The Cotton Gin.

Many incorrect opinions are entertained respecting the nature and action of the saw gin which it may not be improper to notice. Some of these opinions have been the cause of attempts to remove evils which have never existed. Two of these opinions have been presented to the public through the medium of the Scientific American. The first is that the "staple or fiber of the cotton may come in contact with two saws at the same time, and be thereby injured." The second is "that by long direct action of the saw upon one part, as in the common saw gin, the staple will be cut." These two opinions have come out in connection with two late improvements. One in gin saws and one in a cotton gin.

There is no intention, in this article, to depreciate the value of any improvement in this direction, but simply to defend the saw gin from some of the wrong charges made against it.

That two saws cannot take hold of the fiber of the short staple cotton at the same time, so as to injure it, may be ascertained by taking a single lobe of cotton and placing it on a saw, and turning it slowly by hand.

As respects the second of these opinions, those who are familiar with the cotton gin know that there is a constant counter circular motion called the "role," caused by the action of the saws in taking the fiber from the seed; so much of the fiber as is taken into the teeth at one time, passes through the spaces in the ribs, is immediately blown into the room, and never returns. In this circular motion, new fiber is constantly presented to the action of the saws, until the seed are cleaned, and fall out at the lower end of the ribs.

In defence of the saw gin, it may be said that it never cuts the staple unless it is imperfectly made or badly regulated by those who attend it. The fiber is so easily separated that if a seed is held in one hand and the staple in the other, it may be pressed off with a penknife without injury. There is on every seed of cotton one portion of fiber shorter than another. The ignorance of some in reference to this peculiarity in the growth of cotton has furnished the idea of the saw gins cutting the staple.

John De Bois.

Greensboro', Ala., Nov. 1855.

How America was Formed; and the Cause of the Flood.

Clark Mills, of Washingten, states that the fountains of the great deep being broken up, the waters must have retired in great agitation to the east and west from the sides of the rising continent. The various opposing currents caused immense deposits to be made, and the rush of water, with the flaming ocean beneath, generated an immense evaporation. The winds, which, before this, moved from east to west around the globe, were suddenly obstructed by the towering burning mountains. They rolled back as if astonished at the new phenomena, laden with the vapors of a boiling ocean. The clouds, in their sublime evolutions, moving in the direction of the waters to the east and west from America, met in awful ar ray over the Old World. There they discharged their burdens, the vapors descending for forty days, and after the earth revolved 150 times in her cumbrous mantle, the waters retired to the caverns from whence our continent arose.

Pennsylvania Coal.

