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Before and After the Black Death: Money, Prices, and Wages in Fourteenth-Century England

by

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Abstract: by John H. Munro: University of Toronto

One of the most common myths in European economic history, and indeed in Economics itself, is that the Black Death of 1347-48, followed by other waves of bubonic plague, led to an abrupt rise in real wages, for both agricultural labourers and urban artisans – one that led to the so-called ‘Golden Age of the English Labourer’, lasting until the early 16th century. While there is no doubt that real-wages in mid- to late-15th century England did reach a peak far higher than that ever achieved in past centuries, real wages in England did not, in fact, rise in the immediate aftermath of the Black Death. In southern England, real wages of building craftsmen (rural and urban), having plummeted with the natural disaster of the Great Famine (1315-21), thereafter rose to a new peak in 1336-40. But then their real wages fell during the 1340s, and continued their decline *after the onslaught of the Black Death*, indeed into the 1360s. Not until the later 1370s – almost thirty years after the Black Death – did real wages finally recover and then rapidly surpass the peak achieved in the late 1330s. Thereafter, the rise in real wages was more or less continuous, though at generally slower rates, during the 15th century, reaching a peak in 1476-80 – at a level not thereafter surpassed until 1886-90, by the usual methods of calculating real wages with index numbers: i.e., by $NWI/CPI = RWI$ [nominal wage index divided by the consumer price index equals the real wage index].

Most of the textbooks that still perpetuate the myth about the role of the Black Death in raising real wages, as an almost immediate consequence, employ a demographic model based on Ricardian economics, which predicts (*ceteris paribus*) that depopulation will result in falling grain prices and thus in falling rents on grain-producing lands (on land in general) and in rising real wages. The fall in population – perhaps as much as 50 percent by the late 15th century (from the 1310 peak) – presumably altered the land:labour ratio sufficiently to increase the marginal productivity of labour and thus its real wage (though in economic theory the real wage is determined by the marginal *revenue* product of labour). The rise in real wages would also have been a product of the fall in the cost of living, chiefly determined by bread-grain prices, whose decline would have been the inevitable result of both the abandonment of high-cost marginal lands and the rise in the marginal productivity of agricultural labour. But the evidence produced in this study demonstrates that the Black Death was followed, in England, by almost thirty years of high grain prices – high in both nominal and real terms; and that was a principal reason for the post-Plague behaviour of real wages.

This study differs from all traditional models by examining the role of monetary forces in producing deflation in the second and final quarters of the fourteenth century, but severe inflation in between those quarters (i.e., from the early 1340s to the mid 1370s). The analysis of the evidence on money, prices, and wages in this study concludes that monetary forces and the consequent behaviour of the price level – in terms of those deflations and intervening inflation – were the most powerful determinant of the level of real wages (i.e., in terms of the formula: $NWI/CPI = RWI$). Thus the undisputed rise in nominal or money wages following the Black Death was literally ‘swamped’ by the post-Plague inflation, so that real wages fell. Conversely, the rise of real wages in the second quarter of the fourteenth century was principally due to a deflation in which consumer prices fell much more than did nominal wages. In the final quarter of the century, the even stronger rise in real wages was principally due to another deflation in which consumer prices fell sharply, but one in which, for the first time in recorded English history, nominal wages did not fall: an era that inaugurated the predominance of wage-stickiness in English labour markets for the next six centuries. But that perplexing phenomenon of downward wage-stickiness must be left to other studies.

The 14th century is the most violent one before the 20th; and violent disruptions from plague, war, and civil unrest undoubtedly produced severe supply shocks and high (relative) prices. Europe also experienced more severe oscillations in monetary changes and consequently in price levels – i.e., the aforesaid deflations and intervening inflation – during the 14th century than in any other before the 20th.

JEL classifications: E3, E4, E5, I1, I3, J1, J2, J3, J4, N1, N3, N4.

Before and After the Black Death: Money, Prices, and Wages in Fourteenth-Century England

(John Munro, University of Toronto)

That the fourteenth century was one of the most violent centuries – before the twentieth, the most violent of all so far – is now a commonplace concept in European history. Less commonly understood, however, is the fact that this century also marked one of the most violent oscillations in monetary flows, prices, and wages, with two prolonged periods of inflation, each followed by prolonged deflations.¹ Since an examination of all these oscillations for the entire fourteenth century is not feasible, with the space constraints imposed, this study will focus on those preceding and following the Black Death.

The problem of money and prices before the Black Death

The fourteenth century opened with the end of a long-sustained inflation, one that had begun as far back as the 1180s; and it was accompanied by a sustained growth in population, which possibly came to an end with the Great Famine of 1315-17 (or 1315-22, according to some historians). Indeed, the most popular explanation for this inflation was the population growth itself.² But for reasons that I have explored in depth

¹ They are very different in character from those of the later sixteenth-century Price Revolution and the ensuing General Crisis period of the seventeenth century, and not just because they are more compressed.

² See in particular Wilhelm Abel, *Agrarkrisen und Agrarkonjunktur*, 3rd edn. (Berlin, 1978; 1st edn. 1966); translated by Olive Ordish as *Agricultural Fluctuations in Europe from the Thirteenth to the Twentieth Centuries* (London, 1980), chapters 1-3; Michael Postan, 'The Economic Foundations of Medieval Society,' *Jahrbücher für Nationalökonomie*, 161 (1951); and Michael Postan, 'Some Economic Evidence of Declining Population in the Later Middle Ages,' *Economic History Review*, 2nd ser. 2 (1950), 130-67; both reprinted in his *Essays on Medieval Agriculture and General Problems of the Medieval Economy* (Cambridge, 1973), pp. 3 - 27; and 186 - 213 (the latter, with the revised title of 'Some Agrarian Evidence of Declining Population in the Later Middle Ages'); Michael Postan, 'The Trade of Medieval Europe: the North', in M.M. Postan and E.E. Rich, eds., *Cambridge Economic History of Europe*, Vol. II: *Trade and Industry in the Middle Ages* (Cambridge, 1952), pp. 119-256; Michael Postan, 'Medieval Agrarian Society: England,' in M. M. Postan, ed., *Cambridge Economic History*, Vol. I: *The Agrarian Life of the Middle Ages*, (2nd rev. edn. 1966), 560-70; Michael Postan, *The Medieval Economy and Society: An Economic History of Britain, 1100-1500* (1972), chapter 3, pp. 27-40; John Hatcher, *Plague, Population, and the English Economy, 1348-1530* (London, 1977), pp. 11-73.

elsewhere, population growth alone cannot explain inflation.³ To be sure, it can explain why grain prices rose, and rose more than other prices: with inelastic supplies of grain, and thus with limited land resources, the absence of technological changes, and the inevitable law of diminishing returns. But the explanation for a general rise in prices, i.e., a rise in most prices, has to be sought in monetary explanations; and the later thirteenth and early fourteenth centuries did constitute an era of significant monetary expansion, in terms of both the stocks of coined moneys and their flows.⁴

Furthermore, according to the demographic explanation for economic changes in early fourteenth century England, that population growth, the change in land:labour ratio, and the consequent fall, or supposed fall, in the marginal productivity of labour ('diminishing returns') should have produced a fall in 'real wages': that is, a reduction in the quantity of real goods and services that a labourer could purchase with his daily money wages, paid in silver coin. And yet the available evidence on wages and prices, does not reveal any distinct trend of falling real wages before the Great Famine era.⁵

³ See in particular: John Munro, 'The Central European Mining Boom, Mint Outputs, and Prices in the Low Countries and England, 1450 - 1550,' in Eddy H.G. Van Cauwenberghe, ed., *Money, Coins, and Commerce: Essays in the Monetary History of Asia and Europe (From Antiquity to Modern Times)*, Studies in Social and Economic History, Vol. 2 (Leuven, 1991), pp. 119 - 83; John Munro, 'The Monetary Origins of the 'Price Revolution' Before the Influx of Spanish-American Treasure: The South German Silver-Copper Trades, Merchant-Banking, and Venetian Commerce, 1470-1540', in Dennis Flynn, Arturo Giráldez, and Richard von Glahn ed., *Global Connections and Monetary History, 1470 - 1800* (Aldershot and Brookfield, Vt: Ashgate Publishing), forthcoming. See also my review of David Hackett Fischer, *The Great Wave: Price Revolutions and the Rhythm of History* (Oxford, 1996), reviewed for *EH.Net Review* <ehreview@eh.net>, 24 February 1999.

⁴ See Mavis Mate, 'High Prices in Early Fourteenth-Century England: Causes and Consequences', *Economic History Review*, 2nd ser. 28 (1975), 1-16; Nicholas Mayhew, 'Numismatic Evidence and Falling Prices in the Fourteenth Century', *Economic History Review*, 2nd ser. 27 (1974), 1-15; John Munro, 'Bullion Flows and Monetary Contraction in Late-Medieval England and the Low Countries,' in John F. Richards, ed., *Precious Metals in the Later Medieval and Early Modern Worlds* (Durham, 1983), pp. 97-158; reprinted in John Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350-1500* (London-Aldershot, 1992).

