

THE CITIE CALLS FOR BEERE: THE INTRODUCTION OF HOPS AND THE FOUNDATION OF INDUSTRIAL BREWING IN EARLY MODERN LONDON

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*But now they say, Beer beares it away;
The more is the pity, if Right might prevaile:
For with this same Beer, came up Heresie here;
The old Catholique Drink is a Pot of good Ale.¹*
John Taylor, 1653

The cleric William Harrison's 1577 record of Elizabethan England includes candid comments on the important place hopped beer had in English society.² Beer was a drink consumed by members of all social stations, and Harrison notes that it was the preferred beverage of the elite. Compared to the favorable presentation of beer, un-hopped ale appears in Harrison's account as an undesired brew, described only as an 'old and sick men's drink,' whose force could not match the strength or continuance of hopped beer.³ These brief comments, documented nearly two centuries after the arrival of hopped beer in England, reflect the positive social perception of beer that emerged throughout the sixteenth century, but such an attitude was not always present. The act of brewing with hops initially met strong resistance from the English, but the arrival of this additive presented a turning point for London brewers.

The introduction of hops into the brewing trade in London established the foundation of industrial English brewing. Before the use of hops, the trade relied upon un-hopped ale, a brew that spoiled quickly resulting in limited commercial growth. Hopped beer proved to be more resilient and lasted for months, whereas ale lasted little more than a week. In an area generally covered by historians as a part of a larger narrative, this paper will present a survey of the arrival of hops into London and

how this additive allowed brewers to gain more capital, invest in larger equipment, and construct permanent, industrial brewing centers.⁴ The resilience of beer made beer brewers wealthier and allowed them greater social prestige than ale brewers ever experienced. Due to the use of hops, the beer trade in London quickly supplanted the ale trade and resulted in a more sophisticated, commercialized business. Though London was not the first location for the arrival of hops in the British Isles, it did grow into a commercial center for brewers who became the primary exporters of beer in Europe by the seventeenth century.

Growth in the commercial trade of hopped beer originally occurred during the late thirteenth and early fourteenth centuries in northwestern Europe, but the active use of brewing with hops first appeared on the European continent as early as the ninth century. By the high medieval period, German and Bavarian brewers regularly added hops to make beer.⁵ The German port towns of Bremen, Wismar, Rostock, and Hamburg became the first large-scale producers and exporters of this hopped commodity. Easy access to water shipping routes allowed these towns to establish a trade market in beer with the Low Countries by the end of the thirteenth century. This growth of commercialization received praise in the fourteenth century from Emperor Charles IV, who favored the economic boost provided by beer, calling it *novus modus fermentandi cervisiam*, 'a new way of brewing beer'.⁶ The different export centers competed against each other over the market in the Low Countries, with Hamburg gaining dominance over the other shipping centers. Eventually, Flemish and Dutch brewers in turn began to export hopped beer to England.⁷

The use of hops in brewing created beer as known in the modern sense. Before hops, the traditional brew was ale, a fermented beverage that contained yeast, malted grain, and water. While ales exist today, all beers contain hops, with the distinguishing difference dependent upon the type of yeast used in brewing.⁸ During the high and late medieval period, when hopped beers became an internationally traded commodity, ale referred to un-hopped brews, beer to the beverage that contained hops. The use of hops in brewing did not spread to England until the late fourteenth or early fifteenth century. Historians do not fully understand the reason behind this delay, but once hopped beer appeared in London toward the end of the fourteenth century, ale brewers found themselves facing a formidable opponent.

Initially, London drinkers resisted beer, and they continued to prefer ale's familiar flavor to the bitter taste added by hops. The social perception of beer as a foreign import also worked to its disadvantage. Over time, taste preferences changed and beer grew in popularity, but it was the brew's greater marketability that allowed it to gain superiority over ale. Hops not only imparted the bitter flavor, but the resins contained within hops provided protection against bacterial infection, resulting in a more durable commodity. Harrison commented on the increased resilience provided by hops, stating, 'The continuance of the drink is always determined after the quantity of hops, so that being well hopt it lasteth longer,' for beer 'feedeth upon the hop.'⁹ These resins allowed beer to keep for months, making international trade a possibility. Beer brewing also required a smaller amount of grain, and brewers could produce much larger quantities than ale brewers could. By the seventeenth century, these advantages caused beer to dominate London brewing, and the practice of brewing ale ultimately fell out of favor.

