

Burton Unions *Principles and Practice of Brewing*

by Walter J. Sykes 1897

These are considered by many to be the highest development of the cleansing system. In it, the casks, which are of about four barrels' capacity, are permanently mounted on tall wooden stands, to which they are slung by means of two axles, one attached to each head. These work in bearings, and permit the cask to be rotated on its axis, for which purpose one of the heads of the trunnions is made square, so that a handle may be attached to it when necessary. The bung-hole of each cask is provided with a conical brass socket, into which fits a hollow brass plug, carrying a pipe to convey away the yeast. This is called the "swan neck," and consists of a tinned copper tube, which, after being carried up vertically a foot and a half or two feet, makes a turn of half a circle, and curves over into a long wooden trough, which extends between the two rows of adjacent casks, and is called the "yeast trough." At one end of this another vessel is fixed, called the "feed trough", which has a capacity of five or six barrels. A tap is fixed into the bottom of this, from which a pipe of about two inches in diameter proceeds, extending in front of each row of unions, and giving off a short branch to each cask, with which it can be connected by means of a union joint to a tap permanently fixed in the head of the cask. Another cock is fixed in each cask exactly opposite the bung-hole, and is provided with a short tube which projects some little distance inside the cask, and which can be raised or lowered by means of a screw. This serves for the removal of the fermented beer, and, as the tube communicating with the tap is some little height above the bottom, it serves to hold back the bottoms. When a set of unions are cleansed, the swan-necks are first removed and the feed-pipe communications unscrewed; the handle is then attached to each cask in turn, boiling water poured into it, and the cask rotated on its axis; this is an objectionable feature in the system, for the introduction of large quantities of hot water into the fermenting room necessarily raises its temperature.



A little history behind the "Unions" by Mike Retzlaff

The unions were developed over a period of years to "cleanse" the fermenting beer. The reward was a major reduction of the considerable waste of beer during fermentation (foam is about 25% beer), the ability to collect the large quantity of yeast normally lost to blow-off, and a yeast less susceptible to mutation. Just after the initial phase of fermentation, the beer is transferred to the unions. The hop particles and trub are driven by the foam, pushed out of the cask, up the goose neck, and into the trough. There the foam condenses and the "cleansed" beer is returned to the casks along with some of the yeast. The rest of the yeast is harvested and used to ferment subsequent batches of beer.

By 1890, every brewery in Burton upon Trent used the system. This was only one innovation in brewing among a long line of advances but, by the 21st century, the Burton Union system was nearly extinct - only Marston's still uses it to brew their Pedigree Pale Ale.

Firestone-Walker in California uses a variation of this system and there has been talk in reviving the Unions by a number of other craft breweries. It is an expensive addition to any facility. Many claim that the classic Bass Pale Ale didn't taste the same after the Burton Unions were abandoned over 30 years ago. Since 2005, Marston's brews Bass PA for the cask but they ferment it in Yorkshire Squares.

For a home-brewing adaptation of the Burton Union system, go to the CCH website and find "Burton Union Build" in the Articles area. You might be the first brewer in your neighborhood to truly "Burtonize" your beer!