NOTES
ON THE
WEIGHTS AND MEASURES
OF MEDIEVAL ENGLAND

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ABBREVIATIONS.
The following abbreviations are used in the text and foot-notes.

 C. C. R. = Calendar of Close Rolls.
 C. P. R. = Calendar of Patent Rolls.
 C. R. = Close Rolls.
 C. S. = Camden Society Publications.
 C. Vcn. S. P. = Calendar of Venetian State Papers.
 E. D. S. = English Dialect Society Publications.
 R. S. = Rolls Series.
 S. S. = Surtees Society Publications.
 V. C. H. = Victoria County History.

CONTRACTIONS.
Contractions for the Principal Authorities referred to in this Work.

 Chadwick = Chadwick, H. M., Studies in Anglo-saxon Institutions, 1905.
 Chron. de Bello = Chronicon Monasterii de Bello (Anglia Christiana Society Publication), 1846.
 Bull. du Canchr. 1924


Ducange = Ducange, Glossarium Mediae et Infinimae Latinitatis.


Fleta = Fleta seu Commentarius Juris Anglicani sic nunupatus sub Edwardo Rege primo... London, 1047.


Maitland = Maitland, F. W., Domesday Book and Beyond, 1907.


Robertson = Robertson, E. William, Historical Essays, 1870.


Rymer = Rymer, T., Foedera, Conventiones... inter reges Anglie, et alios quosvis imperatores... London, 1704-1735.


Spelman = Spelman, H., Glossarium archaeologicum, 1664.

Star Chamber, Cases = Leadam, I. S. ed., Select Cases before the King's Council in the Star Chamber, 1477-1509 (Selden Soc. Publication), 1903.

Stat. at Large = Hawkins, W., The Statutes at Large from Magna Charta to the seventh year of King George the Second. London, 1735.


Chapter 1.

Systems and Standards.

Peoples, in an early stage of civilisation, have always based their measurements on natural units, generally with some reference to averages, as in Scotland, where the standard foot was to be that of the middle-sized man of three, according to the Assize of King David. The medieval systems of weights and measures form one phase in the development of scientific from natural units. The legal standards of weight were based upon the systems of classical antiquity as they were handed down through the Roman imperial system. Thus, the Mina of Greece and Asia is the common ancestor of the various pounds used in medieval and modern Europe; and M. Guilhiermoz has collected much evidence in support of his theory, which derives the numerous medieval pounds from those of the Roman Empire.

In England, at the time of Domesday Book, the pound known as the Saxon or Tower pound was in general use as a monetary pound of account; it was composed of 20 shillings of 12 pence of 32 wheat-grains (the penny being equal to 22.5 grains Troy), or, alternatively, of 12 ounces of 20 such pennyweights. The Scilling or Solidus was the most common unit of account in Saxon England; its value is hard to determine precisely, for documentary evidence gives it different values in various districts. Later, the Saxons used the North European system of the Mark and its eighth part, the Ore. Old English scribes were apt to confuse the word mark in its Latin form Marca with the Manca or Mancusa which was the usual weight for gold in pre-Conquest England, as in the Leges Henrici Primi; and this error was followed by Ducange. The Mancus is defined by Aelfric as equal to 30 pence: « thrittig penega [gemacjast] ænne mancus». In earlier documents it always has the same value. It seems to have been the

4. Guilhiermoz, p. 222, note; Ducange, Mancusa; Robertson, p. 42.
gold equivalent of an ox. English references to the mancus as equal to 30 pence do not occur before the time of Aethelstan, but there is evidence for this value on the Continent in 816.

The great variation in the weight of coins which have survived must mean that the Saxon pound had no single fixed weight. Similarly, the ore was a variable unit, the silver equivalent of a certain amount of gold, rather than a fixed weight itself.

After the Norman Conquest the system of weights and measures can be traced more definitely, although historians disagree as to the identity of the different systems. The divisions of the pound into shillings and pence, and ounces and pence, were retained; these units served as weights and money of account. In the thirteenth century, a new unit, the wheat-grain, appeared, and this became the basis of the system. It was probably introduced from France, where the denier was valued at 24 grains. The use of the grain as a weight seems to have been adopted in the reign of Edward III, for the two-grain weight discovered in the Pyx Chamber apparently dates from that time. Previously, the silver farthing had been the smallest actual weight.

The pound defined by Fleta is known as the Saxon pound, although there is no sure evidence of its use in England before the eleventh century. It is thus described: «Per denarium Angliae qui sterlingus appellatur, et sit rotundus, qui debet ponderare triginta duo grana frumenti mediocria, et unde viginti denarii faciunt unciam, et duodecim unciae faciunt libram viginti Solidorum in pondere et numero.» This Saxon or Tower pound was used as a money of account in England for the greater part of the later Middle Ages, but the number of wheat-grains in the penny sterling of currency was reduced to 24 in the time of Edward III.

