lower: not without some concrete evidence on productivity, quality controls, and transaction costs in competing urban and rural industries that produced comparable textiles. Without such detailed knowledge no one should assert that rural production was necessarily 'lower cost' in the later thirteenth or fourteenth centuries.

Possibly, however -- and this thesis also remains to be proved -- rural cloth-making did finally gain a more significant cost advantage, about a century later, following not just the Black Death but the subsequent plagues of the 1360s. For insofar as two generations of continuous depopulation did alter the land:labour ratio and, along with other factors, ultimately did lead to rising real wages, from the later 1370s, those circumstances may have increased the incentive to displace labour with fulling mills, just as the relative fall in grain prices provided an incentive to convert corn mills to this purpose.[96] Indeed, those who respect some aspects of the

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[95] Miller, 'English Textile Industry', 74, does note, from the 1270s, the complaint of Northampton weavers, as the excuse given for the loss of some members, that they were being taxed more than some wealthy burgesses; and that at Winchester an added levy that the bishop imposed on looms had led to the departure of weavers there to seek work in the countryside; see also Miller and Hatcher, *Medieval England*, 111-14; and *Rotuli Hundredorum tempore Henrici III et Edwardi I*, ii (1818). 2-3: 'Inquisitiones villa Northampton' (3 Ed I: 1274-5). Keene, *Survey*, i.296, notes, however, that the bishop's soke, to which many weavers had indeed relocated, to take advantage of lower fees, still formed part of Winchester's urban cloth industry; and furthermore that complaints of the Winchester juries on this issue, 'clearly a case of special pleading, cannot be taken, as has usually been the case, as straightforward evidence for the decline of Winchester's urban cloth industry at that time and for the migration of weavers into the countryside'.

[96] See Henry Phelps Brown and Sheila Hopkins, 'Seven Centuries of Building Wages' and 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage-Rates', *Economica*, 22:87 (Aug. 1955) and 23:92 (Nov. 1956), reprinted in their *A Perspective of Wages and Prices* (1981), 1-59; A. R.

Carus-Wilson thesis must also concede Miller's point that the true flowering and diffusion of fulling mills took place only after the 1340s.[97] Thus Derek Keene, for example, has demonstrated that in the later 1360s the bishop of Winchester built a new fulling mill at Prior's Barton, just outside the city, adjacent to a long established civic fulling mill (dating from the 1220s), which produced revenues that more than doubled, from £7 3*s*. 0*d*. in 1370-71 to £16 0*s*. 0*d*. in 1400-01. The following year (1402) the Winchester civic government built an additional fulling mill; and in 1406, the bishop farmed the Prior's Barton mill to a Winchester entrepreneur, who, sometime before 1422, converted an episcopal water-mill, at Durn's Gate, into yet another fulling mill.[98] Clearly therefore fulling mills did eventually become an important and profitable and thus evidently a cost-saving feature of the English cloth industry, if not necessarily in the thirteenth century, certainly by the later fourteenth century, when the revived English cloth industry had become far more oriented towards the production of heavier and heavily felted woollen broadcloths.[99]

Miller's Counter-Thesis (2), Harvey, and Woodger: the role of Flemish competition

For Miller, the true catalyst of change and transformation, to explain why a migration from urban to rural centres took place during the later thirteenth-century -- and not before or after -- was a rising tide of better quality Flemish and Brabantine cloth imports, which had 'flooded England' and 'dominated some sectors of

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Bridbury, 'The Black Death', *EcHR*, 2nd ser. 26 (1973), 557 - 92; and n. 90 above. Note that if the wage rate = marginal *revenue* product of labour, productivity changes alone will not necessarily alter wage rates; nor is it clear that depopulation itself necessarily raised the marginal product of agricultural labour, except in pastoral farming. See the essays by David Farmer, Ambrose Raftis, and John Hatcher, in Richard Britnell and John Hatcher, eds., *Progress and Problems in Medieval England* (Cambridge, 1996), 191-272.

[97] The map in Pelham, *Fulling Mills*, indicates rather more fulling mills established after 1330 than before, especially in the West Country; and Kenneth Ponting, *The Woollen Industry of South-West England: An Industrial, Economic, and Technical Survey* (Bath, 1971), 15-16, also contends that the 14th rather than the 13th century was the real era for the diffusion of fulling mills.

[98] Keene, *Survey*, i. 304-07; ii. no. 972, pp. 1050-2; no. 1057, pp. 1082-3; Keene, 'Textile Manufacture', 208-10; Keene, 'Textile Terms', 140-1.

[99] See below, pp. 31-2, and Munro, 'Industrial Entrepreneurship', 377-88. It should be self-evident that, with no evidence for any compulsion employed in the use of these mills, they would not have attracted capital investment for their construction, attracted continuous business from the civic fullers and drapers, and increased the mill revenues, unless they had provided substantial cost-savings over traditional foot-fulling.

the English market' by 1300. Conceding that 'what sectors those were is less easy to determine', Miller believed that thirteenth-century England's urban cloth production 'had also been directed towards a quality market at home and overseas'.[100] He further surmised that the Flemish had gained a distinct advantage over the English in 'price as much as in quality' because of 'the relatively mass-production methods of Flemish industry, and [their] advanced commercial techniques'. This highly speculative model is completed with suggestions that the English urban industries had brought about their own defeat, by the late thirteenth century, through increasingly oppressive taxes and industrial regulations, so that those drapers who maintained the will to compete with the Flemish imports could do so only by seeking refuge in the far more hospitable and lower-cost rural regions.[101]

More recently, Paul Harvey and Andrew Woodger have enthusiastically endorsed the Miller thesis, in particular concerning the adverse role of Flemish woollen imports: i.e. the old Cunningham-Ashley-Lipson-Salzman model. Proposing a bipolar model of urban-rural production, Harvey similarly though more cogently and assertively contended that the Flemish had robbed the English urban draperies of not just their domestic market for high-quality fabrics but more especially and crucially their overseas markets, thus eliminating the true *raison d'être* for the urban locations of the English draperies, so strongly oriented to quality-cloth exports (relying on various urban facilities to reach those overseas markets); consequently the rural cloth industry, more geared to the domestic market by emphasising cheaper fabrics, gained the upper hand because of its superior advantages for lower-cost production in servicing that market.[102]

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[100] Miller, 'English Textile Industry', 76-7, and also: 'A plausible hypothesis, then, is that imports from the Low Countries grew slowly during the twelfth and thirteenth centuries, had become of major importance by about 1250 and in 1300 dominated some sectors of the English market'. See also Miller and Hatcher, *Medieval England*, 107-09.

[101] Miller, 'English Textile Industry', 73-6; Miller and Hatcher, *Medieval England*, 110-11; Carus-Wilson, 'Woollen Industry', 667-73 actually goes further in stressing the oppressive nature of urban taxes and regulations, evidently referring to the guilds's inability to pay the tax farms as indication of 'oppression'.

[102] Paul Harvey, 'The English Trade in Wool and Cloth, 1150 - 1250: Some Problems and Suggestions,' in Marco Spallanzani, ed., *Produzione, commercio, e consumo dei panni di lana, nei secolo XII-XVIII* (Florence, 1976), 369-75: 'If the [English] urban industry was primarily an industry for export it

Woodger, echoing Miller's thoughts on superior Flemish techniques, argued that the decisive and indeed overwhelming advantage of the Low Countries's cloth industries lay in their virtual monopoly-possession of the horizontal broadloom, allegedly invented there around 1250, while the English were supposedly forced to rely on the now archaic and hopelessly unproductive warp-weighted upright loom for burels and other 'broadcloths', and the narrow horizontal loom for other cloths. Thus, only when Edward III invited John Kempe and then other Flemish weavers to settle in England, presumably with their more advanced horizontal looms, from the 1330s, was the English industry able to regain a competitive edge and its vitality to expand, first gaining the home markets and then overseas markets, while taking advantage of the subsequent trials and tribulations of the Low Countries's cloth industries.[103]

The essential problem with all these intriguing and indeed fanciful theories involving the Flemish 'threat' is that they lack even a scintilla of evidence to support them, while much evidence can be adduced to oppose them. First, Woodger's views about the Flemish broadloom and the supposedly inferior English looms are completely unfounded.[104] There is no evidence that the Flemish had ever enjoyed any 'monopoly' on

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would be easy to account for its decline. The expanding Flemish manufactures and latterly perhaps the newly growing industry in Italy captured an increasing share of the overseas markets, and once the export trade diminished the raison d'être of the urban organisation of the industry disappeared. There was no longer the need for the concentration of craftsmen, the regulation of work, the near capitalist-economy, that were called for by the demands of large-scale production for distant markets. Once this had gone the factors favouring dispersal came into operation, and freedom from the restrictions of craft gilds and gilds merchant, the enterprise of manorial lords in encouraging cloth-working on their estates and the choice of the best sites for fulling-mills may all have played their part'. [p. 375] On the advantages from an urban location, see below, pp. 31-32 and n. 132-5. Cf. Miller and Hatcher, *Medieval England*, 108-09; Miller, 'English Textile Industry', 77: 'The industry of the great eastern towns had also been directed towards a quality market at home and overseas. Its prosperity was inevitably undermined when, from about the mid-thirteenth century the products of the Low Countries came to dominate England's export markets...' As for the Florentine cloth industry, its rise began only in the late 1320s, and therefore could not have been responsible in any way for the plight of the English urban industries. See Hoshino, 'Florentine Woollen Industry', 184-204; Munro, 'Industrial Transformations', 120-39.

