

A BAND SAW IN HIS MOUTH.

IT is a fortunate thing for man and the rest of the animal kingdom, naturalists have told us, that no large wild animal has a mouth constructed with the devouring apparatus built on the plan of the insignificant-looking snail's mouth, for that animal could out-devour anything that lives. The snail itself is such an entirely unpleasant, not to say loathsome creature to handle, that few amateur naturalists care to bother with it, but by neglecting the snail they miss studying one of the most interesting objects that comes under their observation.

Anyone who has noticed a snail feeding on a leaf must have wondered how such a soft, flabby, slimy animal, can make such a sharp and clean-cut incision in the leaf, leaving an edge as smooth and straight as if it had been cut with a knife. That is due to the peculiar and formidable mouth he has. The snail eats with his tongue and the roof of his mouth. The tongue is a ribbon which the snail keeps in a coil in his mouth. This tongue is in reality a hand saw, with the teeth on the surface instead of on the edge. The teeth are so small that as many as thirty thousand of them have been found on one snail's tongue. They are exceedingly sharp, and only a few of them are used at a time. Not exactly only a few of them, but a few of them comparatively, for the snail will probably have four thousand or five thousand of them in use at once. He does this by means of his coiled tongue. He can uncoil as much of this as he chooses, and the uncoiled part he brings into service. The roof of his mouth is as hard as bone. He grasps the leaf between his tongue and that hard substance and, rasping away with his tongue, saws through the toughest leaf with ease, always leaving the edge smooth and straight.

By use the teeth wear off or become dulled. When the snail finds that his tool is becoming blunted, he uncoils another section and works that out until he has come to the end of the coil. Then he coils the tongue up again and is ready to start in new, for while he has been using the latter portion of the ribbon, the teeth have grown in again in the idle portions—the saw has been filed and reset, so to speak—and while he is using them, the teeth in the back part of the coil are renewed. So I think I am right in saying that if any large beast of prey were fitted with such a devouring apparatus as the snail has, it would go hard with the rest of the animal kingdom.

CUTTING OF TIMBER.

DURABILITY of timber is increased by timely cutting. Even white birch cut in July and August in full leaf will remain sound for two years or more. Cut in March it will hardly last through the season. White birch will make fairly durable bean poles if cut in midsummer. Dr. Jabez Fisher, of Massachusetts's grape farm, uses chestnut logs for trellis stakes, and contracts that the trees shall be cut in late summer when in full leaf. The stakes are also stronger. Water seasoned lumber is durable probably because the water washes out the destructive acids of the sap. Logs cut in winter that cannot be sawed until there is danger of decay and damage from insects are safely preserved if thrown in the mill pond.

NO SMOKE.

A RECENT German invention for the purpose of preventing smoke when coal is used as fuel consists in reducing the coal to a powder and feeding this to the furnace with an air blast. The coal so prepared ignites at once upon entering the furnace and gives an intense flame. The dust does not fall, but floats in the furnace chamber and is entirely consumed. There are no ashes, and it is said there is no smoke from using coal in this shape. The fire can be regulated the same as when oil is used, and it can be started or extinguished at pleasure.

PLENTY OF OAK.

OAK is sometimes referred to as a timber that will some day in the near future take rank as one of the scarce woods of the country. In the opinion of the Timberman, of Chicago, taking the oak family as a whole, it will always be in supply, as long as a man occupies North America. Oak is said to be about the most common timber that grows. In its various varieties it supplies about forty of the 420 species of wood in the United States, and it is probably only exceeded in amount by the cone bearing trees, which include such as the pine, hemlock, spruce, fir, etc. It is possible that if the exact figures were at hand, oak might even surpass these, for it grows almost everywhere that trees are found. Certain kinds are of particular value. White oak is the favorite of all and is being more rapidly cut away than others, though all varieties have their uses. Where exceptionally well located or of especially fine quality, it may have a higher price as standing timber, but its quality is so great and widely distributed that very high prices are not to be anticipated. The measure of its value on the market depends mainly on the cost of getting it to the mills and of manufacture. These will continue to be the chief elements in its cost for many years to come, and we apprehend this generation will not see the permanent price much higher than that which prevailed during last year.

