

become overheated and burn out, also much more fuel is used than would be if the proper amount of air was admitted. Rocking fire grates are now much used to break up clinkers. Working with low pressure steam is very wasteful, as it contains a considerable proportion of water which has no expansive properties, and, in consequence, no force; much more water has to be evaporated by the boiler and more fuel burnt than if high pressure steam were used. Another cause of the boiler not steaming freely may be due to insufficient draught. The deficiency may arise from want of proper regulation of the damper, or the nozzle of the exhaust pipe in the smoke box may be too large, in which case a ferrule should be inserted therein. It does not do, however, to contract the orifice too much, for in doing so back pressure may be set up against the piston, and thereby cause loss of power. Sometimes it may be found that the nozzle does not point directly up the chimney; this may cause baffling by striking the bottom thereof. Running short of steam may also arise from the dirty condition of the boiler; the tubes and fire-box may be so coated over with mud that the heat cannot reach the water properly. The boilers should be thoroughly cleaned out once a week; it will pay for the trouble in many ways—less fuel will be burnt, fewer leakages will arise from burning of plates and tubes, and the stoker will have a much easier time of it. Careful attention should be paid to the injector or pump; they are often the cause of much loss of time. The trouble experienced in connection therewith often arises from leaky joints, thus allowing air to enter the pipes; valves may become fixed on their seats, the gauge may have come off the end of the suction and a piece of wood or dust may have been drawn in, and so keep the valves off their faces. A small and constant feed is far better than forcing in large quantities at intervals, causing the steam pressure to drop and doing injury to the boiler; and, further, by keeping the water level constant, there is more time in which to fix the injector or pump should anything go wrong, and thus prevent the safety plug from melting out and stopping work for some hours. The boiler of any engine is like the stomach of a man—if out of order, all is out of order.

The inability to keep steam is not always due to bad firing or construction of the boiler; the engine may be using more than is necessary. The valve gear may be out of order, the piston may be leaking and allowing steam to pass to the chimney without giving off its full force, bearings may be running hot from want of grease or having been too tightly screwed up, the sight-feed lubricator may have given out, and the slide valve cutting, and a dozen other little things may be the cause of trouble.

Priming should be avoided as much as possible, being most injurious to the cylinder. The water carried over with the steam is generally dirty and small particles of sand and dirt contained in it; these cut the valve face and score the cylinder. Further, it may cause the cylinder end to be blown out. Whenever priming commences the drain taps should be opened, and the throttle valve opened and shut quickly, as this breaks the connection between water and steam. This is better than stopping, for when starting again the sudden drawing upon the steam will suck up water. The cause of priming may be too much water in the boiler, working with a too low steam pressure, or from oil or other greasy matter which may have got into the boiler.

Much time is lost by running into soft places on the road or in the field. Many times these may be avoided by a little care in steering. The best and quickest way, as soon as the wheels commence slipping, is to stop, put down some sacks, chains, timber, ashes, straw, or anything else you may have of a like nature. Run back, if possible; an engine will more often come out of a hole backwards than forwards, due to the pressure upon the steering wheels. In running forward there is a tendency to push these down, but in running back they merely roll. If you have a load behind, uncouple, hitch on the tank team and draw it back; then hitch on to the engine, start the team to pull, and put on full steam. Hours may be saved by a little care at first, and before the engine digs itself down on the ashpan and the wheels become useless. Always carry some good pieces of timber, a few strong chains and a screw jack.

When six o'clock comes, it must not be supposed that in closing down that all there is to do is to shut off steam. There are many little and important matters to attend to. After closing the throttle valve the reversing lever should be placed in the center notch, the stop valve on the boiler closed, damper dropped and cover placed over top of chimney to prevent any draught, the fire well banked up with small coal, all drain cocks opened, and especially those in connection with the injector or pump, otherwise frost may come in the night and in the morning you may have a burst pipe.

There are many other points in connection with the running of a traction engine that might

be dealt with, but space will not permit of my going fully into them, but from what I have dealt with it must be clear to everyone that any Tom, Dick or Harry is not good enough to have charge of an engine. A careful, though he be a somewhat inexperienced man, will learn.

