Scientific.

Phillip's Patent Fire Annihilator.

Being in New York a few days since I availed myself of an opportunity to examine one of Phillips' celebrated "Fire Annihilators" in Mr. Barnum's office in the American Museum. It has probably produced some of the most wonderful results ever known in the history of the world. It is very simple in its appearance and construction. There are different sizes of the machine. This one was of the ordinary dimensions, two feet in diameter and three feet in height, and of cylindrical form. It is made of cast iron and has an inside casing with perforated holes at the sides, but only part of the way down. Its weight is not greater than can be easily carried by man, woman, or a boy fourteen years old, to any part of the house or store. It is charged with a compound of charcoal, nitre, and gypsum, moulded into the form of a large brick. The igniter is a glass tube inserted in the top of the brick, enclosed two phials—one filled with a mixture of chlorate of potassa and sugar, the other containing a few drops of sulphuric acid. A slight blow upon a knob at the top of the instrument drives down a pin, which breaks the phials and the different mixtures coming in contact, ignite the whole, and the gas of this, acting upon a water chamber contained in the machine, produces steam, and the whole escapes forcibly through a tube in a dense and expanding cloud. Each machine will give 1,200 cubic feet of gass. This steam or vapor will cause the instantaneous or speedy suppression of any flame that can be created.

Without going into detail, for I would not encroach upon your space, let me say that wonderful instrument has been tested in every possible manner, in different parts of England, before competent witnesses, and never yet failed to produce the most wonderful results. One of the experiments was made last March, at Milbank, England, in the presence of members of Parliament and other public men. A wood framed house, filed with planking and shavings saturated with turpentine and tar was set on fire; when fairly ignited, the flames pouring out at every window and through the roof, two men, each with a hand machine, approached the building, touched the spring, and by simply directing the tube of the apparatus into the building, completely quenched the fire *in three minutes*. A second experiment was on a tank, 30 feet long and 9 feet wide, constructed of wood, and filled with gas tar; this, the most inflammable material known, was set fire to, and allowed to attain the greatest possible intensity, driving the spectators to a distance; a stream of vapor, directed from one machine, chased away the flames; and this experiment, like the first, was completely successful. The third shows the importance of the invention to the shipping interest. The hold of a vessel of 150, tons, moored off the wharf, was filled with sugar hogsheads, turpentine barrels, &c., all being filled with shavings, on which turpentine and rosin was plentifully sprinkled, the whole was set fire to from below. The hatches were opened to give the flames finer play. They soon shot in great fury high above the decks. At that moment two men each with a No. 3 machine, (the size of the one which I witnessed) by directing the nozzle of each to the apperture, succeeded in dispelling every trace of burning in far less time than it takes me to record the fact.

Mr. Barnum showed the proof of hundreds of such experiments. The amount of good which such an invention will prodnce in saving life and property cannot be estimated. It is not only annihilating fires in Europe, but fire companies also. Insurance companies begin to feel its mighty power in a way easily to be guessed at. While the common fire engine is necessarily tardy, requires great power to work it, is liable to be rendered ineffectual by accident, and occasion inevitable damage to furniture, &c., the Fire Annihilator is always at hand, always ready for use, easily set in action, and its coming into action when required may be as surely relied on as the discharge of a percussion gun when the trigger is pulled.; it occasions no injury to furniture,—and above all, I am assured that though it acts by producing fierce combustion, those who use it need apprehend no injury from it.

The vapor or gas which it discharges into a building immediately expels the smoke and produces an atmosphere easily to be breathed. These instruments are now in the hands of an American Company, just formed in New York, who have the exclusive right of sale in the United States and California. Mr. Barnum informs me that they will be sold for the small sum of $20 each. Every house, and ship in the land and upon the waters should be supplied with one or more. S. P. H.

How to Burn Coal.—To instruct consumers how to make one ton of coal do the service that requires two or more tons by the present mode will be thought, at first impression, to be an injury to the coal trade. But it is an axiom settled beyond dispute, that every important reduction in the cost of articles of general use, increases largely their consumption.

For instance, such of the Atlantic steamers as give preference to our fuel have to take up a large portion of their carrying capacity in transporting coals across the sea, to be brought back for use on the return voyage. One of Collin's steamers, for instance, burns 70 tons a day, equal to 1500 tons for the round trip; and this involves an expense that ordinary freight cannot pay in competition with sailing ships. So long as this contrast continues, ocean steamers will be restricted in number accordingly.

