

tute much more satisfactory data for the textbooks. The experiments, therefore, have a significance beyond the nowise unimportant one that pertains to them in the matter of mill construction. All but two of the columns experimented on were round, hollow columns, of from eight to eleven inches in diameter, the two being about nine inches square. The greatest amount of pressure exerted in any case was 250,000 pounds. The tests have disclosed frequent instances of defective boring in the columns. The object in boring is to open an air passage through the heart of the stick for the prevention of dry rot after it is in position in the building. It is essential, of course, that the bore should extend from end to end, but this has not always been effected. The sticks were bored first from one end then from the other, and the borings have sometimes failed to meet in the middle of the stick. The tests also show that to taper the sticks is a mistake, inasmuch as it weakens the column more than it has heretofore been estimated. Reasons for exercising more caution in other respects in the construction and adjustment of wooden columns in building have also been disclosed.—*Lumberman's Gazette*.

EFFECT OF FROST ON TREES.

It is a prevalent opinion that during cold weather, the liquid in vegetable tissues congeals as ordinary liquid does, and expanding, often causes trees to burst with an explosive sound. In order to test the truth of this opinion, careful experiments were made last winter in Philadelphia, by T. Meehan, with young and vigorous trees, varying from one to three feet in circumference. They were carefully measured in early winter when the thermometer was at 40 degrees, and again after they had been exposed for many days to a temperature below freezing point, but in no case was there the slightest evidence of expansion. In dead wood, however, soaked with water, the expansion was well marked, and the cleavage, with explosion, sometimes noted in the case of forest trees in high northern regions, may result from the freezing of liquid in the centre or less vital parts of the trunks of the trees.

In some hardy succulents, however, instead of expansion under frost, there was a marked contraction. The joints or sections of stem in some of the Cactus plants, shrink remarkably with the lowering of the temperature. As soon as the thermometer passes the freezing point, the shrinkage is so great that the whole surface has the wrinkled appearance presented by the face of some very aged person. The contraction amounts to about 12 per cent., but a knife penetrates the tissues in winter just as easily as in summer, and no trace of congelation of the juices can be found in the plant. Other succulents exhibit more or less shrinkage under extreme cold, and sometimes present the appearance of being withered or dead. They, however, expand again in a few days of warmer temperature.

Assuming from these facts that the liquid in plants which are known to endure frost without injury, did not congeal, it might be a question as to what power they owed this successful resistance. It is probably some vital power, for the sap of plants, after it was drawn from the tree congealed easily. In a large maple tree, which was included in these tests, the juice exuded from wounded portions of the branches and then froze, hanging down icicles often six inches long from the tree.—*Lumber World*.

A National Forest.

The following extract from the message of President Arthur shows that our neighbors are becoming impressed with the necessity for scientific forestry and the conservation of national forests:—

"In my last annual message I called attention to the necessity of protecting by suitable legislation the forests situated upon the public domain. In many portions of the West the pursuit of general agriculture is only made practicable by resort to irrigation, while successful irrigation would itself be impossible without the aid afforded by forests in contributing to the regularity and constancy of the supply of water. During the past year severe suffering and great loss of property have been occasioned

by profuse floods, followed by periods of unusually low water in many of the great rivers of the country. These irregularities were in a great measure caused by the removal from about the streams in question of the timber by which the water supply had been nourished and protected. The preservation of such portions of the forests on the national domain as essentially contribute to the equable flow of important water courses is of the highest importance. Important tributaries of the Missouri, the Columbia and the Saskatchewan, rise in the mountain region of Montana near the northern boundary of the United States, between the Blackfoot and Flathead reservations. This region is unsuitable for settlement, but upon the rivers which flow from it depends the future agricultural development of a vast tract of country. The attention of Congress is called to the necessity of withdrawing from public sale this part of the public domain and establishing there a forest reserve.

A Large Contract.