The Troy system came into use in England in the fourteenth century.

1. Liebermann, p. 175.
3. Ibid., p. 33.
4. Ibid., p. 44-46.
6. Ibid., p. 57.
7. Fleta, p. 72-73, II, c. 12, § 1.
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century, possibly during the French wars of Edward III. It is
first mentioned in an inventory of the first year of the reign of
Henry V. The English Troy pound contains 12 ounces of 20 pen-
nyweights of 24 Troy grains. In Scotland, as on the Continent,
the Troy pound was composed of 16 ounces. The earlier Scottish
system was apparently based upon Caithness weight, a heavier
system analogous to that of the Northmen, with a pound of
16 ounces. Customary measures were generally larger in Scot-
land than in England, probably through the influence of the
Caithness standard.

Besides the Tower and Troy pounds of 12 ounces, there was a
pound of 15 ounces; Fleata refers to it as Libra Mercatoria. Each
system had its special uses; the Tower pound was the monetary
pound, the Troy pound was used for weighing bullion, precious
stones and spices, and the merchant pound for other goods, like
wool. In the fourteenth century, small goods sold by weight
were known as averdepoys, and in this way the term came to be
applied to the weight standard, until, by the reign of Henry VIII
the old Libra Mercatoria had become the « laufull weighte called
huberdepoys ». Some time during the sixteenth century before
the reign of Elizabeth, perhaps in 1526, the pound averdepoys
was raised to 16 ounces; it has been adopted as the legal stand-
ard for commercial purposes, and retains its old name in the
corrupt form, avoirdupois. Troy weight was used for textiles in
the fifteenth century; in 1438 and 1441 decrees of the Venetian
Senate mention English cloths sold by the thousand-weight Troy,
and in 1485 the freight rates for the voyage of the Flemish and
English galleys include « silks of every sort, 20 ducats per thou-
sand-weight Troy ». Metals, on the other hand, were weighed by
avoirdupois.

The pounds used in medieval England were not limited to these
three standards. Pegolotti, a merchant of the Bardi Company,
who wrote his La Pratica della Mercatura, or Merchants’ Guide,
about 1315, says that dyed silk was sold in London by a pound of 15 1/2 ounces, and raw silk (seta cruda) by a pound of 18 ounces. This was possibly due to the natural but confusing custom of using different standards for raw and finished products. Variation in the same unit of weight for different commodities was characteristic of medieval times, so that pounds containing from 12 to 27 ounces were used locally as well as the legal pounds. Pegolotti also mentions a pound used by English goldsmiths in the fourteenth century. He says that silver was weighed in two ways, by the Tower mark, equal to the mark of Cologne and used for bullion and money, and by the Goldsmiths’ mark used for silver.

The mark was a very common unit of weight; it contained 8 ounces in England, as on the Continent, but the ounce of the Tower mark was, naturally, the English ounce. Thus, whereas the French mark of 8 ounces was only half the pound Poids-des-Troyes of 16 ounces, the English mark of 8 ounces was two-thirds of the standard 12 ounce pound, in other words, its value was 13s. 4d.

Units of weight of a higher value than the pound were numerous; these were officially defined in terms of pounds and ounces, but in practice there was great variety, one name covering a number of different values. Measures of capacity, too, theoretically depended on the weight standards; in the Ass. Pond. Mens., 8 pounds of London make a wine gallon, 8 wine gallons a London bushel, and 8 bushels a London quarter. This table was repeated in later statutes, until in 1497 the London pound became known as the Troy pound. In practice, however, the same local variations existed as in weights, and many of the commonest measures were never defined in the legal systems.

The adequate provision of true weight standards was one of the problems of administration confronting the medieval government. Even in Saxon times regulations were made by the central authority, and from the end of the twelfth century continuous efforts

2. Ibid., p. 619: “Il marco della Zecca della Torre di Londra”, and “il marco degli Orfevori”.
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were made by the government to ensure this essential characteristic of a civilised community.

CHAPTER II.

THE REGULATION OF WEIGHTS AND MEASURES.

