

must have noticed immediately after effecting solution of the quinine the formation of a brown flocculent precipitate, varying probably with different orange wines somewhat in quantity, but always considerable and always of the same appearance. The precipitate is annoying, especially to makers of large quantities of the wine, as it both necessitates filtration and renders the process tedious. Moreover, a second deposit after a time almost invariably again forms, which, although smaller in quantity, is even more troublesome if it appears, as very probably it may, after the preparation has been bottled and stored. To determine the nature, cause, and extent of this precipitate, a series of investigations were undertaken, the result of which may be briefly summarised as follows, viz:—1st. The precipitate was found to be principally tannate of quinine, along with extractive and colouring matters. 2nd. The quinine recovered from the deposit varied in quantity, but was frequently found to form a large percentage of the quinine originally added to the wine. And 3rd. The deposit continued to form so long as any tannin was found to exist in the wine, after which the addition to any extent of more quinine and citric acid gave no further precipitate. The raisins from which the wine is generally fermented were at first suspected as being the primary cause of the presence of the tannin, but from further inquiries it was ascertained that tannin is very generally employed to clarify the wine in certain stages of the process of fermentation, and that the excess of tannin thus added is afterwards removed from the wine by the addition of isinglass. This process, even where carefully conducted, seems at the best to partake a good deal of the rule of thumb procedure, the principal care apparently being not to add too much of the isinglass, excess of which in the wine is in some respects even more objectionable than the tannin. Of many plans which have been tried to rid the wine of the superfluous tannin, none have been altogether successful which have not in some way or another been objectionable, so that we have come to look upon quinine wine with considerable suspicion. Even when honestly prepared, which we are sorry to say it very seldom is, it is apparent that the quinine which it contains must ultimately be an unknown factor, whilst it has this further serious objection, that in too many instances it contains also an unknown quantity of alcohol. The Pharmacopœia states that it contains about 12 per cent, but this will be found insufficient to keep it from decomposition, and as a matter of fact most commercial orange wines contains double this percentage of alcohol, and even in some instances we are aware they have contained more, thus exceeding in strength even a fortified sherry.