arises, How can this be done? Probably the best way to attain this end would be for the Government of the country to offer a prize of, say $500, for the best 50 acres of second growth pine land, which is to be found in the country at the end of ten years, say from the date of making the offer, with second, third and fourth prizes of less value to other tree preservers of like extent. People thus preserving their trees would find that, beside the value of the bonus, there would be a real cash value in the lumber which they had protected, and others would be led to follow the good example set them. Of course there would have to be conditions attached to the grant of bonus, and the age of the trees would have to be taken into consideration, as well as the care to to be bestowed upon them. This, it seems to me, would be the readiest way of awakening our people to their best interests in this matter. It is almost unnecessary to remark on the destruction of the forests of America; on the policy of all enlightened European Governments in conserving their forests, and on the innumerable bad economic and climate results of the wholesale removal of forests, either by fire or the axe of the woodmen. These facts have just begun, almost too late, to make an impression on the people on this side of the Atlantic."

THE ALLEGED UNHEALTHINESS OF WOOD PAVEMENTS.

A perfectly unreasonable objection is now made against cedar block pavements, on the ground that they are unhealthy. This objection is worth meeting, for it is the last kick of an opposition to reformed roadways, which once was a formidable enemy to the public good.

Wood as a material for roadways is no more justly chargeable with unhealthiness, because of the presence upon it of filth, than is any other pavement allowed to get into a similar condition. If some of those who object to wood pavements because the Corporation neglects its duty as conservator of the roads would kindly indicate a road material able to keep itself clean the world would be greatly obliged. It is not fair to attribute to the material of which the road is made the responsibility for the foot or more of mud which is often allowed to accumulate upon it. The only ground upon which wood as a road material can be charged with unhealthiness is its liability to decay.

Let us look into this matter. At the start we are confronted with the fact that the European cities which have had ages of experience with all kinds of roadways are at last adopting wooden blocks. In one place wood is superceding macadam; in another, cobble-stones; in another, asphalt; in another stone blocks. Is it likely that all these old tried pavements would be abandoned for wood if there were any sanitary objection to the latter? And is the state of sanitary science in Europe behind its state in Toronto?

Let us look a little further into the matter. Wood decays. Quite true with respect to pine and hardwoods, but only remotely true as respects cedar. On our streets cedar will wear away long before it will rot. But admitting that the cedar blocks do decay, what an inappreciable addition to the vast mass of decaying wood or vegetable matter. Our streets are lined with sidewalks of decaying wood. We walk on floors made of decaying wood. Our houses are frequently built on posts of decaying wood and are pitched upon soil a full half of the upper stratum of which is decaying wood or vegetable matter. Our streets are lined with sidewalks of decaying wood, laid upon sleepers of rotten wood, and they upon earth which is reeking with vegetable rottenness. At least ten times as much wood rots away every year in Toronto sidewalks as will ever rot away in the roadways, in the form of cedar blocks. Then we have thousands of trees in our streets, and upon every one of them more or less of rotten wood. In the autumn these trees shed numberless millions of rotting leaves. Millions upon millions of feet of wood are decaying in our fences; and last but not least, this is still a forest country, and the air comes to us laden with gases given off by an incalculable amount of rotten wood and vegetable matter. The addition of a few miles of cedar blocks upon streets would make a smaller addition to the amount of the gases of rotten wood in our atmosphere than would be made by the addition of a bucket of water to Lake Ontario.—*Toronto Globe.*

A HINT FROM JAPAN.

A notable instance of the Japanese understanding of the conditions under which they exist occurs in the manner of giving security to pagodas, says Dresser's "Japan." Pagodas are of great height, yet many have existed for 700 years, and have withstood successfully the many vibrations of the ground, which must have inevitably achieved their overthrow had they been erections of stone or brick. When I first ascended a pagoda, I was struck with the amount of timber employed in its construction; and I could not help feeling that the material here wasted was even absurdly excessive. But what offended my feelings most was the presence of an enormous log of wood in the centre of the structure, which ascended from its base to its apex. At the top this mass of timber was nearly two feet in diameter, and lower down a log equally large was bolted to each of the four sides of this central mass. I was so surprised with this waste of timber that I called the attention of my good friend Sakata to the matter, and especially denounced the use of the central block. To my astonishment he told me that the structure must be strong to support the vast central mass. In my ignorance I replied that the central part was not supported by the sides, but upon reaching the top I found this monstrous central mass suspended like the clapper of a bell, and when I had descended I could, by lying on the ground, see that there was an inch of space intervening between it and the earth which formed the floor of the pagoda. The pagoda is to a Buddhist temple what a spire is to a Christian church, and by its clever construction it is enabled to retain its vertical position even during the continuance of this vast pendulum the centre of gravity is kept within the base.

