

effects by laboratory experiments alone, then the prohibitory legislation needs no better defence.

Without anticipating further the results of these experiments, I shall proceed to describe them, so that the reader may be in a position to draw his own conclusions, if he differs from mine.

THE SINKING OF SAWDUST.

As regards the sinking of sawdust, the following experiment was typical of a large number which were carried out, in order to determine how much and how quickly sawdust sank after being thrown into the water at the tail end of a mill.

A litre measure was filled up to 900 c.c. with tap water, and then 100 c.c. of moderately packed pine sawdust was poured upon the water. The moment the sawdust touched the surface, particles began falling to the bottom, and continued to fall for nearly twenty minutes. During this time the water had penetrated 100 c.c. of the floating sawdust, and this volume of it began to sink very slowly *en masse*. Figure 1 represents

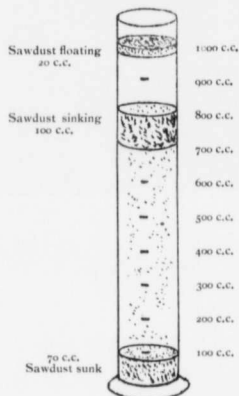


FIG. 1.

Litre measure at end of 20 minutes.

the conditions in the experiment at the end of the 20 minutes. No less than 70 c.c. of the sawdust lay at the bottom; 100 c.c. were between the 700 and 800 marks, and about 20 c.c. only were floating. The 100 c.c. of sawdust at the beginning of the experiment had swollen to nearly 200 c.c. On giving the vessel a slight tap, the 100 c.c. of water-logged sawdust, lying between the 700 and 800 c.c. marks, suddenly upset and most of it sank to the bottom. The large particles, however, rose again to the top, so that in less than three minutes more, only 30 c.c. were floating, and the rest, swollen to 170 c.c., were lying at the bottom.

The following conclusions are based upon the results of many similar experiments: From 50 per cent. to 80 per cent. of white pine sawdust sinks in standing water, in from two to three minutes. The variations in quantity and time depend upon, (1) the size of the particles (2) upon the manner