Ale in medieval London: consumption and regulation

The purpose and use of ale extended well beyond a simple drink for the average inhabitant of medieval London. Ale permeated all levels of society; because the alcohol in ale killed off bacteria present in water, ale was safer to drink than water, and the grain content within ale made the drink a nutritious source of much needed calories. People of all ages drank ale throughout

the day, with children and sometimes women receiving 'small beer' or 'small ale,' a weaker form of ale.¹⁰ Ale was a favored drink throughout England, but London stood at the center of the trade's regulation and development. In spite of the long existence of the ale trade there, however, the enterprise experienced remarkably little commercialization prior to the fifteenth century.¹¹ This restriction of commercial growth occurred because of ale's composition - the absence of hops in ale made it a weaker brew with a shorter life span.¹² Although the number of alehouses rose exponentially over the medieval period, the amount of ale exported remained low, and brewing persisted as a domestic trade. These circumstances resulted from the perceived simplicity of the process of brewing. While it required knowledge and proficiency, society viewed the trade as unskilled and fitting for women, who operated as brewsters.¹³ The trade's limited commercialization, and the instability of ale, forced London brewers to maintain their trade on a local level.

Ale brewers made up a unique area of England's economy during the Middle Ages and the Renaissance. Due to the wide practice of the trade and the high demand for ale, the English government regulated brewing more than most other crafts. Standardized measurements applied to the ale trade by the mid-thirteenth century, and the government regulated the price of each ale serving. After the Assize of Bread and Ale went into effect in 1267, London officials regularly reissued laws pertaining to the appropriate cost of ale, primarily to remind brewers who frequently worked around the laws as a way to obtain greater profit.¹⁴ While brewing and baking shared a similar level of importance to the medieval diet, the early thirteenth-century formation of the Bakers' Gild provided bakers with a greater advantage than brewers. Bakers faced public humiliation for providing small loaves of bread, as did other craftsmen caught breaking the law by short-changing their customers, including brewers.¹⁵ Unlike brewers, however, neither bakers nor members of other trade gilds had to pay fines in order to engage in their work. Instead, the English government left gilds largely to control their respective industries themselves.¹⁶ Other craftsmen could freely manufacture goods in accordance with the law, but brewers had to pay standard fees simply because they made ale. The government regulated brewing more because it wanted to ensure the public had access to ale, but also because of the profits gained by taxing ale brewers.¹⁷

Although government officials closely regulated the ale brewing trade, brewers formed into professional groups in order to have greater say over the way the trade operated. The Mystery of Free Brewers within the City, founded in 1342, worked to supervise the production of ale and the actions of brewers in London. In 1406, the brewers presented a petition to the Mayor and Aldermen of London requesting greater oversight into the production of ale. The most telling aspect of the petition is the brewers' request to survey all the barley brought into London for sale, and to limit the production of ale to those belonging to the mystery, indicating that they sought to establish a monopoly on the London ale trade regardless of the long history of strict government regulation. The Mayor and Aldermen granted the mystery its petition, on the condition that the wardens and masters of the mystery operate the industry correctly, or else face punishment from the Aldermen of London. With the granting of this petition, the ale brewers of London gained the right to monitor everyone who brewed as well as the importation of barley into the city, and they gained the right to place limits on who could engage in brewing ale for retail. For those caught breaking the ale laws, it became the mystery, not the government officials, who doled out fines and punishments.¹⁸

Despite the early formation of gilds for other trades, and the rise of the Mystery of Free Brewers, ale brewers did not officially gain incorporation as a gild until 1438.¹⁹ The localized nature of brewing and the slow consolidation of the trade, in conjunction with the strict governmental regulation, caused this delay in the formation of an ale brewers' gild. The early gild included a wide variety of laborers and craftsmen, including several ale-wives who engaged in the trade regularly on the domestic and by-industrial level, as well as bakers, hucksters, and cooks. With the incorporation of the brewers' gild in 1438, accomplished by the payment of £141 to the king, the gild took steps to control the production of ale completely.²⁰ Although the gild allowed the company greater oversight of ale production, the government did not relinquish all of its control over the ale trade.

Hops on the Continent and arrival to England

While English ale existed for many centuries, it lacked an additive that would come to revolutionize brewing

during the Middle Ages: hops. Hops, or *humulus lupulus*, produce cone-shaped inflorescences that serve to both flavor beer and act as a preserving agent.²¹ With the addition of hops into brewing, modern beer came into existence, and traditional ale faced a challenging new competitor. When used in brewing, hop resins help sterilize the wort and impart the bitter aroma and flavor associated with beer.²² By the end of the fourteenth century, London imported hopped beer or 'Flemish ale' primarily to satisfy the interest of alien residents who preferred beer to English ale. These aliens largely consisted of Dutch, Flemish, and German migrants, and they helped establish the first beer breweries in London. Centered around Southwark, which offered easy access to the river, the growth of beer brewing among these alien residents made this region the most prominent center of beer brewing in the city.²³ The practice of brewing hopped beer developed in London by the early fifteenth century, though alien residents maintained dominance over the trade until the mid-sixteenth century.²⁴

