in April, 1862, on the Algerian Railway, near Blidah, well illustrate the benefits to be derived. They are in use on the Northern Railway of France, at Charentes and at Mont Cenis. This principle might render important service in parts of our own country where ties of durable close-grained woods are difficult to procure.

THE MANUFACTURE OF SULPHURIC ACID.

From the Report of J. Lawrence Smith, United States Commissioner to Paris Exposition.

METHODS AND PROCESSES OF MANUFACTURE.

Burning the Sulphur—Sulphur Furnaces.—It is not necessary to dwell upon this part of the subject, from the fact that there are so many various ways, each said to be excellent, for securing the combustion of the sulphur used for the manufacture of acid. Reference will be made simply to the principles involved in the best form of furnace. It is better to have one large than many small furnaces (called the sulphur furnace), and to have all the sulphur used for one day's combustion (say from one to four tuns) introduced at one charge, and to have just sufficient air admitted to keep up the combustion without heating the mass too much, as thereby more sulphur is volatilized. The vapor from the sulphur furnace should pass to the combustion furnace, in which sufficient air is admitted to complete the combustion, allowing an excess of about two to three per cent of oxygen. From the combustion furnace the sulphurous acid therein formed passes to the niter oven, and from thence the mixed vapors pass into the lead chambers.

Lead Chambers.—Too great care cannot be given to the construction and working of the sulphuric acid chambers. The plumbers should be required to distribute the straps uniformly, and not to have too great a strain on any one, as the lead of the chamber is often torn by the neglect of this; the chambers should be kept in perfect repair and free from holes, or otherwise the sulphurous acid is lost in greater or less quantity. Where repairs are neglected, the practical yield with the same amount of material may range in three years from 82 to 68 per cent of product.

The sulphur is not often lost from an incomplete conversion of the sulphurous into sulphuric acid by too little steam, too much air, and an insufficient quantity of niter, but more frequently from too little chamber space to the amount of sulphur burnt.

In connection with lead chambers it is interesting to refer to the chambers of Kuhlmann, of Lille, that prince of industrial chemists, the neatness and cleanliness of whose immense works are only excelled by the skill exercised and the purity of the articles manufactured. His chambers have a capacity of about 53,000 cubic feet. There are six different compartments, the first a small one, which is a cooler and purifier; the second a small denitrifying chamber; the third a small nitrification chamber; the fourth a large chamber; and fifth and sixth small chambers, called the tail chambers. Nitric acid is employed for oxidizing, which is introduced into the third chamber, in a small stream divided into a spray by convenient arrangements. The circulation of the liquid acid proceeds from chamber five, which opens into chamber six; from this it flows into the large chamber, which receives also the acid from the nitrification chamber; the acid collected in the large chamber ultimately passes into the denitrification chamber before it reaches the evaporating pans; to secure a perfectly regular distribution of steam through the whole system, the lead pipes which deliver it into the chambers are provided with platinum nozzles, which prevent the orifices of the tubes from gradually collapsing.

Some of the chambers in Lancashire have over 100,000 cubic feet capacity; and, as a general rule, the larger the chamber the better the proportioned yield. One of the most important problems in the improvement of sulphuric acid chambers is to produce chambers of small dimensions capable of producing the greatest amount of sulphuric acid free from arsenic. To diminish the amount of capital in establishing a lead chamber for this acid, multiplies their number, and brings an article requiring a certain amount of useless water and bulky receivers nearer to the consumers, diminishing the cost of transportation.

At Bordeaux, Fournet has established the manufacture of sulphuric acid in a manner that deserves special attention, as it looks toward this economy just referred to. By means of apparatus skillfully arranged, in which the gas is made to circulate more than once in pipes filled with coke, so as to bring about an intimate mixture, and then passing it into a small lead chamber, Fournet has succeeded, with a chamber of only 12,000 cubic feet, in burning 1,000 pounds of sulphur a day, and obtaining a yield of three tuns of sulphuric acid, an amount nearly equal to the theoretical yield.

(To be continued.)

Drying Oils for Varnish.

