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E. Hughes**

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BEER \*\*\*

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A  
TREATISE  
ON THE  
BREWING OF BEER,  
&c. &c.

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*A Saving of Twenty per Cent.*

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A  
TREATISE  
ON THE  
BREWING OF BEER,  
WHEREIN IS PROVED

That one Bushel of Malt will produce a Gallon of Beer  
more than another Bushel of an equal Strength, although

**both Malts be made of one Sort or Species of Barley.**

**In this work will be found some profitable and necessary directions to Maltsters.**

**Improvements in the Brew-house, and  
Brewing Utensils.**

**Showing the cause what makes hard and sour Beer.**

**Directions for preventing Beer from becoming sour or foxed,  
even if used in the warmest Season.**

**ALSO**

**Directions in what State to cleanse the Beer, so as to have  
it fine without using any art or device whatsoever; and  
for the Management of the Beer in the Cellar.**

**Some Observations in the Choice of HOPS;**

**Proving that they are useful after they have been used in  
brewing.**

*The different Experiments are from Twenty Years Practice.*

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**BY E. HUGHES.**

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**Some very useful and necessary directions to the Publican who retails  
Common Brewer's Beer.**

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**SECOND EDITION.**

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**UXBRIDGE:  
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**1796.**

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**PREFACE.**

The first edition of this treatise met with encouragement enough to flatter me that I had left no room to improve it: but, encouraged by the satisfaction my friends was pleased to express of its utility to the public, I have been induced to make every improvement I could collect.

Before I presumed to offer this small treatise to the public, the different modes and methods, here recommended, I have proved by different experiments, which I flatter myself will be found of utility, particularly to private families, especially farmers, because their servants have very little knowledge of brewing, their time being so much employed in other business, and so frequently are they changing their employ that they are rendered incapable of being competent in brewing. I do not presume to dictate to those who are proficient; but it must be acknowledged that good malt is frequently marred in brewing by persons who have very little or no knowledge of brewing, and I flatter myself that by a perusal of this treatise it will enable them to be more competent in making the best of the malt intrusted to their care, to the greater satisfaction and benefit of their employers.

Waters having a great predominance in brewing, I have given directions in the choice and improvement of them.

The improvements in the brewing utensils will be attended with some expence, but the utility arising therefrom will soon make amends.

I have taken the liberty to admonish the retailer of common brewer's beer, because, from their inattention in managing the beer after it comes into their stock or possession, the

blame, if any, is imputed to the brewer but I am fully convinced to the contrary, from the almost daily practice of the common brewer, and their malt being of the first quality, as country brewers generally make their own malt, and that from the best barley, together with the conveniency of their utensils, enables them to have the advantage of most private families that brew their own beer; therefore it principally depends on the conduct of the publican as to the quality of the beer, after it comes into his stock, or possession.

I have taken the liberty to give some directions in the choice of malt, not that I mean to challenge the maltster, or give him directions in the management of his corn, except in the drying. I presume if malt is not attended to on the kiln and perfectly sound dried, it never will produce good and wholesome beer.

E. HUGHES.

SEP. 3, 1796.

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A

**TREATISE.**

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*On Waters.*

Waters differ in their quality, that is to say, in extracting the goodness from the Malt; it is, therefore, very necessary for every one who professes the brewing of Beer, to be well acquainted with the nature and quality of the Water he brews with; for as the quality of the water is, so depends the brewing of beer. I am fully persuaded that waters so differ in quality, they will very much add or diminish the quantity and quality of the beer.

Well Waters ought not to be used only in cases of necessity, when waters of a softer quality cannot be procured: the well water should be pumped into tubs, or any convenient vessel that is clean and sweet. It is a custom with many to fill the copper a day or two, and sometimes longer, before they begin the operation of brewing, but this I strongly forbid; for a liquid cannot be too short a time in the copper, except it is in a boiling state; my reasons for this I shall point out in another part of this treatise. I would recommend fresh bran to be put into the well water whilst in the tubs, and now and then give it a stir, this will cause a sort of fermentation, and will likewise soften the water.

The time for keeping water in the tubs must depend upon the season of the year: if in winter, or moderate cool weather, a week will not be too long; but if in summer, two days will be sufficient.

