

DIFFERENCE BETWEEN DRY ROT AND WORM-EATEN WOOD.

Dry rot is a term applied to damp wood under process of destruction by fungi, or low forms of vegetation. The albumen and the essential oils in the wood become the food of this secondary or parasitic vegetation; the woody tissue is broken up, and the walls of the cells destroyed, an earthy, powdery matter being left as the residuum. This residuum bears on its face a close resemblance to burnt or charred wood. Indeed, it is akin to burnt wood, for the albuminoids and the essential oils which escape under the influence and form the food of fire, have been consumed or absorbed by parasitic vegetation. The residuum, an earthy, inflammable substance, is practically identical with that resulting from fire. Dry rot, or the destruction of wood by secondary forms of vegetation, is dependent upon two conditions—heat and moisture. To prevent dry rot, the wood is dried or seasoned, by which one of the elements is withdrawn. To guard against the return of this one element, the wood is painted or varnished, and hence the general application of paint or varnish. Where wood can not be painted, preservatives are used, the object of which is to change the character of the wood, so far as its secretory matter is concerned. In this direction, creosoting is the most common or customary, the object of which is to poison the albuminoids and the essential oils, and so render them unfit for food to low or secondary forms of vegetable life. Salts, sodas and metallic injections have the same effect, but they are in a large degree soluble in water, and in course of time become weak or disappear, and consequently they are not so largely or generally used as creosote oil. The amount of moisture necessary for the support of the secondary vegetation is very large. This is supplied by humid or stagnant air, or by damp walls or subsoils, and hence it follows that wood subject to passing air, or brought under the influence of vegetation, is free from from this disease or dissolution.

Worm-eaten wood is wood injured by mechanical action—i. e., by animal life. The same conditions are imperative to the support of this form of life as to the above, but the amount of moisture necessary in this case is very small compared with that required for the support of vegetation. Wood to be worm-eaten must be subject to damp, humid, or stagnant air, and it must be a sweet wood, or the sap of a bitter or pungent wood. Ash, elm, walnut, birch, beech, and lime tree are sweet woods, and very subject to worm. Oak and resinous woods are bitter, pungent or unpalatable, and, except in the sap wood, are fairly free or proof against the attack of worms. Under certain conditions, as in the roofs of churches covered down with lead, where condensation of the atmosphere ensues, and the wood absorbs moisture, the heartwood of even oak will fall a prey to the action of worms. In some cases the necessary moisture is supplied by the ends of the beams being inserted in walls, the materials of which are porous stone. Here the damp ends of the beams will be riddled with worms, and, sponge-like they will crumble away, and, if not supported, will fall clear of the walls. The heartwood in this case seems to have lost its pungent qualities and to have become soft with long saturation; but, not having been soiled upon by fungi, to still retain its albuminoids, and to be sufficiently endowed with them to form the food of worms.—*Furniture Gazette.*

LOCATION OF A MILL.

The following contribution by T. G. Langdon, appears in the *Indianapolis Woodworker*:—The very first thing that should command the attention of a person or company going into the lumber working business is the location of the mill. For a local retail trade a point in the centre of business is the great thing to be gained, and for a wholesale shipping trade to be near a place where putting lumber on board of cars or vessels or both, is the great end in view. But there is one thing common to both these trades which should be the first and great objective point: Ease of getting stuff to and from the mill, with the least trouble and expense of moving the stock. Every man that knows about lumber knows that it costs a great deal to handle it, and and if it has to be handled over three or four

times where it needed to be moved but once, there is added a very great percentage to the cost of production, and if he has to compete with mills in the same business he will find himself doing loss business with a larger amount of help, who are worked harder, and not producing as much as the company who has taken greater pains to have a mill where lumber can be handled at the least possible expense. The first point I would make is to have a mill located on perfectly level ground, so that teams with heavy loads as lumber teams usually draw can come and get away easily, and so that no help in or about the mill shall be used to load or unload teams. I do not take into account the item of insurance as a recent writer has done, for "constant vigilance" is the price of safety in planing mills. Sometimes mills are set on fire by catching from other buildings, but very much oftener they are caused by carelessness, not only of employees, but from owners themselves, who neglect to keep all places around the furnaces properly cricked up and partition walls made sound and secure from any possibilities of accident in that direction. One great thing in locating a mill is getting on good, firm ground, so that after the mill is up and the machinery in it will not be constantly settling down, which would be a constant source of annoyance from the shafting being always out of line and consequently always going hard and often breaking. Of course there is a remedy by piling, but piling if properly done is costly, and the land that must be piled to set a building on almost without exception cuts off having a basement, which I consider a great advantage, because it is so desirable in all wood working machinery to belt from below. In places, however, which are affected by tides and overflowing of rivers I would by all means keep everything above water. The belting can be managed easy enough, only keep it out of the water. The great objective points is to have plenty of room in and about the mill—outside for keeping lumber and conveniences of getting around, and inside for handling and working it. It is very good to have plenty of room to expand in, for everybody expects to increase their business and consequently they want room to do it in. Have a good reserve on hand so if you go into market and find somebody hard up and anxious to sell a million or two feet of lumber at a good discount, you have just enough room to put it in and not crowd you.