The regulation of weights, measures and prices began in England before the Norman Conquest. About the middle of the tenth century a law of Edgar ordained that there should be uniformity of measures throughout the realm, according to the standards of London and Winchester. The development of the Assize system under Henry II made the regulation of weights and measures more practicable. Roger of Hoveden's *Chronicle* describes an Assize of weights and measures instituted by Richard I in 1197; this provided machinery to enforce uniformity, four or six men being appointed in each city, borough and county to superintend the use of weights and measures. The government evidently could not over-ride local customs, and this law was re-enacted in *Magna Carta* less than twenty years after Richard's Assize: « Let there be one measure throughout our realm, and one measure of ale and one measure of corn, to wit, the London quarter, and one width of cloths... moreover it shall be the same for weights as for measures. » A great effort to promote uniformity was made, probably in Edward I's reign, when the Ass. Pond. Mens. was drawn up, giving a list of the most important measures in use and their legal contents. In some clauses this Assize repeats the scale of weights given by *Fleta* a few years earlier. Similar regulations are found in Scottish law, for the Assize of King David defines a uniform scale for measures of length, and for weights from the stone of wool down to the sterling penny.

The central government became more powerful during the

1. Liebermann, I, p. 204-205.
3. *Magna Carta*, c. 35: « Una mensura vini sit per totum regnum nostrum et una mensura cervisiae et una mensura bladi, scilicet quartarium Londoniense et una latitudo pannorum... de ponderibus autem sit ut de mensuris. »
5. *Fleta*, p. 72-73, II, c. 12, §§ 1, 2.
fourteenth century and increased its legislative activity. Parlia-
ments began to deal vigorously with the problem of weights and
measures, and numerous statutes were passed; but local variations
persisted, and even Parliament had to yield to customary privileges
which were in direct contradiction of the work it was trying to
accomplish. The statute, which exacts that the quarter of corn
shall contain 8 bushels by the standard, and no more, and that
measures of corn shall be struck (made level across the tops
with a stick called a strike) adds, « saving the rents and farms of
the lords, which shall be measured by such measures as they were
wont hitherto ».

This state of affairs continued through the fifteenth century;
Parliament passed statutes, local authorities swore to enforce
them, and custom proved stronger than both. Henry VII ordered
standard weights and measures to be sent round to every county,
and set up « King’s Beams » for large weights in numerous ports;
these standards were unsuccessful and had to be returned in 1497.
Another Act was then passed, ordering all measures to be marked
and common, and repeating the old standard scale with the new
term, Troy weight. Even so, the weights used for tin in Devon
and Cornwall were exempt from regulation.

The Laws of Edgar established the standards of Winchester and
London; the latter remained the formal standard in England
from the Conquest until the sixteenth century. After 1526, when
Troy weight was legally enforced, the heavier South country
standard was officially revived, and much used during the next
three centuries. London standard is said to have been established
by Richard I, and it was familiar by the time of Magna Carta.

For weights, London or Tower standard was also known as the

1. 25 Ed. III, c. 10. Stat. at Large, I, p. 246 : « Sauvez les rentes et fermes des
seignours qu’elles soient mesures par telle mesure comme elles soient avant ces heures. »
2. Star Chamber, Cases, I, p. cxlix.
5. Liebermann, I, p. 205. Quadripartitus. « Et sit una moneta per totum regis
importum... et una mensura, sicut apud Winchester. » Two A-S. texts add « on
Lundenburig » before the word Winchester.
6. Robertson, p. 67.
7. Star Chamber, Cases, p. cclviii; Lib. Cust., p. 383.
8. Magna Carta, c. 35.
standard of the Exchequer\textsuperscript{1}. No measures of this period have survived, but there are still in existence one or two standards of the Winchester scale, which date from the time of Henry VII\textsuperscript{2}. According to these, the Winchester corn bushel contains 2150 1/2 cubic inches, and the corn gallon 274 1/4 cubic inches. A standard ale gallon of Elizabeth's time contains 282 cubic inches, while the old wine standard established in 1707 held 231 cubic inches\textsuperscript{3}. This is important; for if (as is probable) this last was made in imitation of an older standard, it would correspond with the difference in size which existed between measures for ale and wine in the Middle Ages. In 1321 an assay of weights and measures was held in London; the assayers recommended the custom of the kingdom in the use of a larger gallon for ale than for wine, but the citizens objected, declaring that there should be one measure for wine and ale throughout all England, « sicut continetur in Magna Charta de Libertatibus Anglie\textsuperscript{4} ». They failed to remark that Magna Carta ordained one measure for wine and one for ale, not one for wine and ale\textsuperscript{5}.