The introduction of hops and the appearance of beer on the English market affected the strength of governmental regulation over brewing. After beer became popular throughout England, the government became aware of the need for change, since the Assize no longer applied to a growing population of brewers. The Assize specifically referred to regulated measurements of ale, not hopped beer. In the eyes of English officials, beer remained a separate commodity, and the laws of the Assize did not apply.²⁵ Henry VI attempted to establish regulation over beer in 1441, by employing Richard Lounde and William Veysy as 'Searchers of Berebrewers.' Charged with surveying the quality and production of beer, the King called on the Sheriffs of London to assist the men in their work.²⁶ Unfortunately for Henry VI, Lounde and Veysy knew little about brewing and they failed to exert any noticeable influence over the beer trade.²⁷ By 1464, beer brewers petitioned the Mayor of London asking for incorporation into a separate gild from the ale brewers. The beer brewers pointed out the lack of regulation throughout the trade, and asked for control over any business tied to beer brewing. The proposal states:

But as for bruers of Bere as yet beene none Ordenaunces nor Rules by youre auctorites made for the comon wele of the saide Citee... that no manne nether Freman nor foreyn take

upon hym to brewe any Bere or sill any Bere wthin the Citee aforesaide or brew Bere out of this Citee and sil it unto any personne of the saide Citee to be dronke [within].²⁸

The petition gained approval from the Mayor, establishing a beer brewing gild, which controlled the beer trade as a separate entity in London completely on its own.²⁹

The sudden rise of a beer brewers' gild led to reactions of anger among ale brewers, who had worked to repress the growing popularity of beer consumption in London since hopped beer first appeared. A writ passed in 1436, shortly before the ale brewers gained incorporation, sought to put down the practice of brewing hopped beer in London, and the ale brewers regularly emphasized the dangers associated with hops. The ale brewers stated that hopped beer, or 'Biere,' was a dangerous drink and that hops were poisonous to consume; these attacks against beer brewers especially emphasized the fact that most beer brewers were not natives to England but came from Holland or Zeeland.³⁰ Attacks on foreign brewers resulted in the closure of several alien-operated breweries, but due to Holland's support of England's defense of Calais, for which the alien beer brewers of London contributed more money than the native ale brewers, Henry VI issued a writ to the Sheriffs of London in 1436 calling for the protection of beer breweries. The writ forbade 'the molestation of Flemish merchants and others in the City who had taken an oath of allegiance to the King, and ordering the arrest of those found acting to the contrary.'³¹ With governmental protection, beer brewing managed to flourish to such a successful level that the beer brewers gained their own gild less than thirty years after attacks by ale brewers threatened to eliminate their industry.

As the producers of hopped beer largely consisted of foreigners, English ale brewers took particular offense to the invasion of hops into their trade. Ale brewers lauded the long history of ale brewing in England, and they proclaimed, as in the words of Andrew Boorde, that 'Ale for an Englysshe man is a naturall drynke.'³² In her chapter on the beer brewing industry in London, Lien Bich Luu states the high point of English resistance to beer and alien beer brewers occurred in 1436, but this opposition faded by 1550.³³ While beer certainly did grow in popularity throughout the city by the mid-sixteenth century, particular ale brewers persisted in their

resistance against hops through the seventeenth century in an attempt to preserve their trade. John Taylor's proclamation of ale's superiority in 1653 illustrates the longevity of the ale brewers' disdain for beer brewers. Taylor, an ale brewer himself, emphasized the history of ale brewing, and its consumption by royalty throughout the ages, stating,

Ale is of that Venerable, and Reverend esteeme, that the most Worthy, Wisest and Wealthiest Senators are called Aldermen; for there is Sage Ale, and to bee Sage, is to bee Grave and Wise; and by drinking Sage Ale, the Wisemen of Greece were called the seven Sages.³⁴

When Taylor reaches the subject of hopped beer, he refers to the drink as a 'Dutch Boorish Liquor' and readily makes proclamations regarding the sinful nature of hops. Taylor refers to beer as a usurper of ale's proper place as England's favored drink, and, in an apparent indication of ale's superiority, he trumpets the fact that alehouses, though retailers of beer, were not called 'beer-houses.' Taylor persists in his railings against hopped beer by stating that, unlike ale, beer contained no medicinal value, with the exception of warmed beer and butter serving as a useful remedy for a traveler's weary feet.³⁵

As a way to distinguish between ale and beer production, the city of London passed laws establishing the appropriate ingredients for both brews. In April of 1481, the Ale Brewers of London petitioned the Mayor and the Aldermen calling for a clear and legal separation between ale and beer, stating:

No maner of persone of what craft condicion or degree he be occupying the craft or fete of bruyng of ale wthin the saide Citee or libertie thereof from hensfurth occupie or put or do or suffre to be occupied or put in any ale or licour whereof ale shalbe made or in the wirkynge and bruyng of any maner of ale any hoppes herbes or other like thing but onely licour malt and yeste, [under penalty prescribed].³⁶

The Mayor granted the ale brewers their petition, causing ale and beer to become two entities in the eyes of government officials, and especially in the eyes of the ale brewers' gild. From 1481, no ale brewer could include hops in his or her brew, or the brewer would face direct punishment from the gild. This action shows that the ale brewers, despite the enduring presence of

hopped beer in London, refused to acknowledge or take advantage of the benefits brewing with hops presented their market. Instead, ale brewers reinforced the notion that ale was not beer, simply because it did not include the single additive of hops. Ultimately, this refusal by ale brewers to use hops led to an overall decline in the industry; the preserving qualities of hopped beer allowed beer brewers to export their product much farther and on a greater scale than ale brewers ever could.³⁷