[103] Woodger, 'Burel Weavers', 59-76 (see above nn. 34-39). For a very qualified endorsement, see Miller and Hatcher, *Medieval England*, 94-5, 107-12, 121-7, who greatly exaggerate in providing estimates of '15,000 to 16,000 [foreign] cloths' imported c. 1300-10.

[104] Woodger states (71 and n. 55) that '[Marta] Hoffmann quotes Dr. W. Endrei as surmising that the broad horizontal loom was first invented in Flanders at some time around the middle of the thirteenth century'.

technology nor that the English had continued to rely on the ancient warp-weighted loom for making any commercial products, which had been chiefly worsted-type fabrics, not woollen broadcloths, past the twelfth century (or earlier); on the contrary much evidence indicates that in England, as elsewhere, the horizontal treadle-looms, both narrow and broad, depending on the type and quality of the fabrics, had long been used exclusively for market production, undoubtedly since at least the early twelfth century; and no traces of warp-weights for the vertical loom have been found in England beyond the tenth or eleventh century.[105] Furthermore, the most distinctive feature of the vertical or wall-supported warp-weighted loom is that it could not produce cloths longer than the height of the loom; and clearly therefore the typical woollens of this era, measuring from 20 to 40 yards, must have been woven on the horizontal treadle-loom, with its ratchet-operated warp- and cloth-

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But in fact Hoffmann, *Warp Weighted Loom*, 271, states only that 'in Walter Endrei's opinion, the two-man loom was invented in Flanders during the thirteenth century' [i.e. not the *mid*-thirteenth century], citing: Walter Endrei, *Der Trittewebstuhl im frühmittelalterlichen Europa*, Acta Historica vol. vii, nos. 1-2 (Budapest, 1961), 130ff. But when Walter Endrei held the Veronika Gervers Fellowship at the Royal Ontario Museum, in Toronto, in 1991, I personally questioned him on this issue. He readily conceded that this view had been only a supposition, for which he had had absolutely no evidence, and he was now (1991) inclined to believe that the horizontal loom had a much earlier origin. See also his 'L'apparition en Europe du métier à marches', *Bulletin de liaison du Centre International d'étude des textiles anciens* (Lyon, 1958); his *L'évolution des techniques*, 23-36, 85-90; and his other publications cited in n. 37 above; and the following notes.

[105] See Hoffmann, *Warp-Weighted Loom*, 194-226, 359-69, and especially 258-9: 'no loom weights [for the vertical warp-weighted loom] have been found in England that can be said with any certainty to be later than the ninth century. By far the greater number are definitely older'. See also Keene, *Survey*, i. 298: 'Evidence for the vertical warp-weighted loom ... is conspicuously absent from Winchester, even during the tenth and eleventh centuries ... though it does appear to have been used in villages close to the city'. See also Keene, 'Textile Manufacture', 203-04, noting that no warp-loom weights or associated loom-tools have been found in the extensive Winchester excavations for any period after the late tenth century; and also Keene, 'Textile Terms', 138-39. Nevertheless Winchester weavers did use the vertical two-beam tapestry loom to produce chalons and tapets (measuring 3 to 4 yards in length). Woodger, 'Burel Weaver', 75, n. 32, contends that later-medieval loom-weights have been found in England, from 'information gleaned in discussions with archeologists [all unnamed, without any further details]'. Woodger is clearly mistaken in viewing the London burels as 'broadcloths', merely because they were woven to be 2 ells within the lists, in accordance with the Cloth Assize, in the Statute of Measures of 1197, reconfirmed in Magna Carta in 1215. Broadcloths are heavy woollen fabrics, 24 yards and 1.75 yards after finishing, weighing over 60 lb. The London burels, and those of Winchester and Huntingdon, and similar wadmal (wadmol) were cheap, light, coarse worsted type or more likely serge-type fabrics. In any event, such cloths were far too long to have been woven on the warp-weighed loom. See n. 34-8 above.

roller beams specifically designed to produce cloths of this length.[106] Nor did the Flemish use of the horizontal broadloom mean 'mass production': not when, as noted earlier, the typical Flemish weaver-draper required at least two weeks just to weave a full-sized woollen broadcloth (comparable in size to the English broadcloth 'of assize'), and produced only about 20 - 25 such cloths a year.[107]

The evidence on Flemish-Brabantine cloth imports, sales, and prices, 1220 - 1336

Nor is there any evidence that Flemish or Brabantine textiles were underselling those of England within the domestic market. Ellen Wedemeyer Moore's analyses of cloth sales at the English fairs (principally St. Ives, but also Stamford, Boston, Northampton, St. Edmunds, and St. Giles-Winchester) during the second half of the thirteenth century indicate that virtually all of the Flemish cloths sold there were quality woollen broadcloths, generally priced above, not below, comparable English woollens, with the unsurprising exception of Lincoln scarlets. Flemish scarlets sold for prices between £5 and £12 the standard piece (value = 400 days' wages to 960 days' wages of a master mason); other grain-dyed cloths, for prices between £4 and £7 sterling the piece (= 320 days' wages to 560 days' wages); blue-dyed woollens (*pers* and *azur*), between £3 and £4 the piece (240 days' wages to 320 days' wages); rayed/striped cloth (*strijptelaken*), for prices ranging from £1 10*s*. 0*d*., to £3 13*s*. 0*d*. the piece (120 days' wages to 292 days' wages)-- but contemporary Flemish evidence indicates that many *strijptelaken* were then sold as half-cloths.[108] Meanwhile, English textiles were selling for prices that ranged as follows: from £8 10*s*. 1*d*. to £11 10*s*. 1*d*. for Lincoln scarlets at the top; from about £1 16*s*. 0*d*. to £2 6*s*. 0*d*. for a 24-yard woollen (144 days' wages to 184 days' wages); for 'blues' (*bluets*) and

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[106] Hoffmann, *Warp-Weighted Loom*, 23-114, 151-94, 258-77, 333-37; Endrei, *Evolution du techniques*, 112-23; Kenneth Ponting, *Beginner's Guide to Weaving* (London, 1982), 1-23.

[107] See the sources cited above in n. 37.

[108] Moore, *Fairs*, 33; and more generally, on cloth, 24-47. The prices cited are for 'the later thirteenth century'. In 1263, 14 Douai cloths were sold at Stamford for an average price of £4 7*s*. 0*d*. sterling (= 348 days' wages for a master mason/carpenter, at 3*d*. daily). At the 1308 Westminster Fair, 60 rayed (*stragulatas*) and coloured woollens of Ypres sold for an average of £2 7*s*. 0*d*. sterling (= 161 days' wages, at 3.5*d*. daily). Indications of cloths sold originating in Poperinge (Flanders) and Diest (Brabant), without prices, does indicate the possibility of some cheaper cloths. See Munro, 'Industrial Transformations', 143-8; Munro, 'New Draperies', 42-4 (Table 2). See also De Poerck, *Draperie*, i.247-9, 298-9.

reddish-violets from Beverley and York, at 1*s*. 6*d*. to 1*s*. 11*d*. per yard/ell; to just 2*s*. 6*d*. to 3*s*. 4*d*. per piece of cloth for 'Northamptons' (at 34 - 36 yards in length), so famous in the thirteenth-century exports markets, and worth just 10 days' to 13 days' wages. [109]

