

HISTORY OF THE SAW-MILL.

HOW surprised I was on seeing in a museum, a long time ago, such things as scissars, seal rings, necklaces, and pairs compasses, that were taken from Egyptian tombs 3,000 years old!

But, after all, men were men 3,000 years ago, and women were women. They had the wants, the needs, the vanities of men and women, and they had brains not unlike our own to supply them.

The most boastful Yankee (not that Yankees are more boastful than other people) in some of the rooms of the British Museum is obliged to confess that the ancients originated a great many good notions which we moderns have only improved upon.

For instance, there are few tools more ancient than the saw. All the ancient nations appear to have had it; certainly the Hindoos, the Egyptians, the Greeks and the Romans. The saw may have existed even before there were any men on earth.

There is a creature called the saw fly, with the saws in its tail, which is actually used for sawing the stems, leaves and fruits, wherein its eggs are to be deposited. There is also a saw-fish, the long snout of which is a saw. It is said also that the original inhabitants of the Island of Madeira found a really-made saw in the backbone of a fish.

The Greeks had a pretty story attributing the invention of the saw to the accidental finding of the jaw-bone of a snake by one Talus, who used it to cut through a small piece of wood. Being a slave, and finding that this jaw-bone eased his labor, he made a saw of iron, and thus gave mankind a new and most valuable tool.

The ancient saws differed from ours in two ways. The teeth were so arranged that the saw was made by pulling instead of pushing; and the teeth, instead of being set one to the right and one to the left alternately, were set so that ten or a dozen in succession were slanted one way, and the same number the other way.

The ancients have several varieties of the implement. The Greeks, for example, had cross-cut saws for two men, also saws for cutting marble into slabs. And they had a kind of tubular saw for hollowing out a marble bath-tub, similar in principle to the method now employed.

Among the pictures uncovered in the buried city of Herculaneum there is a representation of two genii sawing a piece of wood on a carpenter's bench very much like ours and using a saw with a wooden frame similar to those now employed. Still more strange, the frame saw tightened with a rope and stick, such as our street wood-sawyers use, was probably as familiar to the Romans as it is to us.

A saw-mill, however, by which wind, water or steam is made to do the hardest part of the work, was not known to any ancient nation.

Sawing by hand, next to digging a stiff clay soil, is about the hardest work that men ordinarily have to do. It is therefore not surprising that our ease-loving race began to experiment a good while ago with a view to applying the forces of nature to the performance of this tell.

A learned German inspector who has investigated the subject very thoroughly states that the first trace of saw-mill yet discovered is in the records of the German city of Augsburg, for the year 1337.

The reference is slight, and does not fix the fact with certainty. But there are two saw-mills near that city, which are known to have existed as far back as 1417, and they are still used.

Before that valuable invention, all boards and planks were split with wedges, and then hewn to the requisite smoothness with the axe.

The splitting of boards is still practiced in remote settlements, as I myself have seen, and it is recorded of Peter the Great, of Russia, that he had much difficulty in inducing the timber cutters of his empire to discontinue the method. At length he issued an edict forbidding the exportation of split planks. Even in Norway, covered with forests as it was, there was not one saw-mill before 1530.

Nowhere in Europe, it appears, was the introduction of the saw-mill so long resisted as in England. In 1663 a Hollander erected one near London; but it brought upon the poor man such an outcry and opposition that he was obliged to abandon it.

The sawing of timber, by hand furnished occupation, at that time, and long after, to large numbers of strong men.

In every town there was saw pits, as they were called, for the convenience of the sawyers, one of whom stood at the bottom of the pit and the other on the log.

We can easily imagine that when every beam, plank and board, thick or thin, had to be sawed by hand, the sawyers must have been a formidable body, both from their numbers and their strength.

After the failure of the Dutchman in 1663, there was no serious attempt to start another saw-mill in England for more than a hundred years.

In 1707 an English timber dealer of large capital built a saw-mill to be moved by the wind. It was thought to be a great and difficult enterprise, and it attracted much public attention. Some years before an author had explained the advantages

and economy of saw-mills; then the society of arts gave the scheme of building one their approval, and, finally, the mill was actually built by an engineer who had studied the saw-mills of Holland and Norway.

