

# USEFUL INFORMATION ABOUT WOODS. 3

**Charcoal.**—The best quality is made from Oak, Maple, Beach, and Chestnut.

Wood will furnish, when properly burned, about 23 per cent. of coal.

Charcoal absorbs, upon an average of the various kinds, about 5.5 per cent. of water, Oak absorbing about 4.28, and Pine 8.9.

Its evaporative power, in the furnace of a boiler and under pressure, is  $5\frac{1}{2}$  lbs. of fresh water per lb. of coal.

The volume of air chemically required for the combustion of 1 lb. of charcoal is 293.5 cubic feet.

138 bushels of charcoal and 432 lbs. of limestone, with 2612 lbs. of ore, will produce 1 ton of pig iron.

## *Produce of Charcoal from various Woods.*

Apple.....	23.8	Birch.....	24.1	Oak.....	22.85	Red Pine.....	23.0
Ash.....	26.7	Elm.....	25.1	" young..	33.3	White Pine...	23.5
Beech.....	21.1	Maple.....	22.9	Poplar....	20.5	Willow.....	18.6

The produce of charcoal by a slow process of charring is very nearly 50 per cent. greater than by a quick process.

## **Wood.**—*Weights and Comparative Values of different Woods.*

Woods.	Cord.	Value.	Woods.	Cord.	Value.
	Lbs.			Lbs.	
Shell-bark Hickory...	4469	1.00	New-Jersey Pine.....	2137	.54
Red-heart Hickory....	3705	.81	Yellow Pine .....	1904	.43
White Oak.....	3821	.81	White Pine.....	1868	.42
Red Oak.....	3254	.69	Beech?.....	—	.7
Virginia Pine.....	2689	—	Spruce.....	—	.52
Southern Pine.....	3375	—	Hemlock .....	—	.44
Hard Maple.....	2878	.6	Cottonwood.....	—	—

The evaporative power of 1 cubic foot of pine wood is equal to that of 1 cubic foot of fresh water; or, in the furnace of a steam-boiler and under pressure, it is  $4\frac{1}{2}$  lbs. fresh water for 1 lb. of wood.

**NORTHERN WOOD.**—One cord of *hard* wood and one cord of *soft* wood, such as is used upon Lakes Ontario and Erie, is equal in evaporative effects to 2000 lbs. anthracite coal.

**WESTERN WOOD.**—One cord of the description used by the river steamboats is equal in evaporative qualities to 12 bushels (960 lbs.) of Pittsburg coal.

9 cords cotton, ash, and cypress wood are equal to 7 cords of yellow pine.

The solid portion (*lignin*) of all woods, wherever and under whatever circumstances of growth, are nearly similar, the specific gravity being as 1.46 to 1.53.

The densest woods give the greatest heat, as charcoal produces greater heat than flame.

For every 14 parts of an ordinary pile of wood there are 11 parts of space; or a cord of wood in pile has 71.68 feet of solid wood and 56.32 feet of space.

Trees in the early part of April contain 20 per cent. more water than they do in the end of January.

## **Ash.**—*Proportion of Ash in 100 lbs. of several Woods.*

Woods.	Wood.	Leaves.	Woods.	Wood.	Leaves.
	Per Cent.	Per Cent.		Per Cent.	Per Cent.
Ash.....	.5	—	Elm.....	1.88	11.8
Beech.....	.35	5.4	Oak.....	0.21	4.0
Birch.....	.34	5.0	Pitch Pine.....	0.25	3.15