ADVERTISING IN TRADE JOURNALS.

A PROMINENT and very successful manufacturer was recently asked why he did all his advertising through the leading trade journals and never sent circulars or put up posters, says Drainage Journal, and replied: "Men who do not read their trade papers and keep posted in their business are usually poor customers. If I sell them a good lot of machinery, they do not know how to use it, and report it a failure, or we have to run after them, lose time and money, to get them a going and make the sale stick. But those who read and are posted know how, and succeed. Such men would not read circulars if I were to mail circulars to them. They see my 'ad.' regularly in the trade paper and know that I have an established business, and when they want anything in my line, write me, and don't whine about prices, or what time they can get from others, but buy, try, and have no trouble, and pay the bill. Give me such a class of customers as I get by such judicious advertising all the time."

PLANNING BUILDINGS.

WHEN you are about to build, rebuild, enlarge or remodel your saw, lath, planing or shingle mill, or your sash, door and blind factory, or any other wood-working plant, don't go about it wrong end foremost. It is a wrong way to go about it by putting up a building of any sort or size, and then trying to force your outfit of machinery into the misshapen building. You begin wrong when you begin without a plan. First, lay out what capacity you need. Then arrange your machines so that you secure the best possible economy. When all this is done, complete the scheme by building a suitable cover for the plant. Ignorant owners go at it the other way. Instead of putting all the care and attention on the machines, transmission, boilers and engines, they put up a building first. Very naturally, they find their buildings of the wrong shape or size. They really give second place to what should have first place in their calculations. The result is an unsatisfactory plant.

YOU ARE INVITED.

The Magnolia Metal Company, which sells its metal all over the world, extends to its friends an invitation to visit its exhibit at the World's Fair; it can be found at Section No. 10, column E 53, where all people who are interested in the running of machinery with the least amount of friction are most welcome.

PILING SAP LUMBER.

THE location where lumber is piled, and its surroundings, have much to do, says Mr. W. B. Henry, in the Wood Worker, toward aiding or preventing stained lumber. Where it is piled on low, wet or damp ground, or in hollow places, or surrounded by tall buildings or dense growth of timber, where there is not free circulation of air, one may expect damage from sap-stain unless the greatest care be taken.

My experience and observation have been that one of the best methods to prevent sap-stain is to get the lumber cross-piled as soon as possible after it leaves the saw. The piling sticks, or the timbers upon which the lumber is to be cross-piled, should be raised high enough so that there may be a clear space of 18 to 24 inches between the ground and lumber.

In lumber 12 feet long there should be three of these cross-bearing timbers, and with good pitch to allow the free carrying off of water or evaporations from the lumber. A pile of lumber should never be allowed to sag in the middle, for in so doing it not only prevents the free carrying off of the moisture, but carries from both ends towards the middle, where congestion ensues and sap-stain results.

In the centre of each pile of lumber I always leave a space of 12 to 18 inches for an air space or chimney; the sides of this space are carried up from bottom to top with almost plumb-line precision, or at least as much so as the sides of the piles. The air beneath the pile finds this chimney to act as a funnel and escape-valve for the moisture beneath the piles, as well as in the lumber itself throughout the pile.

Narrow pieces or strips should be used for the lumber to rest upon in the building up of every layer in the pile. Strips from three to six inches in width is probably the best width, and if they are over, all the better.

The widest board or plank should be put at the edge of the pile or the edge of the chimney, and there should be sufficient space left between each board or plank—owing to the thickness and width of the lumber—so that they are not crowded too closely together, for the main object throughout is to give plenty of ventilation and free circulation of air.

When the pile is finished it should be well covered, and all the better if the lumber used for covering be at least two feet longer than that in the pile, so that the roof may carry the water beyond the ends of lumber piled. Other piles should not be allowed to be nearer than six feet, and better yet if eight feet distant.