THE CARE OF STEAM ENGINES.

A contemporary has gathered the following instructions for the care of engines:

Never allow an engine to become dirty.

Never depend entirely on patent oil cups.

Do not allow the packing to become hard and dry in stuffing boxes, as it has a tendency to cut and flute the rods.

Never strike any part of an engine with the face of a hammer or head of monkey-wrench.

Never set steam packing, cotton waste, tops oil cups, or anything whatever that is to be used around the cylinder, valve, piston-rod or bearings of steam engines, on the floor, as they will invariably pick up sand or guit, which injures the rubbing and revolving surfaces with which it comes in contact.

When practicable, piston and valve packing should be applied when the stuffing boxes and rods are cold. The best packing is often destroyed through ignorance or want of skill.

Almost any packing may be improved by being soaked in beeswax, tallow and black lead.

Gum joints that require frequently to be taken apart should be coated with chalk before being placed between the flanges. This prevents the gum adhering to the metal and being destroyed when the joints are taken apart.

All gum joints located in the water space of steam boilers should be coated with lead and tallow before being put together. This has the effect of preventing the sulphur of the gum from attacking the metal and destroying the surfaces.

Always see that the cylinder drain cocks are open when the engine is standing still; never close them till after starting.

Never admit the tallow to the cylinder until the engine is fairly under way and the cylinder drain cocks closed.

Before starting an engine always warm up the cylinder by admitting steam to both ends.

Always start an engine slowly, and allow it to come up to speed gradually.

Whenever an engine is stopped for any length of time, examine all its parts and see that they are in good working order.

When it becomes necessary to stop an engine with a heavy fire in the furnace, place a layer of fresh coal on the fire, shut the damper, and start the injector or pump for the purpose of keeping up the circulation in the boiler.

In case of extreme heating, slack up on the keys and gibs, permit them to run loose for a time; then take up the lost motion gradually.

Examine the piston packing in the cylinder frequently; keep it tight and in good order.

Keep your steam at the same pressure. If the steam is allowed to rise above the working pressure, the engine will increase its speed, which will induce a loss of speed, as every revolution above the speed at which the machinery is geared for the manufacture of different materials is a waste and every revolution the engine falls below the regular speed is a loss of production.

A NEW BINDING MATERIAL.

Tripolith is the name given by its inventors to a new binding material for builders, a substitute for lime, cement and plaster under certain circumstances, and which is composed of sulphate of lime, coke and oxide of iron in some form or other. While tripolith mixed with sand only, sets in 10 to 15 minutes, an addition of slaked lime may easily increase the time required for setting to 60 minutes. The specific gravity of tripolith is lower than that of plaster, the former is 1.078 the latter 1.096. Turning now to the test, we give the mean results in each case of five complete experiments.

The extraordinary increase of tensile strength after a long exposure to the atmospheric air is remarkable, it amounts to 100 per cent from seven to ninety days in mortar B, and to 189 per cent in mortar C for the same time. Compared with the tensile strength of lime and cement, the results obtained with tripolith are highly satisfactory. The compression tests point out for tripolith a position between lime mortar and cement mortar, but since after being fairly set it acquires about the same crushing strength as ordinary bricks, no more would be needed for general use. In setting, tripolith mortar loses in weight, and when placed in water does not absorb the latter so rapidly as ordinary mortar does. Its adhesion to brick, stone and other materials is very considerable, and the tripolith mortar does not either reduce or increase noticably in volume when setting. For facing and plastering, this material is excellently suited; it is easily handled and smoothed while soft, adheres well to brick or stone surfaces, and attains far greater hardness than plaster-of-paris, and oil or other colors adhere to it well.

ROMANCE OF THE CAMP.

