

in which they are made, (3) upon whether the water is perfectly still or agitated, and (4) upon whether the particles are dry or moist.

Large particles sink much more slowly than small ones, because the latter are more easily penetrated through and through by the water.

Dust made with a hand-saw sinks more slowly than sawdust made with a large mill saw. The difference seems to be due to the difference in the force with which each is made. A large upright or circular lumber saw strikes the log with great force, squeezes out the imprisoned air from the wood fibres, renders them denser, and as a consequence they sink more quickly than particles of a similar or smaller kind which have been made by a hand-saw.

When water is slightly agitated, sawdust thrown upon it sinks more quickly than when the water is perfectly still. Consequently, in the swells of a steamer, in the waves made by wind, and in the ripple of a slight rapids, all the sawdust excepting the largest particles would sink to the bottom in a few minutes.

If thrown into a rapidly flowing stream, sawdust is carried downwards until it reaches comparatively still water, and then the finer particles sink; the coarser may be carried for miles and miles down a river and out into the bays of a lake or sea.

In laboratory experiments the coarser particles would float for days, because the water is unable to penetrate the fibre and displace the imprisoned air, which gives to wood its buoyancy. Wood fibre is, of course, heavier than water, and therefore sinks; and pine logs would sink much more quickly than they do only that the water cannot penetrate their interstices and drive out the air. Yet they do sink in considerable numbers, as every lumberman knows.

Hardwood logs cannot be floated to market at all, because the water of the cell-sap permeates them, rendering them heavier than water and they sink. A very simple experiment illustrates how pine logs sink after being in the water some time. Throw a piece of black-board crayon into a dish of water. At first it floats, but soon bubbles of air escape from the chalk, and in a few moments it sinks to the bottom. So is it with sawdust and logs.

Sawdust from cedar takes a longer time to sink than that from pine. In fifteen minutes 66 per cent. only had sunk, probably because it contains more resin and consequently water-logs more slowly. Maple