Spring or River Water is far preferable to Well Water, but river or spring waters differ very much in their softness, and that which will lather best with soap is a convincing proof, and is to be preferred for brewing; for,

First,—It will leave the grains dryer than well water of a harsher quality.

Secondly,—The beer will come to a quicker fermentation in the tun; and,

Thirdly,—It will also fine itself much sooner in the cask, than if brewed from well water.

Rain Water, such as runs off tiled roofs, is, undoubtedly, to be preferred before well or river water in brewing, being of a simple and soft nature.

There is one very great object to the interest of the brewer;—Beer, brewed with rain or river water, will be stronger than beer brewed with well water from an equal quantity of Malt, because it will have a freer access to the Malt; and, as I said before, it will leave the grains much dryer than well water, which is convincing, the dryer the grains are, the better will be the beer.

Many persons very much prefer Pond Waters, such that are frequently disturbed by horses and other cattle, which generally causes it to be in a thick muddy state; but the sediments of this thick muddy water must be found prejudicial; for when the wort is emptied out of the cooling tubs into the working tun, or running from the coolers into the tun, a part of the sediment, from the foulness of the water, will follow the wort into the tun, consequently the yeast will be in a foul state and cannot be of that utility in baking, as though the brewing had been from pure clean water.

There is a great difficulty often happens in making beer come to a fermentation in the tun; this, I verily believe, is principally owing to the hardness of the water it is brewed with.

### *Some Observations on the Grinding of Malt.*

Much depends on the grinding of Malt. Many people give directions to have their malt ground small, having an idea that the water will mix itself with, and have a more free access to it, than when ground in a more coarser state; but this idea is very erroneous. Malt should be only broke in the Mill, that is, if possible, every corn should be only bruised; malt ground in this manner will discharge the wort in a fine state throughout the whole brewing.

I have known many persons neglect giving orders for their malt till the day before they intend to brew; but malt should be ground four or five days, or a week would not be too long for brown malt, but great care must be taken to keep it in a dry place.

Malt, ground a reasonable time before it is used, loses the heat which it receives in grinding, and reduces it to a soft and mellow state; it will receive the water more freely, and a greater quantity of wort may be made than if it was brewed immediately after it was ground. The beer will also work much better in the tun and in less time become fit for use than if brewed as soon as it comes from the mill. This is proved by good housekeepers, who have their wheat ground two or three days before they use it; for by losing the heat it receives from the mill in grinding, the flour will be lighter, and receive the yeast and water more freely, than if used immediately from the mill.

Brewing is generally left to the care of servants, particularly in farm houses, who frequently have at the same time other business to perform, which too frequently causes the brewing to be neglected, particularly in its first stage. The mash in this first stage determines the whole of the brewing, for the malt ought to be well mixed up with the water, which will cause some time and labour; therefore the person employed in brewing should not, on that day, have any other business to perform, so as to engross any time or attention from the brewing, for any part neglected may mar the whole, which is too frequently the case.

### *Improvements in the Mash Tun.*

Mash Tuns should have false bottoms, to take up as occasion may require;—they should be about two inches clear of the fixed bottom, with holes therein, about a sixth part of an inch in diameter. The false bottom answers two good purposes;

First,—You may be more expeditious in mashing, by having a free access to all parts of the mash tun, which, with a tap vase or some such like instrument being in the mash tun, will impede the stirring of the mash, therefore some part of the malt will not be mixed with the water.

Secondly,—The false bottom will drain the grains dryer than the tap vase, and in the fixed bottom there will be a sediment left, which, with one bottom only, would have passed through the tap vase, and a part of it accompanied the wort down into the tun. This will answer another good purpose; for the sediment not accompanying the wort into the copper, it will want less boiling, as it will break sooner and fine itself.

*Note.* Where the false bottom is used the tap must spend through a cock at the bottom of the tun. The holes in the false bottom may be about three or four inches distance from each other.

Fail not to boil your water six or eight minutes, then let it into the mash tun; if time will permit, do not put your malt in for mashing till the steam has escaped and you can see your face in the water; but if time will not admit of this, add about one gallon of cold water to eighteen gallons of hot. Whilst you put your malt into the tun, let a person stir it to prevent its clotting, then well mash it, and let the mash stand two hours at least. The second mash need not stand so long as the first. If convenient, always make use of hot water for your small beer, for by boiling the water a few minutes it will soften it, and will cause it to have a more free access to the malt, and the wort will require less boiling.