Now to a company just going into the lumber working business I would say, first sit down and count the cost, and provide yourself with ample means before starting, and having secured that, make a good plan of everything you want in your business, yard room (if you run a yard) with ample space for piling your lumber, and good avenues between the piles for teams to load and unload, and good generous sheds for storing nice dry dressed or rough lumber, with projecting roofs so teams can load and unload in storms without danger of getting stock wet; also a place for a good, generous dry-kiln, where a team can drive in and unload instead of leaving it outside and then have to carry it in by hand, thereby adding a large percentage of cost to production which somebody must pay for. And here will be a great item to be provided for. Plan if possible so that when a load of lumber is drawn in it can be left just where you want it, and not have to be carried over the shortest distance. Just here I want to contrast two dry-kiln rooms which I know of to show the difference in the cost of filling each.

In the one the teams drive alongside a shed, and breaking it across the wheel the teamster passes it up to the man on the shed, who carries it about 50 feet to a door where another man takes it and carries it 50 feet more and leaves it across a horse at the door of a dry room, where two men stick it up. The other case is a dry house on good level ground. The teamsters backs in and throws off his own load without help from anybody, and does it in half the time the other teamster can pass his load to somebody on the shed. In the first case the company want to utilize the heat from the boilers, and in the other the man wants to avoid the danger of fire by having the dry house away from the mill, and also to take as little help as possible to fill the dry house. To you who run lumber mills I will leave to decide which of the

two are using economy in the matter of drying lumber. I bring this item of drying room in merely to show how much can be saved by having ample room for every needed convenience around a planing mill. To those not using a dry room it does not apply, but there are so many establishments that do use one that it is well to have them so that we can use them economically. Perhaps a great many will say, they have been long established and it would be at great expense to overhaul everything to suit their ideas of convenience. They are getting along comfortably well and making fair profits as they are, and are perhaps acting the parts of philanthropists in giving more employment to those who are needy and want the employment to support their families. This is all very well, but those who have to use lumber have to pay for the extra cost of production in some form or other. I know of several mills which if years ago some stray spark from a locomotive or some spite of an incendiary had caused them to be entirely burned up, that would, if built up with every convenience, have been far richer men to-day, and in some cases I think been kept from bankruptcy. In conclusion let me repeat: If you are intending to go into the lumber-working business in any form whatever, give yourself plenty of room for all your wants and a good reserve for increase of business. It is cheaper to own land and pay taxes on it than it is to hire a little nook and corner here and there, and pay a large rent to those who know they can make you, because you must have it, even if it is inconvenient. I know of parties to-day who would pay a much higher price for adjoining land for yard room than the land would cost in the market, and who could have had the same land a few years ago for a nominal price, and now they are paying twice the amount that the land would have cost them every year for rent. Other parties saw the future value of the land and wisely secured it, and it cannot be bought now. I have spoken in this article of the desirable outside convenience of the lumber-worker. In another I shall speak of the inside accommodations.

BOOMING PROFITS.

The *Northwestern Lumberman* says:—Since it has been proposed to restrict the charges of the boom companies in Michigan, there has been considerable discussion on both sides of the question. The proposed amendment is that the net dividends of the companies, after paying for all repairs, running expenses and losses, shall not exceed 20 per cent. on their capital stock in any one year, or 10 per cent. if the whole amount of capital stock has been paid to the stockholders. The following argument and figures are from the *Saginaw Herald*, the figures showing conclusively that stock in a Michigan boom company is a good thing to have:—

"The very nature of a boom company's business renders the occupancy of the river exclusive. Only one company can do business at one point. All the shores suitable for booming purposes are bought up or rented by one corporation. Logs cannot be stopped above its booming ground to raft and sort them; and below are the lakes, where the logs are lost if they have not been stopped and rafted. Under such circumstances competition is impossible. The monopoly is perfect, and whoever floats logs upon the stream must pass the boom and submit to the company's terms or run the risk of losing his property.