The triumphant brew

With the rise of a Beer Brewers' Gild, and a change in the palate of English drinkers, beer began to replace ale as the preferred brew by the sixteenth century. Ale brewers continued to make and sell their un-hopped wares, but beer gained the upper hand in urban centers and among the elite. Whereas Harrison's *Description of Elizabethan England* indicated the shifting preference toward beer in 1577, John Grove's humorous dialogue between wine, beer, ale, and tobacco, printed 53 years later, confirms the established place beer had at the tables of urban elites by 1630. In Grove's piece, wine represents a gentleman, while beer serves as a citizen of a city, and ale a countryman. The dialogue begins with an argument between wine and beer over which is the superior drink, and neither gives ale much consideration until ale claims to be greater than both wine and beer, escalating the conflict between the beverages. Neither wine nor beer offer many positive remarks for ale, who they call 'O base Ale ... O muddy Ale,' with beer persisting in such insults, stating, 'If you looke thus ilfaouoredly Ale, you may fright men well enough, and be held terrible by weake stomacks; but if you call to mind the ... valour of Beere, invincible Beere.'³⁸ In the end, the characters make peace, with the urging of water and sugar, and all sing a song that epitomizes the changing trend in early modern English drinking habits:

Wine, I loniall Wine exhilar ate the heart.
Beere, March Beere is drinke for a King.
Ale, But Ale, bonny Ale, with Spice and Tost,
In the Morning's a daintie thing.

Then let us be merry, wash sorrow away,
Wine, Beere, and Ale, shall be drunke today.
Wine, I generous Wine, am for the Court.

Beere, the Citie calls for Beere.

Ale, But Ale, bonny ale, like a Lord of the Soyle,
In the Countrey shall domineere.³⁹

Even though the inhabitants of London developed a preference for beer over ale, the market remained largely controlled by foreign brewers. The Privy Council of London estimated in 1585 that half of the beer brewers in the city were foreign residents. An earlier survey, conducted in 1574, reflected similar results pertaining to beer brewers, but in its examination of ale brewers, all were native to England. The influence of aliens over the beer brewing trade persisted into the seventeenth century, though more English brewers began to switch from ale brewing to beer. The cultural ties to the Dutch, in addition to the complexities brewing with hops contributed to the beer-making process, slowed the integration of English brewers into the beer trade.⁴⁰ Beer brewing required more equipment, as well as greater knowledge and skill on the part of the brewer, and was more labor intensive, which might have deterred English brewers who preferred the familiar process of brewing ale. The 1574 survey showed that aliens brewed sixty percent of the beer in London, and while English brewers steadily began to adopt hops as a part of the brewing process, the strong association between beer and alien residents helped maintain the distinctions that separated ale brewing from beer brewing.⁴¹

English ale brewers found themselves in a difficult position; by the 1560s, the majority of London gilds drank beer instead of ale at their annual banquets and meals, and beer had become the preferred drink of the gentry and nobility.⁴² The high demand for brewed beverages was a constant in England since the outbreak of plague in the mid-fourteenth century, but ale brewers simply could not meet the demand as well as beer brewers could. The volatile state of ale made it unable to travel far, restricting ale brewers' potential to export their goods. The inability of ale brewers to produce comparable quantities of ale as beer brewers caused the ale market to fall behind.⁴³ These challenges provided an advantage to beer brewers who could produce beer at a level that met the demand from the English market. William Harrison discussed the preference English nobles had for beer in 1577, stating,

The beer that is used at noblemen's tables in their fixed and standing houses is commonly a year old ... Our drink,

whose force and continuance is partly touched already, is made of barley, water, and hops, sodden and mingled together, by the industry of our brewers in a certain exact proportion.⁴⁴

Beer not only satisfied the thirsty inhabitants of London, but also men and women across England, which helped the hopped beverage gain a level of favor that allowed it to supplant English ale.

The lower levels of output only added to the difficulties and expenses of ale brewing, a factor that served to convince brewers and consumers of beer's superiority. In brewing ale, one bushel of malt typically produced around eight gallons of ale, but in brewing beer, one bushel of malt resulted in around 18 or 20 gallons of beer.⁴⁵ A survey of the food supply in London taken in 1574 showed the greater amounts of beer brewers could produce. The inquiry states:

More since [M]ichaelmas last bought and provided by the brewers 62,548 quarters of all sorts of gryane, whereof spent in brewings sinc Michaelmas last in malt 52,000 quarters, more in wheate to brewe stronge beere 5,200 quarters, remayning in there garneres of malt 1,681 quarters, wheat remayning in there garneres to brewe the said stronge beere 148 quarters.⁴⁶

