B. SPECIMENS OF RED PINE MARKED GI. (KILN-DRIED).

SPECIMEN 1.—Sect. area = .6874 sq. ins.; sp. wt. = 30.9 lbs. per cub. ft.; tensile strength = 14,620 lbs. per sq. in.

SPECIMEN 2.—Sect. area = .71775 sq. ins.; sp. wt. = 33.17 lbs. per cub. ft.; tensile strength = 12,023 lbs. per sq. in.

SPECIMEN 1.

Date.	No. of readings.	Mean forward reading.	Mean return reading.	Temp. (Fahr.) of Laboratory.	Mean pressure of vapour.	Mean relative humidity	Dew point.
Mar. 28	14	654 3/4	654 3/7	55° to 64°	.0945	85.0	17.0
" 29	48	649.28	649.56	28° to 30°			
" 29	25	650.32	650.	25.5 to 27			
" 30					.2152	88.3	36.2

SPECIMEN 2.

Mar. 27	22	605.9	64.72	33°	.082	86.5	13.3
" 28	42	600.625	600.309	27.5	.0945	85.0	17.0
" 28	21	617.65	616.95	65			

Again, a kiln-dried tension specimen, with a sectional area of .658 square inches, was placed in the testing machine on April the 10th, 1896, and was subjected to a load which was gradually increased up to 1000 lbs. Under this load, the extension during the first day was at the rate of 6.1 hundred-thousandths of an inch per hour. On every succeeding day this rate diminished, but irregularly, until the test piece had reached its normal state. At this point, the slightest change in the humidity produced a corresponding change of length in test piece. The maximum amount of extension, viz., .00708 inch, occurred on the 11th of May.

The greatest observed rates of extension and recovery per hour were 7 and 8 one hundred-thousandths of an inch, respectively. On the 16th of May the load was reduced to 200 lbs., when the extension was also reduced to .0024 inch. One hour later the reading had fallen to .00233 inch, but an increase in the humidity then caused a corresponding increase in the extension of .00017 inch.

In the transverse experiments the greatest possible care was taken to increase the load at the same uniform rate, the average time occupied in adding each increment and in taking the corresponding reading being slightly greater than 1 minute. In many cases the beam was loaded, then relieved of load, and reloaded again, the readings in all cases being carefully noted. This operation was sometimes repeated more than once. Whenever a beam or a specimen under tension or compression was subjected to repeated loadings, the first series of readings were almost invariably discarded as the increments of deflection, and changes of length were found to be more uniform *after* the preliminary loading. The initial loading seems to eliminate certain inequalities of resistance.

In Beam 15 there was an increment of .401 in. in the deflection, corresponding to an increment of 7,000 lbs. in the load. On reducing the load to 500 lbs., there was an apparent set of .006 in., which would have undoubtedly disappeared in a very short time. Upon re-loading the beam the increment of deflection for the same increment of load was .4 inch.

In Beam 17 the increments of deflection under the first and second loadings were exactly the same, viz., .415 inch for an increment of 7,000 lbs. in the load. When the load, after the first series of readings, was reduced to 500 lbs., there was an apparent set of .005 inch, which would have certainly disappeared had the beam been allowed to rest for a few minutes.

In Beam 24 (Spruce) for an increment of 6,000 lbs. in the load, the increment of deflection was 1.04 in. in the first loading and 1.034 in.