What, finally, can be said about the supposedly rising tide of Flemish woollens that 'came to dominate England's export markets and flooded England itself'(Miller) by about 1300? Although we do not possess any continuous statistical data on cloth imports before *Carta Mercatoria* in 1303, Ellen Wedemeyer Moore has voiced grave doubts about Miller's thesis, based upon her research on cloth sales at the thirteenth-century English fairs, and contemporary cloth purchases for the Royal Wardrobe. She points out that from at least the 1180s Flemish merchants, led by those from Saint-Omer, Ghent, Ypres, Lille, and Douai were coming to England in considerable numbers to buy English wools and to sell their woollens at the various fairs; and that from the 1220s, their cloth sales at the fairs, now dominated by merchants from Douai and Ypres, appear to have increased markedly.[110] But there is no evidence of any further, subsequent upsurge; and indeed the conflicts between England (Henry III, Edward I) and Flanders (Countess Marguerite, Count Guy de Dampierre) between 1270 and 1274, over unpaid *fief rentes* and confiscated commercial goods, resulting in an embargo on wool exports to Flanders, effectively ended the Flemish commercial supremacy, while Brabantine merchants partially offset the lost Flemish cloth sales. By the 1320s, when the English fairs had been in very serious decline for more than a generation (since the 1290s), the cloth sales from the northern French towns of Rouen, Paris, and Rheims seem to have outnumbered those from Flanders and Brabant.[111]

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[109] Moore, *Fairs*, 38 (Table 2). There were also some Lincoln 'greens' priced as high as 3*s*. 2*d*. per ell or yard (see 35 above); that would mean a price of £3 16*s*. 0*d*. for a cloth of 24 yards, or £4 2*s*. 4*d*. for 26 yards, or £6 6*s*. 8*d*. for the cloths of 40 ells indicated here; but are these actually green-dyed woollens (rare), or cloths partially dyed in grain? Flemish woollens of this era were normally 35 ells in length = 24.5 metres = 26.8 yards.

[110] *Ibid.*, 30-5.

[111] *Ibid.*, 43. For the conflicts of 1270-74, settled by the Treaty of Montrueil-sur-Mer (July 1274), see Henri Berben, 'Une guerre économique au moyen âge: l'embargo sur l'exportation des laines anglaises (1270-74), in F.L. Ganshof, ed., *Études d'histoire dédiées à la memoire de Henri Pirenne* (Brussels, 1937), 1-17; Henri Berben, 'Het verdrag van Montrueil, 1274: de Engelesche-Vlaamsche handelspolitik, 1266-87',

In any event, as the previous discussion of Flemish textiles and their prices has indicated, Flemish cloth imports had been confined almost entirely to broadcloths, and at the upper value range, which could hardly have posed any threat to that wide range of much cheaper, coarser, and lighter fabrics of so many urban English draperies, aimed at entirely different consumer markets.

With the imposition of *Carta Mercatoria* in 1303 and taxation of the alien cloth, do those fiscal records provide any evidence of a rising tide of foreign cloth imports in the early fourteenth century? From its inception in February 1303 until its temporary suspension on 5 October 1311, a period of 8.65 years, aliens imported an annual average of 10,453.39 woollens, of which 1.33 per cent were scarlets, 3.53 per cent were woollens in partial grain, and the remaining 95.15 per cent were *panni sine grano*, i.e. broadcloths with various other dyes. Peak imports had taken place in Michaelmas 1304-05, with 16,781.75 woollens, a level never again attained. From the resumption of taxation on alien trade in July 1322 until the end of the decade (7.2 years), aliens imported an annual average of 11,027.14 woollens (0.36 per cent as scarlets) -- about the same as in 1303-11; and, as graph 1 shows more clearly, there is certainly no trend of 'rising cloth imports' to be gleaned from these data.[112]

War, taxation, the Calais wool-staple, and the cloth trade, 1336-1363

Finally, there is another aspect of these trade statistics that seriously undermines the thesis that Flemish and Brabantine cloth imports had played a major role in destroying England's traditional urban cloth industries, and thus the various theses to explain the supposed response to that crisis. For Carus-Wilson and many others have stated that such imports had virtually ceased by the late 1330s; and they thus contend that this cessation provides proof that a renewed and reinvigorated English cloth industry had now decisively re-captured the home

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Belgische tijdschrift voor filologie en gescheidenis, 23 (1944), 97-104; J. de Sturler, *Les relations politiques et les échanges commerciaux entre le duché de Brabant et l'Angleterre au moyen âge* (Paris, 1936), 123-37; Terence Lloyd, *The English Wool Trade in the Middle Ages* (Cambridge, 1977), 35-39; Munro,'Wool-Price Schedules', 119-25; David Nicholas, *Medieval Flanders* (1992), 164-79.

[112] Data compiled from PRO, E.356/2 and E.356/9, with some corrections from Particulars Accounts noted by Lloyd, *Alien Merchants,* 211-16 (tables for individual ports). See n. 54 above, n. 103 below.

market: a freer rural industry enjoying much lower labour costs; or a new rural industry propelled by fulling mills; or an industry even more recently fortified by highly skilled Flemish immigrants (aided, of course, by their supposedly 'superior' looms). [113] But in fact in the final year of uneasy peace, before the gathering storms of the Hundred Years' War, in Michaelmas 1335-36, aliens had imported 9,089.35 woollen broadcloths (13,950.0 in 1330-31). On 12 August 1336, Edward III imposed a temporary wool-export embargo, as the first step -- noted earlier -- in organizing that royal cartel to control the wool trade, whose profits would help finance the coming war; and on 23 September he convened a 'Great Council' at Nottingham, which agreed to a royal purveyance of 30,000 woolsacks, established fixed wool prices in each county, and authorized an additional tax or subsidy of 20*s.* 0*d.* a sack, above the traditional and quite modest export duty of 6*s.* 8*d.* a sack. On 26 July 1337 a royal indenture was issued to effect this royal purveyance, by a mercantile syndicate under William de la Pole, at the fixed wool prices specified at Nottingham. By that time, Parliament had also formally banned wool exports (except by licence) and all foreign cloth imports, chiefly, as also noted earlier, to coerce Flanders into joining Edward's alliance against France; but Count Louis de Nevers responded instead by imposing his own trade ban on England, helping to provoke civil war within Flanders, which ended with Louis's exile and a Ghent-led town alliance that did support Edward III, and made unhappy Flanders a bloody battleground for the French war.[114] The subsequent and highly disruptive policies of Edward III, whom Terence Lloyd has

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[113] See in particular Carus-Wilson, 'Trends in the Export of English Woollens in the Fourteenth Century,' *EcHR*, 2nd ser. 3:2 (1950), reprinted in her *Medieval Merchant Venturers* (1954), 242: 'In the first phase of [English industrial] expansion, in the 1330s and 1340s, the most striking feature that can be quantitatively demonstrated is the capture of the home market by English manufacturers.... In the 1320s these imports of foreign cloths were still considerable, but in the 1330s, they fell with catastrophic suddenness, and by 1340 they had virtually ceased: for the remainder of the century they remained a mere trickle, chiefly of certain specialty cloths'. See also Miller, 'English Textile Industry', 74-6; Miller and Hatcher, *Medieval England*, 121-7; Woodger, 'Burel Weaver', 59-64.

[114] *SR* i. 280-81 (11 Edward III: 1336-7): on wools, 'that no Merchant shall bring or cause to be brought ... any Wools out of the Realm, till by the King and his Council it be thereof otherwise provided'. See also *CCR 1337-39*, 148-50 (4 Aug. 1337); *CCR 1339-41*, 614-16 (8 and 29 Aug. 1340); Thomas Rymer, ed., *Foedera (*1709-12), II.ii, 943-4; Edmund Fryde, 'Financial Resources of Edward III in the Netherlands, 1337-40', *Revue belge de philologie et d'histoire*, 45 (1967), 1142-1216; F.R. Barnes, 'The Taxation of Wool,1327-48', and George Unwin, 'The Estate of the Merchants, 1336-1365', in George Unwin, ed., *Finance and Trade under Edward III* (1918), 143-6, 179-97; de Sturler, *Relations*, 321-76; Lloyd, *Wool Trade*, 144-7;

called 'woolmonger extraordinary', need not detain us further, except to note that the parliamentary export subsidies on wool were further increased to 33*s*. 4*d*. per sack in March 1338 and then to 40*s*. 0*d*. a sack in November 1341, for a total tax burden of 46*s*. 8*d*. per sack (50*s*. 0*d*. a sack for aliens), a rate that was periodically re-confirmed by subsequent merchant assemblies and parliaments up to 1362; the next year Calais was made the official wool staple to control all wool exports to northern Europe, with a mercantile cartel designed to pass this tax incidence more fully on to foreign buyers.[115]

In the short run, the significance of these events and the outbreak of the Hundred Years' War was to disrupt in particular alien cloth imports, which not surprisingly fell to 919.37 cloths in Mich. 1337-38 and to 431.49 cloths in Mich. 1340-41, though recovering to 4,446.85 cloths in Mich. 1342-43. Thereafter lacunae in the accounts do not permit even estimates of cloth imports until the customs accounts resume in 1351; and for the years 1351-59, aliens imported a mean of 4,606.12 woollen broadcloths. In that decade, mean cloth exports were in fact slightly less: 4,426.0 broadcloths (of which aliens accounted for 999.0). Not until the next decade, 1360-9, i.e. with the establishment of the Calais Staple, would English cloth exports finally experience a sharp rise, to an annual mean of 12,859 broadcloths, with a corresponding drop in alien imports, to an annual mean of 2,050 broadcloths. Thus, as graphs 1 and 2 clearly indicate, we must reassess the traditional views about the role of alien and in particular Flemish cloth imports and of English cloth exports in the first two-thirds of the fourteenth century.[116]

European warfare, rising transaction costs, and the international cloth trade, 1290 - 1340

Indeed, to cast the Flemish or the Brabantine draperies in the role of destroyers, even partial destroyers, of England's traditional urban cloth industries is all the more absurd when their own current plight, from the 1290s to the 1330s, is considered. In 1294, after almost eighty years of relative peace, Edward I and Philip IV

W.M. Ormrod, 'The Crown and the English Economy, 1290-1348', in Bruce Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester, 1991), 167-75.