But suppose that half the quantity, or 750 tons of our coal, can be so used as to serve a ship of 3,000 tons across the atlantic and back there would be so general a substitution of steam for sails, that the consumption of fuel would be enormously increased. This reasoning will apply with equal force to the advantage of cheapening the cost of fireing with anthracite wherever fuel may be used, in the arts or the domestic household.

There are two marked errors in the way we burn coal, by which more than one-half is wasted:

1st. We have to shut the door of our stove or furnace, to make a temporary over-combustion at one time, and at another time we have to leave open the door and let in cold air to cool off.

2d. The gas that ascends our chimneys carries with it a deal of coal that is unburned; merely coal in vapor, which gives out little heat for want of air to consume it. We lose the most of this unconsumed vapor of coal when the door is shut. When it is open, the vapor is consumed, but the heat is reduced by a flood of cold air and carried up the chimney.

What is required then is an *air-tight door* over the ash pit, through which you can let in just what air is necessary, for quick or slow combustion as desired. The door that admits the coal should be tight and should never be opened except to put coal in. A small flue should admit a stream of air heated by contact with the stove, to mix with the gas on *top* of the fire.

This last condition is easy enough to fulfil. —But its use may not so readily be understood. The use of the air-tight door can be seen by every one; and no one ought to buy a stove, nor permit a cell or furnace to be erected, that does not give entire control over the draft, without depending on turn-valves in the pipe or chimney. If you find that the stove or furnace door must be left open when you want to moderate your fire, reject it; for it is essentially wrong in its construction and it will consume three tons of coal where one would answer if the draft door were air-tight. *Pottsville Mining Register.*

Singular Geological Fact.

At Modena in Italy, in a circle of four miles around the city whenever the earth is dug, and the workmen arrive at the distance of sixty-three feet, they come to a bed of chalk, which they bore with an auger, five feet deep. They withdraw from the pit before the auger is removed, and upon its extraction the water bursts up with great violence, and quickly fills the well thus made, the supply of water being affected neither by rains nor droughts. At the depth of fourteen feet are found the ruins of an ancient city, houses, paved streets, and Mosaic work. Below this again, is a layer of earth, and at 28 feet, walnut trees are found entire, and walnuts still upon them. At 28 feet, soft chalk is found, and below this, vegetables and trees as before.

Artificial Leather.—In a shop at Abington, Massachusetts, a steam engine of six or eight horse power is erected for grinding up the chips and shavings of leather which are cut off by the shoe and boot makers, and which have heretofore been burnt or thrown away. These are ground to a powder resembling course snuff, and this powder is then mixed with certain gums and other substances, so thoroughly that the whole mass becomes a kind of melted leather. In a short time this dries a little, and is rolled out to the desired thickness—perhaps one twenty-fourth of an inch. It is now quite solid, and is said to be entirely water proof. This new-fashioned leather will make good middle soles for shoes, and perhaps inner soles; and would be very durable round the shafts of a carrage, or in any place where mere chafing is all the wear desired. It is supposed it would wear well as bands for some kinds of machinery, and will doubtless be used for many other purposes. A patent has been secured, and the article will soon be in the market and in use.

Uses of Moss.—North Carolina and Louisiana, and other States, for all we know, have immense quantities on the trees. It is found in limitless abundance on the cypresses which line the shores of Albermarle Sound, and it hangs in festoons from the branches, giving a very beautiful appearance to the woods. In Louisiana this moss has been converted into an article of high commercial importance. It is more valuable than hair for upholstery purposes, and as it is prepared in Louisiana, in a few hours it is completely cleansed of its outer covering, and nothing is left but its wiry and elastic centre. It is a capital material for stuffing beds.

The Farm.

String Halt—is there any Remedy.

Notwithstandiug all that has been said and written on this subject, we have never met with a remedy; and we doubt very much whether it is in the power of veterinary practice to cure it. The only thing, then is to treat the horse thus afflicted kindly, and have patience with him when he first starts; for after travelling a little distance and getting warm, the nerves seem to be relaxed, and ordinarily he does not then mind it.

So far as our experience goes, we have found string halt seemingly unaccompanied with pain; and it is not therefore to be so much regarded as some other diseases. For where it exists in a moderate degree, do we think it affects either the strength or speed of the horse. A little care only is necessary that he does not get cold in his limbs, as this aggravates the disease. We have also found that it was less apparent in warm weather, particularly when the horse was running in pasture

It is often asked what is the cause of string halt? Professor Spooner seems to be of opinion that it is a morbid affection of the sciatic (hip) nerve; for he asserts that he had never dissected a single case in which he had not found disease of this nerve, which mainly contributes to supply the hind extremities with sensation, and the power of voluntary motion. Others think that string halt comes in consequence of the muscles of the thigh being injuriously affected; but we have never heard of a case of dissection in whichit was shown that string halt had produced any change in the muscles; we are therefore inclined to agree with Professor Spooner, that it arises from some injury to the hip nerves. Owners of horses affected with string halt, who would consult their own interest and avoid tormenting the poor animals, will refuse all the quack nostrums offered to alleviate this hitherto incurable disease.—*American Aguiculturist*

Indian Corn.

