

In addition, there are the fish and animal oils, so that the rarity of pure linseed oil is not to be wondered at.

The purity of linseed oil may be roughly tested by shaking it well; if iridescent bubbles appear on the surface, it is adulterated with benzine or mineral oil; if sulphuric acid is present, the paint when shaken and then allowed to stand will thicken into a brown paste. Other rough tests are: Brush it upon brown paper, and expose to the sun's rays; the water, benzine, etc., will evaporate and leave the oil. Dip a sheet of well-sized paper into the oil, and hang it up to dry; when dry the whole of the sheet should show a well-varnished coating; if only the bottom of the paper is varnished, the oil is insufficiently boiled. Brush the oil on a smooth wood surface; if it turns white, "blooms" in drying, it is adulterated with resin.

Oil, when spread out thinly, dries by absorbing oxygen from the air; the water and vapor passing out create multitudes of very minute holes in the oil cover, where water may enter; these holes are partly filled up by the second coat of paint. While the oil is absorbing oxygen, it adds 13 to 14 per cent. to its weight.

PIGMENTS.

After reading what the different manufacturers say about the price, covering capacity, and durability of their own particular paints, and the folly of using anything else, a person is inclined to believe fully in David's hasty assertion that "all men are liars."

The following comparative statement of the cost of painting a 100-foot span steel bridge, with a number of kinds of good paint, is taken from a statement published by C. E. Fowler, C.E., in the *Engineering News* of Feb. 6th, 1896. The cost of painting spans from 20 feet to 300 feet was accurately determined, and it will be seen that, after all, there is very little difference in the first cost between good qualities of the usual kinds of paint used for general railroad work; there being only \$9.25 difference between oxide of iron and red lead for a span of 100 feet.