

Money, Weights and Measurement in the Anglo-Saxon Period (c. 450 - 1100 CE)

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Introduction

This analysis of money, weights and measurement is part of a wider research vista into the world of Anglo-Saxon England, which includes their distinctive lifestyle, of which I am the Research Coordinator.¹ Numismatics is a particularly important field of study because coins, 1000s of which have been unearthed throughout England, have their origins in Roman Britain (c. 43 - 410 CE). They not only represented monetary value, but more importantly they communicated to the general populace who their current national or regional ruler was because his head appeared on the coin. When the ruler died or was deposed, the coins also changed to represent the image of the new ruler. The Romans did it at an international level; whereas the Anglo-Saxons did it at a national and regional level.

The standardization of weights and measurements were of vital importance to the economic sustainability of the society; therefore, they

were underwritten by the ruling administrations and made uniform so as to protect as much as possible against cheating and fraud. As Anglo-Saxon Society was primarily agrarian, the wheat grain, more generally known as the troy grain (Gr. OE. *troi*: balance). The term 'troy' is derived from the medieval cathedral town of Troyes located on the river Seine to the south-east of Paris.

The essential importance of analyzing the origins and evolution of money, weights and measurement is that they are not just an essential component of human civilization, including Anglo-Saxon England, but they are still by and large unchanged over time into our contemporary era.

Numismatics

Although very poorly documented for the full era of the Anglo-Saxon Age (c. 450 - 1100 CE), a system of bartering of goods was manifest - agricultural and aquatic produce, domesticated animals and hunted wildlife. The main evidence for such trade derives not from documented transactions or law tracts but from what is recorded as to how rent and taxes were paid by freeholding farmers to their landlords and this was prevalent not only amongst the Anglo-Saxon polities but also continued through into Early Norman Britain from the mid-eleventh century onward. The use of produce as payment is also consistent with how the exaction of ecclesiastical tithing was undertaken.

Coinage in Britain predates the Anglo-Saxons and was introduced as a form of trade and currency in the earlier period of Romano-Britain (c. 43 - 410 CE).² Gold and silver and on occasion bronze were minted into coins for use in trade and transactions, taxes and payments across the provinces of the Roman Empire, the usage of such precious metals being indicative of the value of the coins. Major mints were located at Rome, Ravenna, Trier and Arles. Although a mint was established in London in the early

4th century, coins were normally of continental origin. But with the decline and fall of the Roman Empire, the use of coins as currency began to dwindle and wane. This was a period of socio-economic flux, confusion and conflict, subject to the collapse of Britannia on a provincial level even where in pockets and places on a smaller regional interspersed basis Romano-British culture and society survived, its ethos and lifestyle trundling on through the 5th century until it appears to have largely petered out by the 6th century. Coins and coinage appear to have made an early exit from the concerns of commerce, for the most part disappearing from the archaeological record.

Many hoards of invaluable coins, ingots and precious jewellery have been unearthed over the centuries, formerly deposited and hidden from invaders which caused civil strife; these artifacts were also used as votive offerings and interred with the individual. In more recent decades, professional archaeologists and amateur metal detectorists have added considerably to our understanding of numismatics for the period. Caches trowelled out of the ground have unearthed troves largely of silver coins, a few with some gold coins but rarely any bronze coins. The Hoxne Hoard, Norfolk, (1992), uncovered an astonishing amass of *c.* 15,000 coins, uncovering a treasure-trove as much of the wealth of knowledge as the monitory wealth it would have been.³

Coins came to British shores with the coming of the Romans. The coins were used for trade and wages, wealth and taxes. Roman coins were generally embossed, emboldened with the heroic image of an emperor or leader that reigned. The coin was not merely an implement, an instrument of currency, but as it was delivered from market to man, from hand to hand, a palpable message in the palm was relayed - that this world was ruled by this man and as such some coins also passed beyond the reaches of the Roman Empire, outreaches expounding what that it was to be emperor and Roman. No ruler epitomized more the sense and sentiments

of this dominion and its dominance than Emperor Hadrian (b. 76 CE; r. 117 - 38 CE).⁴ An able and astute ruler of Italo-Hispanic extraction, he journeyed the length and breadth of the Romano-expanse, not principally for war as other emperors had done but with the aim of establishing a wealth of interconnected states, a Roman commonwealth, but with pan-Hellenic aspirations built upon his admiration of Greek culture. His designs were both militaristic and civic, religious and administrative, but the coins that bore the portrayal of his head as head, have been recovered coins far farther afield than any of the lands conquered by great military leaders of earlier generations such as Alexander the Great (356 BCE - 323 CE) - from England to India.⁵

