

**HOT-WATER HEATING.**

Without attempting to enter into the vexed question of the exact cause of the circulation in a hot-water system, about which Tredgold, Bramah, Hood, Mills, Baldwin have presented able arguments in support of their own theories, says the *Heating Engineer*, we will simply accept that there is motion, and that motion is occasioned in some way by the application of heat to some part, preferably the lowest, of the apparatus, thus causing a disturbance of the hydrostatic equilibrium, resulting in a flow.

One point here: it is a recognized fact that a clean, sharp fire, consuming about four-tenths of a pound of coal per square foot of heating surface per hour, results in a maximum economy of fuel. Dr. Chas. F. Emery, in his very able report on the Centennial Boiler Trials, was the first to demonstrate such a fact. And from the same there follows as a corollary to this statement, that two boilers of radically different types, but of good design, burning the same coal at the above rate, the potential and economic merits will be found equal. This applies to our subject in this way: when we have a minimum amount of water in circulation in our system we can employ a minimum size of boiler, thus insuring a near approach to our figure above given. Again, Baldwin, in his work on "Hot Water Heating and Fitting," states very clearly, concisely, and accurately (page 210): "Anything that quickens the circulation through or within a boiler or over its fire surfaces will increase its capacity per unit of surface." Hence, where a minimum amount of water is in circulation the difference in temperature between the flow and return will be greater; hence the velocity of the flow, and consequently the circulation, will be quickened, and we can use a smaller boiler than we could were our quantity of water greater and our circulation more sluggish. It may be argued here that when we increase our velocity we increase our friction: true, as far as such a general statement of fact goes, and if the velocity was as great as is frequently found in city water mains, an increase in rate of flow might be a serious consideration. But Box has shown ("Practical Treatise on Heat," page 200) that with a two-inch hot water heating pipe one hundred feet long, exposed to air at sixty degrees, the water leaving the boiler at two hundred and ten, returning at two hundred, the velocity in feet per second is less than four-tenths, and for greater difference in temperature between the flow and return and for larger-sized pipe the velocity is much smaller. We may, therefore, dispense with the idea that with an increased velocity the loss of heat by friction is sensibly increased.

Again, with the minimum quantity of water in the system, and consequently a more rapid circulation, it follows that the building will be more quickly warmed or cooled than when a greater quantity of water is employed. In other words, one of the great points claimed as a superiority of hot water over steam, viz., "acceptibility to automatic government by change in

outside conditions of temperature, is most apparent when we have a minimum amount of water in circulation per square foot of radiating surface.

The comparative rates of expansion of copper and iron are copper 3, iron 2; while the heat conducting power is in the ratio of copper 6, iron 1.

**TO BUILDERS.**

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**Prices of Building Materials.**

**LUMBER.**

CAR OR CARGO LOTS.

1 1/2 and thicker clear picks, Am. ins.	\$30 00	1/2 00
1 1/2 and thicker, three uppers, Am. ins.	37 00	00
1 1/2 and thicker, pickings, Am. ins.	27 00	00
1 x 10 and 12 dressing and better.	18 00	20 00
1 x 10 and 12 mill run.	13 00	14 00
1 x 10 and 12 dressing.	14 00	16 00
1 x 10 and 12 common.	12 00	13 00
1 x 10 and 12 spruce culls.	10 00	11 00
1 x 10 and 12 maple culls.	9 00	00
1 inch clear and picks.	28 00	30 00
1 inch dressing and better.	18 00	20 00
1 inch siding, mill run.	14 00	16 00
1 inch siding, common.	11 00	12 07
1 inch siding, ship culls.	\$10 00	\$11 00
1 inch siding, mill culls.	8 00	9 00
Cull sawing.	8 00	9 00
1 1/2 and thicker cutting up plank.	22 00	25 00
1 1/2 inch strips, 4 in. to 8 in. mill run.	14 00	15 00
1 1/2 inch strips, common.	12 00	13 00
1 1/2 inch flooring.	14 00	15 00
1 1/2 inch flooring.	14 00	16 00
XXX shingles, sawn.	2 30	2 35
XX shingles, sawn.	1 30	1 35

**Metallic Roofing Co. of Canada:**

Eastlake steel shingles (galvanized).	\$2 25 to \$5 75
Eastlake steel shingles (painted).	3 75 4 00
Improved Broad Rib Roofing, (galvanized).	5 00 5 75
Improved Broad Rib Roofing (painted).	3 50 4 00
North Western steel siding (painted).	3 25 3 50
Manitoba steel siding (painted).	3 25 3 50
Metallic Finished Brck.	3 25 3 50
Tower or Mansard shingles, (galvanized).	6 25
Tower or Mansard shingles (painted).	4 50
Metallic Terra Cotta Tiles.	7 00
Price of Copper shingles according to weight, and "Hayes" Patent Metallic Lathing according to quantity.	

