PLEA FOR THE FORESTS.

A SUGGESTION THAT CANADA ESTABLISH FORESTRY SCHOOLS.

MR. EDWARD JACK, a well-known New Brunswicker, and an expert in forestry, when in Ottawa a few weeks ago, was interviewed on the subject of Canada's forest wealth. He said that Canadians did not know half nor quarter enough about their own timber interests.

"The first thing we want to do," he said, "is to get information as to our forests, their trees, character and extent. In order to do this we must have men suitably educated as foresters. This can be done only by the establishment of forestry schools. They should be located in some convenient forest; the buildings should be simple and the cost little. The parties to be taught forestry should be selected from among young men who have worked some winters in the woods who have a fair education; that is, who can read, write and who understand the ordinary rules of arithmetic. Teaching should be confined to the summer months, thus the pupils would have the winter in which to work and thus gain a living.

"Young woodsmen would not have the wants of their city brethren. They could if needed cook their own simple meals and attend to their own wants. The school need be but a temporary structure, a log cabin, or it may be built of boards, as only a shelter from summer storms would be needed; indeed a large tent or two would be sufficient.

"The pupils should be selected with care, and only those taken who were anxious and willing to learn. The subjects to be taught should be land surveying and rough plan-drawing, and as much of botany, mineralogy and geology as was absolutely necessary to show the pupil the relation of soil and air to the growth of the tree. After being taught plain surveying, one hundred acre tracts might then be surveyed and the pupil taught to estimate the number of trees of various kinds or the number of thousand feet, b. m., of timber on such a lot to the acre, and the cost of hauling it to the nearest stream. This knowledge of cost of hauling most of them would already have."

"Do not lumbermen make pretty close estimates now?"

"In estimating the quantity of timber growing on any certain piece of land, lumbermen seldom have any fixed rules to go by," said Mr. Jack, "and here is where the pupils of a forestry school would derive the greatest benefit, for when they had been taught to estimate the quantity of timber by rule so far as this is possible on a lot of land, their services would be of the greatest value to him who has dealing in timber lands. The course of study might comprise a period of four summers and the brightest and best pupils might be selected as instructors of others or as employees under the government, which needs the services of a number of well instructed woodsmen, men who would be capable of going on the Dominion lands and of reporting on the timber standing therein, its quantity and present and prospective value.

"Some years since I accompanied a party of members of the Royal Arboricultural Society of Edinburgh on a trip through some of the principal forests of Scotland. We remained over night among other places at a country hotel on the Tay. The party comprised many distinguished foresters. One, I remember, represented the Maharajah of Yohore. Each representative was called upon to describe the system of forestry adopted in the country which he represented, and I was asked in my turn to describe the forestry system of Canada. I was mortified enough when I had to reply that Canada had no forestry system.

"A Japanese gentleman who was at the Forestry Exhibition held some years ago at Edinburgh, heard with surprise the same thing, and told me that Japan then had a forestry school with some thirty professors.

"The possession of a trained staff of practical foresters would be the means of saving hundreds of thousands of dollars annually to Canada. We have many woods, especially on the lower St. Lawrence and on or near the shores of New Brunswick, which we now look upon as of little or no value, but which in the near future will form the basis of great industries and will add much to our commerce.

"I am the correspondent of L'Echo Forestier, a special organ of the French timber trade, published in Paris, and I learn from the editor that France stands ready to use some of these woods, and I hear the same thing as regards Spain from a correspondent at Barcelona.

"The Intercolonial Railway crosses many rivers running through great forests, nearly all at right angles, and I am satisfied that with a proper investigation into the character of the woods on these streams, made by competent men and published to the world in English, French and German, many very extensive industries in now unused woods would spring up, especially along the shores of New Brunswick, where labor is abundant and good, and where one can live as cheaply as he can in any part of the world, as the sea will furnish him with a great part of his food, and where the soil is good enough to grow all the vegetables needed for a family."

THE WORKING SURFACE OF A PULLEY.

IT has taken considerable time to settle the question in regard to belts made of leather, as to which side should run next to the shaft wheels, if, indeed, it has been settled, for even now it is rehashed occasionally by saw mill men, says an exchange. It is always a pleasure to see the best side of a belt stand out whenever a new belt is to be set in motion, and good looks go a long way on all such occasions.