Coin type and usage can be broadly categorized into four distinctive periods over 5 centuries of Anglo-Saxon rule.⁶ The first and earliest period (c. 450 - c. 550 CE) mirrors an age post-Romanic, embryonic in Anglo-Saxon ascendancy, where coins were scarce in currency but used as valuables, largely salvaged from the earlier age. The second period (c. 550 - c. 680 CE) a monetary system evolved and developed characterized by small gold coins, tremisses/tremis (OE *thrymsas*; 1.g - 1.3g, 10 - 12 mm diameter, 1/3 of a Roman *solidus*, 10 - 20 % purity) of continental origin and of Late Antiquity in style. In the ensuing third period (c. 680 - c. 750 CE) coins were small and minted from silver (OE *sceattas*); their calibre and mass would go on to define the basis of currency, the penny, in England for centuries to come. Normally lacking lettering, without any inscribing these coins now often lack accurate provenance. Yet, the coins minted in the name of powerful King Offa of Mercia (r. 757 - 96 CE) do bear witness to an artistry in coin metalwork that rivalled the finest in Western Europe. And although the early Anglo-Saxon law codes from the 600s early on appear to implicate the widespread usage of *sceattas*, these accounts are more referential of weights and measurements in a continental context. Nevertheless, *sceattas* were minted later on the

continent and their finds provide a valuable insight into trade across the North Sea for the period. These coins went on still to be produced in Northumbria in the 860s (OE *stycas*), their silver content being debased from there on. In the final period (c. 750 - 1066 CE) there were many mints down south, the main medium of exchange in coinage being refined from the chunky blocks of *sceattas* to thinner slivers of silver (1g - 1.7g) in much of the fashion of its Carolingian contemporary, tender of high value constituting gold coinage named *mancuses*, yet extremely rare in England. The English penny would become divided also into halves and quarters by the time of King Edgar's reforms (970s CE) and modelled on the design of this penny remain in usage until the 14th century and used also by the Norse and Danes. English coins have been found across Western Europe, large quantities being found in Scandinavia in the later period.

Understanding of coinage during the Early Medieval English period is always intermittently being unravelled as more coins and hoards are being uncovered. As for instance, an incident when in January 2019, metal-detectorists unearthed some 2,528 coins from plough soil near Chew Valley, Somerset (now housed at the British Museum), remarkably almost half in half from the final months of the reign of King Harald (r. 1066) and from the early reign of the Norman King William (r. 1066 - 87 CE), doubling the finds from Harald's reign for this momentous transitional period while fundamentally changing the knowledge and comprehension of coinage and currency at that time. Gareth Williams, Curator of Early Medieval Coinage at the British Museum, states: 'One of the big debates among historians is the extent to which there was continuity or change, both in the years immediately after the Conquest and across a longer period. Surviving historical records tend to focus on the top level of society, and the coins are also symbols of authority and power. At the same time, they were used on a regular basis by both the rich and poor, so the coins help us understand how changes under Norman rule impacted on society as a whole.'⁷



Example coins from after 927 CE, the reign of King Æthelstan
(r. 925 - 40 CE)⁸

(©British Numismatic Society)