This survey showed that beer brewers were capable of brewing about four times as much beer as ale brewers could make in a week. Despite the added expense incurred by beer brewing through additional equipment and hops, the overall cost of production remained lower for beer brewers due to the greater level of output. While a typical beer brewing incurred an initial cost of £17 3 s. 10 d., the output of 13 tuns would bring in a net income of £18 14s. 2 d., earning the beer brewer 30s. 4d. per day.⁴⁷ These circumstances allowed brewers to keep their prices considerably cheaper. In 1418, ale supplied to the English army while they fought in France cost 30 s. per tun, but when the army began to receive beer, the cost was 13 s. 6 d. per tun. As the demand for beer increased, beer brewers steadily began to raise their prices, and by the mid-sixteenth century, ale and beer prices were roughly the same. Even when priced at comparable levels, though, the 36 gallon beer barrel continued to present the better offer for customers when compared to the 32 gallon ale barrels. This increased the overall profit beer brewers received, for

the cost of producing beer did not change, but ale brewers continued to pay higher prices.⁴⁸

While the cost of brewing was generally higher for ale brewers, beer brewers did have to pay for extra equipment and supplies, making many ale brewers hesitant to begin brewing with hops. The hops themselves presented an additional cost and, at times, labor. Reginald Scot states in his sixteenth-century guide to growing hops that 'three poundes of these hopes will largely serve for the bruining of one quarter of mault. One hundred poundes of these hopes, are commonly worth xxvi s. viii d.'⁴⁹ Unless grown by the brewer, it was necessary to purchase the hops, and they were not cheap. In spite of this factor, the cost of the overall production of beer brewing offset the cost of additional supplies. Judith Bennett provides the example of Marion Harrison, wife of William Harrison, and the prices she paid to brew beer. For the malt, Marion paid 10s., for spices 2d., for wood 4s., and for the hops she paid 20d. Bennett estimates that the extra cost incurred by brewing specifically beer was an extra 2s. and 20d. for the wood and the hops, but in brewing beer, Marion produced more than double what she might in brewing ale, averaging around 20 gallons per bushel of malt.⁵⁰

These extra costs served as a deterrent for ale brewers who hesitated to invest extra money in an unfamiliar trade. Moving from the ale trade to the beer trade required the brewer to buy extra tools, more vats and holding containers for the beer while it sat in storage, as well as hops and servants, since beer brewing was more labor intensive. This greater investment might appear unappealing to an ale brewer accustomed to brewing and obtaining profits in the short term. Beer brewers had to wait up to, if not longer than, a month before they could sell their product, whereas ale brewers could begin selling their brew in a matter of days. Ale brewers were also unfamiliar with brewing on such a large scale as beer brewers, and many did not want to risk ruining a large batch of beer and wasting the expense.⁵¹ Such concerns likely contributed to the extended dominance of the London beer trade by aliens.

The overall process of beer brewing was more complicated despite the minor difference in ingredients. William Harrison explained late sixteenth century brewing as requiring eight bushels of malt, half a bushel of wheat-meal, and half a bushel of ground oats. The

brewer mixed the grain with 80 gallons of water, and after straining the first wort, boiled the wort with about two pounds of hops for two hours.⁵² The brewer then repeated the process three times and mixed the three worts together. Harrison estimated the cost of such a production at 20s. for 200 gallons, illustrating how the initial costs were offset by the resulting profit made off the higher yields.⁵³ As Reginald Scot said,

[S]o long as you meane to receyue the uttermost commoditie of your garden, alluring your selfe that the more paynes you take, and the more cost you bestowe rightly hereupon, the more you due double your profite, and nearer you resemble the trade of the Flemming.⁵⁴

Once beer brewing became an established trade in London by the sixteenth century, ale brewers found themselves defending a dying industry. While brewing itself did not slow, the preference of London drinkers, as well as the English army, for beer caused the overall demand for ale to dwindle. A petition presented to the House of Commons in 1700 illustrates a late complaint against the beer trade, and makes several requests that essentially demand the end of the beer trade in London. The petition focuses on the difference in funds received by beer and ale brewers, with beer brewers obtaining greater profits over ale brewers. The petitioners argue that, '[T]o make the Barrels of Beer and Ale equal, and the Allowances the same, will be the Ruine of most Beer-Brewers in the Country.'⁵⁵ The demands made in the petition appear to be a feeble attempt to restore ale to its former popular standing, in spite of the clear favor established for beer by that time. As beer brewing advanced in London, ale production slowly moved to the countryside and an increasing number of works by English writers, including Reginald Scot, William Harrison, and John Grove, acknowledged and discussed the superiority of hopped beer.

