cation into shape, but enough usually remains on, to render ineffective the paint with which it may be coated. This scale should be thoroughly removed at the shop by scraping, or with wire brushes, after which a priming coat will take hold. Some authorities recommend that before scraping off the scale, the iron should be allowed to rust slightly, as giving a better hold for the paint. In any case, the paint should be thoroughly well rubbed into the surface, and the boiled oil and turpentine with which it is mixed, and on which its value largely depends, should be of the first quality. All things considered, the mineral paints prepared from iron ores are the best priming paints, since they are inexpensive, and therefore unadulterated, which can not be said of many of the red leads (a favorite priming paint with some engineers) in the market. Before shipment, iron surfaces that have had machine-work put upon them, called bright iron, should be coated with tallow, to which a body of white-lead has been given. After a bridge has been erected, it should have at least two coats of tinted lead paints, care being taken that the brush reaches all the crevices about the joints. The color of the final coat or coats had better be of such a tint as will show the first indication of rust. All tints bordering on cream, buff, and different greys, answer this purpose excellently well; and as an additional advantage, these tints form a pleasing and appropriate ground for decorative effect, occasionally required for first-class city bridges. It is recommended that all iron bridges should have two additional coats of lead paint the second season after their