Numismatics is a discipline based on the study of money and coins and often dependent on archaeological finds. The coin is a piece of metal and while the terms in English — gold, silver, copper or alloys of it — are

used, catalogues use the titles (AV, L. *aurum*: gold), (AR, L. *argentum*: silver), (AE, L. *aes*: copper/or its alloys), abbreviations non-consistent with the Periodic Table of Elements (PTE). Weight was very important throughout both Antiquity and the medieval periods for establishing 'definite exchange value' and in the modern age is determined in grams while older collections could employ troy grains. *Type* would refer to the central designs on both faces and not to provenance such as Roman or Anglo-Saxon. *Field* would refer to the area surrounding, the background to the type design. Within the type could be *attributes* and *adjuncts* applied. An attribute was an object or objects attached such as a diadem or laureate wreath, an orb, sceptre or spear. An adjunct was an object, objects, design that was not connected directly to a bust or figure but within the coin disc. *Legend* defines the sum of written letters or inscription imprinted. Two main methods were employed for the production of coins: *casting* and *striking*. Casting was the lesser labour intensive form of manufacture, simply applying molten metal in joined molds but with the possible caveat of inaccurate replication. Striking involved the far more time-consuming skill of an imprinting impression, stamping and/or cutting in metal or wood much in the style of the method that a modern machinist does. Although the terms obverse (L. *obversus*) and reverse (L. *reversus*) embody ambiguity not only in interpreting one side of the coin as ranking higher in importance to another but also that both may be in design of equivalence, more often than not where busts or portraits are evident the term obverse can direct for the convenience of reference. Many of the main collections of English coins are now housed at the Fitzwilliam Museum, Cambridge; the Hunterian Museum and Art Gallery, Glasgow; the Barber Institute of Fine Arts, Birmingham University; the British Museum Department of Coins and Medals, London; and the Ashmolean Museum, Oxford.⁹

Weight and Measurement

Weight, wealth and measurements were laid down in law and principally in England in the Anglo-Saxon language. Although mention was made from the earliest law tracts of King Æthelberht of Kent (560 - 616 CE) and of King Ine of Wessex (c. 670 - after 726 CE), the most comprehensive ordinance was compiled and enacted far later by King Edgar (c. 943 - 75 CE). King Edgar's decrees introduced uniformity in weights and measurement that would go to be largely replicated by successive kings.¹⁰ And just as much as the Anglo-Saxons had preserved the system and methods of weights and measures by and large from the Romano-British period, William the Conqueror would go on to maintain much and mostly the selfsame.¹¹ The Magna Carta (1215 CE) confirms this conservation, royally instigated and enshrined. In other words, the units of weights and measurement appear to have endured both peoples and ages underpinning the continuance of a functioning society, some of which persist to this day.¹²

In terms of monetary value, it was not only the purity or percentage of silver, gold, or bronze that proved its 'metal' but also its mass. Measurement defined both weight and value in relation to the percentage of purity assured. And measurement was very carefully observed and preserved as the value of labour and produce depended vitally upon it; fraud and falsity were the enemies of forthright trade. These principles were the fundamentals by which civilization emanated from Eastern Mediterranean regions and littoral across in time throughout much of Europe and Asia. The Ancient Egyptians based their primary, elemental standards of weight measurement on the single grain of barley or of wheat, plucked from the ear's middle (6 barley grains measured up to the length of the *digitus medicinalis*, the fourth finger of the left hand). However diminutive these grains, the ears from which they were

harvested were veritably what sustained both those on and off the land, their importance immeasurable and yet the very mark of measure. But both grains differed in size and weight, proportionately from wheat to barley in the ratio 3:4 — minutiae not to be mixed.

The legal foundation of English weight measurements was based traditionally on the wheat grain, most often called the troy grain (symbol: *gr*; OE, *troi*: balance; the word 'troy' deriving from the name of the thriving, trading medieval cathedral town of Troyes seated on the River Seine, south-east of Paris).¹³ The Anglo-Saxon silver penny (OE *penig*) weighed 22 1/2 troy grains, the Old English pound calculated to amount to 240 pennies, possibly 5,400 troy grains based on later Norman accounts. However, these weights and measurements may have been incumbent upon costs incurred upon manufacture. The original pound of silver made into coins at the king's mint could possibly have weighed 5,760 grains, the penny coins the measure of 24 grains each, the merchant or maker taking their cut. By the reign of the Norman King Edward I (b. 1239 CE; r. 1272 - 1307 CE) the merchant's make was larger, the king's take smaller.¹⁴

