position as to the site of the pier, and placed transversely to the stream above the site of the bridge.

Thus we have the solution of the same problem of obtaining quiet water in a different way, and with it a *point d'appui* for the commencement of operations. Boats' crews could easily land here—and with them workmen—and this preliminary dam once in, it was easy to extend wings back over the area of the pier. But these dams were in themselves undertakings, for they consisted of two rows of cribbing fourteen feet wide each, with 7 to 8 feet of "puddle" (that is to say a thick clay rendered impenetrable to water by labor, by beating it well together,) between them and that part which was turned up stream was a regularly built up ice-breaker, to withstand the ice of the winter if necessary. The comparison between these two classes of dams may thus be made. The floating dam may be used several times; indeed one has been used four times, and it admits of the masonry being completed in one season, and what is more, early in the season, and it has been found to answer best in deep water. Its disadvantage is that it could not be made sufficiently strong to resist the shove of the ice in the winter; hence it had to be removed before the severe weather came. Consequently when the period arrived to construct the tube, the side of the pier was naked, and there was no point from whence the scaffolding to support the tube truss could start. With the Coffer dam this foundation existed, and hence it was necessary to frame one centre scaffolding only: whereas with the floating dams three such constructions were necessary, viz., the centre frame and the scaffold foundation, at the side of each pier. Nor was this consideration an unimportant one, for such foundation was obtained by sinking scows, and driving piles around them to keep them in position. Otherwise the operations were identical. From either dam framing was carried up, above the height of the pier, and on the capping pieces was run a Railway, to admit of the passage of a travelling machine which, mounted with a crab, admitted a contrary passage on itself. Silence stones of twenty tons were moved into position as easily as a lb. weight is thrown into a scale. On the platform of the dam were constructed sheds to cover the steam engine, the blacksmith's shop, the store room and carpenter's shop; and thus the scene was presented of these isolated areas of an acre and a quarter dotted along the river, busy with life and animation, and shewing the work in its various stages. The dam perfected—the staging constructed, the travelling machine in position—stone delivered ready for the mason to lay—the anxious moment commenced; that of pumping out the water and getting in the foundation. Not that the labor was great in removing the water, but that the application of the test to show the dams were water-tight and if the water would not force its way up from below, naturally created anxiety. Nothing could be better than the pumps used. They were worked centrifugally and threw 800 gallons a minute, passing up stones 6 inches square—the diameter of the pipe—and it was moreover one of those portable affairs that a man could take on his shoulder and move from one place to the other. It was calculated that these pumps lowered the area of the dam at the rate of 2ft. an hour. Therefore in 8 or 10 hours the dam was empty. On the southern bank of the river where the work was under the direction of Mr. CHAFFEY, the scaffolding was not used, but a compound derrick, worked by a high pressure engine, supplied its place. Much ingenuity was shewn in obtaining this motion, as the stone could be placed by it in any position, for the derrick had in itself a motion which admitted of precisely determining the stone's position. Its limit, however, did not extend over handling seven tons.

MASONRY.

Three millions of cubic feet of Masonry in the Victoria Bridge! That is to say if turned into lineal measure, it would reach 510 miles: or as a solid would form a pyramid 215 ft. high having a base of 215 ft. square. These figures will give some idea of the solidity of the structure, and the warrant that exists for its endurance for all time. The stone itself is mostly quarried from Pointe Claire, and forms the first in the series of the Lower Silurian, and is known by the geological term of Chazy, resting immediately on the calciferous sand-rock and the Potsdam sandstone. At Point Claire very extensive quarries have been in operation since 1853, and the Engineer student will be well repaid by visiting them, for stones are taken out in as large masses as in any quarry in the world. We see the proof of this fact in the dimensions of the piers. The courses being 3 ft. 10in. and 3 feet to 2 feet 6 inches to above water level, and thence verging into a course 18 in. under the plates, being in length from 7 ft. to 12 feet. One course of ashlar of 3 feet 10 in. was examined by the writer, the perimeter of the pier at this point measured 200 ft. It consists of 32 stones, the highest of these weighed 7 tons, the heaviest 17, the average weight of the whole was 10½ tons. Such work, may indeed be termed Cyclopean. Each course, to the top of the cutwater is fastened by a dog-wedged bolt of 1¼ inch iron—that is to say a bolt with the base slit to receive a wedge into which an iron prism is inserted. Thus prepared, it is passed down until it reaches the bottom of the hole drilled to receive it, when the bolt itself is driven upon the wedge—thus widening out the end of the bolt, so that it never can be again drawn out, passing through two whole courses into the third below it. Thus every three courses are distinctly dowelled together, and the whole mass of work being likewise laid in the best water-lime, and carefully grouted, is formed into one solid mass; for horizontally the joints are likewise kept cramped together by plates 12 in. × 5 in. of ½ inch iron.

