

HOW BEER IS BREWED

THE RAW MATERIALS

THE PRIMARY building blocks of beer are malted barley, hops, liquor (or water) and yeast. A pint of beer starts life in a field of barley. After ripening, the barley is harvested and the grains taken to a maltings, where the first step of their transformation into beer starts.

MAGICAL MALT

IN BREWING lore, malted barley is known as the soul of beer. The skill of the maltsters is to kick-start germination in the grains. This begins when the grains are steeped in water, after which they are spread out to dry. The grains are turned over up to four times a day to prevent the emerging rootlets from becoming entwined with each other. Only a handful of British maltings still use the traditional floor-malting method of production where the grains are turned regularly by hand-rakes (Tuckers Maltings is one). Before the germinating grains can achieve their full self-regeneration, the maltster stops the process and the grain is kilned, producing malted barley.

THE BREWING PROCESS

ONCE THE malted barley is delivered to the brewers it is first of all, ground and this crushed malt, the grist, gets intimate with hot water in the mash tun. During the mash hot water prises the fermentable sugars away from the grist and what was a floury, crushed mixture of grain is left as a mass of empty husks after the potent liquid has been drained. The run-off from the mash is called wort, a creamy Ovaltine coloured liquid full of malt sugars that will be devoured by yeast and produce alcohol and CO₂. The wort is now in the next stage of its odyssey towards becoming a beer. It is pumped into the copper and the boil starts.

LIQUID ASSETS

BRITISH BREWERS use water for cleaning their vessels and pipes, but 'liquor' is utilised for making beer. Needless to say, a particular quality of liquor is essential for making good beer. Soft water is usually good for stouts and lagers (the soft waters of Plzen are ideal for making Pilsner), whereas hard water, with its abundance of minerals, is good for bitter (think Burton).

HOPPY TIMES ARE HERE AGAIN

HOPS ARE the yin to malt's yang. Hops provide the fruity, bitter counterbalance to the biscuity sweetness of the malt. Just as yin and yang are supposedly the male and female principles locked in an eternal cosmic dance, so hops and malt get close and intimate throughout the brew. Their balance governs the harmony of the beer. Some hops are used for bitterness (kettle hops), while others are added later in the boil to provide their glorious aromas.

YEAST IS THE BEAST

AFTER THE boil, the hopped wort is transferred through a cooling system before being pumped into fermenting vessels. The real fun starts as yeast is pitched into the cooled liquid and fermentation begins. Yeast is a single cell fungus plant and a magical ingredient which produces alcohol and carbon dioxide when it is added to the hopped wort. It takes 34 million cells to produce just one pint of beer, so countless millions of these beasts get to work every time hopped wort is fermented.

FERMENTING TIMES

AFTER FERMENTATION, the beer is transferred to brewery conditioning tanks or casks before being allowed to settle before the journey to the pub. Beers such as bitter are said to use top-fermenting yeast where the yeast rises to the top of the fermenting beer and produces a large foamy head. Lagers are happy with bottom-fermenting yeast, where it sinks to the bottom of the fermenting vessel and works in a lower temperature than its ale cousin. However, these descriptions are too simple as yeast has to work through the whole of the hopped wort to find and devour its malt sugars. Warm-fermenting (for ales) and cold-fermenting (for lagers) are better descriptions. All this to produce what you are probably holding in your hand!

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