posed box-like piles which are now in a fair way to disgrace our neighbors in the eyes of European nations.

Gentlemen, let us also be severe in architectnre, to the extent at least of not allowing it to assume, as it is bidding fair to do in Ottawa, tee phase of what may be called "bed post archltecture," and in truth, though there are hundreds of otherwise very pretty villas and cottages in the new Ca ital, quite a number of their verandas and entrance porches are rendered hurtful to the eye of good taste, by being supported on bed posts, for they certainly cannot be called columns. And to cap the climax, in some of the twin dwelling houses or where there are two doors side by side, with a veranda or portico in common, the separation between the doors is for all you can imagine, of the exact shape of a partition between two horse stalls.

TABLE II.

Comparative table of sizes or sectional areas of brick piers to support fire proof or iron, brick and concrete floorings in buildings from 1 to 20 stories high. Weight per sup. ft. of roofing, flooring, partition walls, etc., 300 lbs., including 90 lbs. live load.

No. of Item for reference	No. of stories counting upwards.	No. of stories counting downwards.	Piers at 20' - 20' centres. Area supported 400 sqr. ft.			Piers at 20' - 10' centres. Area supported 200 sqr. ft.			Piers at 10' - 10' centres. Area supported 100 sqr. ft.			Piers calculated at 14 ft. high, 20 bricks per ft. cube		
			Area of pier in Ft. — In.	Size of pier square.	Weight supported in tons.	Area of pier in Ft. — In.	Size of pier square.	Weight supported in tons.	Area of pier in Ft. — In.	Size of pier square.	Weight supported in tons.	Cost of each pier at $30.00 mill.	Cost of each pier at $20.00.	Cost of each pier 10' - 10' at $20.00.
	Roof	Roof	' "	' "								$	$	
1			2.0	1.41	6	1	1.00	30	½	0.70	15	12	6	3
2	20	1	4.0	2.00	120	2	1.41	60	1	1.00	30	24	12	6
3	19	2	6.0	2.45	180	3	1.73	90	1½	1 29	45	36	18	9
4	18	3	8 0	2.83	240	4	2.00	120	2	1.41	60	48	24	12
5	17	4	10.0	3.16	300	5	2.24	150	2½	1.58	75	60	30	15
6	16	5	12.0	3.46	360	6	2.45	180	3	1.72	90	72	36	18
7	15	6	14.0	3.74	420	7	2.65	210	3½	1.87	105	84	42	21
8	14	7	16.0	4.00	480	8	2.83	240	4	2.00	120	96	48	24
9	13	8	18.0	4.24	540	9	3.00	270	4½	2 12	135	108	54	27
10	12	9	20.0	4.47	600	10	3.16	300	5	2.24	150	120	60	30
11	11	10	22.0	4.69	660	11	3.32	330	5½	2.35	165	132	66	33
12	10	11	24.0	4.90	720	12	3.46	360	6	2.45	180	144	72	36
13	9	12	26.0	5.10	780	13	3.60	390	6½	2.55	195	156	78	39
14	8	13	28.0	5.29	840	14	3 74	420	7	2.65	210	168	84	42
15	7	14	30.0	5 47	900	15	3 82	450	7½	2.74	225	180	90	45
16	6	15	32.0	5.65	960	16	4 00	480	8	2.83	240	192	96	48
17	5	16	31.0	5.83	1020	17	4.12	510	8½	2 92	255	204	102	51
18	4	17	36 0	6.00	1080	18	4.24	540	9	3.00	270	216	108	54
19	3	18	38.0	6.16	1140	19	4.36	570	9½	3.08	285	228	114	57
20	2	19	40.0	6.32	1200	20	4.47	600	10	3.16	300	240	120	60
21	1	20	42.0	6.48	1260	21	4.58	630	10½	3.24	315	252	126	63

TABLE III.

WEIGHTS PER SQUARE FOOT OR SUPERFICIAL FOOT BORNE BY PIERS AND FOUNDATIONS OF CERTAIN BUILDINGS, BRIDGES AND OTHER STRUCTURES.