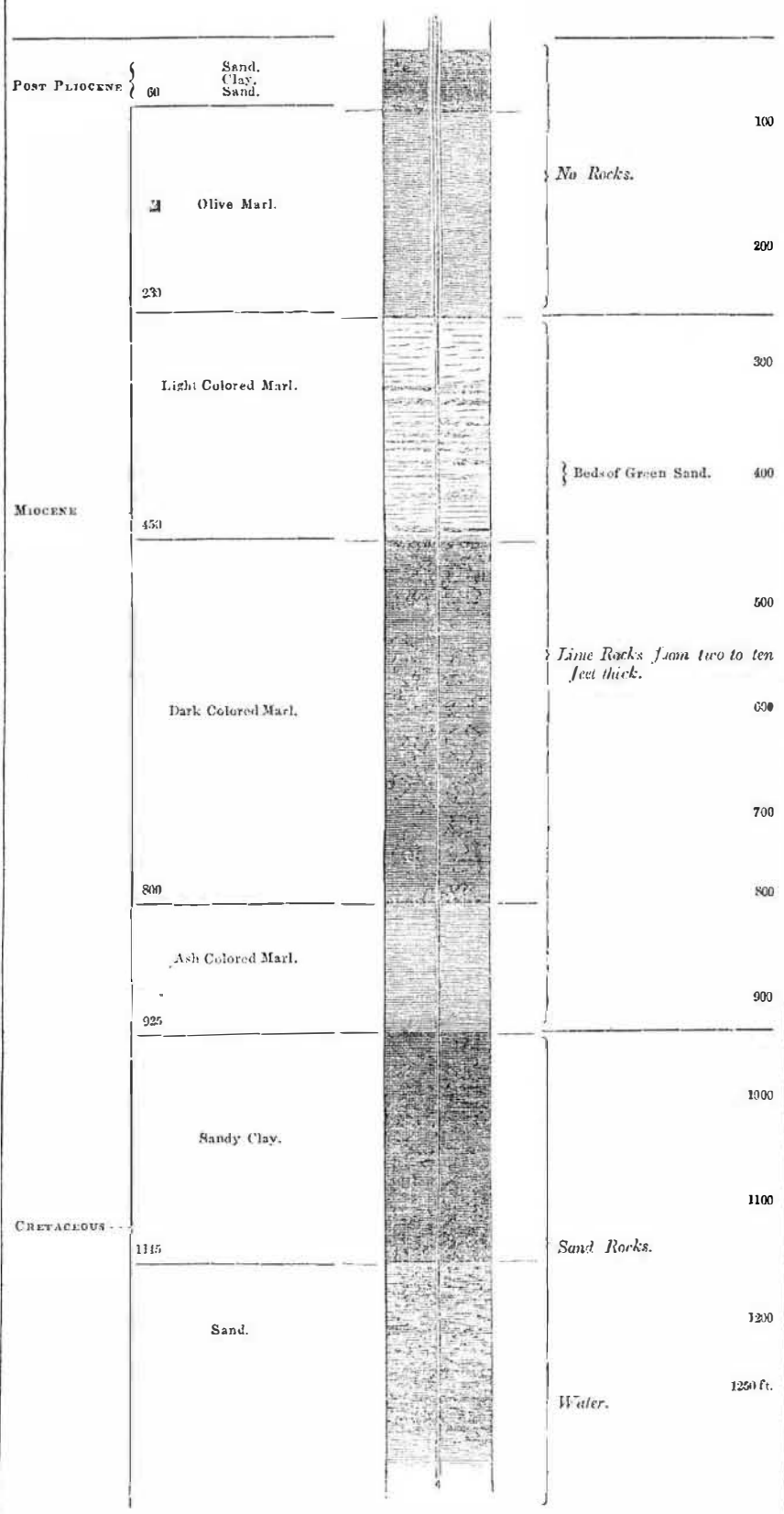
It is more than twenty-five years since Pennsylvania coal began to be a recognised article of production and commerce. This year the product will amount to no less than six millions of tuns. This, as delivered at the mines, is worth at least twelve millions of dollars—so that this great sum may be regarded as the auount of solid wealth dug annually at the present time, from the bowels of the earth.—[Pottsville Register.

A Chance for Inventors.

The Belgian Government, rather than interdict the use of corn and potato starch in manufactures, which would be to stop labor for the purpose of econmising food, has offered a prize of 10,000 francs for the discovery of a non-alimentary substance to replace the use of starch in those industrial occupations in which it is now employed.

Sectional Plan of the Artesian Well at Charleston.

The accompanying outline sketch represents the Charleston Artesian well. The entire depth penetrated is about 1,250 feet. The water is now running at the rate of 40 gallons per minute, at a hight of 6 feet from the surface of the earth. If the water is conducted higher than this, it diminishes in quantity until it reaches the hight of 23 feet, when it ceases running altogether. The tube is only 3 inches in diameter, and it is inferred that a larger one would yield a proportionably larger amount of



water. It is understood that the city will make an appropriation for the purpose of commencing another of a much larger caliber.

About 60 rocks have been drilled, the first commencing at the depth of 230 feet. For some weeks the well has thrown up large quantities of sand and finely comminuted shells, of a marine character, common in the cretatæ tous formation. The quality of the water is good, although, on account of the presence of the carbonate of soda and a little salt, it is not particularly palatable. J. H. Stearns

Charleston, S. C.

[Messrs. Welton & Stearns, the engineers of this well, give personal attention to contracts for sinking Artesian wells, or boring for minerals.

