

LUMBER UNDER COVER.

IT is getting to be an acknowledged fact that any kind of lumber left exposed to the weather after one summer in the open air will deteriorate very rapidly; the actual loss by this means ranging from 2½ to 10 per cent, according to the kind of wood and the season of exposure. It is an open question whether the loss does not commence with the first day's exposure. Authorities differ on this head, some claiming that with the exception of a very limited number of kinds of timber all lumber is better for open air exposure for a certain length of time, varying with circumstances, such as thickness, variety of timber, amount of sap, etc., but more especially according to the season, which in turn varies both with latitude and longitude. The area of the hardwoods is so extensive that all these conditions enter into the question so far as it pertains to them.

The statement of a few practical facts on this subject will serve to help settle the question. It is generally known that the sap part of any wood is the first to decay under ordinary circumstances; but it is not so well known that if the sap wood were kept in an absolutely dry atmosphere it would rot no sooner than the rest of the tree. Theoretically there can be no decay without moisture coupled with sufficient heat to produce a certain chemical action.

Every one knows that a quantity of green or wet lumber, thrown into a solid pile, if left for any time on a reasonably warm day, especially if the weather be cloudy or the air be heavily charged with moisture, will commence to take on a green or black stain. This stain will penetrate the entire sap portion of the lumber in a short time, varying with the temperature and humidity, and with many kinds of lumber will spread to the heart portion, becoming in all cases indelible.

This green or black stain is in reality a mold or fungoid growth, which is the first visible evidence of the chemical changes leading to decay. For all practical purposes the solid matter in all hardwoods is the same, varying only in proportion, and but slightly in a long list. Thus the variations in timber are caused not by differences in solid matter, but by the different arrangement of the particles of that matter coupled with the fluid or volatile elements which are the life-blood of the tree.

The growing tree is a complete chemical laboratory within itself, working day and night building up trunk, branches and leaves. Often the work goes on for some time after the tree is felled; but practically a complete change of chemical action takes place shortly after that event, and if the tree or the lumber into which it may be made is left unprotected, exposed to the elements, wind, rain, snow and alternating heat and cold, the chemical action of the fluids tends to the destruction rather than to the building up of the fibre.

Leave the tree in the damp, shaded woods, stretched upon the ground, from which added moisture may be drawn, with the temperature above forty-five degrees, and the work of destruction, beginning with the sap portion and the bark, proceeds rapidly. Place the trunk in a position where external moisture will be excluded, and where, by a circulation of dry air, the fluids and volatile matter may be easily and freely evaporated, and the destructive influences are reduced to a great extent. Remove the bark, saw the log into lumber and you reduce them to a minimum.

Change the location of that tree trunk or lumber to the open air, where it will be subjected to all the influences of the variable climate of the temperate zone, and the destructive forces are at once stimulated to renewed action.

This covers the whole question of protecting lumber by covering or sheds. Even if it be conceded that it is better dried in the open air, there can be no question that so soon as the drying is accomplished the stock will lose value rapidly thereafter if still left exposed. So well known is this fact that buyers of dry stock to hold for re-selling, count in this prospective loss as part of the cost of handling.

The dealers in costly foreign woods have long realized this fact, and invariably house their stock in such a manner as to protect it from the weather as much as possible without using artificial means.

UTILITY OF THE EMERY-WHEEL IN WORKSHOPS.

BY J. H. MINER.

HOW few machinists there be that know the utility of the emery-wheel, and what it is adapted to. One-half of the machine shops throughout the country have nothing more than a grindstone, and that is used only for tool sharpening. In all branches of repair and fitting there is more or less chipping, filing, etc. The emery-wheel will reduce the part in the time it takes to tighten the work in the vice in many cases, leaves the part finished a flatter face than is possible to do with the file. In fitting bolts and boxes of the ordinary class, a dozen can be fitted while one piece can be by chipping. In rough castings there is much annoyance in chipping from the particles of sand which only adds to the wheel's cutting. In fitting up keys and outside work on straps, etc., it is superior to the shaper in time saving. What the emery-wheel will do is limited only to the skill of the operator. The setting, care of and the right grade of wheel for the work is a very important item, and is looked after but little. A wheel should be hung on a heavy, true and well-balanced mandrel, should have a rigid rest for the work so adjusted as to be kept right up with the wear of the wheel where side-dressing is necessary, as in turning up a flat surface. The rest should be adjustable sidewise. A good wheel requires but little dressing to be kept true, if rightly set up. A rickety stand and rest condemns the wheel. Instead of cutting free, it runs with a chatter and shock of a battery, emits a lot of dust not very advisable to consumptives, while the operator's eyes may be partly filled; and this is not all, a broken wheel is the result nine times out of ten in such cases. No work should be allowed to rock, nor should it be held loosely to the wheel. Hold it firm, and a well set wheel will reduce more in one minute than a file or chisel in five. Collars should be one-third the diameter of the wheel, with pasteboard washers between collar and wheel. See that wheel does not fit the mandrel tight, if so, heat from the bearing through any neglect might burst the wheel. Wheels as a general thing are not belted heavy enough to work without slipping. Light single leather, one-quarter in width to the size of the wheel is not too much for stands. The work must be kept moving for fast cutting or the wheel will glaze quickly by fusing the metal. To get good results, wheels must be of the proper grade. For edging cast-iron or steel, taking gates and sprues off castings, a coarse hard wheel should be used. Such a wheel is not suitable for flat or surface work as it will glaze quickly, while a soft wheel would not edge-grind, but would wear and crumble off. For general use a medium hard and coarse wheel is best. For soft metals as malleable iron, brass and tool grinding, a medium soft wheel is best. A hard wheel on planer and moulding bits will draw the temper if great care is not exercised. Where much grinding is necessary in a short time, the article should be cooled frequently, which prevents glazing, keeping up free cutting.

