LIFE OF THE LOGGERS OF NEW HAMPSHIRE.

A letter from Portmouth, New Hampshire, gives a very interesting pen-picture of the rural life of the loggers of that State, where the lumber interest is a large one, but one of which few people in this section have any adequate idea. Away up in the Pemigewasset Valley, among the foothills of the Fraconia range, stand immense forests into which each winter enter gangs of lumbermen. A rude shanty is erected in which the men eat and bunk, and large quantities of salt pork and salt beef, flour and molasses carted in, a cook procured, and the winter campaign opened. The life of the men in these camps is a most monotonous one, chopping steadily through the day, with the exception of a short rest for dinner and a smoke. After supper, all gather about the cook's fire to tell stories or to listen to the soulful harmony drawn from a $2.50 fiddle, and then they climb the ladder to their bunks in the loft.

The typical river driver is to New Hampshire what the cowboy is to the West—a creature of unbounded profanity and shirt collar, bold, reckless and dare-devil to the last degree. Yet among the number are many who are far above the average of such laborers—farmers' sons, who go down the river for the sake of the $1 or $2 per day, which is more than they can earn at home at this season of the year. The life is a hard one. The men never sleep in a house during the trip, but two camps, the "front" and "rear," move with the drive, here to-day and further on to-morrow.

The camp consists of a large cook's tent and several "A" tents, in which, on a few inches of straw, the men take their rest. At daylight the men are called to breakfast, after which they go immediately to the river. In the middle of the forenoon a lunch is carried them, and another at 4 p. m. Supper follows at dark, previous to "turning in." The bill of fare is not extensive, but is one well adapted to the mode of life. Coffee, fried pork, boiled corn beef, gingerbread and biscuit, cooked in the old fashioned tin ovens before an open fire, and baked beans, cooked in the ground, are the usual dishes. Good cooks are always employed, and the men are never stinted. An immense wagon follows the drive, always filled and covered with a hetergeneous collection of pike poles and overcoats, tents, coffee-pots, etc. The trip usually consumes from two to three months. The drivers, cooks, waiters, etc., comprise a force of about 60 men.—*Ex.*

HARD WOOD FLOORING.

A Boston paper says: For about three years past there has been a growing demand for birch, beech, and maple lumber for factory flooring instead of pitch, or Southern pine, formerly in use. There is not a very fair demand for birch, beech, and maple lumber, and a number of mills have used it in preference to Southern pine. This lumber is claimed to be more durable than Southern pine and will not sliver as that wood does when worn. It is also cheaper. A lot of floor boards of these hard woods, dressed and kiln dried, can be delivered at $28 per thousand feet, while Southern pine flooring would cost from $33 to $34.

A considerable demand for this hard wood lumber for flooring in roller skating rinks has also sprung up within the last two or three years. These rinks have become very popular, and there is hardly a New York or England town of importance which has not one or soon will have. As the wear on the floors is very great only the best lumber is used. The boards for this purpose are carefully selected and will command from $40 to $45. They are from 2½ to 4 inches in width, while the boards for mill flooring are from 2½ to 5½ inches wide. With the use of this flooring in skating rinks there has also arisen a considerable demand for it in dining rooms and hall-ways, where it has to a great extent displaced the ash, chestnut and walnut, being from one-quarter to one-half less in price, and, it is claimed, being fully as durable. It is being used somewhat also in public buildings.

This hardwood lumber is obtained mainly from New Hamshire, where there are large forests of these woods. There is considerable obtained in Vermont. Up to its use for flooring this class of timber was held to be of very little value, and its main use was in the manufacture of clothes pins, nails, hay rakes, and a number of such miscellaneous articles. The timber lands on which it grew were valued mainly for their spruce and hemlock. The growing demand for hardwoods, however, has caused a considerable increase in the value of such lands. About all the mills that now have suitable facilities for the sawing, dressing, and kiln drying of this lumber, while up to a few years ago very few of them touched it.

PECULIAR RESULT OF A MILL ACCIDENT.

The Duluth *Tribune* makes the following statement: "It was more than three weeks ago that John Johnson, a laborer in the Duluth Lumber Company's mill, was injured by being struck in the head by a stick flying from a saw. The stick broke the skull just over the right eye brow, and when Dr. Davis dressed the wound he took out a piece of skull about an inch and a half large, exposing the brain. For some time Johnston's recovery was very doubtful, but he improved, and is now doing well. The peculiarity of the case lies in the fact the wound has not entirely healed yet, and that it appears as though it would not heal; for the wound reached the nasal cavity, and now the patient actually breathes through that hole in his skull—that is, he can breathe so when he chooses to. He is now doing well, and promises to fully recover, except that he will always have the choice of breathing through his nose, his mouth, or the hole in his forehead."