The monotony of logging camp life is occasionally varied by something thrilling. Sometimes it is an accident, causing serious injury or death; at other times it is a fight, resulting in spotted countenances, or worse. Occasionally a bear or a wild cat is met in the woods, and the foundation of a narrative of lucky escape is thus laid, which the hero of the adventure never fails to make the most of. It is, however, seldom that the logger is treed by wolves, but here is a story, that comes from Wisconsin, which contains just such a rarity:

On the Tomahawk river, near J. E. Leahy's camp, December 23, while the cookee, James McNamara, was carrying the men's lunch out into the woods, and about one mile and a half from camp, he was set upon by a pack of six wolves. He dropped the basket and sought refuge by climbing a tree, and commenced to yell and shout: fortunately, he was heard by Frank Synnot, the foreman, and E. H. Gallagher, the cook, who immediately seized their guns, and started in the direction from whence the shouts proceeded; they arrived in time to see the wolves scampering off, after devouring the contents of the lunch basket, and to relieve McNamara from his perilous position, as he was almost tired out clinging to the tree. The enterprising foreman, knowing that wolves were around, from having heard their melodious lullaby, had procured some arsenic, a small portion of which he put on some meat, and placed pieces in different places, and on Christmas morning he had the gratification of finding six big, gray and black timber wolves, stretched their full length on the snow. The heads are now in possession of the clerk of Lincoln county, and the skins he sold to Charles Quandt, of Wausau.—*Northwestern Lumberman.*

The United States Timber Duty.

The *Boston Advertiser* says:—How is the duty to be defended as a measure of protection? The object of protection is not to confer a benefit upon the producers of the articles protected, but to benefit the whole country. Unless a protective duty either helps to develop an industry which it is important for the whole country shall be developed, or helps to maintain the existence of industries which the good of the country requires shall be maintained, there is no good defence of the duty. How stands the case with lumber? Under the present tariff the whole burden of the home demand for lumber is thrown upon the home forests. Less than six per cent. of the pine and spruce lumber manufactured in the United States in the course of a year is imported from Canada, which is our only foreign source of supply. But we use about eleven thousand million feet of these kinds of wood every year, and according to the last census there is left standing not more than eighty thousand million feet of white pine in the whole country.

For Fence Posts.

A writer in an exchange says:—"I discovered many years ago that wood could be made to last longer than iron in the ground, but thought the process so simple that it was not well to make a stir about it. I would as soon have poplar, basswood or ash as any other kind of timber for posts. I have taken out basswood posts after having set seven years that were as sound when taken out as when first put in the ground. Time and wear seemed to have no effect on them. The posts can be prepared for less than two cents apiece. This is the recipe: Take boiled linseed oil and stir in pulverized coal to the consistency of paint. Put a coat of this over the timber, and there it not a man that will live to see it rot."

LIVERPOOL STOCKS.

We take from the *Timber Trades Journal* the following Comparative Table showing Stock of Timber and Deals in Liverpool on Dec. 30th, 1881 and 1882, and also the Consumption for the month of Nov., 1881 and 1882:—

	Stock, Dec. 30th, 1881	Stock, Dec. 30th, 1882.	Consumption for the month of Dec. 1881.	Consumption for the month of Dec. 1882.
Quebec Square Pine	348,000 ft.	292,000 ft.	190,000 ft.	190,000 ft.
" Waney Board	353,000 "	276,000 "	"	"
St. John Pine	— "	— "	Nil "	Nil "
Other Ports Pine	— "	— "	— "	— "
Red Pine	26,000 "	65,000 "	19,000 "	3,000 "
Pitch Pine, hewn	510,000 "	622,000 "	120,000 "	89,000 "
" Sawn	471,000 "	606,000 "	99,000 "	85,000 "
Planks	— "	— "	— "	— "
Dantzig, &c., Fir	50,000 "	59,000 "	6,000 "	11,000 "
Sweden and Norway Fir	16,000 "	21,000 "	3,000 "	—
Oak, Canadian	347,000 "	335,000 "	119,000 "	40,000 "
" Planks	92,000 "	104,000 "	57,000 "	84,000 "
" Baltic	64,000 "	40,000 "	4,000 "	3,000 "
Elm	53,000 "	51,000 "	12,000 "	13,000 "
Ash	18,000 "	18,000 "	1,000 "	5,000 "
Birch	127,000 "	102,000 "	27,000 "	53,000 "
East India Teak	14,000 "	13,000 "	6,000 "	7,000 "
Greenheart	30,000 "	132,000 "	— "	6,000 "
N. B. & N. S. Spruce Deals	15,935 stds.	21,884 stds.	6,379 stds.	6,692 stds
" Pine	718 "	330 "		
Quebec Pine & Spruce Deals	7,832 "	3,482 "	2,773 "	1,343 "
Baltic Deals	3,113 "	4,494 "	473 "	501 "
" Boards	198 "	400 "	43 "	168 "
" Boards Flooring	1,693 "	2,861 "	489 "	592 "