⁵ E.H. Phelps Brown and Sheila V. Hopkins, 'Seven Centuries of Building Wages,' *Economica*, 22 (August 1955), and E.H. Phelps Brown and S.V. Hopkins, 'Seven Centuries of the Prices of Consumables, Compared with Builders' Wage Rates', *Economica*, 23 (November 1956): both reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), Vol. II, pp. 168-78, 179-96, and in E.H.

Thereafter, in the decades following the Great Famine, we witness one of the most striking and puzzling phenomena in all of England's recorded monetary and price history: (1) a severe, indeed dazzling, plunge in English mint outputs, still entirely in silver; and, accompanying that, (2) an almost equally drastic deflation, reflected in the 35 percent fall in the Phelps Brown-Hopkins index (1451-75=100), from 138 in 1321-25 to just 90 in 1341-45, on the eve of the Black Death. Postan, of course, evidently wanted to attribute the fall in at least the grain-price index to the demographic consequences of the Great Famine, or rather to a more general Malthusian crisis of overpopulation in a relatively primitive agrarian economy: 'when the poorer lands, no longer new, punished the men who tilled them with failing crops and with murrain', so much so as 'to send the population figures tumbling down'.⁶ Lawrence Poos has recently provided evidence to indicate significant population decline in rural Essex after the Great Famine and on into the post-Plague era.⁷ For Europe more generally, one can cite evidence for regional depopulations in early-fourteenth century Provence and Tuscany, though evidently related to the horrendous warfare then afflicting these regions.⁸ Bruce Campbell, however, has provided equally compelling evidence of continued population growth in Norfolk, while also demonstrating in various articles that late-medieval English

Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 1-13. Changes in real wages are commonly calculated by using index numbers, with this equation: $NWI/CPI = RWI$. That is, the nominal wage index divided by the consumer price index equals the real wage index. In this study, the common base 100 equals the mean of a 'basket' of prices and of master masons's money wages in the period 1451-1475.

⁶ Postan, 'Economic Foundations of Medieval Society', p. 14.

⁷ Lawrence R. Poos, 'The Rural Population of Essex in the Later Middle Ages,' *Economic History Review*, 2nd ser. 38 (November 1985), 515 - 30; Lawrence R. Poos, *A Rural Society after the Black Death: Essex, 1350 - 1525* (Cambridge, 1991).

⁸ David Herlihy, *Medieval and Renaissance Pistoia: The Social History of an Italian Town, 1200 -1430* (New Haven, 1967), pp. 55-77; David Herlihy and Christiane Klapisch-Zuber, *Tuscans and Their Families: A Study of the Florentine Catasto of 1427* (New Haven, 1985), pp. 232-79; John Munro, 'Industrial Transformations in the North-west European Textile Trades, c.1290 - c.1340: Economic Progress or Economic Crisis?', in Bruce M.S. Campbell, ed., *Before the Black Death: Studies in the 'Crisis' of the Early Fourteenth Century* (Manchester and New York, 1991), pp. 110 -48; and also, in this volume, Barbara Harvey, 'Introduction: the 'Crisis' of the Early Fourteenth Century,' pp. 1 - 24.

agriculture was far less primitive and far less prone to Malthusian pressures than Postan had indicated.⁹ Richard Smith's masterful survey of 'demographic developments in rural England, 1300-48', while inconclusive, noting complex regional variations in demographic decline, with continued if slow growth, or stagnation, does not lend any support to Postan's drastic views¹⁰. Nor do the nominal-wage data support the depopulation hypothesis; and the fall in prices was general, and not, as Table 2 demonstrates, limited to just grains.

This prolonged fall in prices was instead genuine deflation, for which monetary reasons must be sought. The true explanation for this evidently stark monetary contraction and deflation, apparent also from the Tuscan price data,¹¹ remains a mystery that cannot satisfactorily be resolved. Possibly it was due to a *relative* scarcity of precious metals, if, as several historians have asserted, the major German and Central European silver mines had begun to experience not just diminishing returns but serious physical depletion by the early fourteenth century, while the European economy continued to grow, and with it, the aggregate demand for coined money.¹² Indeed, as Nicholas Mayhew has also demonstrated, contrary to another of

⁹ Bruce M. Campbell, 'Agricultural Progress in Medieval England: Some Evidence from Eastern Norfolk,' *Economic History Review*, 2nd ser. 36 (Feb. 1983), 26-46; Bruce Campbell, 'Arable Productivity in Medieval England: Some Evidence from Norfolk,' *Journal of Economic History*, 43 (1983), 379-404; Bruce Campbell, 'Population Pressure, Inheritance, and the Land Market in a Fourteenth-Century Peasant Community,' in Richard M. Smith, ed., *Land, Kinship and Life-Cycle* (Cambridge, 1984), pp. 87 - 134; and Bruce Campbell, *English Seigniorial Agriculture, 1250 - 1450*, Cambridge Studies in Historical Geography no. 31 (Cambridge and New York, 2000).

¹⁰ Richard Smith, 'Demographic Developments in Rural England, 1300-48: a Survey,' in Campbell, ed., *Before the Black Death*, pp. 25 - 78; see also Harvey, "'Crisis" of the Early Fourteenth Century (n. 75)', pp. 1-23; Barbara Harvey, 'The Population Trend in England Between 1300 and 1348', *Transactions of the Royal Historical Society*, 5th ser., 16 (1966), 23-42, with a much stronger attack on Postan's thesis, denying any evidence of population decline before the Black Death; and see also H. E. Hallam, 'Population Movements in England, 1086-1350', in H.E. Hallam, ed., *Agrarian History of England and Wales*, II: 1042-1350 (Cambridge, 1988). pp. 508-93, also casting doubts on general population decline before 1348. But also note Richard Smith's criticisms of Hallam's data.

¹¹ Herlihy, *Medieval and Renaissance Pistoia*, pp. 122-25

¹² Thus: if aggregate supply and net national income should expand – with, say, increased capital investments and technological changes – at a greater rate than the expansion in the stocks and/or flows of

Postan's assertions, coined money is perishable to some considerable degree: from wear, tear, and normal loss in circulation, from shipwrecks, unrecovered hoards, conversion into jewellery and plate, etc., so that the money supply will indeed contract, if not continually replenished with fresh minting.¹³ For England itself, some historians have also suggested that the crown's foreign military expenditures (under both Edward II and Edward III) had led to major outflows of bullion, though both the fall in mint-outputs and the onset of deflation seem to precede the evidence for any such drastic bullion outflows.¹⁴ Finally, since England in this era was minting only silver, and no gold before January 1344 (none since 1257), the very dramatic rise in the bimetallic ratio, from about 12.0:1 in the 1290s to 14.2:1 in the mid-1320s, may have instigated a large outflow of silver coinage to acquire the higher valued gold. Indeed, such bullion movements may have been necessary to permit England's inauguration of an effective gold coinage in the period 1344-52, though with a then falling bimetallic ratio.¹⁵

money, then prices should fall [if $\Delta y > \Delta (M.V) \rightarrow \nabla P$.] See Peter Spufford, *Money and Its Use in Medieval Europe* (Cambridge, 1988), pp. 267-82 ; John U. Nef, 'Mining and Metallurgy in Medieval Civilization', in M.M. Postan, ed., *Cambridge Economic History of Europe*, Vol. II: *Trade and Industry in the Middle Ages* (Cambridge, 1952), pp. 456-69; revised edn. (Cambridge, 1987), pp. 696-734; D. Kovacevic, 'Les mines d'or et d'argent en Serbie et en Bosnie médiévales', *Annales: E.S.C.*, 15 (1960), 248-58; Philippe Braunstein, 'Innovations in Mining and Metal Production in Europe in the Late Middle Ages,' *Journal of European Economic History*, 12 (1983), 573-91; Ekkehard Westermann, 'Zur Silber- und Kupferproduktion Mitteleuropas vom 15. bis zum frühen 17. Jahrhundert: über Bedeutung und Rangfolge der Reviere von Schwaz, Mansfeld und Neusohl,' *Der Anschnitt: Zeitschrift für Kunst und Kultur im Bergbau*, 38 (May-June 1986), 187 - 211; Munro, 'The Central European Mining Boom', pp. 119-83. See also n. 18 above, n. 105 below.

¹³ See Mayhew, 'Numismatic Evidence and Falling Prices in the Fourteenth Century', pp. 1-15; Munro, 'Bullion Flows and Monetary Contraction', pp. 97-158.

¹⁴ Michael Prestwich, 'Currency and the Economy of Early Fourteenth-Century England', in Nicholas Mayhew, ed., *Edwardian Monetary Affairs, 1279-1344* (British Archeological Reports, BAR International Series, no. 36 (Oxford, 1977), pp. 45-58; Edward Ames, 'The Sterling Crisis of 1337-1339,' *Journal of Economic History*, 25 (1965), 496-552, reprinted in Roderick Floud, ed., *Essays in Quantitative Economic History* (Oxford, 1974), pp. 36-58; Mate, 'High Prices in Early Fourteenth-Century England', pp. 1-16; Peter Spufford, *Money and Its Use*, pp. 267-88.

