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## RUSSIAN SAWMILLS.

**D**R. WALTER KEMPSTER writes from Wilna, Russia: "I visited a large saw mill, located upon the River Vilita, which flows through this place. The mill, a very substantial brick building, stands back from the river forty rods. The logs, some more than eight inches in diameter, and all twenty-one feet long, are drawn out of the water by horses, a heavy trace chain hitched to each end of the log and fastened to whiffletree serving as a means of hoisting them out. There is a horse at each end with a boy on the horse's back, and when the chains are made fast each boy cracks his horse and out the log comes. You understand it is not drawn out endwise but sidewise, the whole twenty-one feet scraping over the runways. In this manner the logs are drawn into the yard where they are piled up for winter's use. As the horses approach the pile the boys start them into a gallop and they skid them to the top of the pile on the gallop.

"In the mill there are two gang saws—the old, old fashioned kind 'up one day and down the next'—five saws in each gang. There are also some edging saws. The machinery is all in good order and everything about the place indicated prosperity.

"From the log yard the logs are hauled into the mill in the usual way and why they do not haul them from the water in the same manner is a mystery. All the boards are carried about the mill by men, not by carriers such as are used with us. It is laughable to watch operations in a Russian sawmill.

"The rafts are made up much as ours are, except that the logs are piled up three or four feet in each section, and the reason for this becomes apparent when I explain that for every section in a raft the owner pays the government a river tax of five roubles (about \$2.50). The logs come several hundred miles down the river, which is a fine stream even here. The raftsmen live on the rafts but have no shelter like the raftsmen on the Allegheny.

"The most pitiable thing about it all is the price paid to workmen. Sawyers receive five roubles (\$2.50) per week and board themselves. Laborers receive from thirty to fifty kopecs (fifteen to twenty-five cents per day and board themselves, working from 6 a.m. until 8 p.m. Many men and women too get only one rouble (or 50 cents) per week and board themselves. Fifty kopecs per day (25 cents) is the pay for a first-class laboring man, who is not a skilled mechanic, and no mechanic: that I have found yet receives more than one rouble (fifty cents per day). I have visited mills of all kinds, carpenter shops, cabinet makers, machinists, wood carvers, brick layers and stone masons, and in short every trade, and seven roubles (about \$3.50) per week is the very highest price paid to the most skilled artisan."

## OIL IN BOILERS.

**I**T SEEMS to be proved beyond a doubt that kerosene oil has a beneficial action upon the interior of steam boilers in a section of country where lime water is used for feed. Some engineers open the boiler once a week and turn in from one to three quarts of either crude oil or kerosene. Other engineers follow the practice of injecting a pint or so of oil every day. Some men have rigged up special apparatus for injecting oil. This is hardly necessary, especially where a power feed pump is used. There is, or should be, a small pet cock tapped into the barrel of every power pump. If a bit of rubber hose is squeezed on over this pet cock, and the end of the hose dipped into the can containing the oil, it is quite easy to open this pet cock during the suction stroke of the pump and close it

during delivery. This action for a dozen strokes will suck up all the oil and send it en route to the boiler.

Where an injector is used a pet cock may be tapped into the water supply pipe just back of the injector. If the water supply flows through the instrument it may be necessary to throttle it slightly when oil is to be administered to the boiler. When this is done the rubber hose can be applied to the pet cock in a manner similar to that described for the power pump. When the injector is working well turn on the oil and it will be quickly soaked into the injector and discharged toward the boiler. Care must be taken not to open the pet cock to its full extent when passing oil through an injector, or the large body of oil acting differently from the water may cause the injector to "break." If this happens, the engineer may get a dose of oil and greasy water on his face and shirt front, but no more serious action will occur. The steam pump may be given oil in a similar manner, but it will not pay to harness up the air chamber pet cock for this purpose.

## OPPORTUNITY.

**D**O WE ever stop to think how much of human success depends upon opportunity? The world is full of square men who are industriously trying to fill round holes, and the men occupying the square holes are in like manner misfits. How many men waste the energies of an entire life in misdirected efforts simply because they have never found a fit opportunity for the development of such abilities as they possess. A man who possesses decided executive capacity, and is competent to handle great interests, or control an army of workers, perhaps plods away for years in some subordinate routine position, because the opportunity has never come for him to display his mental calibre. He has never struck the right line, is probably engaged in a business for which he is wholly unfitted and in which he will never be anything but a failure. Another, perhaps through a merely fortuitous circumstance, it may be an almost accidental connection with a man prominent in some special line, is placed in a position for which he happens to possess marked capabilities, although as yet undeveloped. He does not even know himself that he possesses any special fitness for the post. But with opportunity comes development. Manifesting continually increasing capacity for the business, he is pushed ahead, the scope of his authority broadened, and he becomes in time a type of the highly successful man.