The barley grain (aka troy grain) underpins the imperial system of weight and measurement to this day, a system that pervades civic life and consumerism, trade and economics, architecture, transport and speed, the carton and bottle in the USA and still in part in the UK.¹⁵ The wheat grain has largely disappeared as a form of measurement but was used in the past to calculate carats for diamonds. The alternative metric system which was devised and adopted in post-revolutionary France (1792 CE) is commonly used outside of such jurisdictions and countries. The metric system is based on a radically different approach to weight and measurement. Its base unit is the metre, a unit of length, 1/10,000,000th the quadrant length measured at the time from the Equator (latitude, 0°) to the North Pole (latitude, 90°).

Length and breadth only begin to be really documented from the late

Anglo-Saxon reign of King Æthelstan (925 - 40 CE) onwards, with a declaration of the protective range, the king's peace (OE *grith*) that surrounded the sovereign's primary residence:

Thus far shall be the King's grith from his burh gate where he is dwelling, on its four sides; that is iii miles, and ii furlongs, and iii acres' breadths, and ix feet, and ix palms, and ix barley corns.¹⁶

Many if not most of these measures of length are still in use in the UK and US to this day. The principal measures can be listed as follows: the inch, the foot, the yard, the perch, the furlong, the mile, the acre. The human foot had been used by multiple civilizations throughout history as a standard of measurement. The Roman foot measurement (11.65 inches/265mm = 1 foot; 1 inch being determined as the length of 3 barley corns) in Britain. Then during the Anglo-Saxon period foot measurement (13.2 inches/335mm) was adopted from Northern Germany; the earlier Roman measurement was still maintained for methods in construction. However seemingly, it was not properly determined and standardized until the reign of Norman King Edward I (r. 1042 - 66 CE) as being 12 inches to the foot, 3 feet to the yard. However, in the Eastern Mediterranean aside from Greece the most important basic unit of length was the cubit. The cubit (L. *cubitus*: elbow; *cubo*: to lie down) was an ancient measurement based on the forearm, the span from the reclined elbow to the middle finger (1 & 1/2 Roman feet). Cubit lengths varied through history from 17.48 inches/444mm to 20.83 inches/529mm divided into smaller units (6 palms X 4 finger = 24 digits or alternatively 7 palms X 28 digits). Yet understanding of usage of the cubit was known in England as it is well attested to in accounts in the Old Testament of the Bible. It appears that the cubit was used in the trials by ordeals of suspected criminals with hot iron, hot and cold water according to the laws of Æthelstan. The palm, a base unit of the cubit, is referred to in the Æthelstan edict as also occasionally a similar referment the 'hand-breadth'.

However, it is important to note that this early usage of the palm as a term of measurement differs from the modern use of the term of measurements of hands for horses.

The Roman measurement of the mile (*L. mille passus*; a 1,000 paces/5,000 feet), a patting of the ground with the left foot counted out 1,000 times, or by soldiers on the march punching a rod into the ground spreading milestones across the provinces of the Roman Empire. Although unverifiable, by the time of the Anglo-Saxon period it seems that there was some degree of hybridity between both British and Germanic elements of its measurement while maintaining the selfsame basic units. It appears that by the reign of King Edgar, a physical standard of yardstick iron-bar the spanning an arm. In 1101 CE, the standard was by King Henry I using his own arm.¹⁷

Although length and measurement through early English history may appear to the modern mind (a mentality seductively subject to the decimal digit, immersed in metrics, beholden to units imperial) to inculcate inaccuracy in the evolving confusion of alteration through change over time both acute and chronic this would be wrong for accuracy was its aim. Number then was much more a physical reality than the abstractions written on code, chalk or paper now most often represented. And rather than regard it as being chopped into more and more finer divisions it was in inverse from that single grain, barley or wheat, the foot or the ulna (*OE elne*), a world was built in commerce and construction. It is as if our modern concepts and use of number abstracts so much for science and technology that the heart and soul of the very foundations of their usage in early England rooted in the visible environment may be lost. But they still do appear now and again to race alongside in the mind's imagination as when Roger Bannister breaking the sub-4-minute mile barrier (6 May, 1954) or the horse that runs its course in the final furlong.

