

COLUMN FOUNDATIONS.

A the foundations of a heavy building are sometimes the cause of anxiety, the following particulars relative to the Government Printing Office, Washington, may be both found useful and interesting. The building in question is a fire-proof structure of steel, brick and concrete, supported by 178 steel columns arranged about 12 feet apart in six rows, varying from 31 ft. 6 inches to 35 feet apart. All the columns are seated on battered solid concrete piers, carried down to a depth of six feet or more below the basement floor, according to the conditions ascertained in each case. Preliminary tests of the earth were made by excavating pits inside cylinders 6 feet in diameter; timbers measuring twelve inches square were then placed vertically in the pits, and it was proved that loads ranging from 8 tons to 12 tons could be imposed without settlement. Hence, the safe bearing power of the earth was taken at 4 tons per square foot, but the foundations were designed with a bearing surface of 1 square foot per 4 tons of dead load, and one square foot per 3 tons of live load. The soil consists of sand, with some gravel and clay, and is saturated with water nearly to the level of the basement floor. Therefore, foundation pits were sheeted, and wherever clay was encountered, they were sunk down to clean sand, regardless of cost. Separate piers are provided for the columns, all being proportioned for maximum loads of 20 tons per square foot at the top, and the sides are battered so as to provide at the bottom the bearing surface before mentioned. At least 12 inches of the lower part of each pier was made with parallel sides with the object of avoiding

weakness at the toe. The spaces in the pits around the columns were filled with concrete, and the tops of all the main piers were finished flush with the basement floor, being capped with grillages made of steel I-beams, arranged so as to form rivetted pedestals 6 ft. square, receiving the cast iron bases of the steel columns.—The Builder.

NOTES.

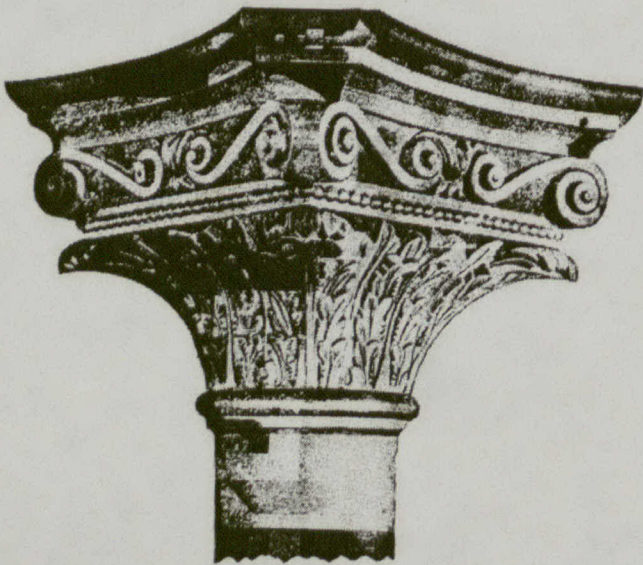
One of the most attractive exhibits, made at the recent Toronto Exposition was that of the James Morrison Brass Manufacturing Company, Limited, of Toronto. At one end of the prettily decorated booth was shown a thoroughly modern bath room fitted with high grade sanitary appliances. Grouped on the ceiling and decorating the side walls was a fine exhibit of gas and electric lighting fixtures. The exhibit also included a complete line of valves, gauges, steam traps, injectors, oil cups and other brass specialties.

A third revised and enlarged edition of Mr. George P. Merrill's book, "Stones for Building and Decoration," has been published by Messrs. John Wiley & Sons, New York. The chapter on methods of testing has been entirely revised. A brief chapter on the use of drift bowlders for building purposes has also been introduced. Some new illustrations, including five maps showing the geographic distribution of the more important stones, have been added. The price of the book in cloth binding is \$5.00.

A new metal, to which the name of Seliu has been given, is reported to have been discovered by Edward Mollard, a Frenchman. It is claimed for this metal that it can be produced at one-twelfth of the cost of aluminum and that it is stronger and lighter. It does not rust, and will therefore displace other metals for shipbuilding, water and gas pipe, cooking utensils, etc. Its specific gravity is 2.6. It is harder than lead or zinc and not quite as hard as iron. While its tensile strength is greater than iron and less than steel, it melts at 28.82 degrees Fah. Seliu contracts in melting.

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