FOREST POLICE IN GERMANY.

In Germany the woods have their police, whose duty it is to see that no devastation is wrought by inconsiderate owners. No man may cut down his trees without the sanction of these authorities. The reason is that wood is the staple fuel of the country, and if the Government did not step in to protect the people against their own improvidence, the peasants would speedily sweep away all their forests to enable them to clear the mortgages which the Jews hold on their lands. In Bavaria the price of fuel rose, between 1830 and 1860, as much as 60 per cent., and building timber rose 70 per cent. In the sixteenth century the forests had dwindled so much, and the cost of firing had risen so high, that the princes took the forests under their sovereign protection, and appointed a class of officials whose duty it was to see after the fuel supply in their provinces, and look to the protection of trees just as the police have to see to the protection of citizens. One result has been that no trees are allowed to grow longer than when they have reached maturity. After they have attained a certain age their rate of growth is so slow that their room is need for younger plants and they are cut down. Thus a pine reaches perfection about its thirtieth year, and goes back after its eightieth. As a rule, a forest is cleared and replanted every thirty years, and it is an exception anywhere to see an older pine or beach. But the Bohmer wald has not been subject this policement, and there do remain in it magnificent pines several hundred years old.—*Cornhill Magazine*

GEAR WHEELS AND BELTING.

Gear wheels have one advantage over belting—that is, their action is positive. If one of the shaft with which they are to connect makes a given number of turns, it is known to a certainty how many turns the driven shaft has made. With belting, however, nothing positive is to be found in their action; it is likely to slip, and, if the belt is very elastic, will need a difference in the diameter of the pulleys to keep up the speed of the shafting. A queer case of this kind came to our notice some time ago. It was in a grist mill, and the owner found it necessary in time of low water to connect the two separate line shafts, leading each from a waterwheel by a cross shaft, from one to the other, so to give him the power of both wheels on either shaft. This cross shaft was connected with beveled gears, and, to make it doubly secure, pulleys of equal size were placed on these parallel shafts and connected by a cross belt that was very elastic. After this arrangement had been in use for some time, it was noticed that the tension of one fold was nearly as great as that of the other, and that the belt was doing very little work. The beveled gears had all of the load to carry, and the belt was acting as a sort of brake on both wheels, and in order to bring the belt up to the condition that it would convey its part of the load, the driving wheel required to be lagged up with a thickness of double belting, just to keep the speed of both wheels equal. In transmitting power with belts, one of the wheels roll on the slack fold, while the other runs on the stretch that is transmitting the load, and if the belt is very elastic, one wheel will have farther to roll than the other for every turn of the belt, and to bring the speed of a shaft similar to that obtained by gear wheels, each driving pulley must be wakened up a little in its driving capacity. There are millwrights who claim that it is impossible for gear wheels to work in connection with belting in conveying power from one shaft to another, on account of the elasticity of the belting, when it is owing to this very elasticity that their working in partnership can be successfully accomplished. A slight difference in the ratio required for gear wheels will be taken up in the stretching and slipping action of the belt, and keep a difference in the tension on the driving fold from the returning side of the belt, a condition that must be found in every method of belting if it is to have anything to do with the transmission of power. When a pulley can be lagged up till the driven shaft is making the same number of turns as the one driven with the train of gears, there should be no reason for connecting them as long as either method is to have no more than its share of the work to perform.—*Boston Journal of Commerce.*

THE DRIVING CAPACITY OF BELTS.

It has been observed by those who have been investigating the driving capacity of belts, that the tendency with which the pulleys are driven before the belts begin to slip, depends as much upon the adhesion of the belt to the pulley as upon the friction which exists between their working surfaces. In some cases the friction is overbalanced by the tendency of the belt to cling to the pulley, for they may be seen where the surface has been left smooth by the lathemen, and contrary to expectation have a greater driving capacity than when left rough in finishing, a result that would be obtained if friction alone were to be the only resistence that exists in the slipping action of a belt. This is not only the reason why there is nearly thirty per cent. gained in the driving capacity when the grain or smooth side of a belt is brought in contact with the pulleys, but a larger amount of surface in actual contact with the driven surface of the wheel. When the flesh or rough side is used, it is claimed by these observers that a large quantity of air is entrapped in the pores and crevices of the belt when driven at a rapid speed, and when brought between these frictional surfaces must necessarily support a portion of the strain on which the driving friction depends. Although the amount of surface of contact has but little to do with the frictional part of the operation, the driving force depends entirely upon the force with which these sliding surfaces are held together, and whatever is brought to bear upon a film of air that must offer a very little resistance to the action of sliding must be taken from the surface in contact that would not be affected with the smooth sides wrought together for the working surface. Everything that interferes with the actual contact, or assists the sliding action of these particles that are to slide on each other by intercepting a film of some lubricating matter, whether it be solid liquid or gasses, must lessen the driving capacity and the load which the belt is capable of carrying.—*Boston Journal of Commerce.*

