

Canada Atlantic Railway, which extends from Ottawa to Swanton, Vt., a distance of 163 miles. The road crosses the St. Lawrence river at the head of the Coteau rapids, thirty-seven miles west of Montreal, where a bridge over one mile in length has been constructed. Mr. Booth financed the project from beginning to end, and



LUMBER SLIDE, MADAWASKA RIVER.

is now said to own seven-eighths of the entire railway and equipment.

The building of the Ottawa, Arnprior and Parry Sound railway is the latest work which Mr. Booth has brought to completion. This road extends west from Ottawa to Parry Sound, a distance of 264 miles, and passes through a large section of well timbered country. It has been the means of establishing large saw mills, of opening up the natural resources of the district, and of providing a freight and passenger service between the western country and England that is said to be several hundred miles shorter than by any other route. This railroad was commenced in the year 1892, but it was not until January 1st, 1897, that the first regular train ran over the line. At first there seemed to be almost insurmountable difficulties in the way of its construction, but Mr. Booth was not easily discouraged, and soon found a feasible route. In the vicinity of Whitney saw mills are springing up to send their product by the new road through Ottawa to the east and via Parry Sound



PERLEY CHUTE, MADAWASKA RIVER.

to Chicago and other lake ports. Two of the largest mills are those of the St. Anthony Lumber Company at Whitney, and Gilmour & Company at Canoe Lake. At Parry Sound, the western terminus, extensive docks and grain elevators have been constructed. In 1893 a tract of land in

the district of Nipissing, between Georgian Bay and the River Ottawa, was set apart by the Ontario government as a reserve. It is known as Algonquin Park, and contains about one million acres of primeval forest, lake and stream. The Ottawa, Arnprior and Parry Sound Railway passes through this park, which affords splendid fishing, shooting, etc., and is largely patronized by tourists. The passenger traffic is therefore becoming an important feature, and to-day the wisdom and keen foresight of the promoter in undertaking the building of the road is acknowledged by all.

Some of the greatest business achievements of Mr. Booth are outlined above sufficient to merit the distinction of a "commercial hero" which someone has aptly applied to him. As a citizen, he is held in high esteem, being kind-hearted and charitable. Although frequently urged to accept public office, he has preferred to follow his business career.

A portrait of Mr. Booth, taken from a late photograph, and views of a lumber slide and the Perley chute, on the Madawaska river, along the route of the Ottawa, Arnprior and Parry Sound Railway, are presented herewith.

BRAZING BAND SAWS.

By A. J. BURTON.

I USE an emery lap grinding machine, for I can make a better lap and do it much quicker with a grinder than with any other machine or process. If the grinder is kept in proper shape and run right you will not need to use a file. I have ground both laps on a 10-inch 14-gauge saw in 11 minutes with a Bolton lap grinder, and did not use a file after. Make laps $\frac{5}{8}$ -inch and 1-16-inch, grinding them down to a feather edge, and when you set the saw in clamps to be brazed overlap laps 1-32-inch on each end, so there will be something to file off, and after lap is dusted it will be a $\frac{5}{8}$ -inch lap.

After grinding the laps, place the saw in brazing clamp. If you run "back" in the saw, push saw along past the lap, set back guides up even to back of saw, then pull saw back to right place. By this way, when braze is made, the back will be the same along the lap as in the rest of the saw. Attention to this will save time and labor in drawing out the back. Clean the lap with a clean pine stick dipped in chemically pure muriatic acid—the purest to be had.

The silver solder should be a little wider than the lap, and should also be cleaned with the acid; 3-1000-inch is the best thickness—such as is furnished by Baldwin, Tuthill & Bolton. With this solder I can make a perfect braze, so that when it is dressed there will be only a small streak across the saw, about the size of a silk thread. My brazes always hold well, are about as hard or stiff as any other part of the saw, and will not bend when going round the saw sharpener, as is so common with factory brazes. A braze that bends easily is sure to break about one inch from the lap. You may not know the reason it gave way, but if you were to consider the number of times it has been bent and straightened in a day's run, you would see that this continuous bending causes crystallization in the saw at the place where the extreme edge of the irons was applied.

I can not make a good braze with irons too

heavy, for they don't clamp evenly, hold the heat too long, burn the steel, burn the life out of the solder, and frequently the braze will open up before the saw is ready to go on the mill. Irons $1\frac{1}{2}$ to $1\frac{3}{4}$ x $1\frac{3}{4}$ -inch thick are the best. Steel makes a better material for brazing irons than iron, for the steel does not scale like iron and it takes the heat more evenly. The irons should be heated slowly in a charcoal fire, as this is not so apt to burn the irons and cause them to scale. A forge designed especially for band saw brazing should be used—such as is made by the Covey Mfg. Co., Chicago—for it is almost fire-proof, and has a long blast, so that the irons can be heated their entire length without burning them.

Heat the irons to a good light red; not a white heat, or the irons will scale more in some places than in others and the braze will "miss." A common cherry red will not do, but a light cherry red is all right. Clear all scale off the irons after they are hot by scraping them across the edge of the forge. When the irons are ready, drop or pour acid on the lap till it is wet, then place irons square across, and clamp. Take the irons off as soon as they turn to a dark red or about the time the red is turning blue. Then remove the saw from the clamp and fan it with a shingle or paper for a minute, and you will see the saw taking temper again; it will not twist and curl up, as it would if the irons were left on till cold, as most saw-makers advise. Leaving the irons on till cold makes a soft lap.

After the braze is cold, pour on a little lard oil and rub lengthwise the saw with a piece of No. 1 emery cloth—not sandpaper—until all the black and rust are off. Clean off with a file all lumps or surplus solder that may have run out. But do not file the lap yet. Now roll the braze, commencing in the centre and rolling towards both edges. Do not roll saw except on the surface of the braze where the irons were applied. Roll every half-inch till you reach both edges, then roll in the centre till the saw becomes stiff, for the saw is "fast" at that place after being brazed. Level with a cross-faced hammer, then clamp saw lightly between the rolls, about five or six feet from braze, and put a block eight inches deep under the braze on the leveling table, with a weight on the other end of the saw; it will bend over the block and be easy to dress. Use a 10-inch file and file lengthwise the saw, and you will not leave any mark or scratch, as you will if you file crosswise the saw. A deep scratch will cause a crack in saw at that spot in a short time. Do not leave the lap too thick or lumpy, nor dress it too thin. If you do it will not last. If you take pains to make a good braze, and dress and roll it properly, it will last as long as the saw. After the lap is dressed and leveled, roll in the tension as in the rest of the saw, and make the back true. If a saw cracks in from one to two inches, do not cut saw and braze it, as most filers do, but cut out a piece of $\frac{1}{2}$ -inch wide or $\frac{1}{4}$ -inch on each side of crack, and the length or depth of crack. File a lap $\frac{1}{2}$ -inch on each side, shape a piece of steel to fit in it, and braze it in. Use a short brazing iron that will not rest all over the saw, and it will not take out the temper across the saw. It is much better to patch a saw in this way than to braze it, for you keep your saws all of a length, with less labor and less brazes. If the patch is in the front of saw it will