EXPERIMENTS WITH IRON.

There are so many buildings in London and other large cities which depend for their stability upon a metal framework, that experiments carried out with a view to ascertain the effects of a fire upon the iron or steelwork of which they are composed cannot fail to be of very great interest to all who are responsible for structures of this character. Experiments were made a short time ago at Vienna, under the supervision of the city surveyor, with the object of testing the efficiency of various building materials against fire. and also to ascertain what protection they were capable of affording to ironwork To make these tests a brick chamber some 12 ft. by 8 ft. in plan and 11½ ft. high was built, and in the centre an iron column was constructed consisting of two channel-bars, 5½ in. by 3¾ in. These channels were placed 2½ inches apart, back to back, and were braced together with light lattice-bars. Within the chest between the channels, test-bars, composed of various alloys melting at temperatures between 150 deg. Fahr, and 1,650 deg. Fahr., were placed, the column afterwards being surrounded with brickwork in mortar, thus forming a pier some 18 in. square. In order that the test should as nearly as possible resemble the conditions met with in actual practice, the column was loaded with a sufficient weight to cause a stress of 3¼ tons per square inch on the ironwork. Fuel was then strewed over the floor of the chamber to a depth of some 3 ft., and the firing was fully maintained for a space of 2½ hours, and was subsequently extinguished by the fire brigade. The heat had. however, been so great that it was not till the next day that a thorough examination of its effect could be made, but it was then discovered that although the edges of the brickwork pier were crumbled to an extent of 1½ inches., the iron column was quite uninjured, and only the test-bar, capable of fusing at 150 deg. Fahr., showed any indication of melting. It would thus appear that the brickwork was of ample thickness to protect the ironwork, and that when such construction is adopted in actual practice a building is probably as fire proof as it is possible to make it.

"ROUGH CAST" IN PLASTER OR CEMENT.

In discussing the difficulty of securing durable outside plaster or cement "rough cast," either in plain surfaces or with half timber work, a correspondent of the Brickbuilder writes to that journal an interesting letter in which, among other things, he says :—

"There seems to be many different opinions as to the best method to follow for combined durability and effect ; some, including one of our most eminent practical architects, advocating pure lime mortar with long hair or fibre, and others claiming that only pure cement mortar on metal lath, or expanded metal, can be relied upon. On a half timbered country house, built a year ago, I used lime, sand and hair mortar on metal lath for the first coat, and cement and sand (one to one) for the second coat after the first had hardened for some time, the mortar and hair taking a strong "clinch" in the metal lath, and the cement forming a thin, extremely hard protecting "skin" over the first coat. I should say that the work would be much better if the first coat were left uncovered for four or five weeks at least, in order to harden under atmospheric action, but so far this piece of work seems successful." We have no doubt many of our readers are interested in this subject and that an expression of opinion on the part of those experienced in this particular line would prove very valuable and instructive.