Number defines the structure of the universe (definable down to even just

6 known universal dimensionless physical constants) and so also it was integral to the Anglo-Saxon world.¹⁸ Geometry may have been Euclidean, proportion be Vitruvian, harmony and harmonics Boethian, yet numeracy was not always used or necessary for the trained eye, master and apprentice, the mason and the wright, the house and boatbuilder. Such learning, skill-based learning, could be experiential and physical to be transmitted and transmuting through the generations and ages.

In an agrarian society such as of the Anglo-Saxon kingdoms the acre (OE *æcer*) meaning 'open field' was a measurement of central significance to the average farm and farmer.¹⁹ And as most of Northern Europe was also much the same akin economically based — linguistic conservatism given — close cognates abound across Nordic and Germanic languages. And yet the importance of the concept and measurement reverberates even further beyond amongst empires, dynasties, and nations back in history that were not always dependent fully on agriculture but also trade and tribute to thrive as is evident from Latin (L. *ager*) and Greek (GK. *αγρός*). An Anglo-Saxon acre was rectangular in shape, 1 furlong in length, 1/10 furlong in breadth. The area squared that the acre encompassed varied widely from kingdom to society in history as it does as used in countries and nations today worldwide. This may be due in part upon how several of the length measurements were and are determined. The ox and plough were a central determinant to length to the Anglo-Saxons. Traditionally, the furlong (furrow length) constituted the measure of the area that a team of oxen could plough without respite. But this was a measurement existing in name only as with an acre calculating to be how much land was tillable by one man with one ox in one day. Evidentially, these were not numerical absolutes but a relative physical experience; man, ox, plough, soil, weather could alter the outcome and they may have served at times when more accurate, designated calculations could not be made in situ. The measure of an acre is not documented during the Anglo-Saxon period and although

it is recorded as commensurate later (c. 1300 CE) with being 40 perches X 4 perches (220 yards X 22 yards) it is to be cautioned that the plough (OE *sulh*) had been evolving in technology over time, in particular with the adoption of the iron, eight-oxen, carrucca heavy plough employed in 'three field' crop rotation system in the late 8th and early 9th centuries.

Yet, one other measurement, the hide (OE *hid*; *hiswisc*; possible generic root from the word for 'family'; *hiwan*) was of deep and central importance to one and all Anglo-Saxon homesteads across the land. It was the measure of land but not area to the value of being to sustain a family on the farm. It was the measure employed for tax assessment and exaction, for duties of bridge building, for mustering for the military (*fyrð*), for the later crippling economic exactitude paid, the *geld* (990 CE onwards) in tribute to the Danes of the Danelaw and beyond.²⁰ How it was calculated is enigmatic but probably to be understood in human, physical and environmental relative terms. However, it was documented to be 120 acres but could have been substantially larger towards the end of the Anglo-Saxon period. Lists of hides are recorded intermittently through the Anglo-Saxon period: the Tribal Hidage (dated to 7th century, document late and inaccurate); the Burghal Hidage (early 10th century) which listed hides connected to boroughs; the County Hidage (11th century) which listed the hides of the counties. In the aftermath of the Norman Conquest, the Domesday Book recorded hidage assessed across the kingdom.²¹ By this time, assessment of hides had become more of an approximation than an estimation and as Harvey (2014, p. 150) observes the Domesday Book can inculcate a tendency at times to assess a surfeit of hides conveniently to the rounded figure of £1.

Capacity involved much more than visual distinction between a jug and a jar (pottery or wooden-based as glass was a rare and expensive commodity). What was wooden as of a bowl, what was woven as of a wooden basket cut from the coppice possibly with withies of willow or

hazel, or wool carded, spun and woven, or bowls of pottery made of baked malleable mud, or bowls made from beaten metal — it was a manual, physical world of scoop, carry and pour, the plucked and the pitted, of what was cooked or stored.