The New York Journal of Commerce some months since called the attention of Western men to the fact, that a large portion of the corn coming forward from that section was damaged, for want of care in preparing it for market. As the season is approaching when a new crop is to be housed, it again refers to the subject, in the hope of an improvement for the coming year. Western mixed corn has been selling in New York for the last few days at 58 a 60 for *sound* parcels, and at 43 a 50 for *heated*, very little of the latter bringing over 50 cents. The average difference between heated and sound corn, taking the extremes into account, is about five cents per bushel. Now let it be remembered that there is no *difference* in the corn when first harvested, and the importance of the subject will be manifest. The corn when picked, should be placed in cribs, raised a foot or more from the ground, with a narrow base, swelling on each side towards the eaves, and roofed so as to be perfectly water-tight. Much corn is damaged on the cob by exposure to storms, or for want of air when drying. The corn should not be shelled until it is to be sent to market; it should then be thoroughly fanned or cleaned from chaff, as the presence of this substance is one of the principal causes of its heating in coming forward. Even when corn passes as strictly merchantable on arrival, it will heat on a voyage to Europe, unless perfectly clean when sent aboard. More than twothirds of the Western corn which has come forward this season, has proved unsound simply for want of precaution on the part of the original owners. There is another point connected with this subject, where an amendment would give increased value to the produce; but perhaps it would be impossible to effect it. We allude to the *mixture* which gives its name to most of the Western corn in market. Yellow or white, when sold *separately*, will average, one month with another, about two cents per bushel each more than mixed, which is but the same corn *thrown together*. The white is wanted for a different market, and the yellow is much more attractive when placed by itself.

Recovering Dried Grafts.—It often happens that grafts of particular fruits are received in a dried or withered condition, from being badly packed, and being supposed to be worthless, are thrown away—The writer once received in autumn a small package of a new and rare sort of apple, from a distance of some hundreds of miles, without any protection at all, and they quite thoroughly *seasoned*. They were encased in moss, and buried a few inches beneath the surface of the earth on a dry spot of ground. By spring they had gradually imbibed moisture, and had become plump again, and on being set, every graft grew. Effects of this kind often fail in consequence of applying the moisture too copiously and suddenly. Shoots, in so withered a condition, should receive it so gradually as to require some weeks at least for the completion of the process. [Cultivator.

Manure for Fruit Trees.—What is the best manure for fruit trees, to spade or work in near the roots, of general application?

The following has been found, after several years' experience, to constitute one of the best manures for fruit trees generally: A mixture of peat or swamp muck, with one-half to one quarter of its bulk of stable manure, and about one twentieth of leached ashes. These ingredients should lie in a heap together for a few weeks, and then be worked over. If for peach trees, the soap-suds from the laundry thrown over the heap will improve it. If for cherry trees, which will not bear high manuring, the proportion of peat or muck should be larger, and with less of yard manure and ashes.

There are some other ingredients which may occasionally be added to advantage, as ground or dissolved bones, night soil, &c., where a strong manure is needed.

Cranberries.—Cranberries grown on high land are hard and firm, and keep far better than those raised on wet land; and yet they cook soft, and are of the finest quality. We picked a quart of cranberries, of spontaneous growth, on a poor gravelly ridge, and set them in a closet, in a room that was kept warm through the winter, day and night. The next spring almost every one was sound, and had hardly shrivelled. It is a curious fact that cranberries, of spontaneous growth on high land, endure the cold of winter, and produce well without any protection during the winter, whilst those cultivated on low land seem to need protection.

Milk Clean.—When milk is drawn in the usual way from the cow, the last of the milking is much the richest; this is because the cream has in great part risen to the surface, inside the cow's udder; the portion last drawn off, then, of course, contains the most of it. Such a fact shows the importance of thorough and careful milking. More milk is said to be obtained from the cow when she is milked three times a day, than when but once or twice; but in this last case it is very rich. —*Norton.*

Blight in wheat has long puzzeled the farmer to ascertain its cause. The last researches in the matter were made by two practical agriculturists in their own fields, and they report having discovered a little white insect, which eats off the roots of the kernel, and separates the stalk from the berry, which at once shrivels up and becomes worthless.