### *Boiling of the Worts.*

Many brewers boil their worts from one to two hours; this is very much practised in private families;—a great part of the time the wort is in a simmering state the fire perhaps is not attended to, the person who has the care of the brewing is, as I said before, frequently employed in some other business, therefore this very material part is neglected: As soon as the wort is in the copper it should be made to boil as quick as possible, and a brisk fire should be kept under the copper to cause the wort to boil as fast as possible, for fast boiling will cause the wort to break and fine itself much sooner than it would if kept in a slow boiling state. Thirty or forty minutes will be sufficient to boil ale, and one hour if strong beer. This quick boiling will cause a saving of one gallon in twenty, at least, which must be acknowledged a *great advantage*, considering the present high price of malt.

I will presume to say there will be a saving in the wood or coal by boiling the wort, as is

commonly said, a gallop, when it rises itself considerably above the copper.

The copper should have a curve made of wood, fixed round the brim, to prevent the wort from being spilt when boiling; or the copper should be so hung, with a sheet of lead fixed round the brim in a sloping position, that when the wort is hastily boiling, it would fall on the lead and immediately return into the copper, therefore it would prevent the wort from wasting or boiling over.

### *Cooling of the Worts.*

As soon as the wort is out of the copper the next thing is to get the heat out as soon as possible, and to get it in a state for fermentation. Most private brewers, and many victuallers, separate their worts into tubs, bowls, pans, &c. for cooling; I have seen wort in no less than twelve or sixteen different utensils; worts being of a sticky quality, it must be acknowledged that a loss is sustained by having the wort in so many utensils, and also very inconvenient to pour the wort from the tubs and pans into the working tun; for in each of the before mentioned utensils will be a sediment, which too frequently follows the wort into the working tun.

Now to prevent the use of all these small utensils, a brew-house, though ever so small, will admit of two coolers being erected; for two coolers will take up nearly the same room in the brew-house as if only one were to be erected; for one cooler should be nearly underneath the other, so that the second cooler may receive the wort from the first. Care must be taken in fixing the coolers, so as to admit the working tun underneath the coolers, to receive the wort: but this need not be consulted where there is a conveniency to convey the worts and work them in the cellar.

*Note.* A victualler is compelled by law not to alter the position of his coolers without giving notice to the excise officer;—now private families have the advantage,—they may have their coolers fixed in the brew-house, or to lay on trestles, and move them to any part, as occasion may require.

The size of the coolers must so correspond with the quantity of malt brewed, that in warm weather the worts do not exceed two inches in depth in the coolers; for in summer brewing the heat cannot too soon escape from the worts; and this is the evil—not having a conveniency to separate the worts in a thin state, the brewer has not been able to get the heat out,—he has let the wort down into the working tun in a warm state, which has often brought on the fox, in a short time became sour, and rendered unfit for drinking.

The reader will observe that brewing in warm weather ought to be avoided as much as possible; for the coolers or tubs in warm weather being in a very dry state, and the worts being a long time cooling, that, at least, one gallon in forty will exhaust itself.

I shall point out one more improvement for cooling the worts more expeditiously: In many brew-houses there is no conveniency, when the worts come out of the copper, for the steam to escape out of the brew-house, but will continue for a time in a thick cloudy state, to the great detriment of the worts:—to remedy this, I would recommend flap shutters to be erected in as many parts of the brew-house as convenient, and the building will admit; the flap shutters will permit the steam to escape and very rapidly cool the worts. These shutters are as convenient in the winter, or when the weather is moderately cool, for they are so contrived that you may set them to what centre you please.

From these improvements the brewing will be more expeditiously performed, as the worts will, of course, from this conveniency, much sooner make way for the small beer, and totally prevent its being left in the copper all night, which is too often practised, to the injury of those who drink it, as it will not be fine, but remain in a thick wey colour, which is owing to its being in the copper too long, and not being kept in a boiling state; for if a copper has been in use twenty years it will at times shew symptoms of the verdigrease, which is a sufficient voucher that the wort cannot be too short a time in the copper, except when boiling.

Coolers will last many years without repairing; when, on the contrary, cooling tubs, &c. are frequently out of repair, and are as lumber, being of little or no use, except when used in brewing.

From the before mentioned improvements you will always finish your brewing before a late hour at night, which will enable you to pay the more attention to the worts in the tuns, &c.

