different ways in which the blocks were placed in the machine in regard to the position of the heart of the wood and the annual rings. The letters in the sixth column refer to these figures.

The maximum strength of the wood is sometimes reached before the block is compressed fifteen per cent. In fact the load begins to increase very slowly shortly after the three per cent. limit is reached, at perhaps about five per cent. compression. When the pieces are placed as in Fig. (a) the maximum load is always reached at a compression of less than fifteen per cent., the annual rings seeming to act somewhat like curved plates, the rings splitting apart and the side towards which they are convex bulging out, as shown in Fig. (d). When the blocks are placed as in Fig. (b), the rings simply become pressed closer together, and the load will continue to increase indefinitely. Failure is accompanied by splitting above the heart, which seems to act as a wedge, as shown in Fig (d.) When the heart is near the centre failure is accompanied by both splitting above and below the heart, and bulging out at the sides as in Fig. (f).

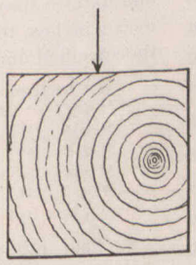

Fig a

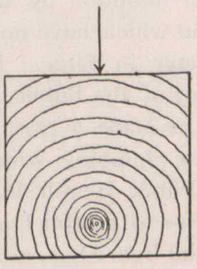

Fig. b

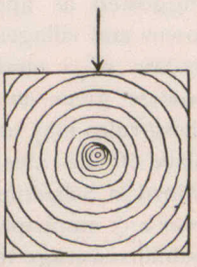

Fig. c.

Fig. d

Fig. e

Fig. f

TABLE NO. 1.

No. of Test.	Thickness in inches	Breadth in in. by Length in in.	Load at 3% Compression in lbs. per sq. in.	Load at 15% Compression in lbs. per sq. in.	Manner of placing block.	Remarks.
1	3.73	3.75 x 3.97	435	524	A	
2	3.73	3.75 x 4.00	475	478	A	
3	3.73	3.75 x 4.00	556	579	A	
4	3.72	3.73 x 4.00	468	576	B	
5	3.73	3.70 x 4.00	537	645	C	
6	3.73	3.73 x 4.00	483	576	C	
7	3.74	3.74 x 3.98	455	551	A	Knotty and splintery.
8	3.73	3.73 x 3.98	499	613	C	
9	3.73	3.74 x 4.00	408	482	C	A pitch ring about heart.
10	3.72	3.72 x 4.02	516	618	C	
11	3.72	3.73 x 4.02	493	593	C	Large season crack.
12	3.73	3.75 x 4.03	458	510	C	Knotty and pitchy.
13	3.74	3.71 x 4.02	505	584	C	
14	3.73	3.74 x 4.00	406	475	B	Pitch ring.
15	3.75	3.75 x 4.05	486	486	A	Knot at each end.
16	3.74	3.77 x 4.02	538	638	C	Season cracks.
17	3.73	3.70 x 3.96	420	542	C	
18	3.73	3.72 x 4.00	435	555	A	
19	3.72	3.73 x 4.06	542	621	C	
20	3.73	3.73 x 4.02	413	413	B	
21	3.73	3.71 x 3.95	534	551	C	Gummy.
22	3.74	3.74 x 4.00	441	541	A	Gummy and shaky.
23	3.73	3.75 x 4.00	437	513	C	Pitch ring.
24	3.72	3.72 x 4.02	543	597	B	An enclosed knot.
25	3.72	3.74 x 4.02	440	563	C	
26	3.74	3.70 x 4.00	550	596	C	
27	3.73	3.70 x 6.00	489	600	C	
		Average	480	560		

TABLE NO. 2.

No.	Crushing strength per square inch.			
	A	B	C	D
1	5,110	3,641	3,598	3,513
2	4,746	3,982	3,562	2,948
3	4,848	4,391	4,078	3,043
4	5,317	4,096*	3,740*	3,332
5	4,934	3,883*	3,826*	3,947
6	5,050	4,426*		3,115
Average	5,001	4,069	3,761	3,316

Table No 2. shows the longitudinal crushing strength. The specimens were cut in eight inch lengths with the exception of the five marked with asterisks, which were each four inches long.

Those of which the crushing strengths are given in column A, were cut from the same stick as the four-inch pieces tested transversely, and were tested at the same time, March 17th, 1897. Those given in columns B, C and D were tested on December 21st, 1896, and were cut from the ends of three different sticks, which had been tested as long posts on December 16th, on which date the specific gravities and percentages of moisture were as given in the following table. As the pieces would have lost some moisture in the five intervening days, the values given for B, C and D are higher than the actual.

	A	B	C	D
Specific gravities.....	37.25	51	46	53
Percentage of moisture	12. 2	23		22.5

The percentage of moisture in C was not determined, but was probably about the same as in B and D.

A comparison of the results given in table No. 1 with those in column A, table No. 2, both sets of tests being made on specimens from the same piece of timber, shows that for well seasoned pine the longitudinal crushing strength is about ten times as great as the transverse strength to resist a compression of three per cent. Hence it is quite evident that in the case of a wooden column in order to develop its total crushing strength, it is necessary to have a capital to receive any wooden beams resting on it. The area of the top of the capital should be about ten times the area of the column, or the top of the capital should be over three times the diameter of the column on which it rests. The same thing applies to the cases of columns supported by timber placed horizontally. Of course in the case of long posts in which the full crushing strength of the cross section is not reached, the ratio between the area of the capital and the column need not be so great.

A comparison of column A in table No. 2 with the columns B, C and D, shows the very decided effect which the quantity of moisture in timber has on its crushing strength.

The Master Plumbers' Association of St. John, N. B., at their last meeting appointed delegates to attend the Toronto convention.

Mr. W. B. Lait, formerly with Mr. George Browne, architect, Winnipeg, has commenced the practice of his profession in that city on his own account.

Mr. George H. Proctor, of Sarnia, Ont., in renewing his subscription to the ARCHITECT AND BUILDER states that he is much pleased with the improvement recently made in the paper.