Says Professor Butler, as given by Mortimer at page 104-5 of his "Hand-Book":

	Per sq. foot.
The load on the monolithic piers supporting the large churches in Europe does not exceed (early builders using much more massive masonry, proportionally to the load to be carried, than at present)	30 tons.
The Toff bridge in France	21 "
Former bridge at same place said to have failed at	64 "
Rennie subjected good 4 ft. rubble piers to	22 "
Granite piers Saltask bridge, England	9 "
Brooklyn bridge piers	29 "
St. Louis bridge piers before completion	38 "
The same after completion	19 "
Niagara suspension bridge limestone towers failed under	36 "
Maximum pressure on rubble masonry and cement mortar of some of the large masonry dams	14 "
Proposed Quaker bridge dam—270 ft. high	17 "
The following are from the writer and others:	
At centre of the Cheops pyramid say	40 "
Piers of the dome at St. Peters (the great thickness of these piers, say 20 to 30, renders the confined centre as resisting, so to say, as solid rock), say about	35 "
Weight on foot side walls Joliette church	2 "
Weight under tower (causing failure by sinking or settlement)	4 "
Strasbourg Cathedral tower, say	40 "
Washington monument, 555 feet high	45 "
Tower of Babel or of Belus, 650 ft. high, say	52 "
Central piers Britannia bridge	33 "
"Manhatten Life" building, 353 ft. high	15 "
The "Equitable" building and Union Trust, built with wide footings, load the foundations, it is said, only to	3 "
Proposed Hudson river bridge, 3,200 ft. span piers	26 "
The Stock Exchange, Chicago, is said to load the foundation soil at	4 "
Allowed by New York city regulations	15 "
Load per foot square of foundation brick piers of American Surety building, say	6 "
The author's design for the proposed London Eiffel tower (see fig. 5, page 18, of the 68 designs sent in, printed and published for "The Tower Company, Limited," by "Industries," 358 Strand, London, under title of "The Great Tower for London." Height of tower 1,600 ft., diameter at base 280 ft., total weight 14,303 tons, 20' wide offset balconies at every 200 ft. of total height, greatest weight on lower column at centre	117 "
Average weight on the 312 first tier columns	46 tons.
Total weight distributed by inverts or footings over the 61,600 ft. area, less than	¼ "
Weight at centre distributed by inverts or footings over the 100 ft. sup. of bearing to each colum at centre of tower	1⅛ "
Brunel (Paris) design for proposed London Eiffel tower, 500 ft. square, 2,296 ft. high, of granite, weight 196,902 tons, weight per foot square supported by bottom piers	160 "
Weight per square foot distributed over soil area of 250,000, say	4/5 "

TABLE IV.

CRUSHING TESTS OF BUILDING STONE.

For many years the resistance to crushing force shown by a building stone has been considered high evidence of its homogeneousness and durability.

The following table gives the resistance to crushing per square inch, shown by various stones, granites and marbles, and is compiled from General Q. A. Gillmore's report to the Chief of Engineers, United States Army; from Haswell's Engineer's Pocket Book; from "Stones for Building and Decoration," by Dr. Geo. P. Merrill, of the Department of Geology, Smithsonian Institution, and from tests made by Mr. Ira H. Woolson, C.E., at the request of the Professor of Geology of Columbia College School of Mines, on the Emery testing machine belonging to the college. Where tests have been made on a number of specimens, the highest result is given.

Paving brick should stand 10,000.00 to inch crushing force and absorb not over 2 to 3 per cent. of water.

CRUSHING WEIGHT PER SQUARE.