With these things carefully carried out, one will seldom have much badly stained lumber, unless the conditions be unusually bad, or with kinds of timber with which I have never had much practical experience in handling. I have never used unslacked lime thrown under and around the piles of lumber during hot weather, but have been told by those who have used it that it is an excellent preventive of sap-staining. The lime doubtless absorbs or dries up the dampness of the ground, and to some extent the lumber, but unless the lumber be piled somewhat in the manner I have mentioned, I do not think lime of itself would keep the lumber bright.

Several years ago it was suggested to me that by piling the sap-side—that is, the side of the board or plank next to the bark or the outside of the log, always turned up, and the heart side turned down, that one would have little stained lumber. As no plausible scientific theory was advanced, or that I was slow to believe, I did not readily adopt it. But others who claimed to have tried it, assured me of the good results, and during one month in winter time, and one month in midsummer I piled the grades of selects and fine common, two grades having the most sap in white pine lumber, one pile being careful to turn the sap side up, and in the next pile just as it came, whether sap side or heart side, then the next pile sap side up, and thus alternating in that manner.

The piles contained 12,000 to 16,000 feet, owing to the lengths of the lumber. There was, during all the time this lumber remained in pile, from 3,000,000 to 5,000,000 feet in the yard, so that the surrounding conditions were about the same.

This sap lumber was allowed to season until in good shipping condition, and then shipped out to fill orders as they came in. If there was not enough to fill an order from one pile, it would be taken from the next, but I could see no difference in the brightness of the sap between the one pile or the other, nor in the weight of the lumber.

There was no sap-stain in any of the lumber, and I attributed it more to the manner in which it was piled, in accordance with the method I had adopted, than to turning the sap side of the board up.

THE OLD AND THE NEW.

MACHINERY, says the Age of Steel, has so far changed conditions that in the planing mill, the furniture factory, the cabinet shop, and in all other kinds of wood-working plants, the differences between the old methods and the new are little less than revolutionary. The room for ingenuity has been eminently favorable to its development, the working of wood into artistic forms requiring a wide range of special apparatus, and insisting on devices that in an economical and practical sense had to keep pace with changing demands and conditions. The work done by some of these mechanical appliances is little less than phenomenal, involving the most intricate and diversified operations, and doing the same with a precision and accuracy unequalled by the most expert mechanic. To name any as distinct from the rest would seem to be an invidious comparison, it being enough in the general sense to say that in every specialty of wood-working the ingenuity in device is simply remarkable. In planers and moulding machines, in sawing and tenoning apparatus, in boring and mortising work, in lathes of all kinds, in scroll and hand saws, in shaping, friezing, sand-papering and polishing contrivances; and, in fact, all the way from a hotel toothpick to the figure-head of a steamship, or the exquisite carvings that adorn the temple or the palace, the work of the brainless tool is supreme.

CATERPILLARS OF WOOD.

ONE of the queerest things found in New Zealand, Tasmania and other parts of Australasia, is the world-famous wooden caterpillar. This wonderful animal plant is a fungus, a sphaeria, which grows to a height of seven or eight inches above the ground, generally in a single stem, round and thickly covered with brown seed, the whole ending in a curved worm-like point. It is usually found growing at the roots of a particular tree, the "rata" of the natives.

When this singular plant is pulled up, its single root is found to be the exact counterpart of a large caterpillar, one from three to four inches long, and which although it preserves and exhibits every detail of such worms, dissection proves it to be only a woody, bulbous root. Intelligent persons of the countries named, as well as English, American and French naturalists who have been sent to report on this wonderful vegetable product, say that it is formed in the following unique and curious manner: A large species of moth feeds on the "rata" tree; the grub of this moth burrows in the ground; the seeds or spores of the sphaeria fungus find lodgment between the scales of the grub's neck, strike root and completely turn the interior of the creature into segments of solid wood.

In every case the shell or skin of the caterpillar is left intact, no small rootlets puncturing it at any point except at the eye, where hair-like roots protrude, giving the woody worm a very fierce expression.