

with a dry sand core, by the Cornell Iron Works, New York.

The weather was clear and warm, with a slight breeze from south-west. Temperature of air, 75° Fahr.

Strength by Gordon's Formula was as follows:

Breaking strength..... 902,000 pounds.  
Safe load 1-5 x 902,000..... 180,400 pounds, 90.2 tons.

The result of Test No. 3 is shown in photographs (Figs. 10 and 11).

COLUMN TEST NO. 4.—FIRE TEST WITHOUT WATER.—FURNACE SAME AS TESTS NO. 1, 2 AND 3.—CAST-IRON COLUMN.

July 6, 1896.

The column was a cast-iron, hollow, round column, with flanges faced on both ends, and was uncovered. It was cast horizontally with a dry sand core, by the Cornell Iron Works, New York. The column was the same as illustrated in diagram (Fig. 9), with the following exceptions: Length, over-all, 13 feet 0¼ inch; thickness of flanges, 1⅝ inches; flanges reinforced by four ribs, each ⅞ inch thick, reaching from outer end of flange to cylinder at an angle of about 45°.

LOG OF TRIAL.

Time, h. m.	Pyrometer, deg. Fah.	Hyd. Pressure, Total Load, Tons.	Remarks.
2.22	....	....	Wood fire lighted.
2.25	....	84.8	Gas lighted.
2.28	....	"	Pyrometer placed 18" from column.
2.29	....	"	Door closed.
2.30	675	"	
2.31	875	"	
2.33	900	"	
2.35	912	"	
2.40	950	"	
2.43	975	"	
2.44	1,000	"	
2.45	1,000	"	
2.49	1,000	"	Naphtha used, one-fourth cock.
2.51	1,125	"	
2.52	1,100	"	More naphtha, three-eighths cock.
2.53	1,200	"	More gas.
2.54	1,300	96.1	
2.54	1,325	84.8	
2.57	1,350	"	Column bending.
2.59	1,350	"	More naphtha, one-half cock.
3.01	1,375	"	Color reported.
3.03	1,500	"	
3.03½	1,525	"	Column yielding fast.
3.05	1,550	"	Column broke suddenly.

The result of the test is shown in photographs (Figs. 12 and 13). The fracture occurred at about the centre of the column where the deflection was the greatest. There was a crack about five inches long about seven inches above the fracture on the convex side of the column, showing that the column first pulled apart on the outside of the bend. No water was thrown on this column during the test.

COLUMN TEST NO. 5.—FIRE TEST WITH WATER.—FURNACE SAME AS TESTS NO. 1, 2, 3 AND 4.—CAST-IRON COLUMN.

July 10, 1896.

The column was a cast-iron, hollow, round column, with flanges faced on both ends, and was uncovered. It was cast horizontally with a dry sand core by the Cornell Iron Works, New York. The column was the same as illustrated in photograph (Fig. 9), with the following exceptions: Flanges were 1⅝ inches thick, and were reinforced with four ribs as in Test No. 4. There was a slight defect in this casting, there being a porous portion a few inches long on one side about 3 feet 6 inches from the lower end.

The weather was partly cloudy and sultry. There was a strong wind from the south-west. Temperature of the atmosphere was 80° Fahr.

Water was thrown upon the column through about

50 feet of 2½-inch rubber hose and a ¾-inch nozzle. The pressure at the hydrant was fifty pounds.

LOG OF TRIAL.

Time, h. m.	Pyrometer, deg. Fah.	Hyd. Pressure, Total Load, Tons.	Remarks.
2.16	....	84.8	Wood fire lighted.
2.28	....	"	Gas lighted.
2.29	600	"	Door closed. Pyrometer in place 18" from column.
2.31	625	"	
2.32	675	"	
2.33	700	"	
2.36	675	"	Pyrometer moved back 5 feet from column.
2.40	625	"	
2.41	675	"	
2.42	525	"	Water thrown on column one minute.
2.43	450	"	Door open. Fire out.
2.44	400	"	Door open. Fire relighted.
2.46	425	"	Door closed.
2.47	540	"	
2.49	1,000	"	Heat rising too fast.
2.51	650	"	
2.52	675	"	
2.55	700	"	
2.58	750	"	Pyrometer 3 feet from column.
2.59	800	"	
3.01	740	"	
3.02	750	"	Pyrometer 18" from column.
3.05	785	"	Pyrometer moved back 5 feet from column.
3.06	775	"	
3.09	400	"	Water on column one-half minute. Fire out. Door down.
3.16	....	....	Gas relighted. Door closed.
3.19	675	"	Pyrometer 18" from column.
3.22	700	"	More air admitted.
3.24	725	"	
3.27	775	"	
3.28	800	"	
3.30	900	"	
3.35	1,025	"	
3.40	1,025	"	
3.41	1,050	"	
3.50	1,050	"	Column red.
3.55	1,075	"	Water on column one-half minute. Fire out. Door down. More water on column as it was still red.
4.13	....	"	Gas relighted.
4.17	750	"	Pyrometer 18" from column.
4.21	787	"	Naphtha one-half cock.
4.23	900	"	
4.24	1,025	"	
4.27	1,150	"	
4.29	1,200	"	
4.30	1,250	"	Column getting red.
4.31	1,275	"	Column bending.
4.32	1,280	"	
4.34	1,300	"	Pyrometer moved back. Water on column one minute.
4.35	....	"	Door down and water on column again two minutes.

The result of this test is shown in photograph, (Fig. 14).

The column was very red when the water was thrown on it the last time. The brick walls and arch roof cracked when water fell on them. The column was badly bent, but otherwise appeared uninjured.

Respectfully submitted,

S. ALBERT REED,  
For the Tariff Association of  
New York.  
GEORGE L. HEINS,  
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} The Committee on  
Fireproofing Tests.

The Dominion Bridge Company, of Montreal, are erecting a building at Hochelaga 400 x 80 feet in size.

Mr. Charles Berger, the contractor for the Montreal court-house, has finally secured a settlement of his claims against the Quebec government. Mr. Berger has claimed \$180,000 as balance due him on his contract. The claim was submitted to arbitrators, and the amount awarded was \$116,954.