TUBES.

Each tube covers two openings, that is to say, it is fixed in position in the centre, and is free to expand or contract on the adjoining two piers. They are 16 in. × 19 in. at the ends but they gradually increase to the centre, at which point they are 16 feet × 21 ft. 8 in. The length will accordingly be

On centre pier - - -	16 feet
Two openings each of 242 min.	484
Resting on E pier - - -	8
" W pier - - -	8
	516 feet.

The expansion Rollers are seven in number, in each set of 6 in. diameter, in a cast iron frame rolling on planed bed plates the rollers themselves being turned and the beds plated: they run as smoothly as on glass. The weight of each tube, with all its appurtenances of 516 feet, is about 644 tons, that is to say for each opening 322 tons. The construction of this character of work is now so well known that much allusion is not necessary. Moreover it is simple in the extreme, being formed of boiler plate rivetted together with angle irons and lateral and transverse braces. The skill lies in reducing this boiler iron to such dimensions that there is no unnecessary material, to add to the weight and to the expense, and yet obtaining a sufficiency of strength. We are not going into the theory of beams, but it is evident to any one breaking a stick that a strain on a beam proving too much for its strength, crushes the top—compresses it—and tears asunder the bottom; whereas the sides are merely rent away. Accordingly where the sides of the tube require strength, is at the abutment. Thus it will be seen that for the top and bottom of the tube the greater strength is at the centre, whereas the sides have most material where the span starts.

Thus, taking our data in all cases from the centre, the following shows the component parts of the tube:

TOP PLATES.

SECTIONAL AREA.

From Centre	Length of Division Plates		Strips T irons and angle irons.		Total Area		Thickness of plates.
1	11 ft.	125		92	1-16	217	1-16 5-8
2	"	125		86	7-16	211	7-16 5-8
3	"	114	3-8	86	7-16	200	13-16 5-8
4	"	107	1-16	84	11-16	191	1-34 9-16
5	"	87	1-2	84	11-16	172	3-15 1-2
6	"	75		77	5-16	152	5-16 7-16
7	"	56	11-16	77	5-16	134	3-8 3-8
8	"	53	1-4	55	1-4	108	1-2 5-16
9	"	50		55	1-4	105	1-4 1-4
10	"	50		48	1-4	98	1-4 "
11	"	1		"		"	
Bearing		"		"		"	
	86	80					
	1290						

BOTTOM PLATES.

From Centre.					
1	19 6	137.50	201.25	3-8	51-16
2	14	137.50	195.25		"
3	14	125	182.75		5-16
4	14	112.50	166.75	5-16	1-4
5	14	87.50	145—	1-4	3-16
6	14	85.50	118—	5-16	
7	14	50	92	1-4	
8	17 6	50	92	1-4	
Br'g 0'8		50	92	1-4	
	129				

SIDE PLATES.

Beginning at the centre, and strengthened by lateral irons inside and out, placed at distances of 3 6.

The first space, 35 from centre is formed of 1-4 plates or 4.16.

The second space of 45 6	5-16 plates or	5-16
The third " 45 3	3-8 "	6-16
The remaining space - -	½ "	8-16

The immediate part of the tube resisting on the pier being likewise strengthened by increased lateral bracing.