The examination of medieval documents shows how unsuccessful were these efforts on the part of the central authority to establish uniform measures, when confronted by local customs so strong that many have survived to the present day; for there are still in use 25 local corn weights and measures, 12 different bushels, 13 different pounds, 10 different stones and 9 different tons\textsuperscript{6}. Variations of the pound have already been discussed; the next common weight unit was the Nail or Clove, used for wool\textsuperscript{7}, cheese, butter\textsuperscript{8}, and so forth. Pegolotti gives 7 English pounds as the weight of a clove\textsuperscript{9}, and the same value was reckoned in the great wool subsidy of Edward III\textsuperscript{10}. The statute 9 Henry VI, c. 8 makes

\textsuperscript{1} 25 Ed. III, c. 9. Sat. at Large, I, p. 246.
\textsuperscript{2} Chisholm, p. 65.
\textsuperscript{3} Ibid., p. 65.
\textsuperscript{4} Lib. Cust., p. 383.
\textsuperscript{5} Magna Carta, c. 35.
\textsuperscript{6} Eastern Daily Press, April 19, 1921.
\textsuperscript{7} C. P. R. 1338-1340, p. 288 ff.
\textsuperscript{9} Cunningham, W., Growth of English Industry and Commerce, I, p. 619.
\textsuperscript{10} C. P. R. 1338-1340, p. 288.
the clove of cheese weigh 7 pounds. On the other hand, one entry in the Close Rolls, and another in the Patent Rolls, at the time of the wool subsidy, count the clove as equal to the stone of 14 pounds; this may be a scribal error, but in Roger's History of Agriculture and Prices we find stones of 7 pounds, evidently the same as cloves. The regulations for tonnage payments, given in Liber Albus, mention a much larger clove, or smaller wey, than was usual, for a sack of more than 12 cloves was to pay the same as one of 3 weys, which gives a wey of only 6 cloves, instead of about 30. As the sack normally contained 2 weys a large clove is probable, unless there is a scribal error.

The clove was not such a common weight as its double, the Stone, which was used for metals, wool and dairy produce. The weight of a stone varied greatly, according to district and commodity. Fleta gives 12 1/2 pounds of 15 English ounces to the stone, but in the Ass. Pond. Mens. 12 1/2 pounds of 12 ounces make the London stone; this London stone was similarly defined nearly two centuries later. In Scotland the stone for wool and other goods contained 15 pounds, according to the Assize of King David, and of King Robert III. The thirteenth century writer of Seneschacie says that wool should be weighed by the right stone of 12 pounds, but in Flanders 13 pounds were reckoned to the stone of English wool sold by the Cistercian Abbeys. By the time of Edward III the stone of wool had increased to 14 pounds, which is the scale of the Parliamentary grants from 1338 to 1341, although there were some local variations in the collection. Ten years later, a case came before the King's courts in which a Lincolnshire wool merchant had used weights of 14 pounds to the stone for wool, whereas it has been customary

2. C. C. R. 1337-1339, p. 457; C. P. R. 1338-1340, p. 245.
5. Fleta, p. 73, II, c. 12, § 1.
7. Cov. Leet Book; Quoted in N. E. D. Stone.
10. Walter of Henley, p. 94-95.
11. Varenbergh, E., Histoire des relations diplomatiques entre le comté de Flandre et l'Angleterre au moyen âge, p. 152. Archives de Douai; cartulaire L.
to take thirteen pounds only\(^1\). The weight of the wool stone was fixed at 14 pounds in the statute 13 Richard II, c. 9\(^2\), but the failure of this statute is illustrated by the despatch of a special commission to Oxford to enquire into the breaches of it\(^3\). The statute II Henry VII, c. 4 confirmed that of Richard II\(^4\). Ducange quotes a French document, in which the stone of wool is equivalent to 9 pounds only; this may be a misreading for 12 pounds\(^5\). Rogers’ prices for wool show stones varying from 8 to 20 pounds\(^6\).

Lesser values of the stone were generally applied to weights of wax. Rogers’ price lists for cheese give a stone of about 16 pounds at Rodeston (Northants) in 1263\(^7\), and at Fountains in 1482\(^8\). At Yalamton in 1395 it was 13 pounds\(^9\), while a stone of butter at Crowmarsh (Oxon) was only 10 pounds in 1336\(^10\). A *Pund*, varying from 18 to 21 pounds, was used in Sussex for dairy produce\(^11\), and also for wool and lead\(^12\).