¹⁵ The fall in the bimetallic ratio may have been due to both declining silver outputs from Bohemian mines and increasing supplies of West African (Sudanese) and Hungarian gold. See especially Frederic Lane, 'The First Infidelities of the Venetian Lire,' in Harry A. Miskimin, David Herlihy, and A. L. Udovitch, eds.,

Some very general indication of possible bullion outflows from England and a relative scarcity of specie during the second quarter of the fourteenth century may be found in the coinage-output statistics (Table 3). The mean annual values of those outputs (all in silver) fell from a peak of £125,836 sterling in 1306-10 to a nadir of £381 in 1326-30, recovering only to a mean of £7,091 in 1346-50, with the outbreak of the Black Death. Such mint-accounts provide, however, only a very general and very tenuous guide to current monetary conditions. They can be of some value in that years with very low mint outputs generally coincide with eras of prolonged deflation (marked as well by complaints about the scarcity of specie); and, conversely, years of very high mint outputs generally coincide with eras of prolonged inflation. But extrapolating a nation's current money supply from these accounts is an enterprise fraught with great dangers, for many complex reasons, the most important of which is that mint-accounts combine stocks and flows in unpredictable and unquantifiable fashions.¹⁶ Nevertheless, some brave historians believe that a 30-year running average of such outputs may provide an acceptably reliable indication of the coined money stock. Recently, two economic historians have used a combination of mint accounts and coin hoards to show that the English money supply contracted by over one half in this era.¹⁷

The Medieval City (New Haven and London, 1977), pp. 52-9; Peter Spufford, *Handbook of Medieval Exchange*, Royal Historical Society Guides and Handbooks no. 13 (London, 1986), Graph 3 and Table II, pp. li-lxiii; Spufford, *Money and Its Use* (n. 79), pp. 267-88 (on 'the victory of gold'), 340-42. Spufford's dates have been adjusted by those of Lane. See also Mavis Mate, 'The Role of Gold Coinage in the English Economy, 1338 - 1400', *Numismatic Chronicle*, 7th ser. 18 (1978), 126-41.

¹⁶ An absence of minting may indicate only that the nation's mints were offering a mint price for bullion uncompetitive with those of neighbouring foreign mints. With coinage debasement in a bimetallic system (in England, after 1344), a mint's coinage debasement in, say silver, might have succeeded in recoining much of the current silver monetary stock, in inducing dishoarding, and in attracting foreign bullion, but at the expense of losing the now 'disfavoured' gold to foreign mints.

¹⁷ Nicholas Mayhew, 'Money and Prices in England from Henry II to Edward III', *Agricultural History Review*, 35:2 (1987), Table I, p. 125: indicating that the coined money supply contracted from about £1,100,000 sterling in 1311-24 to just £500,000 in the 1340s. See also Nicholas Mayhew, 'Population, Money Supply, and the Velocity of Circulation in England, 1300 - 1700,' *Economic History Review*, 2nd ser., 48:2 (May 1995), 238-57; Mayhew, 'Numismatic Evidence and Falling Prices (n. 79)', pp. 1-15; and sources in n. 14 above. For a more recent estimate, see: Martin Allen, 'The Volume and Composition of the English Silver Currency, 1279 - 1351', *British Numismatic Journal*, 70 (2000), 38-44; and Martin Allen, 'The

The problem of wages, nominal and real, before and after the Black Death

What is especially striking and peculiar about this deflation, though affording further evidence that it was a genuine deflation, was the marked decline in nominal or money wages shown in the accompanying tables. From about 1337 to 1340, the mean money wage of a master building craftsmen in southern England fell from 4d per day to 3d per day, a decline of 25 percent; and that very low mean wage-rate was maintained until early 1351, i.e., several years after the Black Death.¹⁸ The only other period in recorded English price-history with any such decline in the nominal wages of building craftsmen came almost six-centuries later: in the post-World War I slump of 1920-23 (31.3 percent decline) and the early depression years of 1929-34 (8.3 percent decline).¹⁹ In the earlier part of this early-fourteenth century period, before this fall in nominal wages, i.e., with continued nominal wage rigidity,²⁰ real wages did rise, though the brief rise appears to be dramatic only because of the recovery from the drastic nadir of the Great Famine years. When the real-wage of those master craftsmen peaked in 1334-35, it was not appreciably higher than in the very early years of the century (1303-07). Then their real wages suffered a sharp fall, indeed they fell quite steeply before the Black Death, with the initial recovery of the price level from 1344, and especially with the inflation that soared immediately after the Black Death, one that endured for a full generation.

That is why the Ordinance (1349) and Statute of Labourers (1350-51) were so very unreasonable and cruel, but also so difficult to enforce: in attempting to fix money-wages at the pre-Plague level, when both

Volume of the English Currency, 1158 - 1470', *Economic History Review*, 2nd ser., 54:4 (November 2001), 595-611, especially, Table 1: an estimated coined silver stock of £1,900,000 - £2,300,000 in 1319, falling to about £700,000 - £900,000 in 1351.

¹⁸ See the sources cited above in n 5 (Phelps Brown and Hopkins). Wages for masons and carpenters at the Oxford colleges did not fall, however; and remained at the daily rate of 4d set from at least 1300.

¹⁹ Phelps Brown and Hopkins, 'Building Wages', Table 1, p. 178.

²⁰ Money wages for master masons and carpenters were typically 3d per day from before 1264 to 1302; for many, 3.5d until 1310; and then 4d. until 1338. See n. 3 above.

money and real wages had been so unusually low.²¹ Thus, specifically forbidding anyone to offer or accept any wages higher than those prevailing in 1346 (20 Edwardi III), the Statute of Labourers set the maximum summer wages (Easter to Michaelmas) for master masons, carpenters, and tilers, ‘without meat or drink’, at 3d per day; for their servants and labourers, at 1½ d a day; but it also permitted a rate of 4d per day for master free-masons.²² This harsh statute remained in force (reconfirmed numerous times), ostensibly on a national basis, until 1444, when Parliament finally raised the maximum daily rate for such craftsmen to 5½ d for summer and 4½ d for the winter season, without food and drink (or: 4d and 3d, respectively, with food and drink: see Table 1).²³

The city of London, however, had blatantly ignored the 1349 Ordinance, and, in the following year (1350), it issued its own wage ordinance: to fix the maximum wage for building craftsmen at 6d per summer and 5d per winter day (i.e., Easter to Michaelmas to Easter), one pence higher than the maximum summer wage permitted in the previous such ordinance of 1290, but double that permitted in the 1349 royal

²¹ For other analyses of medieval English wages before and after the Black Death, see in particular David Farmer, ‘Crop Yields, Prices and Wages in Medieval England’, *Studies in Medieval and Renaissance History*, 6 (1983), 117-55; David Farmer, ‘Prices and Wages [1042-1350]’, in H. E. Hallam, ed., *The Agrarian History of England and Wales*, Vol. II: 1042-1350 (Cambridge, 1988), pp 760-78, 811-17 (Table F); David Farmer, ‘Prices and Wages, 1350-1500’, in Edward Miller, ed., *The Agrarian History of England and Wales*, Vol. III: 1348-1500 (Cambridge, 1991), pp.467-90, 516-24 (Tables H and I). His conclusions do not always match my own.. For the more general economic and social consequences of the Black Death, see: John Hatcher, ‘England in the Aftermath of the Black Death,’ *Past & Present*, no. 144 (August 1994), pp. 3-35; Hatcher, *Plague, Population, and the English Economy*, pp. 11 - 73; Colin Platt, *King Death: The Black Death and Its Aftermath in Late-Medieval England* (London and Toronto, 1996), pp. 1-47, 177-92; J. L. Bolton, ‘The World Upside Down’: Plague as an Agent of Economic and Social Change’, in Mark Ormrod and Phillip Lindley, eds., *The Black Death in England* (Stamford, 1996), pp. 17-78; B.H. Putnam, *The Enforcement of the Statute of Labourers during the First Decade after the Black Death* (New York, 1908); Simon Penn and Christopher Dyer, ‘Wages and Earnings in Late Medieval England: Evidence from Enforcement of the Labour Laws’, *Economic History Review*, 2nd ser., 43:3 (August 1990), 356-76.

²² Statute 25 Edwardi III stat. 2 c. 3, in Great Britain, Record Commission (T.E. Tomlins, et. al, eds), *The Statutes of the Realm*, 6 vols. (London, 1810-22), vol. I, pp. 311-12. Wages for the winter season from Michaelmas to Easter were not specifically stipulated, except that they were to be ‘less according to the rate and discretion of the justices’. For a discussion of this Statute, and the subsequent labour legislation, see Farmer, ‘Wages and Prices, 1350-1500’, pp. 483–90.

²³ Statute 23 Henrici VI c. 12 (1444-45), in *Statutes of the Realm* (n. 28), vol. II, 337-39.