Farmers who, in many cases, are the owners, should educate themselves, or, if they have sons, should see that during the winter months they avail themselves of the instruction in mechanics which is now more and more being put within their reach. When one considers the amount of machinery there is upon a farm, the wonder is how, with such want of mechanical knowledge, it is kept going—it is, but at what cost?

A. BURNES GREIG.

New Periodical Postage Regulations.

For many years a lot of United States publishers have been abusing the use of the mails by having their publications classed as legitimate newspapers and periodicals, and, therefore, entitled under the convention between that country and Canada to transmission through the Canadian mails at the minimum rate of postage, being the ordinary rate accorded to legitimate newspapers and periodicals. Sir Wm. Mulock, Postmaster-General, has decided that this class of publication is not entitled to transmission through our mails at ordinary newspaper rates, but that postage on each periodical, etc., must be prepaid at the rate of one cent for each two ounces. The practical effect of this decision is to exclude this class of publications, numbering 38, from the Canadian mails. Following is a list of the publications to which the decision applies: American Woman, Comfort, Fireside Visitor, Golden Moments, Good Stories, Happy Hours, Hearth and Home, National Home Magazine, People's Literary Companion, Sunshine for Youth, American Architect, Fashion World, Women's Home Journal, Home Folks, Home Life, Information, National Builders, Women's World, People's Popular Monthly, Progressive Monthly, Family Circle, Cheerful Moments, Gentlewoman, Home Monthly, Metropolitan and Rural Home, Modern Home, Paragon Monthly, Thomas' Weekly Review, Unique Monthly, New Ideas, Musical Times and Band Journal, Welcome Guest, Vick's Family Magazine, Woman's Magazine, Woman's Farm Journal, Mail Order Monthly, Home Queen, Evening Hours. The publishers of the foregoing have been notified by the United States Post Office Department of the Canadian decision, and hereafter they must pay full postage rate or their publications cannot pass through the Canadian mails.

The foregoing list might probably be extended to include others from time to time. Canadians would do well to be on their guard against the sort of trash which floats across the international boundary lines in large quantities.

Professor of Nature Study.

Prof. John Brittain, late of the University of New Brunswick, has been appointed to the chair of nature study in the new college which Sir William Macdonald is erecting at Ste. Anne de Bellevue. The appointment will take effect within a year, when it is expected that the buildings will be completed. Mr. Brittain is a native of King's County, N.B., and for several years during his early life taught in the public schools of that county. About 15 years ago he was appointed Professor of Science in the Normal School, but resigned three years ago, having received an appointment from Sir William Macdonald as instructor in elementary science and school gardening in a number of Carleton County schools.

These Books of Mine.

My garden aboundeth in pleasant nooks,
And fragrance is over it all;
For sweet is the smell of my old, old books,
In their places against the wall.

Here is a folio that is grim with age,
And yellow and green with mold;
There's the breath of the sea on every page,
And the hint of a stanch ship's hold.

And here is a treasure from France la belle,
Exhaleth a faint perfume
Of wedded lily and asphodel,
In a garden of song abloom.

And this wee little book of Puritan mien,
And rude, conspicuous print,
Hath the Yankee flavor of wintergreen,
Or, maybe, of peppermint.

In Walton the brooks a-babbling tell
Where the cherry daisy grows,
And where in meadow or woodland dwell
The buttercup and the rose.

But best beloved of books, I ween,
Are those which one perceives
Are hallowed by ashes dropped between
The yellow, well-thumbed leaves.

For it's here a laugh and it's there a tear,
Till the treasured book is read;
And the ashes between the pages here
Tell us of one long dead.

But the gracious presence reappears
And we read the book again,
And the fragrance of precious, distant years,
Filleth the hearts of men.

Come, pluck with me in my garden nooks
The posies that bloom for all;
Oh, sweet is the smell of my old, old books,
In their places against the wall!

—Eugene Field.

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