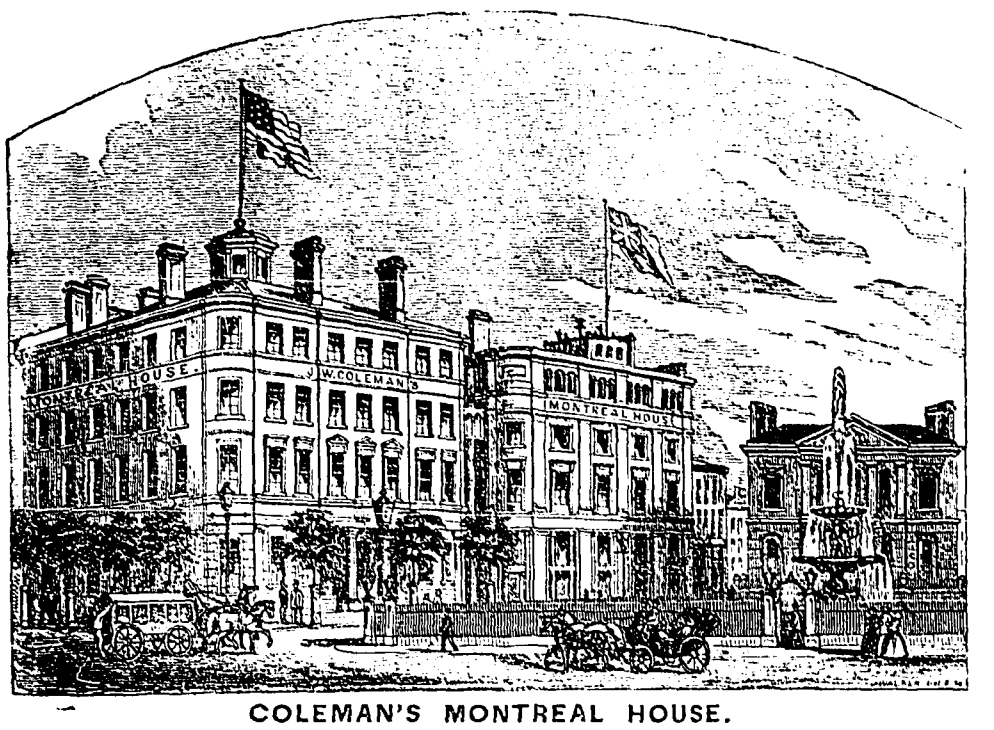
The tubes themselves are constructed in position, and the difficult and expensive process of floating them from the shore and lifting them by hydraulic pressure is thus dispensed with. Where the coffer dams are in use, the framing is carried up from them; and in the centre, a scow is anchored and piles driven in around it, on which the scaffolding rests. It is here that the difference between the two systems of dams is apparent. In the one three scows secured with piles is necessary; in the other but one. On these supports a truss is formed, which is in itself a bridge on which the tube is put together.

PRESENT CONDITION OF WORK.

The abutments and piers are all complete, with the exception of Nos. 14 and 15, which are built 6ft. above water level, and No. 11 pier which was purposely left untouched in order to leave one channel open for rafts—the waterway being narrowed between the piers already constructed by the coffer dams. The two former will be finished in 20 days after the working season commences, the latter by beginning of September.

Of the tubes 16 of the 25 are fixed and finished in position. The centre span is completed.

And on or about the 1st day of October in the year of our Lord 1859, this wondrous work will be in full play—bearing the tread of the mighty steam steed—conveying man, and all the materials of man's varied business on this great continent from the ocean's shore to the fresh-water seas of the remote west. It is expected that the LEVIATHAN steamer bearing thousands from the old world will have arrived at PORTLAND not long after this great celebration; and thus will AMERICANS be called upon at one and the same time to render hearty homage (as we are sure they will) to the mechanical genius of their brethren of the English dominions as shewn so wondrously in these joint works. We are prevented by a proper feeling from speaking with confidence of another expected event,—one which greatly interests Canadians. We refer to the rumor that a PRINCE OF THE BLOOD will be present at the opening of the BRIDGE. Our advice upon this subject is derived from no private or official source, and is therefore not to be urged too boldly; but there is much reason to *hope* that the PRINCE OF WALES will be amongst us; and that our admiration of the power of science as exhibited in the VICTORIA BRIDGE will be invoked simultaneously with an outburst of loyal joy at the sight of VICTORIA'S SON.



COLEMAN'S MONTREAL HOUSE.

THE above cut represents the well known and highly popular MONTREAL HOUSE, than which there is not a more agreeably situated establishment in the city. It is unsurpassed as to scenic advantages, having in front a neat park with a *jet d'eau*, and commanding from at least fifty front rooms an extensive view of the river and opposite shore. The VICTORIA BRIDGE is also seen in *extenso* from nearly all the rooms of the house, and is within *five minute's drive*. The grand FRENCH CATHEDRAL, in which not less than 12,000 people are seated during the celebration of High Mass on each Sunday, is within one block of the hotel. The Banks and other public institutions are also within easy distance—the farthest can be reached in less than five minutes. The furniture of this establishment is all new, and of the most modern style. Indeed the MONTREAL HOUSE embraces all the qualities desirable to the pleasure tourist; and the American traveller may possibly find it convenient to meet in the *lessee* and manager a countryman of somewhat extensive experience on both sides of the *line*.