*Fleta* requires lead to be weighed by the same stone as wool, containing 12 1/2 merchant pounds of 15 ounces\(^13\), but in the *Ass. Pond. Mens.* the stone for lead contained 12 pounds of 25 shillings or 15 ounces in the reckoning by Fotmals, and 12 1/2 pounds when valued directly by the stone and Charre\(^14\). Rogers’ prices for the fifteenth century make the stone of lead contain 14 to 16 pounds in Oxfordshire\(^15\), but at Clare (Suffolk) it was only 8 pounds in 1351\(^16\). The *Durham Account Rolls* suggest that in the early fourteenth century a stone of 10 pounds was used for tin\(^17\). The prices do not give satisfactory evidence for iron;

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1. C. P. R. 1348-1350, p. 537.
3. C. P. R. 1461-1467, p. 278.
5. Ducange, *Petra from Regestum Peagiorum Parisiensium*.
7. Ibid., II, p. 359.
8. Ibid., III, p. 214.
10. Ibid., II, p. 372.
13. Fleta, p. 73, II, c. 12, §§ 1, 2.
16. Ibid., II, p. 533.
the stone seems to have varied between 12 and 18 pounds. Glass was weighed by a stone of 5 pounds.

The Hundredweight (Centena) was much used, especially for spices. In the Ass. Pond. Mens. it is defined as a weight of 13 1/2 stones of 8 pounds, but it is also given as 108 pounds, and as 100 pounds of 25 shillings. The Sacrist Rolls of Ely mention numerous purchases of wax by centenae which seem to have weighed from 100 to 120 pounds. The centena was 100 pounds at Worcester in 1423. In Pegolotti’s Practica, the Centinajo was 104 pounds for spices, and 112 for metals, wax, and heavy goods.

The Wey varied even more than most weights. The Ass. Pond. Mens. makes the wey of lead, wool, linen, tallow and cheese equal to 14 stones, and a little more, according to Fleta; but in Scotland the Assize of King David gives a wey of 12 stones. The prices entered for tallow in the Sacrist Rolls of Ely make the wey equal to about 200 pounds, that is, to 17 stones of 14 pounds. The wey was, therefore, the same weight as that used for cheese called Pondus or Pisa (Peyse = Poise). In Rogers’ lists the pondus of cheese in Northamptonshire, and the pisa in Wiltshire, varied from 14 to 20 stones in the latter half of the thirteenth century, and weighed 23 cloves at Wolschichston (Warwick) in 1308. According to the Obedientiary Rolls of S. Swithun, nearly a century later, the pondus of cheese weighed 28 cloves or nails (clavus), which is 14 stones. The regulations of Abbot Fabricius of Abingdon in the early twelfth century ordered that the pondus of cheese should weigh 18 stones, whereas in the tenth century the Pon-

8. Fleta, p. 73, II, c. 12, § 2.
12. Ibid., II, p. 368.
dus Abbendunense of Abbot Ethelwold weighed 22 stones\(^1\). The wey (peysa) mentioned in the Customale Roffense was very small\(^2\). The statute 9 Henry VI, c. 8 fixed the weight of a wey of cheese at 32 cloves of 7 pounds\(^3\); however, this was disregarded in favour of customary usage, and in 1665 the wey of cheese in Suffolk was 256 pounds, and in Essex 336 pounds\(^4\). The pondus was used for wool occasionally; it seems to contain 26 cloves in the Obedienziary Rolls of S. Swithun\(^5\). At Bosham (Sussex) and Alton Barnes (Wilts) the pond or pond of wool was only 21 pounds or 3 cloves, and was equal to the Tod\(^6\); normally the tod contained 2 stones (28 pounds)\(^7\). The wey or pisa is mentioned in Liber Albus, but apparently it contained only 6 nails\(^8\). Macpherson, writing about 1805, made the wey 182 pounds\(^9\).

A wey of lead is mentioned in Rogers' price lists, but its amount is uncertain\(^10\). In the Durham Account Rolls for 1470, a wey of salt evidently contained 5 quarters\(^11\); this must be the same measure as the Cipha of salt, occurring in Liber Albus, which was 5 quarters\(^12\). At Martock (Somerset) in 1465, the wey of lime was 6 quarters\(^13\).

Weights of greater value than the wey were differentiated according to the commodity. The largest unit for wool was the Sack. Flota defines the sack as a weight of 28 stones of 12 1/2 merchant pounds, and this, he says, is equal in weight to a quarter of wheat\(^14\). He also gives the sack as 30, or at least 28, stones by the true weight of 12 1/2 pounds, and as 2 weys of 14 1/3 stones\(^15\). These values are given in the Ass. Pond. Mens. which allows for weight