Care should be taken to keep the brewing utensils as clean and as sweet as those used in a dairy; for without cleanliness it is impossible to have your beer in a good and wholesome state.

The copper should be cleaned after each brewing, as it will keep it bright; when it is used but seldom, and in wet or damp weather, the verdigrease will appear, but care should be

taken to examine and clean it, previous to the wariar's being put in for brewing.

It often happens, where the mash tun is not used for a working tun, the grains are left in the mash tun till the next morning, they will then be in a sour state; therefore the tun should be scalded before the next brewing. If in very warm weather, some quick lime, that is, lime not slacked, will be necessary, by adding some water to dissolve it to the same consistence as used for a white-wash; then with a mop or brush wet the tun with the lime like unto white-washing; after the lime has been on about a day it may be washed off.

Much care should be taken to keep the coolers and working tuns in a clean state, by frequently scalding; it will be necessary in warm weather to lime the coolers and working tuns;—this is an excellent remedy where the coolers and tuns are tinged with the fox, as also a preventative against that fulsome complaint. Experience will inform you that the use of lime is excellent in cleaning the utensils.

When you soak the coolers, &c. previous to brewing, add some lime to the water, as it will search and purge the joints of the coolers and tubs, by cleaning them from disagreeable smells.

Particular attention should be paid to the cooling of the worts, by having coolers as before mentioned. You may let your worts down into the tun as quick or as slow as you please and as the season may require; in very cold weather it should go down into the tun from the cooler by a good stream, as the worts require to go down into the tun in a warm state, particularly when there is but a small quantity brewed. In summer brewing your worts will require to go down into the tun in a cold state; however it will be much the best for them to be cold than too warm, therefore you should set the cock or plug to discharge the worts from the coolers into the tun but slow and dribbling; for by going down slowly it will prevent a hasty fermentation, and consequently will have the good effect to prevent your tun of beer from being foxed; therefore it must be allowed to be convenient and necessary to have coolers erected, as the worts will go down into the tun in almost one regular degree of heat.

On the contrary, when worts are cooled in tubs, pans, &c. they are emptied into the working tun in different degrees of heat, one after another; perhaps in some of these cooling tubs or pans the worts are two or three inches in depth; in others, six or seven inches; therefore the worts will be of different degrees of heat, and by having part of the worts let down into the tun much warmer than those already down, and which, perhaps, are in a fermentation, those worts will, of course, cause a fermentation too hastily,—will frequently cause the tun of beer to be foxed, and will always be in a heavy state, for the yeast will not separate itself from the beer; this renders the coolers more necessary and convenient.

#### *Attending the Working Tun.*

Attention should be paid to the beer when in the tun. It is a custom with many brewers to put their yeast for that brewing into the tun at one time: I will prove that practice to be very erroneous; for by adding the quantity of yeast you intend to use at one time, may cause a fermentation too hastily, and then you have no remedy. You should feed your tun with yeast by adding a little at a time, as occasion may require, for by so doing you will always be master of your tun of beer, by having it in what state of fermentation you please; as the quality of malt and waters differ, it will require more or less yeast to ferment it, and by adding the yeast at different times you will be enabled to form such a judgment as never to over-yeast your tun. Every time you add more yeast you should stir your beer with a bowl or bucket.

#### *Cleansing.*

It is a practice with many people to keep their beer in the tun from four to six days; by that time the yeast will fall to the bottom of the tun, and the beer will be in a flat, dead state; it will always be *heady* beer, being kept so long before it is cleansed; it will not be inclined to work in the casks, nor will it drink with a pleasant, lively taste. There is no coming at any exact time, with respect to hours, when your beer will be ready to cleanse, therefore this must be done by attention, in frequently examining when your beer is at its full head of working, or what is commonly said, rather inclined to go back; when it is in that state it should be cleansed immediately. This, I say, should be attended to, notwithstanding it should happen at twelve o'clock at night; for this is the evil, by neglecting the proper time to cleanse your beer it will not be able to fine itself in the casks, and then some device must be used to fine it, which is too often injurious to the beer.

