

tain ability at the game of bluff. He has been started in business by some more or less unsubstantial wholesale house anxious to secure paper to put through the bank, and having no other account in the town. Our honest, but inexperienced friend, pays the firm which started him more or less on account for a few years, gradually extending his credit and buying more largely from other houses. Bargain sales are frequent, prices are marked down to cost or below it, money is got in somehow or other. The promoting wholesaler has had a good deal of cash on account, he has notes to cover the rest, and—most beautiful feature of the whole system—when the inevitable crash comes, he is a preferred creditor, and is able to clear a nice little profit on the whole transaction. Our honest retailer and his honest backer have both made money. The firms which have recently opened accounts for the former may get 25 cents on the dollar; and all the parties to the game proceed to play it again. The merchant next door who all this time has paid one hundred cents on the dollar, finds his capital gone, his stocks depreciated by his rival's price-cutting, and is forced to the conclusion, that if the law does not soon make an honest man's path plainer, he will be driven to stealing too.

**Fireproof Construction.** There has been a great deal said of recent years about fireproof construction in mill-building. The fireproof idea has taken hold of builders generally, and it has been introduced wherever architects could persuade capitalists to allow them to experiment with all the pleasant new problems of girders and terra cotta coverings. The truth is, however, that while a fireproof building will not burn up, it will fall down whenever it gets even moderately warmed, as the girders and pillars become pliable at even a not very high temperature, and by yielding very slightly cause the entire building to fall. This is clearly shown by the following extract from the *Timber News*: "Another fireproof building destroyed. The statement reads like a contradiction of terms, and so it is. But there are hundreds of architects who will not believe it; none are so deaf as they who will not hear, and none so blind as proud philosophers who will not see. The fact is that a five-story, brick-built, brick-arched, iron-girded, iron-windowed, iron-roofed, guaranteed absolutely fireproof factory, was completely gutted by fire in the short space of two hours. Floor after floor tumbled, and in two hours the structure was a complete wreck." This is a valuable suggestion to the manufacturers in Canada who are thinking of extending or rebuilding their mill premises. The slow burning construction, i. e., that in which solid timber and plaster-filled floors are a prominent feature, is much to be preferred to the so-called fire-proof construction which is after all only an experiment, and so far has nearly all the evidence against it.

#### — DYEING. —

The following lecture, delivered by Prof. J. J. Hummel, director of the dyeing department of the Yorkshire College, Leeds, Eng., at the Imperial Institute, should be of interest to textile manufacturers.

The lecturer introduced his subject by giving a brief historical survey of the rise and progress of dyeing, in the following terms: The origin of the art of dyeing is shrouded in the mists of antiquity, and it may now be impossible to discover all the ways and means by which it has been developed from its earliest and simplest beginnings. Its practice, no doubt, originated with the first dawn of civilization in different parts of the world, so that long before facts and history were recorded, the art of dyeing had considerably advanced among some nations. Historical evidence points to the conclusion that already at a very remote period there existed a high degree of civilization in Persia and India, and there are many reasons for believing that the arts of dyeing and printing have been practised in India during a long succession of ages. From a very early period Indian manufactures and products were highly prized throughout southern Asia; gradually they found their way to Egypt, with which country an intercourse seems to have existed from the earliest times, by way of the Persian and Arabian gulfs. In due course the Egyptians themselves began to practise the arts of dyeing and calico printing, no doubt utilizing the knowledge and materials derived from India, and we have a record of the methods they employed, as witnessed by Pliny. He says: "*In Egypt garments are dyed by a very singular process. They are first cleaned, then painted, not with colors, but with substances fit to absorb color. These substances are not to be seen on the cloth at first, but after plunging the latter into the dye-vessel, they are taken out a moment afterwards quite dyed, and what is most wonderful is, that whereas the dye-vessel contains only a single coloring matter, it nevertheless imparts different colors to the stuff plunged into it, painting as it boils.*" From this passage, then, it seems that the ancient Egyptians knew how to apply in practice the art of dyeing with the aid of certain metallic salts, as I shall afterwards explain. Curiously enough, the Greeks and Romans seem to have made but slight advance in the art of dyeing. About the fifth century, any little progress there might have been was completely arrested by war, and it did not revive till about the end of the twelfth century, when we find the principal seats of dyeing to be Venice and Florence, where during the barbarism of the preceding period, a decayed remnant of the art had survived. From Italy some knowledge of dyeing spread gradually to France, Spain and Flanders, and it was from the latter country, where considerable perfection in the art had been attained, that Edward III. procured dyers for this country, where, in 1472, a Dyer's Company was incorporated in London. The subsequent discovery of America, in 1492, and the opening up of the way to the East Indies round the Cape of Good Hope in 1498, gave a new impetus to the industry of dyeing. A number of new dyestuffs were introduced by the Portuguese, Spaniards and Dutch.

The Indian products now come direct to Europe, round the Cape, without passing through the hands of the merchants of Persia and Asia Minor, and with the art-fabrics came also information as to the methods of their production. It was in this way that the art of calico-