



A vat of fermenting " marc " with the agitator at work.

casks. It is pumped through a strainer at the bottom of the vat, leaving behind the skins and sediment, but carrying with it the yeast which has not yet completed its work.

The casks, huge oval barrels containing from 500 to 1,500 gallons, are made of Baltic oak. If this wood is not procurable, New Zealand totara is reasonably suitable and is used both for new casks and for repairing old oaken containers. Here the wine will continue to ferment for another two or three weeks, by which time the yeast will have been worked out and will settle to the bottom of the cask. During this final fermentation the casks must be kept brimful to avoid unnecessary exposure of the wine to the air. In order to allow the escape of gas given off by the fermenting wine and yet protect it from vinegar flies and dirt, a loosely packed bag of sand is placed over the bung-hole. As soon as the fermentation ceases the wine is drawn off into clean casks (a process known as "racking"), leaving behind the sediment, or "lees."

Fortification of the wine with rectified brandy is now necessary to kill any bacteria and stop further fermentation. A sweet wine usually contains 27 to 28 per cent. proof spirit after fermentation ceases, and sufficient spirit is now added to bring the wine up to 32 per cent. proof. If the wine is deficient in sugar, small quantities may also be added.

The fortifying spirit is distilled from the "lees" remaining after the clear wine has been drawn off or from wine made from poor-quality grapes. Only vineyards with a certain acreage are allowed to operate stills. In these the wine is boiled and the volatile alcoholic vapours caught, distilled, and condensed.

The wine is not ready to drink. It must mature for another three years while certain chemical and organic changes take place. Wine is a living liquid and, though the casks will be brimful and tightly bunged, it will continue to breathe through the pores in the wood and so mature.

During this ageing process the wine must be drawn off into other casks at regular intervals to free the clear wine from the cloudy wine which settles to the bottom of the cask. This siphoning (racking), which should take place with as little exposure to the air as possible, is done four times the first year, three times the second and twice the third. As the rackings progress there will be a proportionately smaller amount of sediment remaining.

After the wine has come of age it will be clear, but not yet "candle-bright" as it must be before bottling. This "bottle-ripe" condition is attained by the addition of finings to the matured wine to free it from any particles still in suspension. The wine should now produce no further sediment and is ready for bottling.

This is done on a rotary filler, after which the bottles are corked, labelled, and crated and are ready for the last operations—the insertion of the corkscrew and the gurgle into the wine-glass.

White wines are made similarly to red, except that the grapes need not be stripped of their stalks before being put through a press which extracts only the juice. This "must" can be fermented in the wood immediately, although with large quantities the use of concrete vats is desirable. Both black and white grapes put through this press will produce