Improved technology and industrialized production

The ability of brewers to produce larger amounts of beer led to changes in the technology used by brewers, establishing the foundations for industrialized brewing. The evolution of brewing technology began in the fourteenth century on the European continent; the first long-term change developed with brewing in a kettle set upon an iron grate that rested over a furnace. Brick

walls and platforms next to the kettle allowed brewers to stand over the kettle and stir the wort. This simple set-up slowly improved and the kettles used became larger over time. By the beginning of the 1600s, elaborate brewing systems were in place in almost every urban European brewery; large kettles sat over brick ovens, and a plumbing system moved the water and wort to and from the kettles throughout the brewing process. According to Richard Unger, 'The most noticeable sign of process innovation, of larger-scale production, was the growing size of the brew kettle ... from the fifteenth through the seventeenth century.'⁵⁶ A comparison of wills left in 1335 and 1486 shows that London brewers began to take on more equipment and specialized tools. The fourteenth-century will mentions a brew house, two lead vessels, a lead cistern, a tap-trough, and vats for the mash, unwanted residue, and the finished ale, while the 1486 will features the addition of twenty tubs of yeast, and a wooden frame with small openings that sat in the mash tun, intended to filter the wort from the solid matter.⁵⁷

Larger kettles led to permanent breweries that could produce beer at a rate ale brewers never found possible. The beer brewers of London established England's capital city as the leading producer of beer throughout Europe by the end of the sixteenth century; a notable feat considering the late arrival of hopped beer to England. In 1574, London beer brewers produced 312,000 barrels of beer and by 1585 that had increased to 648,690 barrels. This stood in addition to the beer produced for local consumption, which made up the bulk of the brewers' business.⁵⁸ By comparison, major beer producers on the continent did not keep up with London's industry, despite the lengthier presence of beer brewing in those countries. Toward the end of the sixteenth century, Ghent exported around 58,705 beer barrels; Munich exported around 47,698 in 1600, while Antwerp exported around 330,215 in the 1580s.⁵⁹ During the period of 1574-1595, ale production fell by 5%, whereas beer production experienced a 40% increase.⁶⁰ This shows the remarkable level the London beer brewers reached by the seventeenth century; it also shows how strong the industry was in comparison to ale brewing, which struggled to continue in the face of the complete dominance of beer brewing.

During the sixteenth century, London brewers began to export beer to Calais, primarily to supply the English

military while it occupied the area, but London brewers began to export beer to other international markets as well. A prominent recipient of English beer was Antwerp; London brewers established a small trade with Antwerp during the latter half of the fifteenth century, but the trade steadily grew over the course of the sixteenth century, and Antwerp began to import more English beer than German. The convenient location of beer breweries on the Thames allowed for easy import and export, and the strong presence of Flemish and Dutch brewers in England helped establish a natural trade connection with the Low Countries.⁶¹ By the late sixteenth century, London had 26 large beer breweries, each producing around 167 barrels of beer a week, with a portion of this supply going to the Spanish and Dutch armies in the Netherlands as they fought to suppress a revolt. After the fighting ceased, the trade continued, and in the early seventeenth century, merchants from Holland traveled to London to trade grain for English beer.⁶²

As beer brewing gained a strong foothold in the international market, the English developed a reputation for producing high quality, strong beer. The preference of the customer market shifted almost completely to beer, especially in urban centers such as London, and ale brewing became a commodity of the countryside. John Grove's *Wine, Beere, Ale, and Tobacco Contending for Superiority* reinforced this aspect of ale as water admonishes wine, beer, and ale for fighting, stating,

You Ale I remit to the Countrie as more fit to liue where you were bred ... and if you come into the Citie, you may be drunke with pleasure, but neuer come into the fashion; [whereas beer] shall bee in most grace with the Citizens, as being a more stayed Liquor ... I bound you not with the Citie, though it bee the common entertainment, you may bee in credit with Gentlemens Cellars, and carry reputation before you from March to Christmas.⁵³

By the seventeenth century, beer gained a reputation of being a drink of the city, while ale was a drink of the country. This shift in perspective, suggested by Harrison and confirmed by Grove, framed ale as an old fashioned and simple drink brewed for countryside dwellers, while beer retained a higher level of sophistication as a beverage enjoyed by the urban elite, and produced by a growing, international industry.

