

of iron has been changed into a proto-oxalate which has the property of taking possession of the silver contained in the nitrate. Hence the image at once appears of a fine purple colour. The impression is now washed several times, and the operation is successfully ended. Instead of nitrate of silver, chloride of gold may be used to develop the image, which is then violet, and need only be washed once.—*Galvani*.

The Great West.

The four States of Indiana, Illinois, Iowa, and Wisconsin, have a computed area of 124,000,000 acres, or a surface of about one half greater than the whole British Isles. From 1850 to 1860 the area under cultivation rose from 11,956,269 acres to 25,949,886 acres—an increase of 142 per cent. At the same time the value of the farms advanced from \$278,704,593 to \$1,027,292,333; and the value of the farming implements rose from \$15,924,442 to \$39,645,875.

The population of these four states was 2,337,491 in 1850, and 4,513,208 in 1860.

The aggregate live stock of the four states was:

	1850.	1860.
Cattle of all classes.....	1,946,756	3,724,726
Sheep	2,291,392	3,523,827
Swine	4,660,196	6,083,368
Horses and Mules	668,739	1,340,054

In other words swine increased in numbers 29 per cent., sheep 54, cattle 90, and horses 100 per cent.

The immense grain crops of these four states increased as follows:—

	Crop of 1849.	Crop of 1859.	Est. for 1862.
Wheat, bushels	21,445,746	63,624,450	83,812,946
Rye, do.	263,325	2,446,137	2,603,524
Barley, do.	391,063	2,605,133	2,971,680
Indian corn do.	119,257,125	233,620,654	290,639,065
Oats, do.	20,681,272	37,303,760	43,247,662

Such are the kind of products which constitute the foundation of the nation's material power.

The Value of Dead Horses.

Some people will no doubt be astonished to learn that large fortunes have been made every year since the commencement of the war, out of the dead horses of the Army of the Potomac. The popular idea is that when Rosinante yields up the ghost, she is buried in some field, or left to molder into mother earth in the woods somewhere. Not so. She has made her last charge and gnawed her last fence rail, but there is from \$20 to \$40 in the old animal yet. A contract for the purchase of the dead horses in the Army of the Potomac for the ensuing year, was let a few days ago, to the highest bidder, at \$1 76 per head, delivered at the factory of the contractor. Last year \$60,000 were cleared on the contract, and this year it is thought \$100,000 can be made on it. The animals die at the rate of about fifty per day, at the lowest calculation.

At the contractor's establishment they are thoroughly dissected. First the shoes are pulled off; they are usually worth fifty cents a set. Then the hoofs are out off; they bring about two dollars a set. Then comes the caudal appendage, worth half a dollar. Then the hide—I don't know what that sells for. Then the tallow if it be possible to ex-

tract tallow, from the army horses, which I think extremely doubtful, unless they die immediately after entering the service. And last but not least, the shin bones are valuable, being convertible into a variety of articles that many believe to be composed of pure ivory, such as cane heads, knife-handles, &c.

Caustic Alkalies.

Very great quantities of the solution of caustic alkalies are employed in purifying coal and Petroleum oils. At present those washes, as they are called, are permitted to run to waste. Frequently they are partially neutralized by the acid that preceded them in the purifying process.—When these solutions are strongly alkaline, they may be submitted to evaporation and crystallization for further use, the impurities which float upon them being removed. If they have been neutralized by the acid taken up from the oil, the neutralization should be completed by the addition of more acid, when they will form sulphate of soda, or sulphate of potash, as one or the other alkali has been employed.

These alkalies are excellent fertilizers, when they are combined in compost with peat or other organic substances.

An Italian Recipe for Making Wine.

A gentleman having written to a friend in Italy for instructions as to making wine, received the following broken English reply—"The way to make wine with grapes is to stomp well them in a tub with a hol and a spicket in the bottum, and put that juse in a barel, where has been wine or whisky or liquors of some kind, otherwise the wine will stink of wood. Let them boil for forty days, meanwhile making the barel full every day, for in the boiling diminish. Shot up it after the forty days, and longer you let him stay older it comes, and better it will be." The word "boil" means, in this case, "ferment." The rest is intelligible, and those who follow the recipe faithfully will find it a good one.

Aluminum Bronze Pens.

Aluminum bronze, which is an alloy of aluminum with copper, has for some time been in use in Birmingham, and it has been worked into a variety of useful and ornamental articles—for instance, watch cases, watch chains, brooches, and many little trinkets—and the metal looks so gold-like that when nicely polished it cannot by the eye alone be distinguished from gold. Now we have it applied to another purpose. Messrs. C. T. Lutwyche and Son have patented the application of it to the manufacture of writing pens. They profess that pens made of this metal are, in appearance, equal to those made of gold, and are quite as incorrodible; that they write as smoothly as quills, whilst the price is so reasonable that any one may purchase them.

Heating Values of Different Woods.

The following is set down as the relative heating values of different kinds of American wood: Shellbark hickory, being taking as the highest standard, 100; pignut hickory, 95; white hazel, 72; apple tree, 70; red oak, 69; black walnut,