1. Dugdale, I, p. 517.
2. Cust. Roff., p. 35: « De caseo quatuor peysas secundum pondo archiepiscopi, id est, triginta duarum librarum. »
4. Star Chamber, Cases, II, p. 230, note 3; from Shepherd's Clerk of the Market.
14. Flota, p. 73, II, c. 12, § 1.
15. Ibid., p. 168, II, c. 79, § 10; p. 73, II, c. 12, § 1.
by the greater and by the lesser pounds. Seneschaulcie, written a few years earlier, says that the « sack shall weigh thirty stone of wool by touch, or xxvij stone by stone and balance, well weighed by the right stone of twelve pounds ». A document in the Chartulary of Douai, concerning the wool to be supplied by the English Cistercian Abbeys, also reckons by the sack of 28 stones, but only gives 13 pounds to the stone. In the West country the sack appears to have weighed heavier; a transaction concerning some wool at Bath Priory in 1276 had sacks weighing 42 stones, and six years later the custom on wool to be collected in Ireland was assessed by the sack of 42 stones. The French document, quoted by Ducange, gives 36 stones of 9 pounds as the weight of the sack of English wool. An entry in the Close Rolls for 1275, which makes the sack weigh only 4 stones, is probably a misreading, as it is an abnormally low value.

The sack decreased in weight in the fourteenth century. Pegolotti gives its weight as 52 nails of 7 English pounds. Knighton makes the sack contain 26 stones of 14 pounds in his account of the great wool subsidy of 1338 to 1341. The prices of wool given in the Patent Rolls at that time show that this was the usual weight. In Lincolnshire, the sack was 28 stones and 13 pounds, or more, by custom; in York, Cumberland and Derby as many as 30 stones made a sack, while in Derby payments were made by the sack and the Poise of 18 pounds. The sack of 26 stones of 14 pounds was legalised in the statute II Henry VII, c. 4; but the sacks mentioned in the Cely Papers were apparently much larger, equal to 90 to 100 cloves. In all these documents the wey

2. Walter of Henley, p. 95.
3. E. Varenbergh, Relations diplomatiques, p. 152.
5. C. P. R. 1281-1292, p. 36.
6. Ducange, Petra.
of wool is very rarely mentioned, but the regulations for tronage payments in Liber Albus show that the sack varied from 2 to 4 weys in practice.

Lead weights were peculiar and very various; the commonest were the Fotmal, Fother and Charre. Fleta makes the sack of wool equal to 1/6 of the charre of lead; he also gives a reckoning, in which the charre weighs 12 weys or 172 stones. The Ass. Pond. Mens. differs again in that 120 stones, or 1,500 pounds, make the great charre of London, but the Charre of the Peak is smaller. This is a natural variation, since the charre, which was a cart-load, would be lighter in hilly country. Again, the charre contained 30 fotmals, each equal to 6 stones of 12 pounds of 15 ounces, less 2 pounds (70 pounds); thus the number of stones in the charre was 175. Another scale gives 172 stones to the charre of 12 weys, as in Fleta. Pegolotti makes the Ciarrea of lead equivalent to 6 sacks by the clove of 7 pounds, or 2,184 pounds, or 156 stones. A fourteenth century document defines the Fother as rather lighter than the charre: « Sex Waxpunde makiet. j. led-pound. xij. ledpunde. j. fotmel... xxij. fotmal. j. fothir of Bristouwe. » In Liber Albus, the Karre of lead seems much smaller than the charre, containing apparently 100 pounds, since it paid the same custom as the Karke of spices; it is probably a different word, derived from the Italian Carica, a load, but not necessarily a cart-load. For some spices the karke only weighed 300 pounds. Prices of lead at Skipton about 1270 give a Carrat of about 15 weys; The value given by Fleta to the fother is found at Ely about 1330. Other peculiar local lead weights occur in Rogers’ price-lists. In the fourteenth century, weights used at the Devonshire mines were the Pes of 80 pounds, corresponding to the official fotmal, and the Plaustrata, or waggon-load, of 24 pedes, which resembled the greater charre. The Dorset fother seems to have contained 7 Rules, each of 18 Librae, a weight.

2. Fleta, p. 73, II, c. 12, §§ 1, 2.
5. N. E. D. Fotmal.
much larger than the ordinary pound. In the next century, evidence from Oxford shows stones of 14 and 15 pounds, and a fotmal of 5 stones, equal to the pes. Lead was also sold by the hundredweight, and 20 hundredweight made up the fother. A Pondus of 10 stones is also mentioned. The fother of Yorkshire contained from 154 to 190 stones in different entries, the stone being 14 pounds, while at Cambridge and Yarmouth it weighed only about 50 to 55 stones of 14 pounds. The Telum (tela) mentioned in Oxfordshire and Suffolk cannot be related to the other weights with any certainty.