[115] See Lloyd, *Wool Trade*, 193-224; Munro, 'Industrial Entrepreneurship', 377-88; n. 130 below.

[116] See sources in the graphs; above p. 16 and nn. 54, 75-7; and below pp. 31-2, and n. 129.

of France initiated more than a century and a half of continuous, disruptive warfare in north-western Europe, commencing with a conflict ostensibly over control of Gascony (1294-1303). That conflict almost immediately embroiled Flanders (while also spreading to Scotland), as Edward I sought to force an alliance with Count Guy de Dampierre by temporarily embargoing wool exports to Flanders; and to help finance his warfare, Edward had also imposed a *maltôte* export duty of 66*s.* 8*d.* per sack of 'prepared' wools and 40*s.* per sack of other wools.[117] Philip IV, fearing indeed that Count Guy would joint Edward, declared Flanders forfeit to the crown and invaded the county; but then, at Kortrijk in 1302, his cavalry suffered a decisive and humiliating defeat at the hand of the Flemish urban militias, which quickly established revolutionary urban governments. Sporadic Franco-Flemish wars followed until a peace treaty recognized Flanders's *de facto* independence in 1320; but the aftermath of the reparations and that settlement led to an even more bitter and destructive civil war within Flanders in 1323, which ended only in 1328 with another French invasion and this time a crushing victory by the royal cavalry at Cassel. Meanwhile, the Brabantine drapery towns were also wracked by revolutionary violence from 1302 to 1306, when armies of Duke Jan II brutally suppressed the rebel towns.[118]

Much more damaging to the fortunes of both the traditional English and the Low Countries's cloth industries was the warfare that had broken out elsewhere and spread with a deadly stain across most of southern Europe and the entire Mediterranean basin, in and from that same crucial decade of the 1290s, a major turning point in later-medieval economic history. Since this warfare and its consequences for the Low Countries's economy have received extensive analysis elsewhere, only the salient features need be noted here,

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[117] Beginning with Edward I's seizure of wool stocks and temporary export embargo of 2 June 1294. See *CFR 1272-1307*, 347; and *CPR 1292-1301*, 100-01 (28 Oct. 1294); Michael Prestwich, *War, Politics, and Finance Under Edward I* (1972), 196-9; Michael Prestwich, *The Three Edwards: War and State in England, 1272-1377* (1980), 26-41, 42-78 (for the Scottish wars); Lloyd, *Wool Trade*, 75-9; de Sturler, *Relations*,181-9; Edmund Fryde, 'Financial Resources of Edward I in the Netherlands, 1293-98', *Revue belge de philologie et d'histoire*, 40 (1962), 1178-82.

[118] See Nicholas, *Medieval Flanders*,180-246; de Sturler, *Relations*, 141-319.

and related more directly to the particular plight of the English urban draperies.[119] The Anglo-French, but more especially the Franco-Flemish and Flemish civil wars, and their accompanying fiscal measures, were especially deleterious to the commerce of the Champagne Fairs, which had become, by the early thirteenth century, the chief agency for marketing textiles, and above all the cheap, light, coarse textiles from north-western Europe, to the Mediterranean basin. The Champagne Fairs suffered even greater injuries from the later phase of the 'Sicilian Vespers' or Angevin-Aragonese Wars (1282-1302), involving Sicily, Naples, the Papacy, France, and Aragon-Catalonia. The kingdoms of Aragon and Castile were then also embroiled in the Muslim-Christian wars that were devastating southern Spain and North Africa -- very important markets for the cheap, light, western textiles -- from 1291 to 1340, when the final Moroccan-Marinid invasion was decisively repulsed.[120] The Sicilian Vespers War, briefly halted in 1302 by a truce that allowed unemployed Catalan privateers to ravage both the eastern and western Mediterranean sea lanes, was resumed in 1314 as the Guelf-Ghibelline wars, which, plagued by almost continuous foreign military interventions (French, German, Catalan, Bohemian, Hungarian), ravaged most of Italy from Liguria and the Alpine passes to Sicily for three more decades, to 1343. Thus in 1327, an Italian merchant firm blamed these very wars for its inability to transport cloths from the now dying Champagne Fairs to Genoa.[121]

Meanwhile, the 1290s had also proved to be the crucial turning point for commercial contraction in the eastern Mediterranean, the Levant in particular, which had become perhaps the major market for those cheap, coarse, and light European textiles: with the Mamluk conquest and destruction of Crusader Palestine (1291); the first of three Genoese-Venetian naval wars (1291-99) to win control over the Black Sea routes and

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[119] John Munro, 'Urban Regulation and Monopolistic Competition in the Textile Industries of the Late-Medieval Low Countries', in John H. Munro and Erik Aerts, eds., *Textiles of the Low Countries in European Economic History* (Leuven, 1990), 41 - 52; Munro, 'Industrial Transformations', 110-48; and Munro, 'New Draperies', 32-95; and n. 130 below.

[120] See above, nn. 28-30, for its significance for the origins of Spanish *merino* wools; see also Munro, 'Industrial Transformations', 121-4; Munro, 'New Draperies', 45-8.

[121] Renée Doehaerd, *Les relations commerciales entre Gênes, la Belgique, et l'Outremont d'après les archives notariales génoises aux XIIIe et XIVe siècles*, 3 vols. (Rome, 1952), iii. 1156, no. 1869.

shrinking markets; the Ottoman advances into the crumbling Byzantine Empire (from 1303); the depredations of Catalan mercenaries sent to evict them (1303-12); and, finally in the 1330s, anarchic warfare in the Mongol khanates from the Black Sea to Persia, another important zone lost to Italian commerce.

By far the most economically destructive consequences of this warfare were not the battles themselves, but the attendant consequences in military-enforced trade embargoes and almost incessant brigandage and piracy; and as Irene Katele has observed, the era from the 1290s marked 'a watershed in the history of naval plundering', which in turn required far more costly defensive improvements to mercantile shipping, especially when ships acquired firearms in the 1330s.[122] State-financing of such measures, defensive or offensive, was almost equally injurious, with rising interest rates, soaring taxes, frequent coinage debasements, and licence fees to conduct illicit trade. Thus European commerce with the Levant did not cease, except for the so-called 'strict embargo period' of 1323-44; but it was necessarily conducted by papal licences at a far higher cost, with a much smaller volume, largely confined to high-valued luxury goods, which would 'bear the freight'. From all these factors, freight rates and shipping costs along both the Mediterranean and Atlantic sea lanes virtually doubled from the 1290s to the 1360s.[123]

In summary, therefore, the textile industries of northwestern Europe, which had so strongly dominated Mediterranean markets through the twelfth and thirteenth centuries, bore the economic brunt of this warfare in the form of steeply rising transportation, marketing and other transaction costs, which, by the early

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[122] See Irene Katele, 'Piracy and the Venetian State: the Dilemma of Maritime Defense in the Fourteenth Century', *Speculum*, 63 (1988), 865-89; Henri Bresc, 'Course et piraterie en Sicilie (1250-1450)', *Anuario de estudios medievales*, 10 (1980), 751-7; Charles Dufourq, *L'Espagne catalane et le Maghrib aux XIIIe et XIVe siècles* (Paris, 1966), 369-499, 544-65; Eliyahu Ashtor, *The Levant Trade in the Later Middle Ages* (Princeton, 1983),1-86; and the sources cited in Munro, 'Industrial Transformations', 120-30.