#### *A very necessary Caution.*

It is a common practice, when casks are scalded or cleansed, to expose them to the sun and wind to dry, and there leave them till the time of cleansing, then they are placed in the cellar, &c. and the beer immediately cleansed into them; when the sun, in warm weather,

has penetrated through the wood and become so warm that you cannot conveniently lay your hand upon them; this is often done unthinkingly, but the casks being thus heated by the sun causes the beer to work too hastily; after all the care and pains before taken, it here receives a material injury, by having, as may be said, undergone a second fermentation, and will reduce its strength by working too hastily out of the casks, and very probably may be the cause of its not being soft and pleasant; however, care should be taken to get your casks perfectly dry, previous to the cleansing into them; in hot weather place them in the cellar, &c. some time before you have occasion to cleanse your beer into them.

Attention should be paid in keeping your casks filled up after cleansing, to enable the yeast to discharge itself from the beer, for by so doing there will be the greater probability of your beer being fine; if the casks are not kept filled up when working, the yeast cannot discharge itself from the beer, which, in change of weather, will be purging and hissing in the casks, and will cause it to be harsh and unpleasant; this is the principal cause why we have so many muddy ales. Attending your beer when working, by filling up the casks, will be found to be of the greatest utility, as you will have no occasion to use any device to fine your beer, which will only attend to adulteration.

#### *Small Beer.*

As I said before, small beer is too frequently neglected, because the master or mistress of a family drink but a small quantity of it. I verily believe there would be less *good* small beer consumed in a family of servants and workmen, than if it were inferior and bad in its quality. It may be thought strange by adding the name of *good* to small beer, but it must be acknowledged that there is a great disparity in the quality of ales, and why not in small beer; on the one hand, it certainly depends on what length you draw from quantity of malt.

Small beer should be let down into the tun much warmer than ale; and as soon as it shews an inclination to work it should be cleansed; it will then work well in the casks, and will have a quick, lively taste. Small beer, not having a sufficient strength, cannot support a long fermentation in the tun: for if it is worked cold, and left too long in the tun, it will drink flat and unpleasant.

Now, as I said before, there will be no more *good* small beer consumed in a family, than if it were ever so *bad*; for when a workman or servant has occasion for a pot of small beer, if bad, he will, perhaps, drink a part of it, and throw the remainder away, and, very likely, carelessly leave the cock dropping, in order to get rid of such a bad commodity the sooner. Now, on the other hand, if the small beer was *good*, the consumers would take care to leave the cock, &c. secure, well knowing they should not have a better substitute.

#### *Cleanliness in the Cellar.*

Care should be taken to keep the cellar clean, (especially those who are situated near the south aspect; or shallow, where the sun has any power,) by scraping the yeast from the bung-holes of the casks; else in warm weather it will smell offensive, and insects will breed therein, which must be injurious to the beer, if the bung-holes are open.

The dropping of the cock, tap tubs, &c. will cause fulsome smells in the cellar, which frequently require to be washed down; for washing and cleaning your cellar often, will keep your beer in a cool state, and will be the means of preventing mild ale from becoming stale.

Put some hops into your ale and small beer casks a few days before you want to tap them for use; even those hops that have already been used in brewing will be found serviceable in fining your beer, and will not cause it to be too bitter, but will prevent your small beer from becoming sour. Notwithstanding their being used in brewing, they will be found by experience to be very serviceable for the purpose before mentioned. Another advantage will arise, they will serve the use of fresh hops, which, when dear, will be found to be a considerable saving.

*Note.* They are recommended for beer that is for present drinking, as they cannot be expected to be sufficient for beer intended for a long standing.

Another advantage will be found when a length of ale is brewed, and no small beer made, the hops will then be found of greater utility, as they will contain the same quality as the ale they were brewed with; consequently the ale and small beer they are put into will receive a greater advantage therefrom.

This may not seem consistent, as mild ales and small beer seldom have any hops put into the casks; but when a cask of beer is a considerable time at tap, it will certainly want something to feed on; this is one cause why small beer generally turns sour when it is nearly out; now by using the before mentioned hops it will be found to be a considerable remedy to prevent both mild ales and small beer from being hard and unpleasant.

The reader will observe, these hops having performed their duty, they are of no expense, only the trouble of putting them into the casks. The small beer must derive a considerable advantage from those hops when a guile of ale was only brewed from them. Take care to put them into the casks as soon as they are cold, for by being too long exposed to the air they will lose their virtue.