References

1. Quoted in Taylor, J. (1653) *Ale Ale-vated into the Ale-titude, or A Learned Oration Before a Civil Assembly of Ale-Drinkers*. London. p.26.
2. Harrison, W. (1577) [2010] *Description of Elizabethan England, 1577*. LaVergne, TN: Kessinger Publishing. pp.48-50.
3. *ibid.*, p.50.
4. This research builds from the studies on brewing in medieval and early modern England, and the peripheral discussions concerning the impact of hops on the London brewing trade that appear in Arnold, J.P. (1911) [2005] *Origin and History of Beer and Brewing: From Prehistoric Times to the Beginning of Brewing Science and Technology*. Cleveland: BeerBooks.com; Ashurst, P.R. (1971) 'Hops and Their Use in Brewing,' in Findlay, W.P.K. (ed.) *Modern Brewing Technology*. New York: Macmillan Press. pp.31-59; Bahre, K.-E. (1999) 'History of Beer Additives in Europe - A Review,' *Vegetation History and Archaeobotany*, 8. pp.35-48; Bennett, J. (1996) *Ale, Beer, and Brewsters: Women's Work in a Changing World, 1300-1600*. New York: Oxford University Press; Bickerdyke, J. (1889) [1965] *Curiosities of Ale and Beer: An Entertaining History*. London: Spring Books; Clark, P. (1983) *The English Alehouse: a Social History, 1200-1830*. New York: Longman Group Limited; Luu, L.B. (2005) *Immigrants and the Industries of London, 1500-1700*. Burlington, VT: Ashgate Publishing Company; Monckton, H.A. (1966) *A History of the English Ale and Beer*. London: The Bodley Head; Salzman, L.F. (1923) *English Industries of the Middle Ages*. Oxford: Clarendon Press; Unger, R.W. (2004) *Beer in the Middle Ages and the Renaissance*. Philadelphia: University of Pennsylvania Press.
5. Bahre, K.-E. (1999) *op. cit.* p.35.
6. Unger, R.W. (2004) *op. cit.* p.59.
7. *ibid.* pp.59-60.
8. The two primary categories of beer available today are ales and lagers. Ales distinguish beers brewed with top-fermenting yeast, lagers with bottom-fermenting yeast. This paper will maintain the older distinction of un-hopped ale versus hopped beer.
9. Harrison, W. (1577) [2010] *op. cit.* p.50.
10. Though often referred to as 'beer' in primary sources, statements made before the late fourteenth century strictly refer to un-hopped ale and not hopped beer.
11. Bickerdyke, J. (1889) [1965] p.134.
12. Un-hopped ale was notoriously unstable, lasting about a week before spoiling. This did not prevent brewers from attempting to hide the sour flavor of spoiled ale, which they

did so by adding herbs, such as rosemary. Eley, P. (1988) *The Portsmouth Papers: Portsmouth Breweries, 1492-1847*.

Portsmouth: Portsmouth City Council. p.2; Boorde, A. (1542 [1893]) *A Dyetary of Heth*, Furnivall, F.J. (ed.) New York: C. Scribner & Co. p.256.

13. Brewster is the feminine form of the word brewer.

According to Bennett, J. (1996) op. cit. p.3, early records refer to women in brewing almost exclusively as ‘brewsters.’ By the sixteenth century, this distinction began to disappear from records, and the term ‘brewer’ applied to both men and women in the ale and beer trade. Bennett sums up the ale’s trade association with women thus: ‘The medieval ale industry - a small-scale, low-investment, low-profit, low-skilled industry - suited especially well the economic needs of married women,’ p.34.

14. The system established by the Assize of Bread and Ale set ale prices based on the cost of grain, restricting the amount for which brewers could sell their goods, and government officials known as ale-tasters both ensured that all ale sold was of acceptable quality and helped regulators keep track of all the practicing brewers.

15. The most frequent legal charge brought against brewers was the serving of false measure. Breaking the Assize of Bread and Ale in this manner resulted in a number of punishments; the *Liber Albus* lists fines, imprisonment, or banishment from the trade in London as appropriate punishments for serving ale in a fraudulent manner. Other punishments included public shaming via pillories and cucking stools. Carpenter, J. (1861) *Liber Albus: The White Book of the City of London*, Riley, H.T. (ed.) London: Richard Griffin and Company. pp.307, 311-314. For a description of the cucking stool spectacle, see Boorde, A. (1542 [1893] op. cit. pp.260-261).

16. Salzman, L.F. (1923) op. cit. pp.313-15.

17. Bennett, J. (1996) op. cit. p.47; Salzman, L.F. (1923) op. cit. p.297. Brewers remained below the ranks of other gilds, because an overall social perception that brewers were public servants existed at the time.

18. Sharpe (ed.) *Letter Book I*, folio lii, available online at <http://www.british-history.ac.uk/report.aspx?compid=33678>.

19. Several trades received official incorporation during the fourteenth century under the reign of Edward III, almost a full century before ale brewers gained their own gild. Before incorporated, the Mystery of Free Brewers lacked a royal charter and was therefore not a gild.

20. Bennett, J. (1996) op. cit. p.62.

21. Bahre, K.-E. (1999) op. cit. p.39.

22. Brewers also ran the boiled wort over a bed of hops as an alternative to boiling the hops directly in the wort. Richard

Unger mentions that Flemish brewers added the hops to the wort after the mixture cooled, but such a practice was rare among brewers and remained limited to brewers of Finland. Unger, R.W. (2004) op. cit. p.56.

23. Luu, L.B. (2005) op. cit. pp.263-264.

24. Bennett, J. (1996) op. cit. pp.78-79; Page, W. (ed.) (n.d.) *Letters of Denizations and Acts of Naturalizations for Aliens in England, 1509-1603*. London: Huguenot Society of London. p.xliii. Lien Bich Luu states that in 1440, records indicate the presence of eleven beer brewers in Southwark. By 1483, that number increased to 119, including wives and servants. Luu, L.B. (2005) op. cit. pp.263-264.