No sooner was the mill complete than the sawyers assembled in great force and tore it to pieces. The Government compensated the owner for his loss, as was just. Some of the rioters also were convicted and imprisoned.

A new mill was then built, which was allowed to work without molestation, and proved so profitable that others were soon introduced.

In no part of the world, probably, has the saw been more minutely and curiously developed than in Great Britain, where they have saws so fine as to cut diamonds, and circular saws nine feet in diameter and a quarter of an inch thick.

They have also veneer saws so accurately adjusted as to cut 18 slices of veneer from a rosewood plank an inch thick.

In London they will put a log of mahogany upon the mill and cut it into slices so thin that the sawdust weighs more than the veneer.

Yankers have beaten this performance. They take a piece of mahogany or rosewood, soften it by steam, and cut it into veneers with a knife, without making a grain of sawdust.

Daniel Webster tells us that his father had a saw-mill after his removal to New Hampshire, at the source of the Merrimack river.

Daniel, who was by no means fond of labor at any part of his life, liked nothing better in his boyhood than to attend this saw-mill, because when he had put his log in position and started the saw, he had 16 good minutes for rest or reading before the business required farther attention.—*Journal of Progress.*

CANADIAN PATENT LAWS.

Recently, at a meeting of the Inventors' Institute, held in London (Eng.), Mr. Henry E. Coombe, of St. John, New Brunswick, read a paper on "Canadian Inventions and Canadian Patent Laws." He stated that Canadian inventors were a numerous body, and their number was rapidly increasing. In the year 1885 the Canadian Patent Office issued 2,200 patents, the official fees received amounting to \$69,000. From this had to be deducted \$10,000, showing a net profit of \$59,000—certainly a pretty penny to collect from people for using their brains. In Canada the cost of a patent was about \$20 for five years, this being the Government fee. The patent could be continued for ten years longer, by paying \$40. The money was payable in instalments, upon the failure of any of which the patent would lapse. The total duration of a patent was fifteen years. The agents' fees were all they could get, but the ordinary charges were \$40 to \$50 inclusive of Government fees and drawings, models being required. The business had out-grown the facilities of the department, which required reorganization. Their patent office was organized when the Canadian patents aggregated a few hundreds annually. The department was at present an appendage of the Department of Agriculture. New accommodation was required for models deposited, at present models costing scores of dollars each being stacked like lumber. A room assigned for such a purpose would be of value as part of a museum where the progress of art could be practically illustrated. Previous to the federation, each of the older provinces had its own separate patent law, but in the year 1872 a general Act was passed, and this, with the amendments of 1873-4-5 and 1883-4, made up the existing patent laws of the Dominion. He considered that the later amendments were not in the interests of inventors. Patents were issued only to inventors or their assigns. Provisional protection was secured for incomplete inventions by the issue of caveats. This was a secret document and was good for twelve months, conditional on no application being made for a patent for a similar invention, in which case a notice was issued to the holder of the caveat, calling upon him to perfect his invention, in three months, in order to obtain the benefit of priority. Canadian inventors complained that some parts of their patent laws were unjust to them, and they claimed the repeal of such parts on the ground that the State could not afford to deal unfairly with any of its citizens. He then quoted extracts from the Canadian Acts on the subject, in justification of this remark. He stated that, according to Canadian law, if a promissory note given for an invention did not contain on its face the intimation of that fact, the vendor of the invention was liable to a term of imprisonment not exceeding twelve months. In conclusion, he advocated the unification of the principles of the law of patents throughout the empire, so that English inventor should be able to say that his patent was his own wherever the flag flew.

NEW BRUNSWICK WOOD EXPORT.

