

Chesterfield and District Local History Society

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ST. GEORGE'S WORKS — ONE DEPARTMENT OF T.P. WOOD & Co.

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extracted from *T. P. Wood's Almanac* (1933)

St. George's Works, which were acquired from the late Alderman T. P. Wood by the Chesterfield Brewery Company twenty one years ago, were established in 1862 and the firm quickly gained a high reputation for the excellence of the waters manufactured. The late Alderman T. P. Wood was never satisfied with anything but the best and the high quality that was attained is indicated by the fact that in 1873, the year an extension was made to the existing building, Alderman Wood was awarded a prize medal for soda water at the London Annual International Exhibition of Fine Arts, Industries and Inventions. On one side of the medal is an embossed likeness of the then Heir Apparent with the words around; *Albert Edward, Prince of Wales, President*. At an earlier date mineral waters made at St. George's Works were shown at the Paris Exhibition of 1867 and a trade periodical describes Mr T. P. Wood as one of the most enterprising amongst English manufacturers of aerated and mineral waters.

'His goods are familiar to the grocery trade', the article continues, 'On account of their variety and the moderate prices at which he sells them. We find nothing of the kind in any of the other sections of the exhibition.'

It is interesting to note that the same formula for the manufacture of soda water and other drinks are used by the firm up to this day. Aerated waters are beverages charged with an excess of carbonic acid gas. Aerated water was originally made about 1767 in imitation of natural mineral waters, but the term now includes beverages such as lemonade and ginger ale, which contained no mineral matter. Aerated waters were first made by machinery on a commercial scale early in the 19th century, the Struve patent being the earliest example of the machines employed.

The manufacture of aerated waters is an interesting process. Only pure cane sugar is used in this establishment and this forms the basis of the beverages. The cane sugar is reduced to a syrup by the application of boiling water. Essences and oils are then added to give it the necessary flavour, and having cooled it is taken to a bottle filling machine, which pumps the requisite quantity into each bottle, which is made up at the same time with the proper portion of carbonated water, the marble being forced into the neck of the bottle by the pressure of the gas inside the bottle.

Aeration, as it is called, consists in saturating water under pressure with carbonic acid gas. Water at ordinary temperature, say 60 degrees F, absorbs about its own weight of this gas (if cold, it absorbs more; if warm, less). If the pressure on the gas be doubled, the volume is

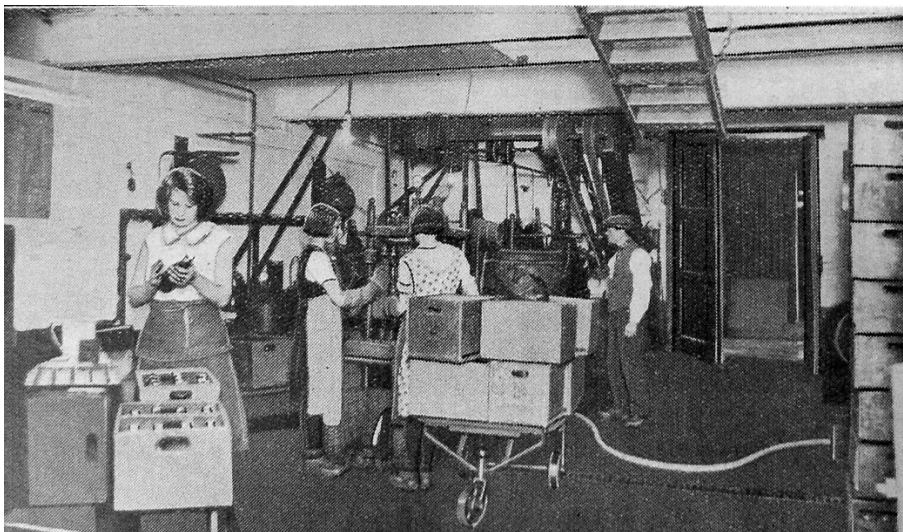
approximately halved; if doubled again, the volume is again halved, but no matter what pressure, one pint of cold water (60 degrees F) absorbs one pint of the gas. If then, the atmospheric pressure is doubled by applying 15lbs square inch there is twice the amount of gas in the water. On releasing the pressure the excess of gas escapes into the air. As ordinary bottling is done at about 60lbs per square inch pressure, a large amount of the gas is absorbed by the liquid. There are in the works two Codd bottle filling machines, and the capacity of each machine is 80 dozen bottles per hour.