[123] Detailed evidence is supplied in Munro, 'Industrial Transformations', 120-30; Munro, 'New Draperies', 35-90; and in the sources cited in the previous note. For example, it is significant to note that in 1397-8, the transport and marketing costs in sending quality Flemish Wervik woollens, worth 22 florins or £3 6*s*.0*d*. sterling (= 132 days' wages of a master Oxford mason), from Bruges to Barcelona amounted to 22 per cent of that value by overland routes, or 15 per cent by sea. But at the beginning of the century transporting *saies* of Caen (Normandy) overland by the Rhone route to Florence had cost only 8.8 per cent of their much lower value of 11.5 florins; and with a change in the gold:silver ratio, florins were worth much more in 1390 than in 1310 (from about 14:1 to 9.5:1).

fourteenth century, had become virtually prohibitive for the export of very cheap textiles to such far distant markets. Because transaction costs are subject to large scale-economies -- i.e. that trade in cheap textiles is profitable only with large volumes -- the situation worsened in the early decades of this century, with regional depopulations, certainly in Provence and Tuscany, and thus well before the Black Death. Furthermore, all of these adverse factors that combined to raise transaction costs in marketing the cheaper cloths may also have produced, possibly in conjunction with Malthusian demographic factors in some regions, more highly skewed income distributions, ie. in depressing real incomes of the lower strata of European societies, thereby further curbing demand for such textiles.[124]

The responses of the European cloth-industries: France, Flanders, Catalonia, Italy, and England

The northern textile producers most threatened with extinction were those exporting such cheap textiles to already saturated Mediterranean markets as 'price-takers': i.e. those forced to accept prevailing market prices, under virtually perfect competition, and thus unable to raise prices to cover their rising transport and transaction costs. To be sure the Franco-Flemish and English cloth industries did produce a wide and very varied range of these cheap, light fabrics, directed toward different segments of the market; but each individual draper's grade of *stanforte (stamfort), saie, biffe, burel*, or *rayé*, etc. was really indistinguishable in form and quality from rival products of the same type produced by thousands of other European drapers, each of whom was powerless to set market prices.[125] Under such conditions, Mediterranean producers were the ones most likely to survive, with lower or less steeply rising transaction costs, though many in fact did not.

As noted earlier, textile production in both Catalonia and Tuscany during the thirteenth century had

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[124] See the evidence cited in Munro, 'Industrial Transformations', 120-39; and a discussion of the highly problematic 'demographic real-income model', 139-41. The demand model is all the more problematic in that many of the major Mediterranean customers for cheap textiles were aristocratic households that purchased them as livery for their servants; and thus they would have been less affected by these demand factors. See further evidence and discussion of demand models in Munro, 'New Draperies', 70-87.

[125] See Hoshino, 'Florentine Woollen Industry', 185: 'because of the demand for common cloth [in the Mediterranean, c. 1300], many cities competed for the same market with materials which were qualitatively identical'.

been devoted almost entirely to the production of very coarse and cheap textiles; but from the 1320s, during the final phase of the northern industrial crises, we find that the major urban industries in these two regions, and the Florentine industry above all, were shifting their textile production to far higher priced, heavier, true woollen broadcloths, using fine English wools, manufacturing them as *panni alla francesci*, i.e. in the mode of the Artesian and Franco-Flemish ('French') woollens. That transformation can be explained only partly by disruptions in trade routes and the consequent difficulties in acquiring the genuine Flemish luxury woollens, which did continue to be sold in the Mediterranean, though in a diminishing volume, as Florence and later Barcelona gained the ascendancy. As early as the 1330s, these more luxurious Florentine *panni alla francesci* were responsible for about 75 per cent of cloth sales by the great Florentine mercantile houses, with prices that soon matched those of the very finest Flemish woollens, even exceeding them later in the century.[126]

In this very same era, from the 1290s to 1320s, the Flemish and Brabantine cloth industries, not only those in the major towns but also in the small- town or village *nouvelles draperies*, virtually abandoned the export-oriented production of *saies*, *stamforts*, *biffes*, *renforchiés* and other coarse, cheap, light worsted or semi-worsted fabrics, to concentrate more and more on exporting just their high-grade woollen broadcloths, whose much higher values could better sustain rising transaction costs; and they had to engage in monopolistic competition, as 'price-makers' striving to make their products uniquely desirable in luxury markets, which they increasingly sought out in northern and eastern Europe. Unfortunately for them, however, their luxury

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[126] Hoshino, 'Florentine Woollen Industry', 184-204; Hidetoshi Hoshino, *L'arte della lana in Firenze nel basso medieovo: il commercio della lana e il mercato dei panni fiorentini nei secoli XIII-XV* (Florence, 1980); Manuel Riu, 'The Woollen Industry in Catalonia in the Later Middle Ages', in Harte and Ponting, *Cloth and Clothing*,205-229; Munro, 'Industrial Transformations', 130-3. In cloth sales at Pisa during 1354-71, the *mean* Florentine cloth price was 43.35 florins or £6 10*s*. 0*d*. sterling (with a maximum of 115 florins or £17 5*s*. 0*d*. sterling). By that time other Tuscan and Lombard towns were evidently imitating the Florentine woollens. In these same Pisan accounts, their mean prices are 20.43 florins (£3.06 sterling) and 27.55 florins (£4.13 sterling), respectively; and collectively the Italian woollens then accounted for 57 per cent of Pisan cloth sales. By the 1390s, the mean price of Florentine woollens had risen to 55.9 florins (£8.38 sterling) in Pisa, and to 64.43 florins (£9.66 sterling) in Spain, where they were accounting for 27 per cent of total Datini sales revenue (and, with other Italian woollens, 54 per cent of sales). For Pisa in 1354-71 and 1391-7, see Federigo Melis, 'Uno sguardo al mercato dei panni di lana a Pisa nella seconda metà del trecento', *Economia e storia*, 6:1 (Mar 1959), 321-65.

broadcloths necessarily had to be made from the prime determinant of that quality, the finer grades of English wools, which, as noted earlier, became so heavily taxed from the late 1330s (rising in real terms to the 1390s).[127] Subsequently, from the later fifteenth and early sixteenth centuries, the restoration of relative peace and security along the major transcontinental and Mediterranean trade routes, with a consequent fall in transport and transaction costs, facilitated as well by various innovations in transport and merchandising, permitted a remarkable resurrection of the Flemish and Brabantine *sayetteries* and other *draperies légères*, as viable and profitable export industries, almost all of them now urban, which then enjoyed a dramatic expansion until the very eve of the Revolt of the Low Countries (1568-1609).[128]

With far less detailed documentation available for England's textile towns during the later thirteenth and early fourteenth centuries, than for those of the cross-Channel Low Countries, the historian of the English 'crisis' cannot be so assertive about its causes, outcome, or resolution. Nevertheless, from the evidence adduced so far, one may put forward the reasonable hypothesis that the two cross-Channel industrial crises were very similar and interrelated phenomena, and more specifically: (1) that production in the thirteenth-century English textile towns was largely, though certainly not entirely, geared to the exports of cheap, coarse, and generally lighter textiles to the Mediterranean basin; and (2) that like the corresponding Flemish draperies, they could not sustain and thus not survive the rise in transport, marketing, and transaction costs in serving these markets by the early fourteenth century. Unfortunately for the English textile towns, most did not have the established pre-eminence and 'reputation' in producing luxury broadcloths so long enjoyed by the Flemish and Brabantine towns, except for the Lincoln scarlets, which, for reasons already suggested, could hardly serve as a 'stand-alone' platform for a reviving export industry. Worsted exports, however, did not disappear in the first half of the fourteenth century; and evidently, as noted earlier, that trade survived on the basis of Hanseatic exports to still peaceful northern Germany and the Baltic zone, at least until the 1380s, when the Baltic trade began

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[127] See nn. 114-15 above, 130 below.