Measured volume was based on weight. The basic unit was the pint (OF. *pinte*; VL. *pincta*: 'painted') both dry and fluid capacity, which was the weight of a pound. Although it can be assumed that the pint was the basic unit of volume during the Anglo-Saxon period, it is not verifiable as it is not found in the documentary record. The pint was represented in measure by a visual mark limit in the vessel or container, traditionally constituting 1/8 of a gallon (ONF. *galon*; OF: *jale*; OE *gēllet*; ML. *galēta*; jug, bowl, bucket).²² Speculatively, these units of volume were used primarily for measurements of barley and wheat and fluid capacity measurements of ale. In the early Norman period this list would also have included wine, mainly imported from France.²³ However, since the specific gravities (relative densities) of dry volumes such as wheat and barley were larger than those of fluid volume such as ale and wine, capacity and containers could not have been interchangeable. The Normans introduced several new measurements of volume after the Conquest: the bushel (OF. *boissel*: little box), the tun (OE. *tunne*; L. *tunnellus*). The bushel was a measure of dry volume that constituted typically a capacity of 8 gallons of corn. The tun was a measure of fluid volume that normally constituted a wine vat of 252 gallons but also on occasion other gallon capacities or also of oil or honey.

The Norman System of Guilds

The socio-economic commercial system of guilds that the Normans introduced, implicated the need for edicts in standardization of weights and measurements for the differing trades and the trade they undertook.

Some ordinances are attributed to the reign of King Henry III (1216 - 72 CE), others to the succeeding reign of King Edward I (1272 - 1307 CE). The Great Charter of King Henry III (11 February 1225 CE) makes brief references to measurements of cloth, of 2 ulna between the broadcloth lists of the loom (the ulna probably constituting a cubit of 18 inches) but later tracts specified a broadcloth of three quarters of a yard (54 inches) and others of a yard. But without an actual loom or vestiges preserved from the period, specifics would prove inconclusive.²⁴

The more important tracts on weights and measures appear in Latin and date from the era of King Edward I (r. 1272 - 1307) but dates have not been proved verifiable. Principal amongst these edicts was 'The Assize of Weights and Measures' whose ordinances do not vary much from the known measurements and decrees of pre-Norman Conquest England. However, it does include new decrees and measurements amongst others about wine, wool, corn and spices. Wool was weighed in sacks, 28 to the stone or 30 —an important commodity. Wine went by the gallon, corn by the bushel. Spices were priceless. And all was weighed at the fulcrum of trust and trade, but a balance at times that could easily be broken. Next among these measures and decrees was 'The Assize of Bread and Ale'. The wastel loaf, the beer brewed from barley, were all foods whether for sustenance or feasting measured in quarters of wheat and barley in prices based on harvest. Another ordinance, 'The Statute for Measuring Land...' while it informs about standard references of measurement of terrain it also largely concerns in tabulate form with standards of length and breadth of differing shapes and forms. A primary measurement for agrarian cultivation, order and civil order was the squared parallelogram — the acre, dimensions that could vary from 16x10 to 80x2 perches in length and breadth but always constituting a constancy of roughly 160 perches square, the perch measuring a rod (5.5 yards; 16.5 feet; 5.03 metres). Lastly, a further ordinance, 'The Statute concerning Bakers...'

stipulates penalties, sanctions for bakers and those employed in other trades for misdemeanours in quantity, quality, and measurement.²⁵

Following on the early Crusades a new system of measurements was introduced into both Britain and Western Europe. The avoirdupois system appears to have been originally employed to weigh wool but would soon in the 14th century become to be used more widely. The original documented base units were: 6992 grains to the pound (lb); 16 ounces (oz) to the pound; 14 pounds to the stone; 26 stones to the woolsack. It was a system competing at the time and centuries to come with various others for their validity with different commodities. What made it prevail and persist was its computable qualities, even numbers, divisors that could divide equally and consistently by half, then half, and half again. Its basic units, pounds and ounces, are still in use (updated 1959) to this day in parts and forms in the United Kingdom, Australia, New Zealand, and other nations and states as the Imperial system and also in the United States (United States customary units) with minor variations.²⁶