Soda Water Manufacture

Syphons are filled by pumping water, to which soda and other ingredients have been added to a machine which forces the water into the receptacles at a pressure of 180lbs to the square inch. Two syphons are placed in the machine at the same time. The lever is then pressed down and the soda water is forced in so that the pressure in the syphon is equal to that at which the water is entering. The gas in the syphon contains about 0.6% of air, the rest carbonic acid. There must not be more than two percent of air or the syphon cannot be properly emptied.

Every bottle passes through a washing and sterilising plant in which it is sterilised, brushed and rinsed inside with water under pressure. The mineral water factory has a capacity of 3000 dozen bottles per week.

The bottling of naturally conditioned beer is carried out in cellars. The beer arrives in casks, which are placed on gantries, where they remain until their contents have reached the necessary brightness. A pipe is then attached to the cask and through this the beer flows to a syphon filling machine which is worked by a small electric motor. There are eight filling heads on the machine and the bottles are filled as the machine rotates. Each machine has a capacity of 50 dozen bottles per hour. A crown cork is next stamped by a machine onto the bottle neck, after which the full bottles are placed in bins and left for from five to seven weeks to condition. The beer is then ready to dispatch to customers.

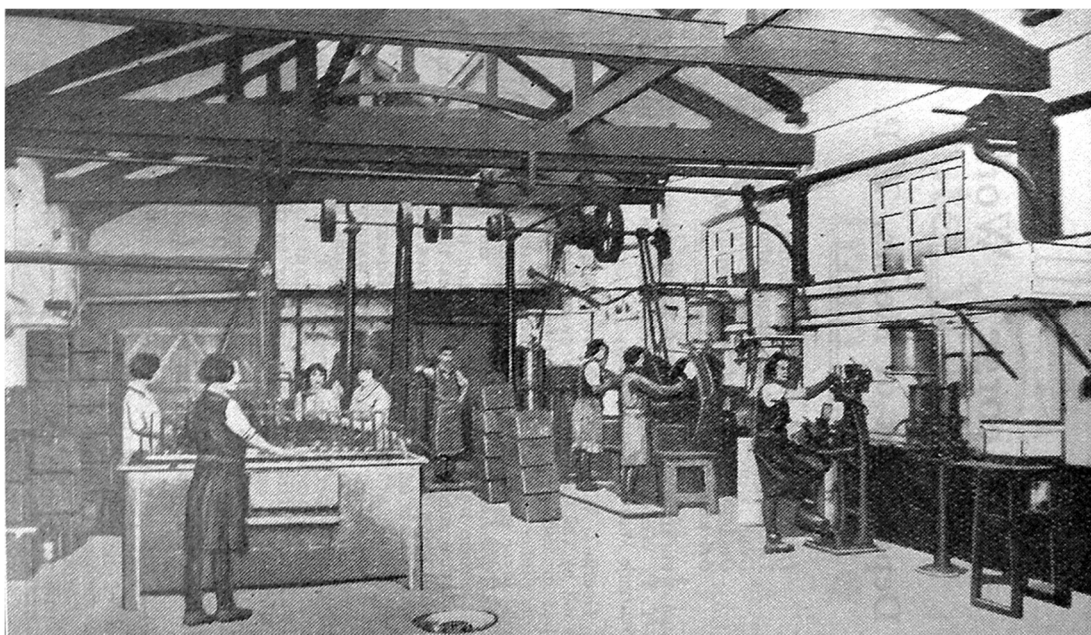


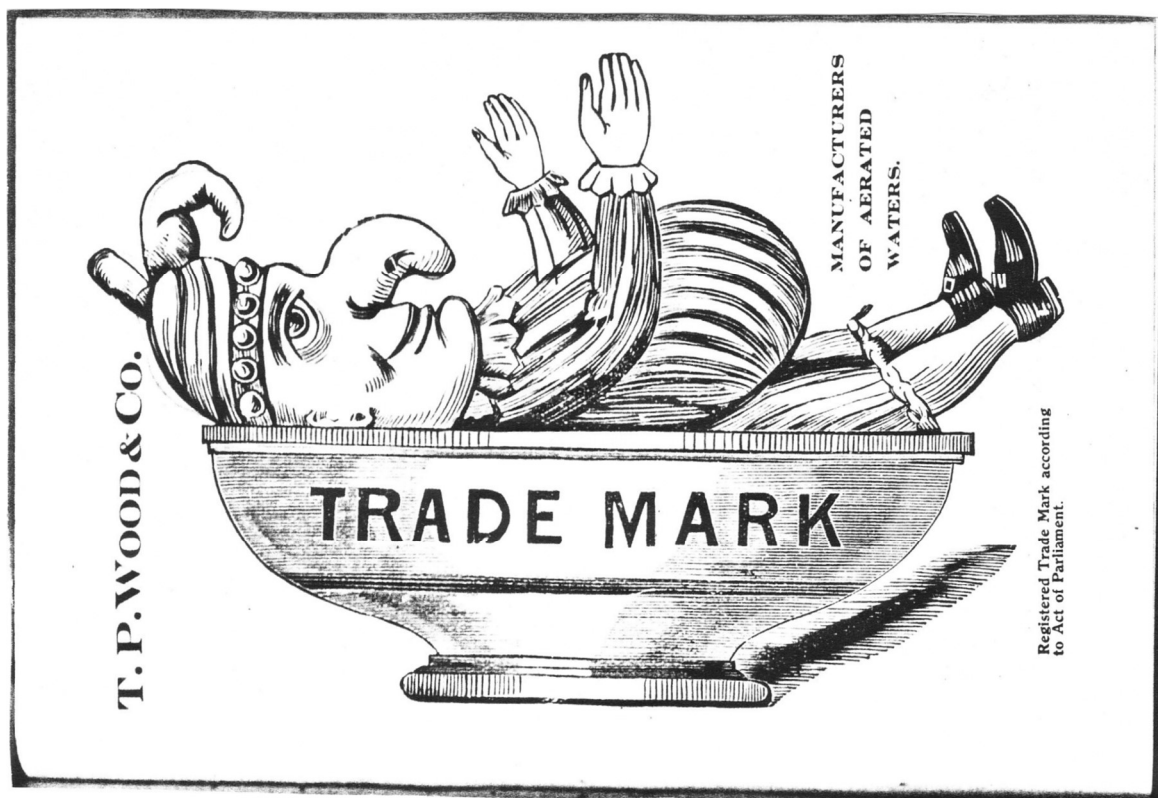
Beer which has been brewed by the Chesterfield Brewery Company, is bottled in the carbonating room,

which is an entirely different process from that just described. In the case of naturally conditioned beer its own gas is formed by leaving it for the period stated, but in carbonated beer the gas is applied by machinery, thus enabling it to be ready for use immediately it has been bottled.

The beer is blown by air pressure into a glass globe, the pressure being obtained by means of an air pump. Attached to the globe is a curved tube through which the air which has been displaced escapes. The beer is next pumped from the globe by a special carbonating pump, and carbonic acid gas applied to it from a similar globe. Having been mixed together it goes to a large cylinder and the chilling of the beer now