[128] Evidence for and analysis of these industrial phenomena will be found in Munro, 'Industrial Transformations', 110-48; Munro, 'Urban Regulation', 41-52; Munro,'New Draperies', 35-127.

to suffer the same piracy and insecurity that had almost a century earlier beset the Mediterranean; and then English worsted exports plummeted to almost nothing.[129]

The expansion in English broadcloth exports from the 1340s: urban and rural cloth production

The revival and far greater expansion in exports of the English cloth industry was instead based upon England's singular asset: in possessing Europe's finest wools, unrivalled before the mid-sixteenth century, to make quality broadcloths at a far lower cost than its continental rivals. Indeed, in the longer run, the most vital consequence of Edward III's wool-tax and Staple policies, once the Staple Company had become an effective cartel by the 1390s, and was thus better able to pass the wool-tax incidence almost fully on to the foreign buyers, was to inflict grave damages on the Low Countries's woollen cloth industries, now so heavily dependent on these finer English wools, thereby giving the very lightly-taxed English cloth export trade an enormous commercial advantage. For while the real burden of the wool duties had risen to virtually 50 per cent of the mean wool-export price by the 1390s, so that these tax-burdened wools accounted for about 70 per cent of the Flemish drapers' pre-finishing manufacturing costs, the export duty on English broadcloths, imposed on denizens only in 1347 at the minimal rate of 1*s.* 2*d.* per cloth (1*s.* 0*d.* for the Hanse, 2*s.* 9*d.* for other aliens), represented only 2 - 3 per cent of the mean cloth export values.[130]

Although armed with this mighty cost advantages, the English draperies did not initially seek to compete in the same higher-echelon luxury markets with the Flemish, Brabantine, Norman, and Florentine (Tuscan) cloth industries. Instead they directed their production and exports to a much broader, lower-priced end of the luxury market; but even so, the English did not in fact succeed in vanquishing their continental rivals for a very long time, not until the mid to late fifteenth century, for reasons that have been fully explored

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[129] Carus-Wilson and Coleman, *England's Export Trade,* 199-200 and Appendix V table: worsteds had accounted for 16.8 per cent of the volume and value of English cloth exports in 1350-9, as measured by relative tax rates; by 1380-81, that had fallen to 1.0 per cent; and to 0.1 per cent by 1384-5, though subsequently rising back to 1.0 per cent by the early 15th century. See also John Munro, 'Patterns of Trade', 160-5.

[130] See the evidence cited in Munro, 'Industrial Protectionism', 229-67, especially tables 13.1-2; Munro, 'Industrial Entrepreneurship', 377-88; Lloyd, *Wool Trade,* 193-24; and in the following notes.

elsewhere.[131]

Reflections on the Bridbury Thesis: The industrial advantages of an urban location

This study cannot conclude without some final observations about Anthony Bridbury's objections to the thesis of an urban 'industrial crisis' in late-thirteenth century England. His views stem in part from an understandable unwillingness to accept the self-serving complaints and pleas for reductions in tax farms emanating from guilds in those industrial towns, but even more from strong objections to the almost universally held view that the urban industries of this era necessarily had to succumb to supposedly 'superior' rural competition. Thus, far from disappearing, urban cloth industries continued to thrive -- or revived -- so that during the later fourteenth and early fifteenth centuries well more half of aggregate broadcloth production for export came from this source, and not from village draperies, despite their undisputed rise and expansion in the West Country.[132] Nevertheless, correct though Bridbury may be in this assertion, he does gloss over the fact that most of these vibrant urban cloth producers of the later Middle Ages were not the thirteenth-century leaders but relative newcomers, such as Bristol, Salisbury, Gloucester, Coventry, Worcester, and the numerous small towns along or near the Stour and Colne rivers in Essex and Suffolk (e.g. Lavenham, Coggeshall, Long Melford, Sudbury). Of the old traditional drapery towns, only York and Colchester revived successfully to retain their positions in the first or second rank of cloth exporters; Winchester, London, and Leicester also resuscitated their urban cloth industries but not with the same level of importance as they had enjoyed in the

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[131] See John Munro, 'Anglo-Flemish Competition in the International Cloth Trade, 1340 - 1520', in Jean-Marie Cauchies, ed., *L'Angleterre et les pays bourguignons: relations et comparaisons, XVe-XVIe siècle [Publication du Centre Européen d'Études bourguignons*, no. 35 (1995)], 37-60. See also the various essays in Munro, *Textiles, Towns, and Trade* (1994).

[132] Bridbury, *Medieval English Clothmaking*, 62-85; Bridbury, *Economic Growth*, 39-82. His estimates on urban production are based on the later 14th-century aulnage accounts, whose veracity he defends against the criticisms of E.M. Carus-Wilson, 'The Aulnage Accounts: a Criticism', *EcHR*, 1st ser. 1 (1929), reprinted in her *Medieval Merchant Venturers* (1954), 279-91, criticisms which may be valid for the period that she discussed, the late fifteenth century, but not for the fourteenth. The statistics were published in H.L. Gray, 'The Production and Exportation of English Woollens in the Fourteenth Century', *English Historical Review*, 39 (1924), 13-35.

twelfth and thirteenth centuries.[133] His corollary opposition to Carus-Wilson's rural-based 'fulling mill' thesis also led him to ignore, as Carus-Wilson herself had done, the evidence for the use of water-powered fulling mills in the later-medieval English urban cloth industries, either within or more commonly just outside the town walls: in Winchester (as noted above), Colchester, the Stour valley towns, London, Bristol, Worcester, Leicester, York. As Keene has shown, the Winchester urban fullers not only supported their use (four in total c. 1420) but owned or leased and operated some of these fulling mills, which, thus 'strengthened the urban industry rather than promoting its migration into the countryside'.[134] Such evidence therefore serves to fortify and underline Bridbury's major contribution to the debate about the revival and growth of England's later-medieval cloth industry by re-asserting the undoubted virtues of an urban location for an export-oriented manufacturing industry: particularly in terms of congregating, training, and supervising skilled labour, while also ensuring quality controls in the weaving, fulling, dyeing, and finishing processes; and in providing the necessary access to commercial facilities, marketing connections, and industrial finance.[135]

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[133] Keene, *Survey*, i.299-316, noting that c.1400, Winchester ranked about sixth, producing 2,000 cloths a year, compared to 6,000 cloths at Salisbury. See also Keene, 'Textile Manufacture', 200-14; Keene, 'Textile Terms', 135-47; Heather Swanson, 'The Illusion of Economic Structure: Craft Guilds in Late Medieval English Towns', *Past & Present*, no. 121 (Nov 1988), 29 - 48; Heather Swanson, *Medieval Artisans: An Urban Class in Late Medieval England* (Oxford, 1989), 26-44; J. N. Bartlett, 'The Expansion and Decline of York in the Later Middle Ages', *EcHR*, 2nd ser., 12 (1959-60), 17 - 33.

[134] Keene, 'Textile Terms', 141 (quotation); Keene, *Survey*, i. 302-09; ii. 1050-52 (doc. no. 972), 1082-83 (doc. no. 1057); Keene, 'Textile Manufacture', 208-12; Richard Britnell, *Growth and Decline in Colchester, 1300 - 1525* (Cambridge, 1986), 13-21, 76-78; Michael Gervers, 'The Textile Industry in Essex in the Late 12th and 13th Centuries', in *Essex Archaeology and History: The Transactions of the Essex Society for Archaeology and History*, 3rd ser., 20 (1989), 48-49, 69; Francis Bickley, ed., *The Little Red Book of Bristol* (Bristol, 1900), ii. 10-12 [1346], 15-16[1381], 75-79[1406]; George Ramsay, *The Wiltshire Woollen Industry in the Sixteenth and Seventeenth Centuries*, 2nd edn. (1965), 18-20 (for Salisbury); *SR* iii. 459-60 (25 Hen VIII c. 18, 1533-34: for Worcester); Riley, *Liber Custumarum*, i. 127-28 [London: 1298]; Sharpe, *Letter Book C*, 51-2 [London: 1298]; 52-53 [1314]; *Letter Book D*, 239-40 [1311]; *Letter Book H*, 37, 47-48 [1376]. See also Munro, 'Industrial Entrepreneurship', 377-88; and n. 93 above.

[135] Such points were also made about the viability of the thirteenth-century urban industry in Harvey, 'English Trade', 369-76. See above p. 22 and n. 102.

Table 1. **Weights of Selected Medieval and Early Modern Textiles from England and the Low Countries, 1278 - 1579**

Place of Manufacture	Name of textile	Date	lb. per sq. ell	lb. per sq. yard	grams per m2
Valenciennes	biffes	1294-1302	0.460	0.8028	**435.498**
Valenciennes	renforchiés	1294-1302	0.440	0.7679	**416.563**
Ypres	saye	1284	0.430	0.7504	**407.096**
Bruges	dicke saye	1278	0.470	0.8202	**444.965**
Bruges	dinne saye	1278	0.390	0.6806	**369.227**
Saint-Omer	saye drappée	1281	0.510	0.8900	**482.835**
Arras	saye endrappée	1300	0.460	0.8028	**435.498**
Hondschoote	Smalle Dobbel Saye	1571	0.348	0.6078	**322.421**
Bergues-St-Winoc	fine narrow saye	1537	0.275	0.4799	**260.352**
Colchester	Single Bays	1579	0.359	0.6471	**332.306**
Essex	Broad Says	1579	0.153	0.0688	**141.193**
Essex	Coggeshall Bays	1579	0.580	0.9897	**536.906**
Ghent	dickedinnen	1462	0.716	1.1683	**633.766**
Leuven	oppersten zegel	1519	0.853	1.4892	**807.880**
Mechelen	Gulden Aeren	1544	0.773	1.3988	**764.421**
Armentieres	Oultreffin	1510	0.867	1.5125	**820.503**
Bruges	Dobbel Lion	1544	0.753	1.3140	**712.836**
Suffolk	Short Broadcloth	1552	0.845	1.5238	**782.450**