Conclusion

The essential point about Anglo-Saxon numismatics is that it was national and local rather than international as was the case with Roman coinage. It proports the names and visual identity of the various regional kings to create a sense of socio-cohesion. This is as important, and perhaps more so, than their precise monetary value in trading and trade. The use of weights & measures provides an essential insight into the central role that the wheat grain ('the troy grain') played in the standardization of these. Both numismatics and weights & measures are intricately interconnected. They also are important evidence of the sophistication of Anglo-Saxon Society both at the level of craftsmanship (coinage) and the uniformity of trading practices (weights & measurers). The presence of inlaid Greek

crosses and the abbreviation 'AD' (L. *Anno Domini*) to indicate the year of mintage on most extant coins indicate that the English (OE *Engliċ*) were becoming increasingly culturally Christian over the four periods of Anglo-Saxon numismatics.

Abbreviations

b. born
BCE. Before Contemporary Era (BC)
CE. Contemporary Era (AD)
ch./chs. chapter/chapters
1 Cor. St. Paul's First Letter to the Corinthians
Ed/ed. Editor / edition
g. gram
GK. Greek
gr. symbol for 'the Troy Grain'
L. Latin
lb. pound
Lk. Gospel of St. Luke
Mk. Gospel of St. Mark
Mt. Gospel of St. Matthew
ML. Medieval Latin
ND. Not Dated
OE. Old English
OF. Old French
ON. Old Norse
ONF. Old Norse French
oz. ounce
p./pp. page/pages
r. reign
repr. reprinted
rev. revised
VL. Vulgar Latin

Notes

- 1 Acknowledgement: I wish to acknowledge my thanks to Bloomsbury International Publishing (London) for facilitating this Wide-ranging Research Project on the Anglo-Saxon World.
- 2 The principal standard scholarly works on numismatics are cited in the Bibliography.

especially important is Sayles (1996 - 2003).

- 3 The Hoxne Hoard, Norfolk, is housed in the British Museum and can be viewed on their website which is cited on p. 63. See Guest (2005) and Johns (2010) who give comprehensive descriptions of the content of this hoard.
- 4 On Emperor Hadrian, see Birley (1997); Boatwright (1987) and (2000).
- 5 On Alexander the Great, see Green (1974, repr. 1991; Hamilton (1973); Renault (1975); Tarn (1948, repr. 1981). For more in-depth analysis of Alexander the Great, see Badian (1964); Bosworth (1988); and Lane Fox (1980).
- 6 The four periods of Anglo-Saxon numismatics are documented in Grierson & Blackburn (1986), chs. 8 & 10; and North (1994).
- 7 The important comment by Gareth Williams is in 'Treasures from the Era of William the Conqueror' <https://coinsweekly.com/treasure-from-the-era-of-william-the-conqueror/> 5 September 2019. Accessed 26 July 2021.
- 8 These example Anglo-Saxon coins from after 970 CE during the reign of King Æthelstan (r. 925 - 40 CE), depicting Mercia, Wessex, Northumbria, Kent, East Anglia, East Saxons and All England, are reproduced by the kind permission of the British Numismatics Society. These Anglo-Saxon coins are discussed in detail at <https://www.britnumsoc.org/gallery/anglo-saxon-menu>. Accessed 26 July 2021.
- 9 These coinage collections can be viewed online, and the respective URLs are cited in p. 63.
- 10 Whitelock (1979) provides good idiomatic Modern English translations of most Anglo-Saxon law tracts with copious Introductions. The standard works on the history of English Law are Cam (1962); Lambert (2017); Pollock & Maitland (1968); and Wormald (1999, repr. 2000).
- 11 The understanding and development of systems of physical measurements, from antiquity to modern times, are discussed in Berriman (1953, reprinted 1969); Bishop (1984); Dilke (1987, repr. 1989); Ellis (1966); Ellis (1973); Kisch (1965); Klein (1975); Kula & Szreter (1986, repr. 2014); and Zupko (1977) & (1990).
- 12 On the Magna Carta, see Carpenter (2015); Denziger & Gillingham (2003, repr. 2004); Hindley (2008); Holt (1985) & (2015); and Vincent (2012).
- 13 Skane in southern Sweden, Anglia in the east of England and the islands of Tyree and Colonsay off the west coast of Scotland were designated wheat-growing regions. Skane is the setting for the second part of the old English epic *Beowulf* (ll. 1888-3182) and Anglia is one of the earliest Anglo-Saxon settlements in England, famed for the Sutton Hoo burial site (c. 623/4 CE). These regions were prized for their long hours of sunlight in the summer season which is essential for wheat growing because the crop requires a rather long growing season: February to September.
The Celts generally grew barley to produce beer and whiskey. Barley is easier to grow as it has a much shorter growing season: April to August. However, the two Celtic