Ordinance and the 1351-52 national statute.²⁴ Indeed, such rates for master building craftsmen were already in force, in 1349, at Westminster Abbey.²⁵

Thereafter, but *not* immediately after the Black Death, money wages did rise, certainly for these urban-based craftsmen.²⁶ At Oxford, where most building craftsmen had not suffered the nominal wage cuts in the 1330s, the prevailing daily wage rate rose from 4d to 5d during the 1350s; in other small-sized towns the rate rose from 3d to 5d by the end of the decade. Not until 1363, as noted before, did Oxford masons and carpenters gain the daily rate of 6d, at least for summer work, that London had authorized in 1350; and not until about 1407-1409 did the mean daily rate for craftsmen in the other smaller towns achieve the same level of 6d per day. In many, indeed evidently most, of the Winchester manors and at Battle Abbey, the daily wage for such building craftsmen, while soon rising back to the 4d level that had prevailed from about 1310 to 1337, remained fixed at that truly low level -- even if 25 percent above that stipulated by the Statute of Labourers -- with some occasional exceptions for senior craftsmen at 5d daily, until about c.1410-c.1425.²⁷

²⁴ H. T. Riley, ed., *Munimenta Gildhallae Londoniensis: Vol. II: Liber Custumarum* (London, 1860), I, 99-100; II, 541-43; H. T. Riley, ed., *Memorials of London and London Life, in the XIIIth, XIVth, and XVth Centuries: From the Archives of the City of London, A.D. 1276-1419* (London, 1868), pp. 253-55; R. R. Sharpe, ed., *Calendar of Letter-Books Preserved Among the Archives of the City of London at the Guildhall: Letter-Book G. c.A.D. 1352-1374* (London, 1905), pp. 148, 301; *Letter Book H., c.A.D. 1375-1399* (London, 1907), p. 184. By 1349 the higher rate was already in force at Westminster Abbey.

²⁵ Archives, British Library of Political and Economic Science, Beveridge Price History Collection, Box P9.

²⁶ William Beveridge, 'Wages in the Winchester Manors', *Economic History Review*, 1st ser., 7 (1936-37), 22-43; William Beveridge, 'Westminster Wages in the Manorial Era,' *Economic History Review*, 2nd ser., 8 (1955-56), 18 - 35; See his comments, in the first article, on 'the failure of the Black Death to cause any immediate change of [wage] rates' in the Winchester manorial accounts of 1349-50.'

²⁷ For the following urban and manorial records, in:(1) Archives of the British Library of Political and Economic Science, the Beveridge Price and Wage History Collection: Canterbury, 1393-1600 (Box D.3); Dover, 1227-1565 (Box H.13-14); Exeter (Exebridge Accounts), 1338-1600 (Box F.1); Westminster Abbey, 1393-1541 (Box P.10); Winchester College, 1354-1513 (Box F.8); York, 1354-1513 (Box I.10); Battle

Nora Kenyon Ritchie, however, did find a few examples of higher wage rates, though largely for agricultural workers, given in some Essex manors in the late 1380s. Furthermore, such evidence comes from judicial proceedings and not from account rolls. Nevertheless her hypothesis is certainly one to be considered: that aggressive new leaseholders of former demesne lands were more willing to offer higher wages to attract labour than were traditional manorial lords. Rather surprisingly, no one has pursued or investigated this intriguing thesis since the publication of her article, in 1934.²⁸

London's own 1350 wage ordinance was soon if not immediately allowed to lapse. For when

Abbey: Alciston Manor, 1336-1487 (Boxes H.10-11); Downton, 1257-1306 (Box C.157); Esher, 1257-1306, 1270-1308, and 1300-1453 (Boxes C. 157, A.31-32); Hinderclay (Suffolk), 1262-1405 (Box G.14); Itchingswell (Ecchinswell), 1270-1453 (Box A.33); Meon, 1257-1306 (Box C.157); Nailsbourne, 1257-1306 (Box C.157); Overton, 1309-1453 (Box A.33); Redgrave (Suffolk), 1323-1492 (Box G.14); Southwark (Bishop of Winchester), 1406-1454 (Box A.34); Taunton, 1270-1308, 1309-1453 (Boxes A.31-32); Wargrave, 1257-1306 (Box C.157); Witney, 1257-1306 (Box C.157); Wycombe, 1257-1306, 1309-1453 (Boxes C.147, A.33); (2) The London Guildhall Manuscripts Library: Armourers' Company Accounts (1499-1557): MS 12.065, vol. I; Bakers' Audit Books (1505-1547), MS 5174, vol. 1; Brewers' Guild, Warden's Accounts (1424-1562): MS 5440; Carpenters' Guild, Warden's Accounts (1456-1573): MS 4326, vols. I and II; Cutlers's Guild Accounts (1442-1497): MS 7146, roll 1; Grocers' Guild, Warden's Accounts (1452-1578): MS 11,570-571, vols. I - VI; Ironmongers' Guild Accounts (1455-1561): MS 11,698: Vols. I - II; Pewterers' Company Accounts (1474-1500): MS 7086, Vol. I; (3) Corporation of London Record Office: Bridge Master's Account Rolls, 1381-1398; Bridge Master's Accounts: Weekly Payment Series, 1404- 1510 (Vols. I - III). At Battle Abbey (Box. H:10-11), carpenters and masons had their pay raised from 4d to 5d daily in 1425; at Itchingswell (Box A.33:159432), from 1433; but at Overton (Box A.33:159406), and Wycombe (BoxA.33:159407) first carpenters and then masons enjoyed the same increase from 4d to 5d as early as 1401-05. At the urban Winchester College (Box F.8), wages for master carpenters had risen to 6d per day without food by 1398 (4d daily with food); but for master masons, the mean rate did not reach 6d daily (without food) until 1409. See also the raw-wage data published in James E. Thorold Rogers, *History of Agriculture and Prices in England, from the Year After the Oxford Parliament (1259) to the Commencement of the Continental War (1793)*, 7 vols. (Oxford, 1866-1902), vol. I: *1259-1400* (Oxford, 1866), pp. 272-34; and vol. IV: *1401-1582* (Oxford, 1882), pp. 514-23.

²⁸ Nora Ritchie (née Kenyon), 'Labour Conditions in Essex in the Reign of Richard II', *Economic History Review*, 1st ser., 4:4 (1934), reissued in revised form in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols., II (London, 1962), pp. 91-112. Data from presentments before Justices of the King's Bench at Brenwood in November 1389, following the 1388 Statute of Cambridge. As she also notes (p. 102), 'eight hundred men who were receiving illegally high wages is not a large number for a country the size of Essex.' She also noted daily wage payments of 4d with food, for tasks in the Winchester manorial accounts that are specifically listed as 'without food'.

the Tower Bridge accounts commence in 1381, the prevailing daily rate then ranged from 7 d to 7½ d, and indeed for winter months as well as for the summer. At Westminster Abbey, however, the rate was less, at 6 2/3d per day, though with some extra material benefits not given to the Tower Bridge craftsmen.

These rather complex data indicate that the commonly expressed views about post-Plague wages in England are much oversimplified, in particular the comment in a recent article by Simon Penn and Christopher Dyer: that ‘the evidence for a rise in both cash wages and real wages ...coinciding with the sudden and sustained population decline after the Black Death of 1348-9 has been well established’.²⁹ What must be challenged in this statement (and article) is the verdict on real wages, for the very simple reason that the Black Death, not only in England but throughout western Europe, was followed by a horrendous inflation that lasted for at least the ensuing quarter-century. Thus, as the Table 2 clearly indicates, its initial consequence was to swamp the rise in nominal wages for most workers, but even for England’s urban craftsmen (certainly in the small to middle-sized towns), and certainly for most of the manorial craftsmen and other artisans. As Table 2 indicates, the real wages for master masons and carpenters at Oxford, and Cambridge (and also Canterbury and Exeter, etc.) fell, not rose, in the immediate aftermath of the Black Death and then recovered somewhat during the 1350s, only to decline again slightly in the 1360s. They did not in fact regain the level that had been achieved in the mid-1330s until about the mid-1370s. Many manorial craftsmen in many manorial estates, especially those of the far flung holdings of the Bishop of Winchester, had to wait until the early fifteenth century to achieve a significant gain in their real incomes (at least those measured in terms of wages given without food and drink): at Battle Abbey,

²⁹ Penn and Dyer, ‘Wages and Earnings in Late Medieval England’, pp. 356-76.