Table 2. **Alien Broadcloth Imports Into England, 1303 - 1383**

Date From	Date To	Scarlets Full Grained	Percent of Total	Partial Grain	Percent of Total	Without Grain	Percent of Total	TOTAL
10-Feb-1303	**29-Sep-1303**	106.00	1.85%	170.50	2.98%	5,450.75	95.17%	**5,727.25**
29-Sep-1303	**29-Sep-1304**	264.00	2.04%	644.50	4.97%	12,054.50	92.99%	**12,963.00**
29-Sep-1304	**29-Sep-1305**	465.75	2.78%	1,115.25	6.65%	15,200.75	90.58%	**16,781.75**
29-Sep-1305	**29-Sep-1306**	97.00	1.42%	219.00	3.21%	6,516.00	95.37%	**6,832.00**
29-Sep-1306	**29-Sep-1307**	114.25	1.01%	407.25	3.61%	10,756.50	95.38%	**11,278.00**
29-Sep-1307	**29-Sep-1308**	60.50	0.49%	433.50	3.52%	11,835.00	95.99%	**12,329.00**
29-Sep-1308	**29-Sep-1309**	65.00	0.57%	162.75	1.44%	11,106.75	97.99%	**11,334.50**
Mean	**6.6356 yrs**	**176.70**	**1.52%**	**475.13**	**4.08%**	**10,989.22**	**94.40%**	**11,641.04**
29-Sep-1309	**29-Sep-1310**	10.00	0.42%	0.00	0.00%	2,373.75	99.58%	**2,383.75**
29-Sep-1310	**05-oct-1311**	16.00	0.15%	39.00	0.36%	10,759.08	99.49%	**10,814.08**
Mean	**2.0164**	**12.89**	**0.20%**	**19.34**	**0.30%**	**6,513.01**	**99.51%**	**6,545.25**
Mean of								
1303-1311	**8.652055 yrs**	**138.52**	**1.33%**	**368.90**	**3.53%**	**9,945.97**	**95.15%**	**10,453.39**

20-Jul-1322	**29-Sep-1322**	15.31	0.51%	1.32	0.04%	2,976.97	99.44%	**2,993.60**
29-Sep-1322	**29-Sep-1323**	20.69	0.20%	228.18	2.23%	10,001.03	97.57%	**10,249.90**
29-Sep-1323	**29-Sep-1324**	38.50	0.31%	207.58	1.68%	12,092.21	98.01%	**12,338.29**
Mean	**2.1973 yrs**	**33.91**	**0.29%**	**198.92**	**1.71%**	**11,409.76**	**98.00%**	**11,642.59**
29-Sep-1324	**29-Sep-1325**	45.56	0.35%	162.31	1.23%	12,991.63	98.43%	**13,199.49**
29-Sep-1325	**29-Sep-1326**	32.44	0.52%	68.12	1.08%	6,177.55	98.40%	**6,278.11**
29-sep-1326	**29-sep-1327**	51.00	0.47%	96.00	0.89%	10,672.44	98.64%	**10,819.44**
29-Sep-1327	**29-Sep-1328**	28.50	0.23%	118.00	0.96%	12,205.11	98.81%	**12,351.61**
29-Sep-1328	**29-Sep-1329**	56.00	0.50%	86.00	0.77%	10,993.19	98.72%	**11,135.19**
Mean	**5.00 yrs**	**42.70**	**0.40%**	**106.08**	**0.99%**	**10,607.98**	**98.62%**	**10,756.77**
Mean of	**7.1973 yrs**	**40.02**	**0.36%**	**134.43**	**1.22%**	**10,852.70**	**98.42%**	**11,027.14**
1322-29								
29-Sep-1329	**29-Sep-1330**	28.00	0.39%	20.50	0.28%	7,160.50	99.33%	**7,209.00**

29-Sep-1330	**29-Sep-1331**	30.00	0.22%	128.00	0.92%	13,792.00	98.87%	**13,950.00**
29-Sep-1331	**29-Sep-1332**	7.00	0.07%	39.50	0.37%	10,531.50	99.56%	**10,578.00**
29-Sep-1332	**29-Sep-1333**	62.00	0.73%	44.00	0.52%	8,350.50	98.75%	**8,456.50**
29-Sep-1333	**29-Sep-1334**	50.00	0.72%	25.00	0.36%	6,884.00	98.92%	**6,959.00**
Mean	**5.00 yrs**	**35.40**	**0.38%**	**51.40**	**0.55%**	**9,343.70**	**99.08%**	**9,430.50**
29-Sep-1334	**29-Sep-1335**	48.00	0.70%	50.00	0.73%	6,745.50	98.57%	**6,843.50**
29-Sep-1335	**29-Sep-1336**	86.26	0.95%	41.51	0.46%	8,961.57	98.59%	**9,089.35**
29-Sep-1336	**29-Sep-1337**	13.28	1.14%	9.64	0.83%	1,142.85	98.03%	**1,165.78**
29-Sep-1337	**29-Sep-1338**	6.45	0.70%	2.84	0.31%	910.08	98.99%	**919.37**
29-Sep-1338	**29-Sep-1339**	4.00	0.49%	2.00	0.25%	803.38	99.26%	**809.38**
Mean	**5.00 yrs**	**31.60**	**0.84%**	**21.20**	**0.56%**	**3,712.68**	**98.60%**	**3,765.48**
Mean of								
1330-39	**10.00 yrs**	**33.50**	**0.51%**	**36.30**	**0.56%**	**6,528.19**	**98.94%**	**6,597.99**
29-Sep-1339	**29-Sep-1340**	22.00	1.35%	19.00	1.17%	1,587.13	97.48%	**1,628.13**

29-Sep-1340	**29-Sep-1341**	5.00	1.16%	0.00	0.00%	426.49	98.84%	**431.49**
29-Sep-1341	**29-Sep-1342**	1.00	0.09%	8.00	0.69%	1,147.15	99.22%	**1,156.15**
29-Sep-1342	**29-Sep-1343**	51.00	1.15%	11.00	0.25%	4,384.85	98.61%	**4,446.85**
Mean	**4.00 yrs**	**19.75**	**1.03%**	**9.50**	**0.50%**	**1,886.40**	**98.47%**	**1,915.65**
29-Sep-1343	**29-Sep-1344**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1344	**29-Sep-1345**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1345	**29-Sep-1346**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
Mean	**3.0 yrs**	**0.00**	**0.00%**	**0.00**	**0.00%**	**0.00**	**0.00%**	**0.00**
Mean of		**11.29**	**1.03%**	**5.43**	**0.50%**	**1,077.95**	**98.47%**	**1,094.66**
1340-46								
29-Sep-1350	**29-Sep-1351**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
04-Nov-1351	**29-Sep-1352**	19.00	0.87%	1.00	0.05%	2,164.75	99.08%	**2,184.75**
29-Sep-1352	**29-Sep-1353**	48.00	0.94%	0.00	0.00%	5,032.00	99.06%	**5,080.00**
29-Sep-1353	**29-Sep-1354**	80.00	1.25%	7.00	0.11%	6,327.75	98.64%	**6,414.75**

Mean	**2.904 yrs**	**50.62**	**1.07%**	**2.75**	**0.06%**	**4,657.02**	**98.87%**	**4,710.39**
29-Sep-1354	**29-Sep-1355**	41.00	1.39%	7.00	0.24%	2,905.75	98.37%	**2,953.75**
29-Sep-1355	**29-Sep-1356**	31.00	0.74%	0.00	0.00%	4,176.00	99.26%	**4,207.00**
29-Sep-1356	**29-Sep-1357**	17.00	0.31%	2.00	0.04%	5,408.75	99.65%	**5,427.75**
29-Sep-1357	**29-Sep-1358**	11.00	0.23%	0.00	0.00%	4,772.75	99.77%	**4,783.75**
29-Sep-1358	**29-Sep-1359**	13.00	0.24%	0.00	0.00%	5,342.00	99.76%	**5,355.00**
Mean	**5.00 yrs**	**22.60**	**0.50%**	**1.80**	**0.04%**	**4,521.05**	**99.46%**	**4,545.45**
Mean of	**7.904 yrs**	**32.89**	**0.71%**	**2.15**	**0.05%**	**4,571.07**	**99.24%**	**4,606.12**
1351-59								
29-Sep-1359	**29-Sep-1360**	1.00	0.03%	0.00	0.00%	3,467.62	99.97%	**3,468.62**
29-Sep-1360	**29-Sep-1361**	22.00	0.89%	0.00	0.00%	2,450.00	99.11%	**2,472.00**
29-Sep-1361	**29-Sep-1362**	3.00	0.10%	2.00	0.07%	3,006.50	99.83%	**3,011.50**
29-Sep-1362	**29-Sep-1363**	80.50	2.24%	0.00	0.00%	3,514.25	97.76%	**3,594.75**
29-Sep-1363	**29-Sep-1364**	23.50	0.77%	0.00	0.00%	3,038.50	99.23%	**3,062.00**