"Now, no man, however honest—and certainly no corporation—should be trusted with unlimited power to levy on other men for contributions. Such a power is sure to be abused. Yet the boom law of 1864 leaves this very power with every boom company, for it fixes no limit to the amounts which they may wrest from the log-owners to divide among their stockholders.

"The records of some of the largest companies in the state have been examined to show how they used their powers.

"The Manistee River Improvement Company, starting with a paid-up capital of \$22,000, raised it to \$100,000 by stock dividends, and in two years—1873-4—divided among its stockholders a greater sum than the whole amount of capital stock paid in by them.

"The Muskegon Booming Company began

with a capital of \$40,000, and ran it up in the same way until it reached \$200,000. In 10 years it paid \$216,265 in cash to its stockholders, and met, besides, all its expenses and losses, and paid for its improvements. In a single year it divided 200 per cent. on the whole cash capital originally paid in, and its cash and stock dividends for the ten years swelled to 1,100 per cent. on that sum. It still holds its \$200,000 of nominal capital as the basis of future exactions to be continued while mills stand at Muskegon and logs are floated to them.

"The exactions of the Tittabawassee Boom Company have been more moderate. It is by far the most important corporation of the kind within the state. It has some thirty stockholders, of whom no one owns a controlling interest. It has watered its stock 100 per cent. only; and it has volunteered to reduce its dividends to a lower point than the other boom companies would consent to. But even this company, within the first two years of its existence, paid back to its stockholders in net dividends an amount of \$15,000 greater than the entire capital ever paid in by them, and having thus reimbursed them, it started out in 1867 with a capital stock which cost them \$15,000 less than nothing, and has gone on collecting dividends varying from thirty to eighty per cent. and amounting in the aggregate, at the close of the present season, to \$375,000 over and above all expenses, repairs, improvements and losses. Its average cash dividend for the first ten years was 47 per cent., and its total cash and stock dividends from 1865 to 1882 aggregated \$425,000—an advance of 850 per cent. on its actual capital.

"Such facts as these abound also in the past and present management of other companies. Some of them, in defiance of public opinion, and against the protests of large minorities in their own board of directors, persist in demanding dividends twice as large as in the instances referred to. This is notably the case with the Risco River Boom Company. But enough has been stated to show the need of legislation. What it shall be for the legislature, to which this appeal is made, to determine.

"Uniform treatment of all companies, and a uniform measure of protection to all citizens, is indispensable to a just law. The price of rafting logs cannot be fixed in advance, and cannot be uniform. It must vary with varying conditions. But the profits of companies can be made uniform, for the profits of any corporation consist only of the dividends earned on its capital stock. In this respect the proposed legislation is most liberal. A company that could guarantee an annual dividends of 10 per cent. while it continued in existence, and the repayment of all its capital to its stockholders when it should be wound up, would command a high premium for its shares. But is better yet for the stockholders if they can have their capital paid back to them almost at the outset, and still have the right to a heavy dividend so long as the corporation continues.

"Another reason for this legislation is that it removes an apparently unjust discrimination in favor of capital as against labor. Capital and labor furnish the whole service of rafting and booming. The capital is worth from 4 to 7 per cent. per annum in the open market; and labor from \$1.50 to \$3 per day, if there is free competition. Now, if the laborers should combine to take possession of the outlet of a river, and should arrogate to themselves the sole right to do the labor at that point, fixing their own price and excluding all other men from competition, it would be an illegal act, to suppress which the military power of the state might be invoked. But no less vicious is it, even if done under the forms of law, that a few men should monopolize the booming grounds at the mouth of a great river; organize a boom company under a state law that fails to protect any one but the corporation formed under it; fix their own arbitrary valuation on the property used or capital employed; exclude all competition, and then enforce the payment of any rates they choose for services rendered.

"Another reason for this legislation is, that without it there will never be uniformity of charges. While some companies are strongly influenced by public opinion, and, without legislation, reduce their charges, others, owned lar-