Redgrave manor, Hinderclay, Itchingswell (Ecchinswell), Overton, Taunton, Esher, Wycombe, and also Winchester College, to name only a few.³⁰ The post-Plague European inflation, which was even more severe and longer lasting in Flanders than in England (and in Tuscany, as well), was again clearly a monetary phenomenon. Depopulation, after all, according to some disciples of the Postan school, is supposed to cause deflation — not the opposite.³¹

The monetary causes of rising prices and (nominal) wages

The monetary reasons – if we properly relate monetary and real variables – are not difficult to seek. As David Herlihy so aptly commented, ‘men were dying, but coins were not’ (at least not so quickly).³² Thus, whatever the current status of western European precious-metal mining, the effect of such drastic depopulations, perhaps as much as 40 percent of the total inhabitants, from bubonic and pneumonic plagues, if not so much from warfare, was undoubtedly to augment dramatically the per capita supplies of coined money. In terms of the modernized version of the Fisher Identity, i.e., $\mathbf{M.V} = \mathbf{P.y}$, if the real variable \mathbf{y} , representing Net National Income, contracted so much more rapidly than did the volume of money payments (i.e., the product of $\mathbf{M.V}$), then obviously prices had to rise. The same conclusions are to be drawn in using the preferable Cambridge ‘cash balances’ approach: so that $\mathbf{M} = \mathbf{k.P.y}$ (and in which $k = 1/V$), so that a reduction

³⁰ Beveridge Price and Wage History Collection, Archives BLPS: boxes A.31 (Taunton), A.32 (Esher), A. 33 (Itchingswell, Overton, Wycombe), F.8 (Winchester College), G.14 (Hinderclay and Redgrave), H.10-11 (Battle Abbey).

³¹ For the inflation in Flanders, see John Munro, ‘Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries,’ in Eddy Van Cauwenberghe and Franz Irsigler, eds., *Münzprägung, Geldumlauf und Wechselkurse/ Minting, Monetary Circulation and Exchange Rates*, Trierer Historische Forschungen, 7: *Akten des 8th International Economic History Congress, Section C-7, Budapest 1982* (Trier, 1984), pp. 31-122; for Tuscany, see Herlihy, *Medieval and Renaissance Pistoia*, pp. 122-30.

³² Herlihy, *Medieval and Renaissance Pistoia*, p. 125.

in y (NNP) had to mean a corresponding rise in P and/or k .

Secondly, the fiscal consequences of warfare in western Europe (including the concurrent Italian wars), of increased taxes and other levies, probably also induced some considerable dishoarding. At the same time the French, Flemish, Brabantine, Aragonese, and various Italian governments, to mention only a few, sought both to finance and to facilitate the necessary cash flows for warfare by engaging in drastic coinage debasements, some severe enough to promote a veritable ‘flight from coinage’. The English crown, however, was a singular exception to these monetary manipulations: for it undertook only one, relatively minor weight-reduction in its silver coins, in 1351, thereafter maintaining a perfectly stable coinage, in both metals, until 1411-12.³³

Thirdly, as some historians have suggested --- citing in particular Italian literature (e.g., Boccaccio’s *Decameron*) and paintings, adomments in dress and housing -- the socio-psychological consequences of both plague and warfare, especially with such devastating and arbitrary death tolls, was to foster a fatalistic yet hedonistic spending spree, facilitated all the more by suddenly inherited cash balances.³⁴ The overall consequences, as demonstrated in Table 3, was to produce a very large increase in coinage outputs, whose inflationary consequences can hardly be disputed. One will note from Table 2 that all three major price series – for grains, meat-fish-dairy products, and industrial goods – rose during this quarter-century period following the Black Death, to the late 1370s in England. Clearly many labourers, artisans,

³³ See Albert Feavearyear, *The Pound Sterling: a History of English Money*, 2nd edn. revised by E.V. Morgan (Oxford, 1963), pp. 15-45; and various essays in John Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, 1992). For the coinage outputs in this period, see Table 3.

³⁴ See in particular: Harry Miskimin, *The Economy of Early Renaissance Europe, 1300 - 1460* (Cambridge, 1975), pp. 25-32; Herlihy, *Medieval and Renaissance Pistoia*, pp. 55-71, 180-212; Robert Lopez, ‘Hard Times and Investment in Culture’, in Wallace Ferguson, et al., eds., *The Renaissance* (New York, 1962), pp. 29-52; Giovanni Boccaccio, *The Decameron*, trans. J.M. Rigg (London, 1921): introduction, esp. p. 7; Anthony Cassell, ‘Boccaccio, Giovanni’, in Joseph Strayer, et al, eds., *Dictionary of the Middle Ages*, 13 vols. (New York, 1982 - 89), Vol. II, pp. 277-90.

and craftsmen, those living from money-wages alone, did suffer a reduction in real incomes with such rampant inflation.

The problem of determining post-Plague real wages

Nevertheless many historians may well doubt that these money-wage and price statistics tell the whole story about labour markets and real wages. On the one hand, many believe that the 1349 Ordinance and the 1351 Statute of Labourers did prevent a further rise in money wages, one that would have entitled these craftsmen to earn the real wage that the post-Plague depopulation, and obvious changes in the land:labour ratio should have provided them. Furthermore, several scholars – most notably Putnam, Ritchie, Hatcher, Penn and Dyer – have provided strong and convincing evidence that the crown and local authorities did seek to enforce these statutes, at least until the late 1380s, though notably such evidence becomes very scarce thereafter.³⁵ Others, however, believe that the manorial accounts deceitfully recorded only the wages that would indicate compliance with the ordinances, but not the actual money wages actually paid.

Yet a close examination of the available wage evidence in numerous manorial accounts does not really substantiate such a view of enforcement of the statutes, For virtually all of them demonstrate that most of the wide variety wages so recorded were substantially above those permitted by the 1349 Ordinance and the 1351 Statute of Labourers.³⁶ Why would the manorial lords feel free to *pay and record* these higher wages, even if a few other manors paid or recorded wages corresponding to the Statute? Furthermore, in most manors, including those in the latter small category that paid wages in accordance with the Statute,

³⁵ The classic study remains Putnam, *The Enforcement of the Statute of Labourers during the First Decade after the Black Death* (1908). Hatcher, ‘England in the Aftermath of the Black Death’, pp. 3-35; see also Penn and Dyer, ‘Wages and Earnings’, pp. 356-76; Ritchie ‘Labour Conditions in Essex in the Reign of Richard II’, pp. 91-112.

³⁶ Archives British Library of Political and Economic Science, Beveridge Price and Wage History Collection, boxes A.31 (Taunton), A.32 (Esher), A. 33 (Itchingswell, Overton, Wycombe), F.8 (Winchester College), G.14 (Hinderclay and Redgrave), H.10-11 (Battle Abbey).

some craftsmen, evidently senior and/or more skilled, received wages that were 25 percent to 50 percent in excess of permitted rates.

Furthermore, as just noted, London and then other later-medieval English towns, with presumably a higher cost of living, readily permitted wages above those prescribed in the Ordinance and Statute of Labourers. By the 1370s, most employers of building craftsmen in London were ignoring not only the Statute of Labourers, and the 1388 Statute of Cambridge, but also their local civic ordinances on maximum wages, as the evidence just cited clearly shows.³⁷ Not until 1495 did Parliament recognize London's special status within the kingdom, and its much higher cost of living, with legislation to authorize these very same rates of 6d and 5d per day, respectively (but only 4d daily with food and drink), with some minor exceptions.³⁸

Possibly, however, the true real wage was actually higher than indicated by the recorded money wages, if workers also received a supplement in kind: in food, drink, and or clothing. Indeed, in many manorial accounts, especially the Winchester accounts, wage payments in kind were quite common, often accounting for 50 percent of the total wage package, but only up to the eve of the Black Death. Thereafter, food-and-drink component fell to a third or less of the total pay package and they became less common in the following generations, except principally at Battle Abbey. The Battle Abbey manorial accounts generally provide two series of wage payments for the same classes of craftsmen and agricultural workers: those paid in both money and kind, and those paid in coined money alone. The sum of the former seems to equal the latter; and the rates for those paid in money alone at Battle Abbey were identical or virtually identical to

³⁷ See pp. and nn. 21-22 above.

³⁸ Statute 11 Henry VII c. 22 (1495), in *Statutes of the Realm*, vol. II, pp. 585-87. The major exception was a maximum daily rate of 7d, summer and winter, for those senior or chief master masons and carpenters employing or supervising six or more men; or a rate of 5d daily, with food and drink.

those for unspecified but presumably ‘money-alone’ wage payments on other manors.³⁹ Furthermore, even the national wage statutes recognize such a difference between wage payments in money alone, and thus with a lower money wage combined with food and drink. In any event, one may well surmise that when the price of foodstuffs fell sharply in the late fourteenth century (see tables), labourers and artisans would have resisted having any substantial portion of their pay package supplied in kind.

There are very few available urban wage data before the Black Death; but for later-medieval London and other smaller English towns (Canterbury, Dover, Exeter), I did not find any significant evidence of payments in kind, other than some allotments of clothing (chiefly and only significant for master-masons and some carpenters in long-term employ at Westminster Abbey).⁴⁰ For these reasons, one may conclude that wage payments in kind did not appreciably alter the picture of real wages constructed by using money payments alone, at least not for the later Middle Ages, even if such views are not endorsed in John Hatcher’s recent (1994) and otherwise persuasive article discussed above.⁴¹

Finally, John Hatcher and other historians have suggested that the post-Plague rise in real wages took place partly by a substitution of leisure for paid work. Many historians have suggested that, in pre-Industrial societies especially, many artisans, craftsmen, and labourers had a ‘backward bending supply curve of labour’. Thus, many workers, on finding that their real wages had risen to permit them to acquire some desired level of sustenance and comfort, would have preferred to enjoy increased leisure time over further

³⁹ Archives, BLPES, Beveridge Price and Wage Collection, Battle Abbey: Alciston Manor, 1336-1487 (Boxes H.10-11). See also n. 31 above.