I should not have said so much concerning small beer, but the price of malt is so considerably advanced, to what it was formerly, that small beer is become an expensive article, where there is a numerous family.

If you observe the before mentioned directions you will not have your small beer so unpleasant, particularly when your cask is nearly out.

The most wholesome small beer is made from an intire guile of small, for then you have the whole of the spirit and sweetness of the malt; it will keep better and drink much fresher than if it were to be made from the goods after a length of ale.

If you rack your beer, fail not to put some hops into the casks, wetting them first with some of the same beer, or rather wet the hops with some wort when brewing. If you want to hasten your beer for drinking, put the hops into the casks when they are warm; if your beer is for a long standing, put the hops in your casks when they are cold, giving them a stir to separate them in the beer.

Take care not to be under the necessity of tapping your ale or small beer before it has actually done working, for by so doing you will prevent it from becoming fine: new beer may be classed with new bread; for the newer you draw your beer the more there will be consumed; new beer is not so satisfying as it is when come to a more mature age.

Beware, lest you forget to pay attention to your beer which is at tap; for, "as the eye of the master maketh his horse fat," so the head of a family, now and then giving a look into his cellar, may be the cause of beer drinking more agreeable to his palate, by taking care the vent-holes are kept closely stopped, and the cocks secure.

Do not fail to stoop your cask when the beer is about two parts in three out; this should be done whilst the tap is spending, for then you will not disturb the sediment. By stooping the cask when the beer is about two parts in three out will prevent it from becoming flat and sour; when, on the other hand, it is too frequently to be observed when a person is drawing a pot of beer, the stream is impeded; for the beer, being so nearly out, will not run till it is stooped. Now before this, the cock discharging the beer but slowly, the air is admitted into the cask, which causes the beer to drink flat, and, perhaps, turn sour: therefore this will enforce the necessity of stooping your cask before it be so nearly out.

This is a fault with many publicans, not paying attention to their cellars; even many of those who brew their own beer are neglectful, notwithstanding their own interest and credit is concerned. Tis not uncommon for the vent-peg, and even the bung, to be left out of those casks which are actually on draught.

Publicans, who retail common brewer's beer, and neglect their cellars, have this excuse, if their customers find fault with the beer, by saying "tis such beer as my brewer sends me," so it may be; but let a publican be served with beer of the first quality, it entirely depends on the management of the retailer thereof, whether the beer shall be of a good or bad quality. This is proved by persons in the same town, each being served with beer from one and the same brew-house; there will be generally a disparity in the quality after it comes into the stock of the respective retailers thereof, which proves it to be the good or bad management in the cellar.

I am convinced I shall not offend the *attentive* publican by what I have said respecting the cellar; but should this fall into the hands of the *inattentive*, it may offend; but that I will excuse, if, by the reading of this, he should be convinced of his error, and pay more attention to his cellar; that he may be enabled to draw a pot of beer to please those useful and valuable men, the labourer and the mechanic; and where they used to drink but one pot of beer with him, they may, from finding his ale much better than usual, perhaps, drink two.

#### *On the drying and qualities of Malt.*

I shall here give a few observations on malt, which was my principal reason for introducing this work to the public, well knowing that many who profess the art of brewing have very little knowlege of the nature and quality of the malt and hops they brew with.

Malt is dried with coke, coal, wood, furze, and straw. The best and sweetest malt is dried with coke, or welch coal; because the coke, or coal, gives a regular and gradual heat. Malt dried with coke, or coal, will be of a bright, clean colour, because the fire is free from smoak. It is also to be observed that malt dried with coal, or coke, is generally well cured, that is, sound dried, because the coke or coal fire is fierce and strong.



If malt is dried with a wood fire it greatly depends on the wood being housed in a dry season; for if the wood is dry it will produce a clear fire, free from smoak, and the malt will be of a bright colour; but if the wood is wet and sugged, the fire will not be fierce, but will be smoaky, and will certainly cause the malt to be of a dull colour; and the beer brewed from such malt will consequently have a smoaky taste: therefore it depends on the attention of the maltster, in housing his wood in good order, for without that attention he cannot serve his customers with good, bright, well cured malt.

I have seen very fine malt dried with straw, it being less subject to smoak than malt dried with wood; but this mode of drying is very tedious, because a person must always attend the fire. In those countries where it is straw-dried, wood and coal is dear, therefore straw is used as a substitute for coal, &c. However, if care be taken, malt may be well cured with a straw or wood fire, but not to equal welch coal, or coke, because the fire may always be kept up so as to produce a regular heat.