Measures of capacity were based upon weight. According to the Ass. Pond. Mens. 8 London pounds made a London wine gallon, 8 wine gallons a London bushel, and 8 London bushels a London quarter. Uniformity was attempted by the despatch of standard measures to the officials of cities and counties, and by periodical assays of weights and measures, like that described in the Liber Custumarum of London in 1321. In spite of these regulations, local differences were numerous; a full bushel in one district would not be considered full elsewhere, where it was customary to use heaped-up measure. Evidence of the habit of taking heaped measures is abundant. Richard I’s Assize of weights and measures ordered that there should be one dry measure of capacity and that it should be striked, made level with the brim of the measure. The statute 25 Edward III, c. 10 enacted that the quarter should contain 8 standard bushels only, and that the bushels should be rased; similarly, in 1494, the Statute of Weights and Measures ordained that « There be only VII Bushels raised and stricken to the Quarter of Corn ».

1. Rogers, II, p. 530-531.
2. Ibid., III, p. 370-371.
3. Ibid., III, p. 373 ff.
4. Ibid., III, p. 373.
5. Ibid., III, p. 369-373.
6. Ibid., p. 370 ff.
7. Rogers, II, p. 533; III, p. 370 (Hoxon. Suff.).
12. Ibid., I, p. 661.
The statutes failed in practice; that of Edward III defeated its own ends by the clause which allowed the lords of manors to take their rents and farms by customary measure. The point of view of the lord is expressed in Seneschaucie, where the auditors of the dependent manors are advised to take 9 quarters for 8 by sure measure striked, thus allowing for waste. The Close and Patent Rolls contain numerous instances of the variation in measures caused by this system of allowances. It was customary to take 9 bushels for 8, and 21 quarters for 20, when the king made purchases of corn. It has been suggested that the custom of heap-ing up bushels led to the development of such abnormally large local measures as the Carlisle Bushel, which, in 1640, contained 24 gallons of 4 1/2 wine quarts; the heaped-up bushel would become a local standard for the district, this would then begin to be heaped, and so the size of the bushel would increase indefi-nitely.

The size of the measure used varied locally. A list of the rents due from various manors belonging to the Cathedral of S. Paul's shows that a different measure was used in the early part of the twelfth century from that which was in use in 1283, when a second list was compiled: 18 1/2 quarters by the old measure made only 16 in the new list, and 34 1/2 quarters of barley became 3 quarters. In the earlier list the quarter only contained 7 bush-els, but by the King's measure it held 8. The local measure was different again, for 15 quarters by the old measure of 1 bushels became 12 quarters by the mensura ville. Robertson points out that the old London standard was much smaller and lighter than the modern standard, for the wine gallon of 8 Tower pounds held about 98 ounces, instead of 160, or a little under 5 imperial pints. Similarly, the London bushel contained only 50 pounds avoirdupois, 5/6 of the present standard; the local country mea-sures were generally still smaller than those of the King's standard scale.

The Quarter has always been a very common measure, for it

6. Robertson, p. 69.
corresponds with the natural unit of a horse-load. It was the same as the *Summa* or Seam, which was made the legal measure for dry goods in the Assize of Richard I. Quarter and *Summa* officially contained 8 bushels, but the latter varied considerably. At Glastonbury, in the twelfth century, it was subdivided into 9 *Stacea* or Stakes; the stake would thus seem to be the same as the rased bushel, 9 of which were so often reckoned to the quarter. The *Summa* contained about 8 bushels, according to an inquisition taken in Hertfordshire in 1233. In Edward II's reign, the *Constitutions* of the Abbot of Winchcombe included a scale by which 12 *summae* of corn equalled 7 quarters and 4 strikes; assuming the strike equal to a bushel, the *summa* was 5/8 of the quarter in that district. The *Obedientiary Rolls* of S. Swithin make the quarter of lime very small in the fifteenth century, for apparently it was only about 2 bushels. The *Durham Account Rolls*, in the same century, suggest that sometimes the bushel contained 3 pecks instead of 4.

The *Doliun* or Tun was the largest unit of capacity, both for dry and liquid measures. It is not easy to determine its content. In the *Wardrobe Accounts* of Edward I it seems to hold about 6 quarters; in 1339, 12 tuns of flour contained 75 quarters, which makes the tun equal to 6 1/4 quarters. Rogers' price lists give a *doliun* of flour of 6 quarters at Newcastle in 1384. The *doliun* of lime was about 6 quarters at Oxford in 1334, but about 3 quarters in the fifteenth century; this would be the same as the Cambridge fother or load of lime, which was 3 to 4 quarters. In

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1. *Chronica Magistri Rogeri de Houedene* (R. S.), IV, p. 33: « Una bona *summa* equi. »
10. Rogers, II, p. 158.
NOTES ON THE WEIGHTS AND MEASURES OF MEDIEVAL ENGLAND.