⁴⁰ Archives, BLPES, Beveridge Price and Wage Collection, Westminster Abbey: 1393-1541 (Box P.10).

⁴¹ Hatcher, ‘England in the Aftermath of the Black Death,’ pp. 3-35.

increases in money income; and thus they would have chosen to work less, or to refuse to work for traditionally long hours.⁴²

In medieval and early-modern Europe, and indeed up to modern times in many regions, the payment of wages took two forms. The much more common form was piecework wages: i.e., wages paid for the amount of product produced; and that form was almost universal in the textile industries and in agriculture: payment for the number of yards of yarn spun and cloth woven, acres of grass mown, bushels of wheat reaped. Evidence on piece-work wages is, however, scarce and difficult to use; and historians really have no accurate way of knowing whether the amount of labour expended for piece-work wages rose or fell after the Black Death. Less common, though almost universal in the building trades, were money wages based on the time employed; but throughout Europe, those employees receiving time-work wages commonly by the week and then more commonly by the day, but certainly not by the hour.

Thus one may conjecture that if labourers and artisans had enjoyed more bargaining power with presumed labour scarcities after the Black Death, they may have used that power to secure a reduction in the number of hours worked per day. The research that I myself have done on this question may be found in a recent publication on seasonal wages and leisure in late-medieval England and the Low Countries.⁴³ For neither region did I find any convincing evidence that urban craftsmen sought to increase their leisure time, even after real wages had peaked in the mid fifteenth century, by reducing either the work day or the work week, which was usually six full days. Indeed evidence on the length of the working day may be found from

⁴² For an example in the late-medieval English mining industry, many of whose rural workers were seasonal, primarily engaging in the agrarian economy, see: Ian Blanchard, 'Labour Productivity and Work Psychology in the English Mining Industry, 1400 - 1600,' *Economic History Review*, 2nd ser., 31:1 (February 1978), 1-24.

⁴³ John Munro, 'Urban Wage Structures in Late-Medieval England and the Low Countries: Work-Time and Seasonal Wages', in Ian Blanchard, ed., *Labour and Leisure in Historical Perspective, Thirteenth to Twentieth Centuries*, Vierteljahrschrift für Sozial- und Wirtschaftsgeschichte Beiheft series no. 116 (Stuttgart, 1994), pp. 65-78.

evidence on seasonal wages, which were clearly paid on the basic principle that ‘man works from sun to sun’. The stipulation that both men and women were required to work at least twelve hours during the summer months can be found in the 1495 parliamentary statute on maximum wages. From mid-March to mid-September all English ‘artificers and labourers’ were to work from 5:00 a.m. to 7:30 p.m., with 30 minutes for breakfast, 30 minutes for *nonemete* (or sleep) and one hour for dinner; and in the other half of the year, they were to work from sunrise to nightfall.⁴⁴ If the statute does not stipulate the hours of work for the other six months, we may deduce from earlier English evidence and from continental evidence that the normal length of the work day during winters months was shorter. In parts of the late-medieval Low Countries, for example, the winter wage was only two-thirds of the summer wages, for the simple reason that the number of hours of daylight during winter months at this latitude (50° N) is about eight hours.⁴⁵

In London, and some other English towns, however, seasonal wages generally disappeared after the Black Death, as the records of building accounts clearly indicate, even though the official ordinances still stipulated a lower winter wage (see Table 1).⁴⁶ Quite possibly the payment of a uniform wage rate, i.e., a winter wage equal to the summer wage, came to be an acceptable method of circumventing the Statute of

⁴⁴ Statute 11 Henry VII c. 22, in *Statutes of the Realm*, vol. II, pp. 585-87; repeated in 6 Henry VIII c. 3 (1514-15), in *Statutes of the Realm*, vol. III, pp. 124-26. The framers of the 1495 statute, however, evidently believed that too many wage-earners were stealing leisure time during working hours by ‘late commynge unto their worke, erly departing therfro, long sitting at ther brekfast, dyner, and nonemete, and long type of sleping at after none’.

⁴⁵ See Jean-Pierre Sosson, *Les travaux de la ville de Bruges, XIVe - XVe siècles: les matériaux, les hommes*, Collection Histoire Pro Civitate no. 48 (Brussels, 1977): citing guild statutes in Rijksarchief Brugge, Ambachten, no. 1: ‘dat hi sculdich es te werkene van nuchtens toten avonde also wel tsaterdaechs up vighelie avond als up anderen daghen...’. Similarly the Bruges carpenters guild forbade them ‘te weerkene... by avonde of bi nachte met keersen [candles]’. See other guild records that specify working hours in the textile trades (forbidding work by night), in Octave Delepierre and M.F. Willems, eds., *Collection des keuren ou statuts de tous les métiers de Bruges* (Ghent, 1842); 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, 1906-1920).

⁴⁶ See the London ordinance of 1350, in setting maximum summer and winter rates (6d and 5d respectively); and also the Statute 23 Henry VI, c. 12, of 1444-45, cited in n. 41 above, and in Table 1 below..

Labourers' wage controls, since the Statute and its enforcement really focused only the summer maxima⁴⁷. Possibly the combination of the consequently higher wage throughout the entire year may have permitted some such substitution of greater leisure, at least in the summer months, for paid work.⁴⁸ Since, however, there is no evidence of any reduction in the normal working day in England until the passage of Fielden's Law or the Ten-Hour Day Act in 1847, the more likely result was that, after the Black Death, many labourers, craftsmen, and artisans received their real wage increase during these winter months, with shorter daylight hours.⁴⁹

Conclusions

Subsequently, the very striking changes in money supplies, coinage, prices, and real wages that took place during the final quarter of the fourteenth-century deserve at least some parting comment. For, not only England, but also most regions in western Europe -- certainly including the Low Countries, Tuscany, and Aragon-Navarre -- experienced an equally dramatic deflation that lasted until well into the fifteenth century,

⁴⁷ The subsequent Statutes of 1444 and 1495 did more clearly specify a winter maximum wage, lower than the stipulated summer wage.

⁴⁸ In the mid-fifteenth century, however, the London Bridgemaster did introduce a slight differential in seasonal payments (1441), and one that effectively raised the annual wage. In 1441: by reducing the uniform daily rate to 7½ d (or even 7d for some) for the winter season (three months), while raising it to 8½ d for the rest of the year. Corporation of London Record Office, London Bridgemaster's Accounts, Weekly Payments, First Series, Vol. IV .. Unfortunately these accounts cease in 1445. See also Douglas Knoop and G.P. Jones, 'Masons' Wages in Medieval England', *Economic History*, 2 (Jan. 1933), 473-99; Douglas Knoop and G.P. Jones, *The Mediaeval Mason: An Economic History of English Stone Building in the Later Middle Ages and Early Modern Times*, 3rd edn. (Manchester, 1967), pp. 105-06.

⁴⁹ See R. Campbell, *The London Tradesman* [1747] (republished New York, 1969), pp. 331-41. In specifying hours of work for 380 crafts, this treatise indicated that the typical working day still remained a very long one: from 6:00 a.m. to 8:00 p.m. (or during all 'daylight' hours). Subsequently, the 1833 Factory Act had stipulated a maximum working day of nine hours for children, aged nine to thirteen; and for those aged thirteen to eighteen, a maximum of 69 hours a week, with no more than 12 hours per day. The 1844 Factory Act limited the working day for women to 12 hours per day, and for children aged eight to thirteen, to 6.5 hours. Fielden's Act, imposing a limit of ten hours per day for both women and men (implicitly), was passed at a time of great labour unrest, on the eve of the 1848 Chartists's Revolt. See John H. Clapham, *An Economic History of Modern Britain*, vol. II: *The Early Railway Age, 1820 - 1850* (Cambridge, 1964), pp. 572-78.

though generally becoming much more moderate by the early decades.⁵⁰ In England, itself, as Table 3 clearly shows clearly, this period of pronounced deflation was accompanied by a severe slump in the gold and silver coinage outputs, almost as severe as those for the early fourteenth-century.⁵¹

The explanations – again chiefly if not exclusively monetary – for this severe slump in coinage outputs and for the related deflation lie beyond the scope of this study. It should be noted, however, if only to intrigue interest in companion studies, that this late fourteenth-century deflationary era also witnessed a sharp rise in the real wages of building craftsmen, but chiefly because their money wages remained stable, while prices fell, so that they were able to buy more goods and services with the same wages.⁵²

Finally, for an examination of the pattern of real wages during any part of the late-medieval era, especially, but also for much of the early modern era, historians should recognize the fact that the proportion

⁵⁰ Herlihy, *Medieval and Renaissance Pistoia*, pp. 128-30; Earl Hamilton, *Money, Prices, and Wages in Valencia, Aragon, and Navarre, 1351-1500* (Cambridge, Mass., 1936), Appendices; Munro, 'Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries,' pp. 31-122; John Munro, 'Mint Policies, Ratios, and Outputs in England and the Low Countries, 1335-1420: Some Reflections on New Data,' *The Numismatic Chronicle*, 141 (1981), 71-116; John Munro, 'Monnayage, monnaies de compte, et mutations monétaires au Brabant à la fin du moyen âge,' in John Day, ed., *Études d'histoire monétaire, XIIIe - XIXe siècles*, Études de l'Université de Paris VII et du Centre National des Lettres (Lille, 1984), pp. 263-94; both reprinted in John Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350-1500*, Variorum Collected Series CS 355 (London, 1992); Munro, 'Bullion Flows and Monetary Contraction', pp.97-158; John Munro, 'Wage Stickiness, Monetary Changes, and Real Incomes in Late-Medieval England and the Low Countries, 1300 - 1500: Did Money Matter?' *Research in Economic History*, 21 (2003), 185 - 297.