25. Sharpe, R. (1903) *Calendar of Letter Books of the City of London: Letter Book E, 1314-1337*. Cambridge: Cambridge University Press. folios li b - lx, pp.66-75, available online at <http://www.british-history.ac.uk/report.aspx?compid=33100>.

26. Sharpe, R.R. (ed.) (1911) *The Calendar of Letter Books Preserved Among the Archives of the Corporation of the City of London at the Gildhall: Letter Book K, 1422-1457*.

Cambridge: Cambridge University Press, folio 202, available online at <http://www.british-history.ac.uk/report.aspx?compid=33726>.

27. Monckton, H.A. (1966) op. cit. p.67.

28. Sharpe, R.R. (ed.) (1912) *The Calendar of Letter Books Preserved Among the Archives of the Corporation of the City of London at the Gildhall: Letter Book L, 1460-1496*.

Cambridge: Cambridge University Press, folio 30, available online at <http://www.british-history.ac.uk/report.aspx?compid=33642>.

29. Monckton, H.A. (1966) op. cit. p.69.

30. Thomas, A.H. (ed.) (1929) *Calendar of Plea and Memoranda Rolls Preserved Among the Archives of the Corporation of the City of London at the Gildhall: Rolls A10-A24, A.D. 1364-1381, Volume II*. Cambridge: Cambridge University Press, roll A 17, pp.132-149, available online at <http://www.british-history.ac.uk/report.aspx?compid=36681>; Sharpe, R.R. (ed.) (1912) op. cit. *Letter Book K*, folio 161, available at <http://www.british-history.ac.uk/report.aspx?compid=33722>.

31. Bennett, J. (1996) op. cit. p.80; Sharpe, R.R. (ed.) (1912) op. cit. *Letter Book K*, folio 161b, available online at <http://www.british-history.ac.uk/report.aspx?compid=33722>.

32. Boorde, A. (1542) [1893] op. cit. p.256.

33. Luu, L.B. (2005) op. cit. pp.264, 266.

34. Taylor, J. (1653) op. cit. p.8.

35. ibid. pp.11, 15.

36. Sharpe, R.R. (ed.) (1912) op. cit. *Letter Book L*, folio 195-195b, available online at <http://www.british-history.ac.uk/report.aspx?compid=33658>. ‘Licour’ used here

- refers to water.
37. Bennett, J. (1996) op. cit. pp.85-86.
 38. Grove, J. (1630) *Wine, Beere, Ale, and Tobacco: Contending for Superiority, A Dialogue*. London, no pagination.
 39. ibid.
 40. Bennett, J. (1996) op. cit. pp.81-82; Luu, L.B. (2005) op. cit. p.269.
 41. Luu, L.B. (2005) op. cit. pp.278-279.
 42. Bennett, J. (1996) op. cit. p.29; Unger, R.W. (2004) op. cit. p.81.
 43. Bennett, J. (1996) op. cit. p.85.
 44. Harrison, W. (1577) [2010] op. cit. pp.44, 47.
 45. Bennett, J. (1996) op. cit. pp.85-86.
 46. King, F.A. (1957) *Beer Has a History*. New York: Hutchinson's Scientific and Technical Publications. p.65.
 47. Luu, L.B. (2005) op. cit. p.276.
 48. Bennett, J. (1996) op. cit. pp.85-86.
 49. Scot, R. (1574) *A Perfite Platform of a Hoppe Garden*. London, p.5.
 50. Bennett, J. (1996) op. cit. p.86. Bennett explains that about 25% of the total cost Marion paid for her materials was solely for boiling water, which is necessary in both ale and beer brewing, as well as for seething the hops in the wort. The extra cost for fuel was necessary for lengthier burning time for seething the hops, and the other supplies were necessary whether Marion brewed ale or beer.
 51. ibid. p.87.
 52. Reginald Scot recommended three pounds of hops for one quarter of malt, the same as eight bushels of grain; Scot, R. (1574) op. cit. p.5.
 53. Clark, P. (1983) op. cit. p.101.
 54. Scot, R. (1574) op. cit. p.6-7.
 55. Anon. (1700) *The Case of the Common Brewers*. London, no pagination.
 56. Unger, R.W. (2004) op. cit. pp.146, 171.
 57. ibid. pp.146-147.
 58. Luu states that foreign exports made up 11% of beer produced in London in 1591. Luu, L.B. (2005) op. cit. p.273.
 59. Unger, R.W. (2004) op. cit. pp.117-119. Beer barrels held 36 gallons, whereas ale barrels held 32 gallons.
 60. Luu, L.B. (2005) op. cit. p.275.
 61. Unger, R.W. (2004) op. cit. pp.192-193.
 62. Clark, P. (1983) op. cit. p.106.
 63. Grove, J. (1630) op. cit. no pagination.
 64. Bennett, J. (1996) op. cit. p.139.