Mean	**5.00 yrs**	**26.00**	**0.83%**	**0.40**	**0.01%**	**3,095.38**	**99.15%**	**3,121.78**
29-Sep-1364	**29-Sep-1365**	24.50	0.86%	7.00	0.24%	2,827.75	98.90%	**2,859.25**
29-Sep-1365	**29-Sep-1366**	12.50	0.57%	0.00	0.00%	2,191.00	99.43%	**2,203.50**
29-Sep-1366	**29-Sep-1367**	11.50	0.37%	0.00	0.00%	3,116.00	99.63%	**3,127.50**
29-Sep-1367	**29-Sep-1368**	1.00	0.07%	0.00	0.00%	1,496.50	99.93%	**1,497.50**
29-Sep-1368	**29-Sep-1369**	0.00	0.00%	0.00	0.00%	562.00	100.00%	**562.00**
Mean	**5.00 yrs**	**9.90**	**0.48%**	**1.40**	**0.07%**	**2,038.65**	**99.45%**	**2,049.95**
Mean of								
1360-9	**10.00 yrs**	**17.95**	**0.69%**	**0.90**	**0.04%**	**2,567.01**	**99.27%**	**2,585.86**
29-Sep-1369	**29-Sep-1370**	6.00	0.43%	0.00	0.00%	1,382.50	99.57%	**1,388.50**
29-Sep-1370	**29-Sep-1371**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1371	**29-Sep-1372**	0.00	0.00%	0.00	0.00%	903.00	100.00%	**903.00**
29-Sep-1372	**24-Dec-1372**	6.00	1.26%	0.00	0.00%	470.50	98.74%	**476.50**
Mean	**3.2356 yrs**	**3.71**	**0.43%**	**0.00**	**0.00%**	**851.77**	**99.57%**	**855.48**

25-Mar-1375	**29-Sep-1375**	0.00	0.00%	0.00	0.00%	448.00	100.00%	**448.00**
29-Sep-1375	**29-Sep-1376**	0.00	0.00%	0.00	0.00%	978.00	100.00%	**978.00**
29-Sep-1376	**29-Sep-1377**	0.00	0.00%	0.00	0.00%	530.75	100.00%	**530.75**
29-Sep-1377	**29-Sep-1378**	0.00	0.00%	0.00	0.00%	461.33	100.00%	**461.33**
29-Sep-1378	**29-Sep-1379**	0.00	0.00%	0.00	0.00%	433.21	100.00%	**433.21**
Mean	**5.00 yrs**	**0.00**	**0.00%**	**0.00**	**0.00%**	**570.26**	**100.00%**	**570.26**
29-Sep-1379	**29-Sep-1380**	0.00	0.00%	0.00	0.00%	356.67	100.00%	**356.67**
29-Sep-1380	**29-Sep-1381**	0.00	0.00%	0.00	0.00%	124.83	100.00%	**124.83**
29-Sep-1381	**29-Sep-1382**	0.00	0.00%	0.00	0.00%	112.25	100.00%	**112.25**
29-Sep-1382	**29-Sep-1383**	0.00	0.00%	0.00	0.00%	63.25	100.00%	**63.25**
Mean	**4.00 yrs**	**0.00**	**0.00%**	**0.00**	**0.00%**	**164.25**	**100.00%**	**164.25**

Table 3. **Alien Exports of English Woollens, 1303 - 1346**

Date From	Date To	Scarlets Full Grained	Percent of Total	Partial Grain	Percent of Total	Without Grain	Percent of Total	Total Cloths
10-Feb-1303	**29-Sep-1303**	113.25	25.75%	65.00	14.78%	261.50	59.47%	**439.75**
29-Sep-1303	**29-Sep-1304**	75.00	15.21%	23.50	4.76%	394.75	80.03%	**493.25**
29-Sep-1304	**29-Sep-1305**	113.00	18.70%	13.25	2.19%	478.12	79.11%	**604.38**
29-Sep-1305	**29-Sep-1306**	116.00	30.53%	8.50	2.24%	255.50	67.24%	**380.00**
29-Sep-1306	**29-Sep-1307**	75.00	27.54%	4.75	1.74%	192.58	70.72%	**272.33**
29-Sep-1307	**29-Sep-1308**	97.50	25.97%	2.00	0.53%	276.00	73.50%	**375.50**
29-Sep-1308	**29-Sep-1309**	61.50	26.00%	3.00	1.27%	172.00	72.73%	**236.50**
Mean	**6.6356 years**	98.14		18.08		305.99		422.22
29-Sep-1309	**29-Sep-1310**	25.50	35.17%	0.00	0.00%	47.00	64.83%	**72.50**
29-Sep-1310	**05-Oct-1311**	54.00	58.06%	1.00	1.08%	38.00	40.86%	**93.00**
Mean	**2 yrs**	39.75		0.50		42.50		82.75
20-Jul-1322	**29-Sep-1322**	0.00	0.00%	0.00	0.00%	27.55	100.00%	**27.55**
29-Sep-1322	**29-Sep-1323**	26.50	5.02%	0.00	0.00%	501.45	94.98%	**527.95**
29-Sep-1323	**29-Sep-1324**	29.00	24.37%	0.00	0.00%	90.00	75.63%	**119.00**
Mean	**2.1973 yrs**	25.26		0.00		281.71		306.97
29-Sep-1324	**29-Sep-1325**	48.50	57.20%	1.00	1.18%	35.29	41.62%	**84.79**
29-Sep-1325	**29-Sep-1326**	0.00	0.00%	0.00	0.00%	103.75	100.00%	**103.75**
29-sep-1326	**29-sep-1327**	29.50	39.09%	0.00	0.00%	45.96	60.91%	**75.46**
29-Sep-1327	**29-Sep-1328**	2.00	2.63%	0.00	0.00%	74.00	97.37%	**76.00**

29-Sep-1328	**29-Sep-1329**	16.00	17.20%	0.00	0.00%	77.00	82.80%	**93.00**
Mean	**5.00 yrs**	19.20		0.20		67.20		86.60
29-Sep-1329	**29-Sep-1330**	27.50	54.46%	0.00	0.00%	23.00	45.54%	**50.50**
29-Sep-1330	**29-Sep-1331**	26.00	98.11%	0.00	0.00%	0.50	1.89%	**26.50**
29-Sep-1331	**29-Sep-1332**	32.00	71.11%	0.00	0.00%	13.00	28.89%	**45.00**
29-Sep-1332	**29-Sep-1333**	9.50	57.58%	0.00	0.00%	7.00	42.42%	**16.50**
29-Sep-1333	**29-Sep-1334**	7.50	33.33%	0.00	0.00%	15.00	66.67%	**22.50**
Mean	**5.00 yrs**	20.50		0.00		11.70		32.20
29-Sep-1334	**29-Sep-1335**	3.00	42.86%	0.00	0.00%	4.00	57.14%	**7.00**
29-Sep-1335	**29-Sep-1336**	37.00	100.00%	0.00	0.00%	0.00	0.00%	**37.00**
29-Sep-1336	**29-Sep-1337**	5.50	73.33%	0.00	0.00%	2.00	26.67%	**7.50**
29-Sep-1337	**29-Sep-1338**	5.00	100.00%	0.00	0.00%	0.00	0.00%	**5.00**
29-Sep-1338	**29-Sep-1339**	1.00	100.00%	0.00	0.00%	0.00	0.00%	**1.00**
Mean	**5.00 yrs**	10.30		0.00		1.20		11.50
29-Sep-1339	**29-Sep-1340**	0.50	100.00%	0.00	0.00%	0.00	0.00%	**0.50**
29-Sep-1340	**29-Sep-1341**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1341	**29-Sep-1342**	7.00	100.00%	0.00	0.00%	0.00	0.00%	**7.00**
29-Sep-1342	**29-Sep-1343**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1343	**29-Sep-1344**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
Mean	**5.00 yrs**	1.50		0.00		0.00		1.50
29-Sep-1344	**29-Sep-1345**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**
29-Sep-1345	**29-Sep-1346**	0.00	0.00%	0.00	0.00%	0.00	0.00%	**0.00**