The largest single lumber contract ever made by St. Croix lumbermen is that entered into between Messrs. F. T. Todd & Sons, of the one part, and Messrs. Tracy, Murchie & Love, of the other part, for the cutting and yarding of 7,000,000 feet of logs during the coming winter. The ground to be operated upon covers a block six miles square on the Wiscasset stream, in Piscataquis county, Maine, and is bounded on the northeast corner by Traveller's mountain, on the northwest by a lake called Big Pond, on the southeast by Turner's mountain, 3,500 feet high, and on the southwest by a spur of Mount Katahdin. It is estimated that there are 100,000,000 feet of lumber in the block, the land being what is known as black land and covered with a splendid growth of spruce, cedar, fir and pine. Sub-contracts for 5,000,000 feet of the lumber specified in the original agreement have been let—to William's & Patten for 2,000,000 feet, to McLaughlin & Stewart for 1,500,000 feet and to Smith, Allen & Co., of Machias, Me., for 1,500,000. The remainder will be handled by Tracy, Murchie & Love themselves.—*St. Croix Courier*.

The Poisonous Cocobola.

The *Scientific American* has the following: "The use of wood from Panama called cocobola in the manufacturing interests in Bridgeport, is attracting the attention of the Connecticut state board of health. The wood is cheap, takes a brilliant polish, is easily worked, and is used extensively for knife handles and ornamentation. Workers in the material are poisoned somewhat after the manner of sumac, although some are free from any effect. Swelling of the face, closing of the eyes, appearances of being burned on the hands, are usual symptoms. Some are attacked with distress in the stomach with loss of appetite. One person, who was a confirmed smoker, after being poisoned, has been unable to smoke or even stay in a room where there is any tobacco smoke. Children playing in the saw-dust of this wood, which had been dumped, were badly poisoned about their feet. At a large factory on Elm street, where this wood is extensively worked, chickens in the adjoining yards are said to have all died from eating the dust that settles on the grass."

Cherry Wood.

Cherry wood, filled and not varnished, has a soft glow not possessed by any other, and has none of those distortions of grain that are so unpleasant in mahogany. The timber is chosen from the wild cherry, which in New England and the North generally does not usually grow to a girth of more than 20 inches, but in some of the Western States and in the South frequently attains a diameter of 24 inches. The domestic fruit cherry gives some good specimens of small timber, but as the tree is rarely sacrificed until it is past bearing and is decayed, this source of supply is precarious. The facility with which cherry can be worked makes it a favorite with the cabinet-maker.

State Forestry.

Senator Lynde, chairman of the committee appointed to investigate the denudation of the Adirondack region, in reply to the question of

a N. Y. *Herald* representative, "What report will your committee make?" answered as follows:

"I have not consulted with my colleagues on the subject, but personally I shall favor a forestry commission, with authority to trim the woods, of course, judiciously, and sell the lumber for the state. No such devastation has been made as the people are led to believe. The trees are so thick that they stunt each other's growth, and should be cut out and trimmed. Forests grow rapidly and can be easily overgrown. Prussia earned \$4,000,000 in one year by the sale of lumber, and the diminution of trees in her forests was hardly perceptible."

Our Trade with France.

OTTAWA, Dec. 11.—The Ottawa correspondent of the *Mail* says that when Mr. Chapleau, was in Paris he had several conversations with the French Premier and others in relation to the increase of trade between Canada and France, and paved the way for the exertions of Sir A. T. Galt, which, however, were not successful. Sir Charles Tupper subsequently took up the subject and received assurance of favorable regard on the part of the Government of France. He will be in Ottawa during the latter part of next week.

A Four Hundred Thousand Dollar Fire.

GLOUCESTER, Mass., Dec. 9.—Anniequam mill at Rockport caught fire this morning from a lighted lantern coming in contact with lint on the belt in the engine room. The fire spread rapidly, completely enveloping the interior. The Rockport fire department was unable to cope with the conflagration, but with assistance rendered from Gloucester and Salem, the picker room and storehouses were saved. The loss is estimated at \$400,000; insured for \$300,000.



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