	Inches in Pounds.	Feet in Tons.
Aberdeen, Scotland, Granite (Haswell)	10,760	774.7
Albion, New York, Sandstone (Gillmore)	13,500	972.0
Altamount, California, Sandstone (Merrill)	1,149	82.7
Arbroath, England, Sandstone (Haswell)	7,850	460.2
Aquia Creek, —— Sandstone (Haswell)	5,340	389.5
Bardstown, Kentucky, Limestone (Gillmore)	16,250	1,170.0
Bay of Fundy, Canada, Granite (Gillmore)	12,020	865.5
Bedford, Indiana, Oolitic, Limestone (Merrill)	10,125	729 0
Belleville, New Jersey, Sandstone (Gillmore)	11,700	842.4
Berea, Ohio, Sandstone (Gillmore)	10,250	738.0
Billingsville, Missouri, Limestone	7,250	522.0
Caen, France, Limestone (Gillmore)	3,650	262.8
City Point, Maine, Granite (Gillmore)	15,093	1,086.7
Cleveland, Ohio, Sandstone (Gillmore)	7,910	569.5
Connecticut, Freestone (Haswell)	3,319	238.9
Cornish, Wales, Granite (Haswell)	6,339	456.4
Craigleith, Scotland, Sandstone (Gillmore)	12,000	864.0
Dix Island, Maine, Granite (Gillmore)	15,000	1,080.0
Dorset, Vermont, Marble (Gillmore)	8,670	624.2
Dorchester, New Brunswick, S. S. (Gillmore)	9 412	677.6
Dublin, Ireland, Granite (Haswell)	10,450	737.4
Duluth, Minnesota, Granite (Gillmore)	19,000	1,368.0
Edinburgh, Scotland, Sandstone (Merrill)	12,000	864.0
English Magnesian Limestone (Haswell)	3,130	225.3
English Auglesa Limestone (Haswell)	3,600	259 2
Fairhaven, Vermont, Slate (Merrill)	12.870	926.6
Fond du Lac, Wisconsin, Sandstone (Gillmore)	6,250	450.0
Fox Island, Maine, Granite (Gillmore)	15,062	1,084 4
Glencoe, Colorada, Sandstone (Merrill)	12,752	918.1
Glen Falls, New York, Limestone (Gillmore)	11 475	826.2
Greenwich, Connecticut, Granite (Gillmore)	11,700	842.4
Harbor Quarry, Maine, Granite (Gillmore)	16,837	1,212.3
Haverstraw, New York, Sandstone (Gillmore)	4,350	313.2
Hummelstown, Pennsylvania, Sandstone (Merrill)	13,610	979.9
Huron Island, Michigan, Granite (Merrill)	20,650	1,486.8
Hurricane Island, Maine, Granite (Gillmore)	14,937	1,075.4
Italian Marble (Merrill)	12,156	875.2
Joliet, Illinois, Limestone (Gillmore)	16,900	1,216.8
Jordan, Minnesota, Sandstone (Merrill)	3.750	270.0
Kasota, Minnesota, Sandstone (Gillmore)	11,675	840.6
Keene, New Hampshire, Granite (Merrill)	10,375	747.0
Little Falls, New York, Sandstone (Gillmore)	9,850	709.2
Long Meadow, Massachusetts, Sandstone (Merrill)	8,812	634.4
Manitou, Colorada, Sandstone (Merrill)	13,046	939.3
Marquette, Michigan, Limestone (Gillmore)	8,050	579.6
Marquette, Michigan, Sandstone (Gillmore)	7,450	536.4
Marblehead, Ohio, Limestone (Gillmore)	12,600	907.2
Massillon, Ohio, Sandstone (Gillmore)	8,750	630.0
Medina, New York, Sandstone (Gillmore)	17,725	1,276.2
Michigan Sandstone (Merrill)	6,323	455.2
Middletown, Connecticut, Sandstone (Gillmore)	6,950	500.2
Mount Raymond, California, Granite (Merrill)	5,970	429.8
Monson, Massachusetts, Granite (Merrill)	15,390	1,108 0
New Gunnison, Colorada, Sandstone (Merrill)	9,903	713.0
New Haven, Connecticut, Granite (Gillmore)	9,750	702.0
New London, Connecticut, Granite (Merrill)	12,500	900.0
Newry, England, Granite (Haswell)	12 850	925.2
North Amherst, Ohio, Sandstone (Gillmore)	6,650	478.8
North River Limestone (Gillmore)	13,425	966.6
Oswego, New York, Sandstone (Merrill)	6,220	447.8
Patapsco, Maryland, Granite (Haswell)	5.340	384.5
Port Deposit, Maryland, Granite (Gillmore)	19.755	1,422.3
Potsdam, New York, Sandstone, from a quarry of the Potsdam Red Sandstone Co. not crushed (Woolson)	42,804	3,081.8
Quincy, Massachusetts, Granite (Gillmore)	17,750	1,278.0
Quincy, Illinois, Marble (Gillmore)	9,787	704.0
Rawlins, Wyoming, Sandstone (Merrill)	10,833	779.9
Richmond, Virginia, Granite (Merrill)	19,104	1,375.5
Rockport, Massachusetts, Granite (Gillmore)	19,750	1,422.0
Scotch Whinstone (Haswell)	8,300	547.6
Seneca, Ohio, Sandstone (Gillmore)	10,500	756.0
Stoney Creek, Connecticut, Granite (Merrill)	16,750	1,206.0
Stockbridge, Massachusetts, Marble (Haswell)	10,382	747.5
Taylor's Falls, Minnesota, Sandstone (Merrill)	5,500	396.0
Tuckahoe, New York, Marble (Gillmore)	13,594	978.7
Vermillion, Ohio, Sandstone (Gillmore)	8,850	637.2
Vermont Marble (Merrill)	13,400	964.8
Vinalhaven, Maine, Granite (Gillmore)	16,750	1,206.0
Warrensburg, Missouri, Sandstone (Gillmore)	5,000	360.0
Westerly, Rhode Island, Granite (Gillmore)	17,750	1,278.0
Williamsville, New York, Limestone (Gillmore)	12,375	891.0
Yorkshire, England, Sandstone (Haswell)	5,710	411.1