ALL MADE FROM SMOKE.

The old saying that nothing is wasted or lost in nature is true in regard to the smoke from the furnace of Elk Rapids, Mich. In this furnace are manufactured fifty tons of charcoal per day. There are twenty-five charcoal pits constructed of brick. Each pit is filled with 100 cords of hardwood and then fired. The vast amount of smoke from these pits, which was formerly lost in the air, is now utilized. Works have been erected to convert the smoke into chemicals and acids.

These works are a curosity. First, they have a circular tube, made of wood, with pine staves, sixteen feet in length, bound together with heavy iron hoops. This tube is placed directly over the pits in a horizontal position, with an opening from each pit into the tube. At the end nearest the building there is a large drum containing a rotary fan, propelled by machinery, the power of which is gas. That adds as a suction or draft for the smoke, which is conveyed into fire stills filled with copper pipe, two and one-half inches in diameter. The boxes in which the pipes are situated are twenty feet square, eight feet deep, made of heavy pine and filled with cold water; they are all connected with copper pipes; they are connected with the main still, 100 feet in length, ten feet wide and eight feet deep, filled with copper pipes, two and one-half inches in diameter, in horizontal position, surrounded by cold water; from this conveyed to a purifier, from which runs what is called pyroligneous acid which is as clear as amber, with an unpleasant odor.

From the acid is produced, first, acetate of lime; second, alcohol; third, tar; fourth, gas, which is consumed under the boilers. Each cord of wood contains 28,000 cubic feet of smoke; 2,800,000 feet of smoke handled every 24 hours, producing 12,000 pounds of acetate of lime, 200 gallons of alcohol and 25 pounds of tar. These products have a commercial value in the manufacture of various articles. The smoke from 40,000 cords of wood consumed per annum is thus made a source of much profit, as the works are automatic, and require no workmen to work them.—*Boston Journal of Commerce.*

CHEAP WORK DON'T PAY.

Those who engage in the construction of machinery should never allow a poorly executed article to pass out of their hands, if they desire to establish a permanent business. Many persons commit the egregious mistake of supposing that, if they only make articles or machines cheaper than other parties, and sell them at lower prices—even if the workmanship is of inferior quality—they will be sure to get a large patronage and obtain a permanent custom. They may make large sales for a short period of time, but in the long run they will not obtain a good, fixed custom. Not many years ago a company with a large capital commenced the manufacture of a certain line of goods on a great scale, in one of our eastern towns; the principal manager conducted the business upon the wrong principle of making cheap and showy articles, irrespective of their quality. In about two years after they had commenced operations, the company was insolvent, and the stockholders lost nearly all their investments. Not many miles from the same place, a few practical mechanics commenced business in the same line and about the same time, with a very small capital; these men instead of going down, have been going up ever since; and to day they are doing a large, profitable and permanent trade. These mechanics began business with the resolve and the knowledge to do first class work, and they have therefore succeeded.—*American Wood-Worker.*

L. S. BAKER, of Big Rapids, Mich., has purchased all the property of the West Troy Lumber Company, including mills, pine lands, logs, and about 8,000,000 feet of lumber; also the village of West Troy and the entire lumber and logging outfit. The original cost of the mills is stated to have been $120,000.

J. H. HILL & SONS, of Saginaw, Mich., will put in but 8,000,000 feet of logs this winter in the place of 32,000,000 feet last year, and 46,000,000 feet the year before.

"I do not like thee, Dr. Fell,
The reason why, I cannot tell"

It has often been wondered at the bad odor this oft-quoted doctor was in. 'Twas probably because he, being one of the old-school doctors, made up pills as large as bullets, which nothing but an ostrich could bolt without nausea. Hence the dislike. Dr. R. V. Pierce's Pleasant Purgative Pellets are sugar coated and no larger than bird-shot, and are quick to do their work. For all derangements of the liver bowls and stomach they are specific