

SOMETHING ABOUT WOOD BENDING.

From a lecture delivered a few months ago by H. G. Shepard, of New Haven, Conn., on the principles of wood bending, we extract the following: If I wished to bend a stick and have it remain in position and keep its shape the best, I should put the heart on the inside, for the reason that the tendency of the wood is to bend from the heart; but when I have a difficult piece of bending to do, like a corner piece, that requires a great deal of upsetting, I invariably put the heart on the inside, for the reason that the heart of the stick will admit of more upsetting and end pressure without giving way, wrinkling or anything of the kind. That is the way I use the heart of a stick. When I wish a piece to remain in a certain shape, then I put the heart on the outside, because the tendency of the stick will be in the direction in which it is bent.

As to the peculiarities of bending, after a piece of wood is bent its character is almost entirely changed. It is wonderful how it is changed, and by that change it is better fitted for any use, I claim, than it was before. Bending makes the wood heavier; it is pressed together, and the same bulk of wood weighs more than it did before. Another peculiarity is that when it is thoroughly dry, it is stiffer than the same sized piece of wood, that is alike every other way in regard to grain. It will admit of more strain, and move less out of its position than if unbent. On this account, it is better fitted for carriage making than sawed pieces. I have taken two circles, one sawed out and the other bent, both of the same character of wood and as nearly alike as I could get them; I placed the concave sides together and put pressure on the ends to bring them in contact. They are subjected to equal strain. I found that the bent piece had perceptibly more influence over the sawed one, than the sawed piece over the bent one.

A piece of timber that has been steamed, whether it is bent or not, has its stiffness increased. It is more brittle than it was before, and, for some uses, it will not do as well; and yet there is a quality of timber that the steaming process and the kiln-drying process affect very much the same; they both cook the gum in the timber and make it brittle and stiff. There is a grade or class of hickory that is benefited by being steamed or kiln-dried for use as spokes or whiffletrees. There is a kind of hickory that never becomes stiff by a natural process of drying, and one of the desirable qualities of a spoke, rim, or whiffletree is stiffness as well as strength; you take that hickory, and it is the very best we have, and steam it, and it is better fitted for these purposes than it was before. It is difficult to tear apart a piece of bent wood; the fibres are interwoven, one with the other. We do not perceive the change on the outside, but when we come to split the stick open, we find that its character is entirely changed.

WOOD ON EXHIBITION

A New York daily paper gives an interesting account of the valuable collection of woods belonging to the Museum of Natural History of that city. This collection has occupied several years in making and was presented to the museum by Morris K. Jesup.

At present the Jesup collection and the specimens already in possession of the museum represent about six hundred logs, most of them woods from the forests of North America, and those that are particularly valuable to the worker. The specimens are all representative trees of their family, and show a section six feet long, carefully selected and handled, so that even the bark and the tender fungi which affect it are preserved. The woods represent every State in the Union; and with them are samples of seeds, foliage, fruit and flowers, while near at hand, and in most of them, are the insects, injurious to their growth. The preparation of such a collection is not merely a matter of sawing wood and piling, as many would suppose, but requires no little scientific knowledge. The wood is, of course, received green, and when kept in a warm room, cracks, and the specimen is spoiled. To prevent this, much ingenuity has been displayed by those interested. By boring a hole in the heart of the tree from the exposed

section, room was allowed for the pressure following the process of seasoning. This was found satisfactory, but previous to this a number of fine specimens were cracked. As it is essential to builders and others interested to know the shrinkage, etc., of various woods, measurements were made of all specimens before seasoning, so that by referring to the diagram accompanying each log the shrinkage is seen, with other interesting information as to the growth of the tree in every year. This is determined by the growth-rings. In a section from a tree called the Pardo of India, the growth line is shown in a remarkably manner, being one and seven-eighths inches wide, for the growth of a single year.