⁵¹ The sources of the mint data used in these tables, may be found in: Christopher Challis, 'Appendix 1: Mint Output, 1220-1985,' in Christopher Challis, ed., *A New History of the Royal Mint* (Cambridge, 1992), pp. 673-698; G.C. Brooke and E. Stokes, 'Tables of Bullion Coined from 1337 to 1550,' *The Numismatic Chronicle*, 5th ser., 9 (1929), 27-69; John Munro, *Wool, Cloth and Gold: The Struggle for Bullion in Anglo-Burgundian Trade, ca. 1340-1478* (Brussels, 1973, Appendix I, Tables A-B, pp. 188-97; Munro, 'Mint Policies, Ratios, and Outputs', pp. 71-116.

⁵² John Munro, 'Builders' Wages in Southern England and the Southern Low Countries, 1346 - 1500: A Comparative Study of Trends in and Levels of Real Incomes', in Simonetta Caviococchi, ed., *L'Edilizia prima della rivoluzione industriale, secc. XIII-XVIII*, Atti delle "Settimana di Studi" e altri convegni, no. 36, Istituto Internazionale di Storia Economica "Francesco Datini" (Florence, 2005).

of the population living from money-wages alone was rather small..⁵³ Many craftsmen and artisans receiving money wages had their own small agricultural holdings, if only vegetable gardens with their homes; and many masters, if not labourers, were often also petty merchants in their professions, often earning profits that exceeded their wages.⁵⁴

⁵³ Penn and Dyer recently commented as well, to stress the importance of this issue, that ‘at least one-third of the population of late medieval England gained all or a part of their livelihood from earning wages’. Penn and Dyer, ‘Wages and Earnings’, p. 356, citing in particular Rodney Hilton, ‘Some Social and Economic Evidence in Late-Medieval English Tax Returns’, in R.H. Hilton, ed., *Class Conflict and the Crisis of Feudalism* (London, 1985), pp. 253-67. That argument would be more persuasive if they had qualified to read: ‘gained part or all’, or better ‘part if not all’ of their livelihood.

⁵⁴ See, for example, Donald Woodward, ‘Wage Rates and Living Standards in Pre-Industrial England,’ *Past and Present*, No. 91 (May 1981), 28-46; Donald Woodward, *Men at Work: Labourers and Building Craftsmen in the Towns of Northern England, 1450 - 1750* (Cambridge, 1995).

Table 1

Official Wages in England: for the kingdom and for London

for the summer and winter months, from 1290 to 1444

| Year | Kingdom (national): summer wages in coin only (pence sterling) | Kingdom (national): summer wages in coin with food and drink | Kingdom (national): winter wages in coin only (pence sterling) | Kingdom (national): winter wages in coin with food and drink | London: summer wages in coin only (pence sterling) | London: summer wages in coin with food and drink | London: winter wages in coin only (pence sterling) | London: winter wages in coin with food and drink |
|----------------------|---|---|---|---|---|---|---|---|
| 1290 | | | | | 5.0d | 2.0d | 3.0d | 1.0d |
| 1290 ^a | | | | | 4.0d | 1.5d | 4.0d | 1.5d |
| 1350-51 | 3.0d | | [less] ^c | | 6.0d | | 5.0d | |
| 1350-51 ^b | 4.0d | | | | | | | |
| 1360 ^d | 4.0d | | [not stated] | | | | | |
| 1362 | | | | | 6.0d | | 5.0d | |
| 1372 | | | | | 6.0d | | 5.0d | |
| 1382 | | | | | 6.0d | | 5.0d | |

| | | | | | | | | |
|------|------|------|------|------|--|--|--|--|
| 1444 | 5.5d | 4.0d | 4.5d | 3.0d | | | | |
|------|------|------|------|------|--|--|--|--|

- a. The lower summer rate here represents quarterly-seasonal wages from Michaelmas (29 September) to Martinmas (12 November, when the winter wage commenced); and from Candlemas (Purificatio: 2 February) to Easter (when the summer wage commenced)
- b. The higher rate of 4d per day was for master free-masons only; other master masons and master carpenters were to receive only 3d per day
- c. No winter wage was specified; but wages from Michaelmas to Easter were to be ‘less according to the rate and discretion of the justices [of the peace]’.
- d. The rate is for the chief master masons and master carpenters; but a wage rate of 3d or 2d per day was specified for others ‘according as they be worth’.

sources: *Statutes of the Realm*, vol. I, pp. 311-12; vol. II, pp. 337-39; H. T. Riley, ed., *Munimenta Gildhallae Londoniensis: Vol. II: Liber Custumarum* (London, 1860), i, 99-100; ii, 541-43; H. T. Riley, ed., *Memorials of London and London Life, in the XIIIth, XIVth, and XVth Centuries: From the Archives of the City of London, A.D. 1276-1419* (London, 1868), pp. 253-55; R. R. Sharpe, ed., *Calendar*

of Letter-Books Preserved Among the Archives of the City of London at the Guildhall: Letter-Book G. c.A.D. 1352-1374 (London, 1905), pp. 148, 301; *Letter Book H. c.A.D. 1375-1399* (London, 1907), p. 184.

Table 1

Prices and Wages in England, 1286-90 to 1406-10:

The Phelps Brown and Hopkins 'Basket of Consumables' Price Index
and the Wages of Master Building Craftsmen (Masons and Carpenters)

in quinquennial means

base: 1451-75 = 100

| Year | Grains and Barley Malt | Meat, Fish, Dairy | Fuel and Textiles | PBH Price Index (Adj) 1451-75= 100 | Nominal Day Wage in d. for Master | Nominal Wage Index 1451-75= 100 [6d] | Nominal Day Wage in d. for Labourer | Nominal Wage Index 1451-75= 100 [4d] | Real Wage Index Master 1451-75= 100 | Real Wage Index Labourer 1451-75= 100 |
|---------|---------------------------------|-------------------------|-------------------------|--|---|--|---|--|---|---|
| 1286-90 | 90.42 | 84.53 | 34.8 | 80.52 | 3.00 | 50.00 | 1.50 | 37.50 | 62.93 | 47.20 |
| 1291-95 | 148.28 | 82.27 | 44.20 | 107.45 | 3.00 | 50.00 | 1.50 | 37.50 | 47.22 | 35.42 |
| 1296-00 | 124.21 | 91.60 | 60.20 | 102.34 | 3.00 | 50.00 | 1.50 | 37.50 | 49.11 | 36.83 |
| 1301-05 | 106.11 | 90.00 | 52.60 | 92.35 | 3.30 | 55.00 | 1.65 | 41.25 | 59.57 | 44.68 |
| 1306-10 | 126.33 | 104.17 | 70.60 | 109.81 | 3.60 | 60.00 | 1.80 | 45.00 | 55.24 | 41.43 |
| 1311-15 | 120.66 | 122.53 | 75.60 | 115.33 | 4.00 | 66.67 | 2.00 | 50.00 | 58.32 | 43.74 |
| 1316-20 | 215.74 | 132.00 | 68.60 | 161.91 | 4.00 | 66.67 | 2.00 | 50.00 | 44.85 | 33.64 |
| 1321-25 | 167.84 | 122.07 | 104.33 | 137.97 | 4.00 | 66.67 | 2.00 | 50.00 | 48.87 | 36.65 |
| 1326-30 | 118.72 | 108.07 | 100.45 | 111.07 | 4.00 | 66.67 | 2.00 | 50.00 | 60.82 | 45.61 |
| 1331-35 | 131.16 | 104.47 | 96.00 | 114.12 | 4.00 | 66.67 | 2.00 | 50.00 | 59.55 | 44.66 |
| 1336-40 | 91.45 | 96.27 | 96.75 | 94.32 | 3.60 | 60.00 | 1.80 | 45.00 | 64.23 | 48.17 |
| 1341-45 | 90.32 | 93.47 | 83.13 | 90.06 | 3.00 | 50.00 | 1.50 | 37.50 | 55.78 | 41.83 |
| 1346-50 | 111.53 | 98.60 | 91.63 | 102.70 | 3.00 | 50.00 | 1.50 | 37.50 | 49.14 | 36.85 |
| 1351-55 | 146.68 | 115.00 | 133.60 | 132.18 | 3.60 | 60.00 | 1.80 | 45.00 | 46.51 | 34.89 |
| 1356-60 | 129.74 | 111.60 | 162.35 | 129.46 | 4.60 | 76.67 | 2.60 | 65.00 | 59.31 | 50.16 |
| 1361-65 | 168.60 | 123.80 | 142.78 | 146.64 | 5.00 | 83.33 | 3.00 | 75.00 | 57.05 | 51.35 |
| 1366-70 | 161.46 | 128.13 | 147.15 | 146.10 | 5.00 | 83.33 | 3.00 | 75.00 | 58.13 | 52.32 |
| 1371-75 | 130.45 | 134.13 | 147.60 | 135.26 | 5.00 | 83.33 | 3.00 | 75.00 | 62.26 | 56.03 |
| 1376-80 | 105.00 | 110.00 | 123.71 | 110.62 | 5.00 | 83.33 | 3.00 | 75.00 | 77.27 | 69.54 |
| 1381-85 | 114.19 | 109.13 | 117.21 | 112.90 | 5.00 | 83.33 | 3.00 | 75.00 | 73.89 | 66.50 |
| 1386-90 | 96.54 | 106.20 | 108.38 | 102.53 | 5.00 | 83.33 | 3.00 | 75.00 | 81.31 | 73.18 |
| 1391-95 | 110.89 | 102.80 | 103.25 | 106.33 | 5.00 | 83.33 | 3.00 | 75.00 | 79.53 | 71.57 |