There are many poor class wheels in the market. Users, by changing, can determine this to their satisfaction. Aside from the ordinary stand, the emery-wheel is used for various machine work, as planers, pulley grinders, and finishing up shafting for special work.

It is indispensable in car works for grinding car wheels. For chilled castings and case-hardened bearings the emery-wheel has no equal, in fact, no substitute can compare with it. The simplest form of dresser, which is very good, is a one-half or five-eighths bolt with about a dozen thin washers; slip on a loose nut and, with the thumb and finger of the left hand, hold the blank nut to the washers, leaving just sufficient room to allow them to revolve. You can dress your wheel in any desired shape very quickly. For truing the wheel, allow the head of the bolt to rest on the support before the wheel and by ruling it to the desired position the wheel can be trued. The bolt should be eight or ten inches long, and may have a handle screwed on in place of a nut. When washers are worn they can be quickly renewed. The shorter the angle that the washers will revolve at, the quicker and better the work will be done; to revolve with the wheel in the same ratio will accomplish but little.

New Brunswick sawmills have commenced operations.

A BIT OF CANADIAN HISTORY.

PORTAGE-DU-FORT, in the county of Pontiac, Que., will be the scene during the coming summer of a big demonstration. The occasion will be the unveiling of the monument which is to be erected over the grave of Cadieux, a French-Canadian voyageur, whose name is familiar to the ear of every voyageur, as well as every French-Canadian in the eastern part of Canada. A brief history of the death of Cadieux, as told by an Ottawa journalist, will be of interest to the public. In 1801 Cadieux, together with three other voyageurs, were making an ascent of the Ottawa River. When they arrived at the head of the Calumet Island, where there is a heavy shute of water, which is known as a very treacherous spot by all rivermen, their provisions ran out. Cadieux went into the bush at the head of the island in search of game, leaving his three companions on the shore in charge of his birch bark canoe. He was gone but a short time when a band of Iroquois Indians, who at that time were at war with the white men, were noticed coming down the river in canoes. The Indians had gained sight of them, and were rapidly approaching the island before the voyageurs took the alarm. There was no time to search for Cadieux, so, hastily shoving off the canoe, they made for the Quebec shore, thinking they could reach Portage-du-Fort, which was at that time a Hudson Bay fort. The current, however, proved too strong for them, and in spite of their strenuous efforts they were borne to the brink of the rapids. Over the shute they went, while their pursuers thought the men had only met with death in a different manner from what had been intended for them. This, however, was not the case, and the men reached the shore in safety about a mile below. For two long days they remained where they had landed, anxiously awaiting the appearance of Cadieux, subsisting on what they could find in the way of game and berries. On the third day they made their way to the spot from which they had been so hastily driven. But a brief search in the surrounding bush revealed to them their lost companion, in a most pitiable state. Hunger and exposure had done their work, and Cadieux was breathing his last, and all their efforts to revive him were of no avail. One slight smile of recognition and he died in the arms of those with whom he had shared the trials and dangers of a river life in an unsettled country. On looking around to find a suitable spot to bury the body, they found close to his side a large piece of birch bark, on which was scratched a few lines in French, which to this day forms the most popular song of the Canadian river men. It is known as "Complainte de Cadieux," and is to be found in N. S. Gagnon's "Chansons Canadien." There they buried the remains of Cadieux, erected a rude wooden cross and surrounded the grave with a cedar fence. For some years past the parish priests and citizens of Fort Colonge have been obliged to renew the cross every second year, as the river men, when passing the grave, invariably chipped out a piece of the cross to wear as a talisman against the many accidents incident to a bushman's life. This fall the cross erected only two years before had disappeared, having been carried away piece by piece, and all that remains at present to indicate the spot which holds the remains of Cadieux is a piece of the cedar fence, about eighteen inches long, which has escaped the searching eyes of the voyageurs. Even the trees which surround the spot bear witness to the number of visitors, as there are, it is estimated, over 20,000 signatures and cross marks indented upon them. In such esteem is the memory of Cadieux held that many of the voyageurs look upon him as a patron saint, and the unveiling of his monument will no doubt be an event long to be remembered by the rivermen of the Ottawa district.

We talk of the rough character of the average bushman. Certainly his surroundings do not give much encouragement to the cultivation of the esthetic side of his nature. But does not the little incident cited here show a very noble side to that life; tell of a big-heartedness—a thoughtfulness for a fallen comrade—that would do credit to the most cultivated mind? The LUMBERMAN thinks so.

McNicol's sash and door factory, Renfrew, Ont., was destroyed by fire on the 26th ult.