Placed in a different position, one for which he had no aptitude, he might have run on in the same dull groove, gradually deteriorating into a mere machine, doing his work perfunctorily and without interest. But when he has found his special work he grows mentally with every day's experience, and finally rises to the extreme height of efficiency.

It is too often the case that the unsuccessful men, those who have made a failure of their life's work, have merely lacked the opportunity to develop what was in them, and in their failures are rather to be pitied than blamed. It is true that even persistent plodding will sometimes reach the goal of success, but the way is a long one, and the final rewards hardly commensurate with the toil involved.

That man is indeed fortunate to whom opportunity comes early in life, and who has the good judgment to grasp it while the way is clear. It is said of some men that they compel opportunity; but for one who succeeds in that effort there are many who fail. That occupation for which a man is adapted, by natural temperament, by physical and mental qualifications,

is the one to which he ought to devote his best energies, for, although he may achieve a measure of success in other callings, it will never be so complete or so liberal in its material rewards as that for which he is naturally qualified. Let us have fewer square pegs in round holes.

## STAVELESS BARRELS.

**T**HE *London 'Eug.' Times*, tells of a remarkable invention of a German, that may do much to revolutionize barrel-making the world over. This is the account as given by the *Thunderer*:

"It is doubtless a matter of general knowledge that the bodies of casks and barrels are composed of a number of tapered staves, which are assembled together, held in position and hooped up. By a novel and ingenious method of manufacture casks are now being manufactured from one piece of wood, and therefore without any staves, or, it may be said, with only one, the body constituting in itself a long, single stave. The method of preparing the body of the cask may be likened to the sharpening of a lead pencil by a pocket sharpener. The stem of the tree is first cut up into pieces or logs of a length according to that of the barrel required, and is then boiled for two or three hours in a closed vessel to soften the wood, a current of electricity being passed through the water the whole time. From the boiler the log of wood if taken to the machine, where it is held at each end horizontally between two points, much in the same way as a piece of wood is held in the lathe. Rotation is given to the piece of timber, which is advanced towards a broad blade fixed on a frame having a slot in it in line with the edge of the blade, just as in a plane, which the cutting part of the machine may be said to resemble. As the trunk of the tree is revolved against the blade a continuous sheet of wood is produced of any desired thickness. The wood is drawn out flat from the rear of the machine by hand onto a table. The sheet of wood thus obtained is cut transversely into pieces each of the required lengths for one barrel. The pieces are then passed through a grooving machine, which cuts the groove in which the head is eventually fitted. Another machine cuts V-shaped pieces at intervals out of the edges of the pieces of wood, which are then easily bent round into a cylinder and firmly hooped, the V-shaped slots enabling it to assume the necessary conical form at each end. There is thus only one joint in the body of the cask or barrel. The casks are afterwards dried in a special apparatus, after which they are ready for use. A factory is in operation in Germany manufacturing these casks, some of which we recently examined at the offices of the Oneken Patents Syndicate, 10 Old Jewry Chambers, London. We were also shown a model of the machine and some samples of wood of various thicknesses, including some exceedingly thin veneers.

## THE ELECTRICAL SAW.

**I**T HAS been noticed that platinum when placed in an electric current, is heated to a dull redness. This fact is the basis of the invention of an electrical saw, which will cut quickly and neatly the hardest wood. The device is made of steel wire, upon which is deposited metallic platinum. By connecting this modified wire with the terminals of four Bunsen batteries, the platinum is heated to a brightness, and the saw is ready for business.

## MYSTERIOUS MILLS IN THOSE DAYS.

**M**R. MORRISON, an English traveller of the seventeenth century, while at Dantzic, Prussia, says that he saw mill "which without the help of human hands did saw boards, having an iron wheel which did not only drive the saw, but did also hook in and turn the logs onto the saw." Dr. John Dee must have seen a similar mill at Prague, of which he says: "I saw me a mill at Prague of which the devil himself was master."