commences. Between the cylinder and the filling machine is a large compressor, and a large tank containing brine, in which coils have been placed, one coil being connected with the compressor, and the other coil, through which the beer flows, to the filling machine. The working, of the compressor results in the temperature of the beer being reduced to about 30 degrees F. or 2 degrees below freezing point and the low temperature is caused by the circulation and re-compression of carbonic acid id gas. The gas is compressed into a very small pipe and it then enters a large pipe when reaching the brine tank, and the expansion of the gas results in the low temperatures of the brine. After having accomplished its task in the brine tank the gas is transferred to be re-compressed and returns again after cooling. The beer is then passed through very tightly packed filters, which remove any sediment caused by the chilling process, and thence to the bottle filling machine. This machine is attended by two girls, who take the precaution of wearing masks to prevent injury due to bursting bottles. It rotates and has eight filling heads and a capacity of 60 dozen bottles per hour. All beer dealt with in this matter consists of All Bright, Luncheon, Bitter and Punch Ales of the Chesterfield Brewery Company.

All the bottles before being used are washed and sterilised in a washing machine. The bottles are first soaked, with the object of removing the labels and then they pass through clean water to the brushes, which brush both the inside and the outside of the bottles simultaneously. The interior of the bottles are next rinsed and afterwards dried in the drying house.





T. P. Wood & Co's.

Celebrated MINERAL WATERS are
Wholesome and Refreshing.

The following Aerated Waters are of the
Highest Quality—

GYDER SNAP
LEMONADE,
GINGER ALE,
STONE GINGER,
HOP BITTERS,
HOP ADE,
DRY GINGER
SODA WATER.
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SYPHONS.

Soda Water and Lemonade in 40-oz. bottles.

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.. BOTTLEERS, ..

High Street, Chesterfield.

Chesterfield Brewery Co., Ltd., Noted
Prize Ales.

BITTER BEER, In $\frac{1}{2}$ pint bottles.

ALL-BRIGHT ALE In pint bottles.

LUNCHEON ALE In pint bottles.

"PUNCH" ALE In $\frac{1}{2}$ pint bottles.

Bass' Pale Ale, Guinness' Stout,
Worthington Pale Ale, Bass & Co.'s
Barley Wine, in good condition.