The seasoning process completed, the specimens are ready to prepare for exhibition. The idea is to have every log represent every possible treatment that wood is susceptible of, and, undoubtedly, the experiment made will place within the reach of the builder many woods hitherto considered unavailable. Each log is sawed down through the centre about half way and then cut off, and half of it is polished. Thus the bark of the tree is seen, the grain, polished and unpolished, in vertical and horizontal sections. Accompanying the logs are watercolor paintings of the foliage, flower, fruit, etc., in size and coloring, and with them a collection showing the economic value other than for building purposes, namely, the various gums, resins, tar, pitch, turpentine, bark for tanning, the cork, the medicinal properties, etc. Some of the logs are of great size and beauty. The largest is a white ash, nearly 46 feet in diameter, and about 170 years old. The museum also possesses a specimen of one of the giant trees of California, which, however, can not be placed on exhibition on account of the lack of room. An interesting specimen is seen in the honey locust of Minnesota, in which the bark is a mass of sharp thorns nearly five inches in length. The yucca is a tree lily, with a trunk two feet in diameter, and composed of a spongy, string-like mass of fibres, so that even cutting with any regularity is impossible. The tree is extremely tough, and, since it has been received has at various times thrown out sprouts, a process which, if continued in the cases, will more than meet the wishes of the custodians, and take the place of the colored drawings. In a fine specimen of the spruce from the Rocky Mountain country are seen innumerable perforations, each one containing an acorn, the work of a wood-pecker, which thus lays up its winter supply, encouraging the growth of grubs, which are called for later on. Many of the acorns are so firmly driven in that it is almost impossible to get them out.

One of the most ancient specimens in the lot is a spruce from the same locality. It is about twenty-five inches in cross section, the concentric circles telling the story of over 400 years. This wood is one of the most valuable. The nut pine, whose nuts are eaten by some of the Indian tribes, is a little over half the number of inches in diameter, but nearly as old. A buttonwood, 170 years old, California redwood, and a number of others are equally interesting and valuable. Take it in all in all, this collection is perhaps unsurpassed by any of its kind in the world, and is of great value alike to the student and the practical wood-worker.—*The Lumber World*.

PACIFIC COAST LUMBER INTEREST

Californians, not content with forcing their way to the front rank as wheat shippers, are beginning to turn their attention to lumber, and are seeking markets where their different varieties of native and Pacific coast woods are likely to be appreciated. Redwood, fir, black walnut, cedar and white pine are available in unlimited quantities, having stood for ages unaccustomed to the assaults of the hardy and persistent woodman; and it is with a view of introducing these and many other varieties of finishing woods, that capitalists intend entering the field as competitors in eastern and foreign markets. Redwood has been in use here for some time, but builders generally are not fully acquainted with all its merits. It is used for many purposes, rough as well as fancy work. It is last- ing, worked up either into shingles or for paneling purposes with a high polish. Recently a

shipment was made from San Francisco to Glasgow of Washington Territory red fir, cedar and black walnut, and an assorted cargo of woods followed to London.

The scarcity of the lumber supply in many portions of Europe offers an excellent opportunity for Pacific coast shippers, and with their known energy it would not be surprising to see, at the expiration of a few years, shipments of lumber making from San Francisco and North Pacific ports to Europe as frequently as wheat goes now. At the present time shippers are not fully posted as to the requirements of European consumption, the cargoes forwarded thus far being of an experimental character, simply with a view of ascertaining the tastes. The ventures made in the way of shipments to Panama and other South Pacific ports, have met with such encouragement that the trade of Montevideo and Buenos Ayres in white pine is now viewed with some jealousy. Australia is buying largely in the San Francisco market for building purposes, and the demand is rapidly increasing. Canada and the West, keep a good lookout for your trade, or some fine day you may wake to the fact that instead of a prospective famine in lumber, it may turn out a feast with a surplus to spare.—*Lumber Trade Review*.

LUMBER IN WINNIPEG.

The Winnipeg Times of June 5th, reports the following discussion in the City Council

ALD. G. M. WILSON.—What amount of lumber has been purchased since the commencement of the year altogether?

ALD. OVENS—I bought about five hundred thousand feet myself. I understand Parr bought 150,000 feet, I don't know on whose authority. If he did it on his own responsibility I think he should be made to pay for it. I find that we have purchased already nearly three million feet of lumber 2,700,000 feet, I think. This is going it pretty fast. The cost of the lumber will be something like \$67,000. It is impossible for the finance committee to raise ways and means for an expenditure going on at this rate. The cheques issued the other night for lumber amounted to \$16,000, and there are \$49,000 yet to be paid. The chairman of the board of works informs us that they have discharged a large number of men, but I find the pay sheet last month amounted to \$12,000.

The Mayor stated that the exact amount paid for lumber would be \$82,697.

ALD. BURMIDGE asked the chairman of the board of works who had bought this lumber, outside of the one million five hundred thousand feet purchased from Macdonald.

ALD. OVENS—Part was purchased by contract—part by Parr. The board of works authorized me to buy lumber.

ALD. G. M. WILSON said the Council had no idea how much lumber was being bought.

As a result of this discussion a motion, by Ald. Fortune and Brydon was carried, rescinding the resolution authorizing the board of Works to purchase what lumber it required.

