

according to weight and then note the reading of the instrument, so that you may make your future solutions accordingly. In order to see whether the hydrometer is accurate when you are buying a new one, it is well to test it in clear water. It should then sink in the water to the figure 0.

John Pierson.—I am afraid that I cannot answer your request. Almost every month one of a similar nature turns up and I am obliged to turn it down. Awfully sorry, but you can see yourself that it would never do.

"Sweet Sixteen."—(1) The term neutral means not acid or not alkali. (2) Possibly, I am not certain. (3) No.

Troubles.—Write to the Cramer Dry Plate Works of St. Louis, Mo., and ask them to send you their book on the working of their plates. It would require too much space here to answer your questions, and besides the book will do it just as well, if not better.

A CARIBOU BATTLE

In the heart of the nor'land solitudes,
A bald, bleak barren lies;
Westward the ancient forest broods,
And northward grim hills rise.

Across its breadth the long year through,
Waifs of the wilderness,
The sombre moose and caribou,
Wander in storm and stress.

A lordly bull stood with his cows
Snuffing the frosted air,
When gatturally across the snows
The call of war rang clear.

Rearing aloft his antlered crest,
Threshing the birch and fir,
Pawing the earth like one possessed,
On came the challenger.

The herding bull with flaming eye,
Breasteth his cows aside,
And, bellowing defiance high,
Ruffles his neck of pride.

Now, battling in the rutting rage,
In frenzy, fierce and dire,
Eager for battle they engage,—
The son against his sire.

With clanging stroke their antlers crash,
Splintering their brow-tines broad;
Now here, now there, they furious dash,
While the lorn cows applaud.

The night resoundeth, harsh and loud,
With clang of horn on horn,
Till the herd-bull, his spirit cowed,
Was slowly backward borne.

* * *

A white wind from the hills did blow,
A fleeting, flying pall,—
The conqueror stood above his foe,
Giving the triumph call.

Then sudden from a darksome dell
Streamed a red spear of fire;
The conqueror roaring leapt—then fell
Across his dying sire.

Shelburne, N.S.

COLAN MCKAY.

HOW TO BUILD A LOG CANOE.

This kind of craft is always made out of a single pine tree. It is rather hard to find a tree large enough and sound enough for the purpose. First you fall your tree on skids, choosing the soundest and best side of the tree for the bottom of the canoe. Cut the log the required length and roll it so that the canoe will rest on her side, one gunwale down and the other up. Strike a line on the bottom side, taking off enough wood to give her good bearings—that is to make the bottom wide enough. Then I generally measure from that to the centre of the log, all the way from ten to fourteen inches, according to the size of the canoe I want. That gives the canoe her depth, when she is on her bottom; next I line out the ends, giving her the proper sheer on top—that is, the raise for the bow and stern. When you have got the two sides hewed off, you cant her on her bottom and see that she is perfectly level. You strike a chalk line on top down the centre, and then you drop a plumb line on each end to the bottom and mark it. Of course your canoe is yet too heavy to cant right back and line the bottom. You have got to mould her on top, and get all the outside weight off you can. You simply mould the shape of the top, and you cut out a good lot from the centre of the canoe, in order to lighten her so that you can handle her, but without going too deep. Then you turn her over and strike a line on the bottom from these two plumb lines at the ends, making the top and bottom lines correspond, and be perfectly opposite each other. Then you mould your bottom whatever shape you want it. Besides the common woodsman's axe it is better to have a broad axe, and you also need a cooper's adze for digging out, and then a canoe knife—a large rounding spokeshave that you work inside the canoe with. When you have smoothly moulded the bottom of the canoe, you take a small auger, or brace and bit, about $\frac{1}{2}$ -inch, and bore lines of holes three in the bottom and two on each side, the lines being two feet apart the whole length of the canoe. Bore them in a couple of inches and drive in little plugs the length that you want your canoe's thickness to be. Of course you want the bottom thicker than the sides. An inch and a quarter is about right on the bottom, three quarters of an inch on the turn from the bottom and half an inch up next the gunwales. That would be for a very light canoe. The inner ends of the plugs are blackened with charcoal. After you have driven them in level with the bottom, you turn your canoe up, chop in with your axe and adze, being very careful not to chop too deep. Between the plugs especially you must be careful and work down to a level surface. The canoe knife is used for the finishing touches. A canoe twenty-eight feet long should have six pair of knees—the natural root of cedar or spruce—and then you want gunwale streaks of spruce, pine or cedar, about an inch and a quarter or inch and a half wide in the centre. You should now have a light and strong canoe. If oiled and painted she will last longer.

EMERGENCY KIT.—Jamaica ginger or cholera mixture and ammonia for insect bites, put up in convenient bottles, a piece of surgeon's plaster and a couple of bandages, all fitted in a canvas case. A house-wife, containing buttons, thread, needles, and safety pins. A small wooden box, 6 x 3 x 1 in., containing a pair of scissors, four twist drills 1-16 in., 3-32 $\frac{1}{2}$ in., in. and 3-16 in.; files, 2 flat, 1 one-half round, 1 round, 1 mill saw, all dead smooth, with a handle for same; 1 jewellers' hand vice and a small pair of pliers—these for sharpening hooks, mending rods, etc. A piece of flannel for cleaning gun and reel, package of gun grease, small safety can of lubricating oil for reel, whetstone or file, compass.