The people of Charleston, S. C., deserve a great deal of credit for the patience and perseverence they have shown in boring this Artesian well. There are now a great number of Artesian wells in our country, especially in Alabama, Missouri, and some of the Western States; but California distances all our Atlantic States put together, for deep bored wells, but these do not throw their water above the surface. In San Francisco alone, there are 175 bored wells, averaging 110 feet in depth, in all of which the water remains at some distance below the surface. Perhaps by deeper boring a stratum of water of greater pressure might be obtained. The wells of San Francisco, however, give out a great deal of water—30.000 gallons being pumped from one in a day without exhausting it. In San Jose, Cal., there are about sixty Artesian wells, which are used principally for irrigating the soil of gardens and farms. The water of these wells rises above the surface of the earth. The least plentiful well supplies twenty to thirty gallons per minute, and the largest (as we are informed) ejects 100,000 gallons per hour, and throws a solid body of water eight inches in diameter to a hight of eight feet above the mouth of the pipe. The water rushes up with such force that stones as large as two fists are often thrown out. The Artesian wells of San Jose are 60 to 250 feet deep, the whole distance through gravel, clay, sand, and cement without rock.

In Alameda County, Cal., there are four or five Artesian wells, averaging about 150 feet in depth. The water in none of them rises to the surface of the earth.

In Sacramento an Artesian well was sunk to the depth of 80 feet, where hard boulders, (apparently in an old bed of some ancient river,) from six to ten inches in diameter, were encountered. These boulders were loose, and could not be drilled through nor taken out without very great expense, and the well was abandoned.

In Stockton an Artesian well was sunk to the depth of 400 feet without finding water, and then the City, which was managing the enterprise, allowed it to drop.

In Marysville an Artesian well has been commenced and carried to the depth of 300 feet without obtaining water. They are, we believe, still working away.

In Los Angeles an Artesian well has reached the depth of 537 feet, without getting water. This is probably the deepest well in the State.

In Napa an Artesian well has been bored 225 feet without finding water, and there stopped.

For the above information we are indebted to the California *Chronicle*, which also gives the following strata, encountered in boring a well on the corner of Powell street and Broadway, San Francisco:

115 feet hard sand; 3 1-2 feet fine gravel with considerable water; 12 feet tough blue clay; 1 1-2 feet fine gravel; 10 feet yellow clay; 120 feet very hard grayish sandstone rock. Total, 260 feet.

These strata, encountered in the search of water, afford us a curious insight into the formation of the earth's crust in Charleston and San Francisco. An account of the geology of California was given on page 11, this Vol., Scientific American, being an abstract of W. B. Blake's paper, read before the American Association for the Advancement of Science.

Marshall Hall on Consumption.

Marshall Hall, an eminent English physician, says: "If I were seriously ill of consumption I would live out of doors day and night, except it was raining or mid-winter, then I would sleep in an unplastered log house." He says that consumptives want air, not physic—pure air, not medicated air—plenty of meat and bread. "Physic has no nutriment; gaspings for air cannot cure you; monkey capers in a gymnasium cannot cure you; and stimulants cannot cure you."

A Stinging Ant.

In Australia there is a species of ant about an inch long, called the "bull-dog," which stings with its tail as fiercely as a wasp. They are very tenacious of life, and the only way to kill them is to crush them to pieces. Speaking of them, Wm. Howitt says "as to killing them by cutting them to pieces, that is hopeless; cut them in two, and the head will immediately seize the body, and gripe it fiercely with its nippers, and the tail will sting away at the head. They never trouble themselves to die."

Sugar from Honey Dew.

In Utah a great quantity of sugar is made from the honey dew which collects on the leaves of cotton wood. The leaves are soaked in water, after which precisely the same course is pursued as in the manufacture of maple sugar.

Bituminous Coal in Texas.

The Victoria (Texas) *Advocate* states that a large body of bituminous coal has been discovered in the upper part of Lavaca county, and adds, "We have seen at Hallettsville specimens equal to any of the kind from the mines of Pennsylvania or Indiana, and the quantity is said to be inexhaustible."

Great Canal Project.

A project has been started in Louisiana to connect the Mississippi river with Lake Borgne by a canal, cut from a point eleven miles below New Orleans to an intersection with Bayou Philipon. It is believed that by the construction of this work, up-country produce could be landed at Mobile, and other places of consumption along the Gulf seaboard, at one-half the cost of freight and charges, and vice-versa, by the avoidance of the reshipments and expense of consignment at New Orleans.