TIME TO PLANT.

Two provinces—Ontario and Quebec—have, at the same time, passed laws for the encouragement of tree planting. These laws are chiefly directed to planting on road sides. This limited scope of their direct action must not discourage us; for there is reason to hope that the effect of the example may extend much further. The planting of the road sides with well selected shade trees will of itself change the whole aspect of the country; and what is done there, farmers may soon learn to do along the fence rows. Not only would the scenic effect be pleasing; the ultimate pecuniary results may be made very acceptable.

Some of the best trees and the most valuable, including some nut varieties, are not suitable for road sides. Robbing them of their wealth injure the trees and cause a new form of the small boy—and big boy, too, it is to be feared—nuisance. Government bounty to tree-planting is a justifiable thing, where the only advantage to be got is a public one, where no one will be authorized to cut down and appropriate the trees to his own use. For the same reason, the bounty must stop short of the encouragement of private planting. Here the motive to plant must be found in some form of individual com-

ensation; increased beauty of surroundings or the hope of ultimate profit.

The list of trees to which the public bounty is, by the Ontario law, extended, is altogether too limited. Other than our own forest trees deserve encouragement, in this particular. The want of variety in shade trees, even in cities, is a standing reproach. The easily grown horse chestnut and the maple form the chief stock of these trees. The plane tree and the linden tree of continental Europe are specially deserving of encouragement, and there are other varieties now neglected, well worthy of a trial. Our Canadian forests are rich in the variety of their trees; and where nature has pointed out the way, it is safest to go. But even here, the limitations of natural growth may be greatly extended by cultivation; and varieties not native to the soil may be added with advantage.

In Quebec, "arbor day" got a good send off. There was an official coronation, which deserved to fix the event in the public mind. The birth of the Ontario law was not emphasised in a similar way, or in any way; and its existence is scarcely felt or generally known. The new law will, when its provisions are fully known, give an impetus to planting on the road sides. And the example will become contagious. That there will be much planting *en bloc* is doubtful. Few persons are likely to be moved to plant even the most valuable trees, say the black walnut, that a future generation may hope to reap, thirty-five years hence, a harvest of \$15,000 or \$20,000 an acre, or even twice as much. The fashion may change; it must change for want of material to work upon, and when walnut cannot be got for furniture some other wood must be substituted. Walnut may become the more valuable, from its rarity; but in thirty-five years, it will be almost in danger of being forgotten. Though the growth of this tree, in separate plantations, of large extent, is not likely to be undertaken, there are many spots in which it may be dotted over a farm, without any risk of loss and a very good chance of exceptionally large profit. It is a beautiful tree, and after a few years will pay its way with its crop of nuts.

The first thing to be done is to awaken public attention to the desirability of planting; and this done, the folly of selecting poor trees will soon be understood. In Ontario, we have been cutting down trees for a century; in Quebec more than twice as long—though it must be confessed very slowly at first—and now the time to plant has come. Let us recognize the necessity and act accordingly.—*Monetary Times*.

FOREST FIRES.

Threatening forest fires are reported in Wisconsin, and the Great Western mine on the upper Menominee was endangered a short time since. A fire near Crystal Falls mine also threatened the Stevenson and Curry mine locations and burned numerous wood piles. Michigan has thus far escaped any destruction from this source this year, but as the dry season approaches, when everything in the woods, especially where lumber operations have been conducted, becomes as inflammable as possible, as it is in a favorable condition to feed any flame which may be started carelessly or otherwise, it behooves the utmost caution on the part of settlers, land lookers, hunters, and others, in order to avoid any disastrous results such as were visited on some portions of the state in 1880. The memorable lessons on those dark days in the history of the state, it is to be hoped will serve as a sufficient warning against any carelessness in the future. An ounce of prevention is worth a pound of cure, and all persons engaged in the woods, or who "camp out" over night should see to it that camp or other fires are fully extinguished and not left to be fanned into a blaze by the passing breeze, and perhaps spread devastation, ruin and death to an unlimited extent.—*Lumberman's Gazette*.

On Thirty Days Trial.

The Voltaic Belt Co., Marshall, Mich., will send Dr. Dye's Celebrated Electro-Voltaic Belts and Electric Appliances on trial for thirty days to men (young or old) who are afflicted with nervous debility, lost vitality and kindred troubles, guaranteeing speedy and complete restoration of health and manly vigor. Address as above.—N.B.—No risk is incurred, as thirty days' trial is allowed.