islands of Tyree and Colonsay were designated for wheat growing and have some of the longest hours of summer sunlight of any location in the British Isles due to their northerly location. Tyree is the Gaelic for 'The Land of Wheat'. Why did the Celts require wheat in this region of Scotland? The answer lies in the importance of the neighbouring island of Iona which was the most important Christian monastic centre in Scotland from the 6th century to the 9th century and was a recipient of the initial Viking raids on Celtic and Anglo-Saxon monastic settlements and their subsequent wrecking (c. 795 - 850 CE). The monastery would have had a continual need for unleavened wheaten altar breads for the celebration of the Eucharist.

Wheat, therefore, was not just a staple food for everyday substance from the Middle East to Europe (in the same way as rice and corn is in other regions of the world), it was also an essential component for the celebration of the Christian Eucharist and coequal in importance to red wine. Bread and red wine represent the Body and Blood of Christ as instituted in the Last Supper which Christians consider to be the first Eucharist which was celebrated by Christ Himself where He promulgated its continual enactment to the present day, cf. Mt. 26:17-29, Mk. 14:12-25, Lk. 22:7-38 and 1 Cor. 11:23-25.

- 14 For a standard biography of Edward I, see Prestwich (1988). The historical importance of his rule is discussed in Prestwich (1980). On Edward I's statutes, see Plunknett (1962). Templeman (1950) documents the changing views of Edward I from Polydore Vergil to Powicke; Tout (1920, repr. 1967) discusses Edward's aims regarding administrative efficiency and royal control.
- 15 There are numerous scholarly works on the standardization of weights and measurements, including the aka troy grain. Among the most significant are Dilke (1987, repr. 1989); Ellis (1966); Kennelly (1928); Kisch (1965); Klein (1975); Ricketts (1996); Woodward (1972); and Zupko (1977), (1990) & (2019).
- 16 From the Laws of King Æthelstan in Thorpe (1840), p. 95.
- 17 There exists no adequate biography of Henry I. Poole (1955) contains a good sketch and bibliography of the reign. On Henry's early years, see David (1920); on Henry's administration, see Richardson & Sayles (1963); Barlow (1999); and Cronne & Johnson (1956).
- 18 For an excellent account of these six universal numeral constants, see Rees (1999).
- 19 This website gives an especially useful overview of the evolution of the acre as well as other units of measurement in the British Isles from the Manuscripts and Special Collections at the University of Nottingham. <https://www.nottingham.ac.uk/manuscriptandspecialcollections/researchguidance/weightsandmeasures/measurements.aspx>. Accessed 26 July 2021.
- 20 On Danelaw, see Stafford (1985) and Lyon (1991).
- 21 On hidage and the Domesday Book, see Brownbill (1912); Darby (1977);

- Featherstone (2001; Hallam (1986); Hart (1971); Harvey (2014); Holt (1987); Keats-Rohan (1999); Lennard (1959); Roffe (2000) & (2007); Roffe & Keats-Rohan (2016); and Wood (2005).
- 22 For a concise overview on imperial units of measurement, see <https://www.britannica.com/topic/Imperial-unit>. Accessed 26 July 2021.
- 23 On Norman wine in Medieval Times, see Lebert (2016).
- 24 On the Norman system of guilds, see Gimple (2003).
- 25 On the statues of bakers, see Ashley (1928).
- 26 Evolvement toward modern systems of measurement is documented in Kennelly (1928); Instrument Society of America (1983); Cochrane (1966, repr. 1976); Woodward (1972); Verman (1973); and Dellow (1970).

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