

and a tub, preferable of cedar, with a false bottom, perforated, and of a capacity of say 20 gallons (an old-fashioned upright churn answers very well), is filled with about 14 gallons of water, at a temperature of from  $168^{\circ}$  to  $172^{\circ}$  F. Into this tub about half a bushel of malt is added, little by little, until the whole is well stirred in. The tub is then well covered and set away in a warm room, and allowed to remain perfectly at rest for a period of three or four hours, taking care that the temperature does not fall below  $150^{\circ}$  F.

This is the process of *mashing*. At the expiration of the allotted time, the stop-cock below the perforated diaphragm is opened, and water of a temperature a little above the extract, which is now being drawn off below, and which we shall now call the *wort*, is sprinkled by means of a sieve or plant sprinkler, upon the top of the malt until the wort being drawn off below is almost tasteless or of so low a specific gravity that it will not pay the cost of evaporation. In large operations this sprinkling is done by means of a patented revolving instrument called a "sparge," and which much resembles a lawn sprinkler, that revolves by the pressure of the water being ejected from each side in opposite directions, the water being supplied from a large tank in which it is heated by steam, and the exact temperature being easily controlled by valves commanding abundant supplies of both cold water and steam. This wort that we have drawn off from our mash-tub or percolator, we now place in the capsule or copper kettle, and evaporate by means of a water-bath to the required consistence; the first run should have a high specific gravity, and contain about a pound of malt sugar to the gallon of wort. We present samples of this evaporated wort, which is now our malt extract.

A word now regarding cleanliness. The mash-tub and all other wooden or metal utensils should be washed out at least once a week with dilute solution of caustic potash or soda, and any barrels, tubs, etc., should be kept filled with lime water when not in use, as the tendency of the wort which may be left in them is very great toward fermentation, and a few grains of malt accidentally left in the tub, and which have undergone putrefactive change, may completely spoil the subsequent batch of malt at the next mashing.

Extract of malt with iron is easily prepared by the addition of a syrupy solution of ferric pyrophosphate, in the proportion of four grains to the tablespoonful.

Extract of malt with pepsin has been proposed as a valuable preparation in dyspeptic troubles, since it would certainly have valuable digestive properties, acting upon both amylaceous and albuminous substances.

Extract of malt with cod liver oil is proposed as the acme of all emulsions of cod liver oil. When we reflect on the fact of cod liver oil being simply food and not medicine, and then combine this with