| | | | | | | | | | | |
|----------------|--------|--------|--------|--------|------|-------|------|-------|-------|-------|
| 1396-00 | 117.42 | 109.00 | 100.28 | 110.84 | 5.00 | 83.33 | 3.00 | 75.00 | 75.59 | 68.03 |
| 1401-05 | 126.71 | 107.20 | 103.95 | 114.84 | 5.10 | 85.00 | 3.20 | 80.00 | 75.29 | 71.29 |
| 1406-10 | 114.81 | 108.47 | 108.83 | 111.23 | 5.80 | 96.67 | 3.80 | 95.00 | 87.56 | 85.89 |

Sources: E.H. Phelps Brown and Sheila V. Hopkins, ‘Seven Centuries of Building Wages,’ *Economica*, 22 (August 1955), reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, 3 vols. (London, 1954-62), Vol. II (1962), pp. 168-78. E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 1- 12; E.H. Phelps Brown and S.V. Hopkins, ‘Seven Centuries of the Prices of Consumables Compared with Builders’ Wage-Rates,’ *Economica*, 23 (Nov. 1956), reprinted in E.M. Carus-Wilson, ed., *Essays in Economic History*, Vol. II, pp. 179-96; in Peter Ramsey, ed., *The Price Revolution* (London, 1971), pp. 18-41; and in E.H. Phelps Brown and Sheila V. Hopkins, *A Perspective of Wages and Prices* (London, 1981), pp. 13-59. The justification for the commodity weights in their basket, especially for the base 1451-75=100 was taken from the account books of the Savernak household, in Dorset, published in K.L. Wood-Legh, *A Small Household of the Fifteenth Century* (Manchester, 1956). I have utilized the working papers in the Phelps Brown Papers Collection in the Archives of the British Library of Political and Economic Science to correct errors and to interpolate missing data.

Table 3

England: Outputs of Gold and Silver Coinages
in kilograms of fine metal and in pounds sterling values
1286-90 to 1406-10, in quinquennial means

| Year | Silver Coinage | | Gold Coinage | | TOTAL | Price |
|---------|-------------------------------|---------------------|-------------------------------|---------------------|-------------------------|-----------------------------|
| | Outputs Total kilograms | Value £ sterling | Outputs Total kilograms | Value £ sterling | VALUES in £ sterling | Index 1451-75= 100.00 |
| 1286-90 | 17,280.60 | 54,056.78 | | | 54,056.78 | 80.52 |
| 1291-95 | 1,552.35 | 4,856.03 | | | 4,856.03 | 107.45 |
| 1296-00 | 12,071.42 | 37,761.54 | | | 37,761.54 | 102.34 |
| 1301-05 | 16,017.46 | 50,105.48 | | | 50,105.48 | 92.35 |
| 1306-10 | 40,226.55 | 125,835.83 | | | 125,835.83 | 109.81 |
| 1311-15 | 10,706.71 | 33,492.50 | | | 33,492.50 | 115.33 |
| 1316-20 | 7,275.68 | 22,759.61 | | | 22,759.61 | 161.91 |
| 1321-25 | 1,780.11 | 5,568.49 | | | 5,568.49 | 137.97 |
| 1326-30 | 121.86 | 381.19 | | | 381.19 | 111.07 |
| 1331-35 | 209.06 | 665.13 | | | 665.13 | 114.12 |
| 1336-40 | 429.49 | 1,551.60 | | | 1,551.60 | 94.32 |
| 1341-45 | 5,077.46 | 17,710.47 | 240.01 | 9,859.48 | 27,569.96 | 90.06 |
| 1346-50 | 1,991.05 | 7,090.87 | 675.84 | 27,123.30 | 34,214.17 | 102.70 |
| 1351-55 | 17,442.91 | 67,245.28 | 1,939.78 | 83,567.73 | 150,813.01 | 132.18 |
| 1356-60 | 4,423.02 | 17,081.46 | 1,726.69 | 74,406.84 | 91,488.31 | 129.46 |
| 1361-65 | 1,630.81 | 6,298.11 | 2,415.24 | 104,077.76 | 110,375.86 | 146.64 |
| 1366-70 | 293.82 | 1,134.73 | 1,729.03 | 74,507.35 | 75,642.08 | 146.10 |
| 1371-75 | 316.97 | 1,224.11 | 802.61 | 34,586.02 | 35,810.13 | 135.26 |
| 1376-80 | 356.90 | 1,378.32 | 235.33 | 10,140.85 | 11,519.17 | 110.62 |
| 1381-85 | 317.41 | 1,225.83 | 161.84 | 6,973.80 | 8,199.63 | 112.90 |
| 1386-90 | 247.51 | 955.89 | 504.81 | 21,753.33 | 22,709.22 | 102.53 |
| 1391-95 | 193.49 | 747.24 | 626.55 | 26,999.15 | 27,746.40 | 106.33 |
| 1396-00 | 175.60 | 678.14 | 391.14 | 16,855.14 | 17,533.28 | 110.84 |
| 1401-05 | 66.34 | 256.22 | 168.67 | 7,268.39 | 7,524.61 | 114.84 |
| 1406-10 | 10.59 | 40.91 | 69.01 | 2,973.57 | 3,014.48 | 111.23 |

Sources: See Table 2, for the Phelps Brown and Hopkins ‘Basket of Consumables’ Price Index.

For the mint outputs, see: C.G. Crump and C. Johnson, ‘Tables of Bullion Coined under Edward I, II, and III’, *The Numismatic Chronicle*, 4th series, 13 (1913), 200-45; C.G. Brooke and E. Stokes, ‘Tables of Bullion Coined, 1337 - 1550’, *the Numismatic Chronicle*, 5th series 9 (1929), 27-69; Challis, Christopher, ‘Appendix I: Mint Output, 1220-1985’, in *A New History of the Royal Mint*, ed. Christopher Challis (Cambridge, 1992), pp. 673-98; John Munro, *Wool, Cloth and Gold: The Struggle for Bullion in Anglo-Burgundian Trade, ca. 1340-1478* (Brussels, 1973, Appendix I, Tables A-B, pp. 188-97; and John Munro, ‘Mint Policies, Ratios, and Outputs in England and the Low Countries, 1335-1420: Some Reflections on New Data,’ *The Numismatic Chronicle*, 141 (1981), 71-116. [formerly listed as: 8th series, Vol. I], especially for the Calais mint data; John Munro, ‘Bullion Flows and Monetary Contraction in Late-Medieval England and the Low Countries,’ in John F. Richards, ed., *Precious Metals in the Later Medieval and Early Modern Worlds* (Durham, North Carolina, 1983), pp. 97-158; both reprinted in John Munro, *Bullion Flows and Monetary Policies in England and the Low Countries, 1350 - 1500*, Variorum Collected Studies series CS 355 (Aldershot, Hampshire; and Brookfield, Vermont: Ashgate Publishing Ltd., 1992); John Munro, ‘Mint Outputs, Money, and Prices in Late-Medieval England and the Low Countries,’ in Eddy Van Cauwenberghe and Franz Irsigler, eds., *Münzprägung, Geldumlauf und Wechselkurse/ Minting, Monetary Circulation and Exchange Rates*, Trierer Historische Forschungen, 7: *Akten des 8th International Economic History Congress, Section C-7, Budapest 1982* (Trier 1984), pp. 31-122.

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