

3 THE USE OF COKE FOR MALTING THE COKE OVEN MANAGERS' ASSOCIATION

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Tea has been the national beverage in England for less than a century for it was with the development of tea growing in India that black tea gradually replaced green China tea which was expensive and heavily taxed. Before this, ale had been the national beverage since at least the middle of the 12th century when the monastic allowance stipulated one gallon of good ale per day with, very often, a second gallon of weak ale. The assize of bread and ale, or the fixing of the maximum prices of bread and ale based on the price of corn, was one of the earliest privileges of local courts. For example, in the Statutes of Henry III, when the price of barley was 20d. to 2s. the brewers in towns were to sell two gallons of ale for a penny. Standard measures for corn and ale were among the earliest approved (and stamped). The ale of a public brewer could not be sold until approved by the ale tester, perhaps one per ward. The sign that a brewer required his services, a stake with a bush at the end, became the sign of a tavern and the origin of the phrase that "good wine needs no bush."

In the first half of the 15th century the additional use of hops produced beer which gradually increased in popularity. This new drink, as well as gin, was introduced by Dutchmen. In 1441, at the Royal instance, two surveyors were appointed to inspect English breweries and an "assize" was adopted: barrels of 32 gallons of beer were to be sold at 2s. 8d. or 2s. according to quality with malt at 3s. 4d. a quarter, with an increase in price of a farthing a gallon for every increase of 1s. a quarter for malt. In 1531 the beer barrel was fixed at 36 gallons, the ale barrel remaining as before, the "firkin" being a quarter of these measures.

In the provinces the public brewers were often women and were known as ale-wives. Domestic brewing was also common. William Harrison, one of the early annalists, recorded that in 1587 his wife and maid-servants, once a month, brewed 200 gallons of beer for which one quarter or eight bushels of malt were used. In 1622 the daily allowance of beer in the Royal Navy was one gallon per day. Sir George Sitwell has recorded that in the household of his ancestor in 1650 the daily allowance of beer for each member was three quarts. For the brewing of ale or beer the essential ingredient was malt made from barley which was steeped in water, drained, and allowed to grow for

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21 days when it was dried at a gentle heat, being frequently turned during this process. Harrison recorded that:

in some places it is dried at leisure with wood alone, or strawe alone, in other with wood and strawe together, but of all the strawe dried Is the most excellent. For the wood dried malt when it is tried, beside that the drinke is higher of colour, it doeth hurt and annoie the head of him that Is not used thereto, because of the smoake

John Houghton, a later annalist and Fellow of the Royal Society, writing in 1693, described the effect of the substitution of coke for straw for drying malt. This new method of drying malt was first practised at Derby using coke made at the collieries of Smalley, Denby or Heanor which were near the outcrops of the Black Shale (Silkstone) and Deep Hard (Parkgate) seams. He said:

... cowkes and coals, which appear to be cheaper than in any part of England, Newcastle not excepted ... 'tis not above half a century of years since they dried their malt with straw (as other places now do) before they used cowkes which made that alteration since that all England admires

He also recorded:

The reason of Derby malt being so fine and sweet, my friend thinks is the drying it with cowks, which is a sort of coal (so call'd there), they having a very hard sort, that will not cowk, and not of so shining a blewish colour as the sort which are sometimes found to lye in a vein 20 yards or more above the hard coal in the same pit, but most commonly in delfs by themselves: and these are cowkiiled thus The Collier sets six or eight waggon loads of coal in a round heap upon the ends, and as pyramidal (large at bottom and small at top) as they will stand ... and then into a hole left in the middle to the top of the heap (a pit as they call it) he throws a shovel full or two of fire, which by spreading itself each way fires the pit round; this burns and blazes till the smoke and flame ceases, and it's all of a red fire, then he covers all the heap with dust... which immediately damps it, and makes them dead coals, which then stands until next morning, or longer... and then with a rake... he pulls them down round the heap, and the dust falls to the bottom, which is thrown up on a heap to damp the next pit

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Elsewhere Houghton notes that the "load" was 35 cwt so that the heap would contain 14 tons of coal, the same heap as was used later at Coalbrookdale. The yield was 33 per cent (as it was later at Coalbrookdale) and the coke was light, being only of 15 lb/ft³ bulk density.

The effect of this new practice in making malt had a remarkable effect in Derby. In 1693, when there were 694 family houses, there were 76 malt houses and 120 ale houses so that malt-making and brewing must have been the dominant occupations. A list of those occupied in the wool, leather, wood, metal and stone trades and the normal supply occupations left room for some 200 maltsters and brewers. Much malt was carried to the ferry on the river Trent, five miles away, whence it could go by water to London; 300 pack-horse loads (each of 6 bushels which each contained 40 lb) or 32 tons were taken weekly into Lancashire and Cheshire.

Derby ale was formerly highly coloured but after the malt was dried with coke it produced "pale ale", a name which has become traditional. A description was given by Houghton of the method of making Derby beer in which the same three extractions of the malt with boiling water as was used by Harrison were mentioned, the third extract giving the "small beer" usually given to children. Whereas Harrison had used a quarter of malt (eight bushels) to make six barrels (each of 32 gallons), in Derby it was customary to use six to 14 bushels of malt per barrel of beer. But as Harrison said his beer "is meet for poore men as I am to live withal, whose small maintenance (for what great thing is fortie pounds a year computatis computandis able to performe) may endure no deeper cut".

It is worthy of note that the limestone (hard) water used in Manchester with Derby malt was thought to make a better ale than was made in Derby. It was a hard-water spring at Burton which eventually led to this other Derbyshire town becoming one of the greatest centres of beer brewing in Great Britain.

The use of coke for drying malt caused the first considerable demand for merchant coke. There are contemporary records of it being used for this purpose in 1653 in east Denbighshire; in 1663 in Scotland (Fifeshire); in 1686 in Staffordshire; and in 1695 in

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Lincolnshire. In Derbyshire, as we have seen, the coal was "cowkified"; in Denbighshire the process was known as *coaleigne* the *seacole*; in Staffordshire and Lincolnshire the process was known as *charring*. In Derbyshire, the birth-place of the large-scale process, the product was *cowks*; in north Wales in 1635 it was *sea-cole charks*; in Scotland, *charcoal made of pit-coal or cinders*; in Staffordshire, *coaks*; and in Lincolnshire, *couk*,

By the end of the 17th century we can assume that merchant cowks were being made in all the coalfields where suitable weakly-swelling coals were available and that the product was being used for malt-making, one of the essential occupations of the period.

It was this widespread making and usage which led the orthographers to refine the craftsman's words: *Coke is Pit Coal or Sea Coal burned or converted Into the nature of charcoal* (J. Worlidge, *Dictionarium Rusticum*, 1681)

Coke; Pit Coal or Sea-Coal charred: It is now become a word of general use (John Ray, *Collection of English Words*, 1691)

It was only in Durham and Northumberland that the word coke or its equivalent was not used, the term cinders of Newcastle coal being used as early as 1683 when such a product was used to roast the alumstone found on the north Yorkshire coast. This usage, and the fact that the coals then mined would rarely be suitable for making hearth coke, may mean that beehive ovens were then in use for making a product sufficiently different from that made elsewhere to deserve the different name.

Some may think that the improvement in the quality of beer was the greatest triumph of coke; all will recognize it as a great boon to the

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English-speaking people before and even after tea challenged ale and beer as the national beverage.