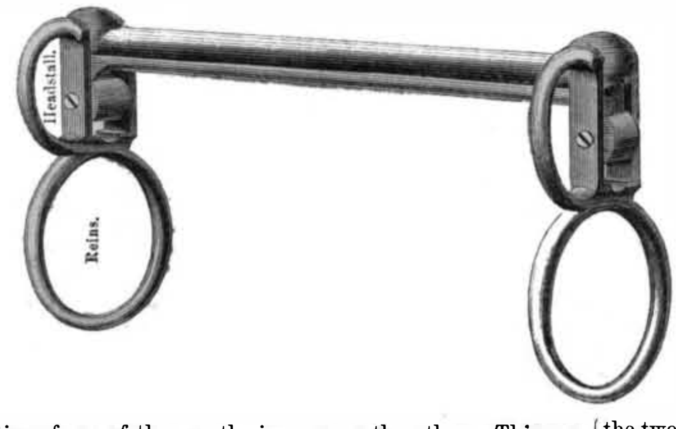
In a recent work on varnish, by Violette, he quotes as follows from a celebrated manufacturer: "The oil is allowed to stand in a reservoir of lead for one or two months, after which the upper three quarters of it are drawn off to make drying oils for varnish, while the one fourth remaining at the bottom of the tank can be sold to grind paints, it being utterly unfit for varnish making. This settling of the oil is indispensable, in order to separate the mucilaginous impurities which all oil contains, and it is a precaution that should always be faithfully observed." After converting this oil into drying oil, he adds: "We always take the precaution to have five or six months' stock of this prepared oil in advance; after which time it is better, and gives a varnish with more body and more solid drying."

When, in addition to the above, it is remembered that the varnish must be kept six months, after being made, in order to allow it to ripen, it may be seen that the capital required by some firms must be very large. It is by careful attention to the above points that the English manufacturers have attained their high reputation.

IMPROVEMENT IN BITS FOR HORSES.

This bit, known as the "Baldwin Bit," was patented May 22, 1868. Its appearance is shown in the accompanying engraving, and the principle of its working may be easily understood.

It consists of two parallel bars, one of which sets into a rabbet in the other which answers to the ordinary bit. The rings into which the reins are buckled are formed with two parallel projections, which extend forward to the ends of the principal mouth-piece, and are pivoted to the same. They are also pivoted further back, to the second mouth-piece, which plays in the rabbet in the principal mouth-piece, so that any change in the position of the parts gives a sliding motion of one of the mouth-pieces upon the other. This prevents the horse from seizing the bit and holding it in his teeth.



The proprietors of this bit have full confidence that those who believe in treating the horse rationally and humanely will realize its merits. It is the habit of many to place a very severe and cruel bit in the mouths of horses inclined to be vicious and unreliable. It is claimed that this bit will secure full control of the horse without cruelty. As soon as the horse attempts to catch the bit in his teeth, the weakest driver acquires great power over him by gently working one rein at a time, as it is so arranged that while one mouth-piece is stationary the other is moved at the will of the driver, so long as the reins are pulled unequally.

It is well adapted for ladies' use, and is claimed to be equally adapted to driving all horses, as its governing powers are such that a horse will obey it without fear, and it is easy for both the horse and the driver.

For further information address Jos. Baldwin & Co., 254 Market street, Newark, N. J.

HEAT FROM THE MOON.

[From The Spectator.]

A long-vexed question—one which astronomers and physicists have labored and puzzled and even quarreled over for two centuries at least—has at length been set at rest. Whether the moon really sends us any appreciable amount of warmth has long been a moot point. The most delicate experiments had been made to determine the matter. De Saussure thought he had succeeded in obtaining heat from the moon, but it was shown that he had been gathering heat from his own instruments. Melloni tried the experiment, and fell into a similar error. Piazzi Smith, in his famous Teneriffe expedition, tried the effect of seeking for lunar heat above those lower and more moisture-laden atmospheric strata which are known to cut off the obscure heat rays so effectually. Yet he also failed. Professor Tyndall, in his now classical "Lectures on Heat," says that all such experiments must inevitably fail, since the heat rays from the moon must be of such a character that the glass converging-lens used by the experimenters would cut off the whole of the lunar heat. He himself tried the experiment with metallic mirrors, but the thick London air prevented his succeeding.

The hint was not lost, however. It was decided that mirrors, and not lenses, were the proper weapons for carrying on the attack. Now, there is one mirror in existence which excels all others in existence in light-gathering, and therefore necessarily in heat-gathering power. The gigantic mirror of the Rosse telescope has long been engaged in gathering the faint rays from those distant stellar cloudlets which are strewn over the celestial vault. The strange clusters with long out-reaching arms, the spiral nebulæ with mystic convolutions around the blazing nuclei, the wild and fantastic figures of the irregular nebulæ, all these forms of matter had been forced to reveal their secret under the searching eye of the great Parsonstown reflector. But vast as are the powers of this giant telescope, and interesting as the revelations it had already made, there was one defect which paralyzed half its powers. It was an inert mass well poised—indeed, so that the merest infant could sway it, but possessing no power of self-motion. The telescopes in our great observatories follow persistently the motions of the stars upon the celestial vault, but their giant brother possessed no such power. And when we remember the enormous volume of the Rosse Telescope, its tube—fifty feet in length—down which a tall man can walk upright, and its vast metallic speculum, weighing several tuns, the task of applying clock-motion to so cumbrous and seemingly unwieldy a mass might well seem hopeless. Yet without this it was debarred from taking its part in a multitude of processes of research to which its powers were wonderfully adapted. Spectroscopic analysis, as applied to the stars, for example, requires the most perfect uniformity of clock-motion, so that the light from a star, once received on the jaws of the slit which forms the entrance into the spectroscope, may not move off them even by a hair's breadth. And the determination of the moon's heat required an equally exact adaptation of the telescope's motion to the apparent movement of the celestial sphere. For so delicate is the inquiry, that the mere heat generated in turning the telescope upon the moon by the ordinary arrangement would have served to mask the result.