Fuel being much dearer than formerly many maltsters are too sparing of their fire; and here arises the principal cause why we have so much bad beer; for if malt is not well cured, that is, sound dried, it will not produce good and wholesome beer.

Malt may appear to be of a fine amber colour, and this may be done by making a strong fire a few minutes before the kiln is shifted, therefore the colour is not at all times a rule for its being well dried. No malt should be used till it has been off the kiln a month, at least; at the end of that time, if the malt bites quick and crisp, you may conclude it is well dried.

It will be very necessary when you give orders for a brewing of malt, to request your maltster to send the malt well dried; this caution may induce him to pay more attention in the drying of his malt.

When a brewing of malt is ordered by private families, perhaps no order is given respecting any particular sort, that is to say, whether pale, amber, or brown, for these are the three sorts of malt; but many retail maltsters in the country have but one sort of malt, and, in fact, one sort is sufficient, provided care is taken to dry their malt sound, of a fine amber colour.

Now I again repeat that the principal reason of our having so much hard and sour beer, is owing to the malt being under dried; for malt is the fundamental article in brewing. If a guile of beer is made from under dried malt it will not be of a fine bright colour, and an extra boiling of the worts will not have the desired effect: then you are under the necessity of using finings and other nostrums, which are only temporary, for no other ingredients whatever can be so beneficial to beer as malt and hops, and if those two commodities are in a good and genuine state, you will not have occasion to seek for any other art or device whatever. Another considerable advantage will arise, for each bushel of sound dried malt will produce a gallon of wort more than slack or under dried malt; this is proved by brewing two sorts of malt, that is, malt perfectly dried will discharge the wort freely, and the grains will be dry and light; when, on the other hand, if a brewing of beer is made from under dried malt, the grains will be clammy and heavy, owing to the raw state of the malt, therefore a part of the wort cannot discharge itself, which is a sufficient voucher that the perfectly dried malt will produce a greater quantity of wort of an equal degree of strength.

I hinted before that malt should not be brewed till it has been off the kiln a month; but if malt is six or seven months old it will be the better, because it will become mellow, and your beer will be much softer and better than if used immediately from the kiln.

Between michaelmas and christmas the retail maltster's stock of old malt generally lays in a small compass, and will be slack; I should at this season recommend part old and part new, for the one will help the other.

#### *On Hops.*

Many professed brewers are particularly attached to the colour of the hops, that is, they are partial to those of a fine green colour; these are certainly to be preferred, if they were ripe when gathered:—to prove their goodness, rub them between your fingers, if they are in full condition they will stick to your fingers, will have a good strong scent, and the seeds will appear full and yellow.

Brown spots are frequently to be seen on hops; these are, in general, hops that came to a full ripeness before they were gathered. High winds and rain frequently happen about the middle or latter end of the hop season, which will disfigure them in their colour in a few hours, so that the colour is not at all times to direct you as to their goodness.

In the hop countries most hop-planters keep those hops which are most disfigured in their quality, separate and apart, when picking, from those of a brighter colour; those which are of an inferior colour are kept for their own use, and disposed of to their neighbours, it being their opinion that they answer the purpose in brewing nearly as well as those of a brighter colour, provided they are in full condition, that is, if they are full of seeds; for in the seeds is

the virtue and strength of the hop.

The quantity of hops used in brewing is generally half a pound to a bushel of malt, and so in proportion to a greater quantity; if mild ale, for present drinking, a lesser quantity will do; but this must be left to the discretion of the brewer, or master of a family, as some are more partial to the taste of the hop than others.

Hops are found to be of such excellent utility in the bittering of beer, that common brewers and innkeepers are forbidden by law to use any other bitter ingredient whatever in brewing of beer and ale. I have taken the liberty to insert this as a caution to the unwary.

As to the quantity of beer each bushel of malt should produce, it must rest on the option or circumstances of the brewer, or the head of a family. A bushel of malt will produce ten gallons of good ale; but the greater the quantity of malt, brewed at one time, the better will be your beer.

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\*\*\* END OF THE PROJECT GUTENBERG EBOOK A TREATISE ON THE BREWING OF BEER  
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