**Canada Galvanizing & Steel Roofing Co.:**

Corrugated Iron, galvanized, 22, 24, and 26 W. G., per lb.	4 1/2 cts.
Corrugated Iron, galvanized, 28 W. G., Corrugated Iron, painted, 26 W. G., per square.	5 00
Corrugated Iron, painted, 28 W. G., Broad Rib Roofing, galvanized, per square.	3 50
Broad Rib Roofing, painted.	5 50
Westlake shingles, steel, galvanized, per square.	4 00
Westlake shingles, steel, painted.	5 00
Standard shingles, "Walter's patent," galvanized, per square.	3 50
Standard shingles, "Walter's patent," painted.	5 50
Northwestern steel siding, patented, per square.	4 00
Metallic Finish Brck. per square.	3
Metallic Finish Clapboard, per square.	3

**YARD QUOTATIONS.**

Mill cull boards and scantling.	10 00
Shipping cull boards, promiscuous widths.	13 00
Shipping cull boards, stocks.	13 00
Hemlock cantling and joist up to 16 ft.	11 00
" " " " 18 " "	13 00
" " " " 20 " "	13 00
Scantling and joist, up to 16 ft.	14 00
" " " " 18 ft.	14 00
" " " " 20 ft.	16 00
" " " " 22 ft.	17 00
" " " " 24 ft.	19 00
" " " " 26 ft.	21 00
" " " " 28 ft.	23 00
" " " " 30 ft.	25 00
" " " " 32 ft.	27 00
" " " " 34 ft.	29 00
" " " " 36 ft.	31 00
" " " " 38 ft.	33 00
" " " " 40 to 44 ft.	36 00
Cutting up planks, 1 1/2 and thicker, dry.	25 00
" " " board.	18 00
Cedar for block paving, per cord.	5 00
Cedar for Kerbing, 4 x 14, per M.	14 00

**B M**

1 1/2 inch flooring, dressed, F. M.	28 00
1 1/2 inch flooring rough, B. M.	18 00
1 1/2 " " dressed, F. M.	27 00
1 1/2 " " undressed, B. M.	18 00
" " dressed.	18 00
" " undressed.	12 00
Headed sheeting, dressed.	23 00
Clapboarding, dressed.	12 00
XXX sawn shingles, per M, 16 in.	2 65
Sawn lath.	2 00
Red oak.	30 00
White.	15 00
Basswood, No. 1 and 2.	18 00
Cherry, No. 1 and 2.	70 00
White ash, No. 1 and 2.	25 00
Black ash, No. 1 and 2.	18 00
Dressing stocks.	16 00
Picks, American inspection.	40 00
Three uppers, American inspection.	50 00

**BRICK—B M**

Common Walling.	\$7 50
Good Facing.	9 00
Sewer.	8 50

**Pressed Brick**

Plain brick, f. o. b. at Milton, per M.	\$18 00
" " 2nd quality, per M.	14 00
" " 3rd	10 00
Hard Building.	8 00
Moulded and Ornamental, per 100.	\$3 10
Roof Tiles.	74 00
Diamond locking tile.	16 00

First quality, f. o. b. at Campbellville, per M.	18 00
and " " "	14 00
3rd " " "	11 00
Ornamental, per 100.	\$3 10
Tiles.	24 00

**DON VALLEY, P. O. D. TORONTO.**

Plain brick, "A"	\$18 00
" " "B"	16 00
" " "C"	15 00
Trojan or Buff.	2 00
Ornamental, per 100	\$3 00

**Stones.**

Common Rubble, Per Loose, delivered	14 00
Large flat " "	18 00
Foundation Blocks, " Cubic Foot.	50

**Slate: Roofing (per square).**

" red.	18 00
" purple.	9 00
" untinting green.	9 50
" black slate.	7 75
Terra Cotta Tile, per sq.	25 00
Ornamental Black Slate Roofing.	8 25

**Sand:**

Per Load of 1 1/2 Cubic Yards.	1 25
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**PAINTS. (In oil, per lb.)**

White lead, Can.	6 1/2
" zinc, Can.	7 1/2
Red lead, Eng.	5 1/2
" venetian.	1 60
" vermilion.	90
" Indian, Eng.	10
Yellow ochre.	5
Yellow chrome.	15
Green, chrome.	7
" Paris.	25
Black, lamp.	15
Blue, ultramarine.	15
Oil, linseed, raw (per Imp. gallon).	65
" " boiled.	68
" " refined.	78
Putty.	2 1/2
Whiting dry.	75
Paris white Eng., dry.	90
Litharge, Am.	6 1/2
Sienna, burnt.	15
Umber.	8 1/2

**CEMENT, LIMB, etc.**

Lime, Per Barrel of 2 bushels, Grey.	40
" " " White.	55
Plaster, Calcined, New Brunswick.	2 00
" " Nova Scotia.	2 00
Hair, Plasterers', per bag.	0 80
Cement, Portland, per bbl.	2 60
" Thorold.	1 50
" Queenston, "	1 50
" Napanee, "	1 50
" Hull, "	1 50

**HARDWARE.**

**Cut Nails:**

American Pattern, 1 1/2 inch, per keg.	3 90
" " 1 1/2 to 1 3/4 inch, per keg	3 10
Canadian Pattern, 1 1/2 inch, per keg.	3 40
" " 1 1/2 to 1 3/4 inch, per keg	2 95
" " 2 to 2 1/2 inch, "	90
" " 2 1/2 to 3 inch, "	65
" " 3 inch and larger.	2 40
Steel nails 10c. per keg extra.	
Finishing nails, 1 inch, per keg.	5 40
" " 1 1/2 inch, "	4 65
" " 2 inch, "	4 15
" " 1 1/2 " and larger.	3 90