A very considerable falling-off in exports of lumber and timber from New Brunswick appears by the comparison of shipments in this year and the like period of former years made by the St. John Globe of the 9th Oct. The total figures are this year 108,909,416 feet as compared with 126,497,836 feet last year. The falling off in shipping is represented by twenty-seven vessels and 21,000 tons. One of the features of the year's business is the decrease in the number of steamers coming here for deal cargoes. While twenty-three steamers of 32,451 tons cleared in 1885, only

seven of 6,864 tons have taken cargoes this year—a circumstance due, of course, to the exceedingly low rates that prevailed during the summer. By the tabular statements of the quantities sent to various ports it is seen that Liverpool, as usual, retains the first place as a market:

SEASON 1886.			
Port.	No. of Vessels.	Tons.	DEALS. Sup. feet.
Liverpool.....	44	51,098	43,641,057
London.....	4	4,163	1,752,566
Bristol Channel.....	22	19,173	17,807,121
Ballyshannon.....			
Belfast.....	5	4,810	4,338,776
Barrow.....	2	1,981	2,130,891
Cork.....	8	4,576	4,471,189
Coleraine.....	2	565	603,713
Dundalk.....	4	1,365	1,592,753
Dublin.....	7	4,876	4,540,702
Fleetwood.....	7	4,740	3,907,580
Galway.....	3	1,460	1,439,130
Glasgow.....	2	1,262	772,318
Llanellay.....	2	765	708,208
Limerick.....	3	1,819	1,687,000
Londonderry.....	5	3,222	3,032,378
Queenstown.....	3	2,093	2,111,421
Silgo.....	3	996	1,098,212
Tralee.....	2	863	886,054
Continent.....	9	5,201	4,796,521
Africa.....	3	2,238	2,169,036
Other ports.....	14	6,253	5,511,572
Total.....	154	123,449	108,909,416

Fifteen other ports received one vessel each, whose aggregate tonnage was 6,253 tons and their cargoes reached 5,511,572 feet. The names of the shippers were, in order of amount, A. Gibson, R. A. & J. Stewart, W. M. Mackay, Guy, Bevan & Co., Geo. McKean, S. Schofield, Knight & Co., C. Hamilton & Co.

As to square timber, there has also been a falling off, the export of birch being less than half the quantity sent last year. The figures are as follows:

SHIPPERS.	1886.		1885.	
	Tons	Tons	Tons	Tons
	Birch.	Pine.	Birch.	Pine.
W. M. Mackay.....	2,156	1,614	8,823	
S. Schofield.....	1,265	202	3,394	
A. Gibson.....	1,056	8		
R. A. & J. Stewart.....	11	76		
G. McKean.....	8			
	5,496	1,800	12,224	2,973
Ports.				
Liverpool.....	3,939	1,109	10,487	2,973
Avonmouth.....		76		
Carnarvon.....	501		800	
Crookhaven.....			363	
Dublin.....	125			
Fleetwood.....	400	706		658
Glasgow.....	512	9		
Har Island.....			7	
Queenstown.....			563	
Wexford.....	8		4	
Continent.....	11			
	5,496	1,800	12,224	2,973

The Globe ventures the opinion that the shipment for the remainder of the year will be comparatively light, and the above proportions between the two years will probably be maintained.

In 1885, the number of vessels was 181; tonnage 144,803 tons, carrying 126,497,000 feet.

Protection Against Mill Fires.

We find, upon examination of the "record of fires in the United States," that the largest ratios of losses to premiums received are upon saw and planing mills. This at once to thoughtful minds presents the question as to how to remedy and prevent this great destruction of property. The trouble has been in most cases the great outlay of money necessary upon the part of manufacturers of lumber for an extensive fire protection plant.

A new company—the Manufacturers' Fire Equipment Co., of 155 and 157 Broadway—has been organized to fill and cover this increasing want. They agree to equip extensive manufacturing properties with all the appliances and devices known to skilled mechanics and experienced underwriters as will control any fire in its incipient stages. They rent this equipment to mill owners. They contract for insurance, also, and in most cases the rent of the equipment and the insurance combined does not cost any greater sum than is now paid by the manufacturers for insurance only.

Another feature combined with this is the careful and complete inspection at stated periods by expert inspectors, so that cleanliness, order and care of management can be guaranteed. After ten years, this equipment becomes the property of the manufacturer absolutely, and he is released from all further obligations to the Equipment Company. This seems so fair and practicable that every leading manufacturer or worker in wood should avail himself of the advantages offered.—*New York Lumber Trade Journal.*