Somerset the wey of lime was 6 quarters. Calculation, based on the statutory requirement that the tun of wine should contain 252 gallons, and the quarter 64, suggests that the dolium was supposed to equal 4 quarters towards the end of the Middle Ages. The dolium would thus seem to be the same measure as the North Country Chaldron or Celdron, which was generally equivalent to 4 quarters, but apparently varied from 5 to 3 quarters or less. The Courtcelder of salt, mentioned in the Durham Account Rolls, was much less, apparently the same as the quarter of 8 bushels; the word is probably a corruption of « quartecelder » or quarter of a chaldron. The Scottish chaldron (celdra) was equal to 16 Bolls; as the boll of the Assize of King David seems to have been equivalent to 12 ale gallons, or 1 1/2 bushels, the chaldron was 3 quarters.

The dolium of 252 wine gallons was legally established in the statutes regulating the wine trade from 18 Henry VI, c. 8. It was, apparently, smaller before that time, as the Wardrobe Book of Edward I makes the dolium contain 240 gallons, and Fleta only 208. The dolium was twice the capacity of the Pipe, which was evidently the same as the Butt of Malmesey Wine. Statutes of the late fifteenth century give several smaller wine measures; the tertian was 84 gallons, the Hogshead 63, the Tierce 41, the Barrel 31 1/2, and the Rundlet 18 1/2. The barrel was supposed to hold 36 gallons in 1462.

The accounts for the Determination Feast of Richard, half-brother of Richard II, in 1395, refer to a Quart of wine, which was much larger than the modern quart, and apparently contained 8 gallons (lagenae). This would be twice the size of the ordinary

1. Rogers, III, p. 360.
4. Ibid., III, p. 594, 604, 608; Rogers, III, p. 7-10, 49, 50, 55.
14. C. P. R. 1461-1467, p. 76.
wine Sextarius, which held 4 gallons; it may refer to a quarter of a barrel. The ordinary modern quart, the quarter-gallon, is mentioned in the statute 28 Henry VIII, c. 14, which fixed the retail prices of wine; it also occurs in the Household Accounts of the Duke of Buckingham, where the gallon is called a pitcher. The quart was not used, in medieval times, the Pottle (potellum) being the measure between the gallon and the pint. It contained two quarts, but in the Household Roll of Bishop Swinfield, 6 potelli made a sextarius, that is, the pottle was 2/3 of a gallon. In the Duke of Buckingham's Accounts the Sextarius is wrongly translated «pottle».

It should be noticed that wine and ale measures were based on different standards; this gave rise to complaint among the citizens of London in 1321. The ale gallon was supposed to be of greater capacity, and if so the ale Sextarius must have contained more than that of wine. It was certainly reckoned as holding more in several documents. The capacity of this measure will be discussed later.

Measures of quantity occur comparatively seldom in medieval documents. The most important were the Last, the Hundred and Great Hundred, the Dicker, the Dozen, and fish measures. The Stick, used for small eels, was generally 25, and 10 sticks made a Bind in the Ass. Pond. Mens. In Scotland, in 1487: «The Barrell bind of Salmound should contain...fourteen gallonis.» The bind was also used for skins, and was equal to 30 Tymbres, or 33 skins; while the stick was also a length of cloth, varying according to the material. The Dicker, or half-score, was used for hides and metal bars, while the Dozen was a measure for gloves and metal bars, as well as for cloth. It is interesting to note that fish

5. Archaeologia, XXV, p. 318 ff.
7. See Chap. V.
8. N. E. D. Stick.
10. N. E. D. Bind.
12. N. E. D. Stick.
are still sold by the Great Hundred of six score, which was as common as the real Hundred in the Middle Ages.

The Last had many uses. It must originally have been the quantity carried by the vehicle generally used for a particular commodity. As a weight it was nominally 2 tons; of wool it was 12 sacks (4,368 pounds). As a measure of capacity it was 16 quarters in the sixteenth century, 21 combs (10 1/2 quarters) as a rule in the eighteenth century, and is now 10 quarters. Finally, as a measure of quantity, it was generally connected with the number 12; thus the last of hides was 12 dozen, but was 20 dickers in the Ass. Pond. Mons. The last of red herrings was 12 thousands, each of 10 hundreds, and that of white herrings 10 thousands, each of 12 hundreds. The last of herrings was equal to 12 barrels, according to the Household Ordinances of 1469. The last of turves numbered 10,000.

(A suivre.)

1. N. E. D. Last.
3. N. E. D. Last.
5. N. E. D. Last.
6. Ibid.
8. Ibid. (A later insertion.)
9. N. E. D. Last.