In spite of all tests that have been made on leather belting, nothing has ever been said of the extra cling that the flesh gets by being easily squeezed into every depression on the face of the pulley, which the grain side has a tendency to bridge over. This seems to follow the law of friction where the particles of one material interlock themselves with those of another. Pulleys covered with leather and wheels made of hardwood of all kinds have given much greater driving power from the same grasp of belt than the handsomely polished metal pulleys have done, though this latter class of wheels has all the advantages that are to be derived from atmospherical influences.

But the fine imperfections on the true surface, which are the real gear teeth of friction, are not there in the abundance found in the material that is more closely allied with the belting itself. Everything would seem to indicate that a driving wheel is finished in the wrong direction when a covering of leather adds so much to its driving capacity.

The teeth of gear wheels are not cut lengthwise, and this gives all the hold that its strength will allow to the turn of a pulley, with the finishing cut taken crosswise and ground on a polishing wheel, herringbone fashion. This may not be appreciated in the machine shop, but the object to be obtained is the very one that a draw file is used for, namely to pitch the minute grooves found on every surface in the right direction.

CONCERNING FIRES.

IT is very generally argued, that when a boiler is being heavily worked, a thick fire is absolutely necessary; but from some experiments lately made, the opinion appears to be an erroneous one. As to the economy of the two, some maintain, that heavy fires give the most economical results; but this, also, is questionable. Valuable information on the subject has recently been brought out by the results of two evaporative tests, says the Mechanical World. They were made on a 72-inch return tubular boiler, having 1,000 3½-inch tubes, 17 feet in length. The heating surface amounted to 1,642 square feet, and the grate surface to 36 square feet, the ratio of the two being 45.6 to 1. On the thick fire test, the depth of the coal on the grate varied from eight to twenty inches, being heaviest at the rear end, and lightest at the front end. On the thin fire test, the depth was maintained uniformly at about six inches. The difference in the results, as appears from the figures given, indicates an increased evaporation, due to thin fires amounting to 15.6 per cent.

He who wood-pile up his fortune to the skies must knot forget to advertise.

The "last" man among the wood-workers is awl-ways the first among the shoemakers.

When a man devises a little tool that helps the work along faster and better than before, show him you appreciate it, either by making his work easier, giving him better work, by a money consideration, or last but not least, letting him see that you consider him a valuable man with valuable ideas.—Machinery.

MEASUREMENT OF LUMBER.

The following table shows comprehensively the number of feet contained in scantling or timber of given sizes:

SIZE	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
1 × 8	8	9	11	12	13	15	16	17	19	20					
1 × 10	10	12	13	15	17	18	20	22	23	25					
1 × 12	12	14	16	18	20	22	24	26	28	30					
2 × 3	6	7	8	9	10	11	12	13	14	15	16				
2 × 4	8	9	11	12	13	15	16	17	19	20	21	23	24	25	27
2 × 6	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
2 × 8	16	19	21	24	27	29	32	35	37	40	43	45	48	51	53
2 × 10	20	23	27	30	33	37	40	43	47	50	53	57	60	63	67
2 × 12	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
3 × 4	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
3 × 6	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
3 × 8	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
3 × 10	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
3 × 12	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
4 × 4	16	19	21	24	27	29	32	35	37	40	43	45	48	51	53
4 × 6	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
4 × 8	32	37	43	48	53	59	64	69	75	80	85	91	96	101	107
4 × 10	40	47	53	60	67	73	80	87	93	100	107	113	120	127	133
4 × 12	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
6 × 6	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
6 × 8	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
6 × 10	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
6 × 12	72	84	96	108	120	132	144	156	168	180	192	204	216	228	240
8 × 8	64	75	85	96	107	117	128	139	149	160	171	181	192	203	213
8 × 10	80	93	107	120	133	147	160	173	187	200	213	227	240	253	267
8 × 12	96	112	128	144	160	176	192	208	224	240	256	272	288	304	320
10 × 10	100	117	133	150	167	183	200	217	233	250	267	283	300	317	333
10 × 12	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400
12 × 12	144	168	192	216	240	264	288	312	336	360	384	408	432	456	480