

slum or sodium appeared within the drops. Where an acid is present in the filling material, as is usually the case, the deposit will take place in a crystalline form. Dr. Mylius and others have found that these deposits are more likely to occur in glass rich in alkalis, while in those having a large proportion of lead they are less likely to occur. The harder the glass the less likelihood is there of the deposit occurring. Also that they are more likely to occur where the surface is rough than where it is highly polished. To demonstrate this he roughened a delicate level tube, previously unruined, and found after the lapse of some weeks deposits occurring on the roughened surface.

Where such substances as alcohol and water are used for the filling material, the formation of crystal is prevented since the alkalis extracted from the glass will go into solution. Alcohol is, however, not sufficiently mobile for delicate levels. Experiments on the use of other fluid substances, such as benzolene, petroleum, and chloroform, have been made, but in them also the deposit of water occurs. The solution of the difficulty seems to lie in a proper selection of the glass. Flint glass having a large proportion of lead is not suitable owing to its softness and liability to alter its form. The choice of glass would seem to lie between Bohemian glass containing chalk, the rheometer glass containing zinc, and crystal glass containing lead.

When we consider the many defects to which a level is subject, it becomes obvious that it is an instrument which, while it is capable of yielding results of the highest accuracy, is also one to be used with great precaution. In fact, it can only be considered an instrument of precision when subjected to careful examination and test during the period covered by the observation in which it is being employed, and under conditions similar to those in which it is being used.