At enormous cost, and after many difficulties had been encountered, the Rosse reflector has at length had its powers more than doubled by the addition of the long wanted power of self-motion. And among the first-fruits of the labor thus bestowed upon it, is the solution of the famous problem of determining the moon's heat.

The delicate heat-measurer, known as the thermopile, was used in this work, as in Mr. Huggins' experiments for estimating the heat we receive from the stars. The moon's heat, concentrated by the great mirror, was suffered to fall upon the face of the thermopile, and the indications of the needle were carefully watched. A small but obvious deflection in the direction signifying heat was at once observed, and when the observation had been repeated several times with the same result, no doubt could remain. We actually receive an appreciable proportion of our warmth supply from "the chaste beams of the wat'ry moon." The view which Sir John Herschel had long since formed on the behavior of the fleecy clouds of a summer night under the moon's influence was shown to be as correct as almost all the guesses have been which the two Herschels have ever made.

And one of the most interesting of these results which have followed from the inquiry confirms in an equally striking manner another guess which Sir John Herschel had made. By comparing the heat received from the moon with that obtained from several terrestrial sources, Lord Rosse has been led to the conclusion that at the time of full moon the surface of our satellite is raised to a temperature exceeding by more than 280° (Fahrenheit) that of boiling water. Sir John Herschel long since asserted that this must be so. During the long lunar day, lasting some 300 of our hours, the sun's rays are poured without intermission upon the lunar surface. No clouds temper the heat, no atmosphere even serves to interpose any resistance to the continual down-pour of the fierce solar rays. And for about the space of three of our days the sun hangs suspended close to the zenith of the lunar sky, so that if there were inhabitants on our unfortunate satellite, they would be scorched for more than seventy consecutive hours by an almost vertical sun.

There is only one point in Lord Rosse's inquiry which seems doubtful. That we receive heat from the moon he has shown conclusively, and there can be no doubt that a large portion of this heat is *radiated* from the moon. But there is another mode by which the heat may be sent to us from the moon, and it might be worth while to inquire a little more closely than has yet been done whether the larger share of the heat rendered sensible by the great mirror may not have come in this way. We refer to the moon's power of *reflecting* heat. It need hardly be said that the reflection and the radiation of heat are very different matters. Let any one hold a burnished metal plate in such a way that the sun's light is reflected towards his face, and he will feel that with the light a considerable amount of heat is reflected. Let him leave the same metal in the sun until it is well warmed, and he will find that the metal is capable of imparting heat to him when it is removed from the sun's rays. This is radiation, and cannot happen unless the metal has been warmed, whereas heat can be reflected from an ice-cold plate. There has been nothing in the experiments conducted by Lord Rosse to show by which of these two processes the moon's heat is principally sent to us; nor do we know enough of the constitution of the moon's surface to estimate for ourselves the relative proportions of the heat she reflects and radiates towards us.

We do not mention this point from any desire to cavil at the results of one of the most interesting experiments which have recently been carried out. But the recent researches of Zöllner upon the light from the planets, have shown how large ly the surfaces of the celestial bodies differ as respects their capacity for reflecting and absorbing light, and there is every reason to infer that similar peculiarities characterize the planet's power of absorbing and reflecting heat. The whole question of the heat to which the moon's surface is actually raised by the sun's heat depends upon the nature of that surface, and the proportion between its power of absorbing heat or reflecting it away into space.

Steeple Jacks.

"Steeple Jack" is commonly but erroneously supposed to be an individual, whereas, as we have before pointed out, he is a genus, or a species, though, it may be, few in number. As his way of working is not known to every one, the London *Builder* describes it, in connection with one or two of his more recent exploits. Some of the factory chimneys at New Swindon having got out of repair, the company resolved to employ a "Steeple Jack," who accordingly made his appearance at New Swindon and set to work. His plan of proceeding was to fly an Indian kite, with two strings attached. The kite rises nearly perpendicularly, and when above the chimney-top is guided over it. The second string is then pulled, and thus a complete communication is formed over the chimney. By means of the string a double copper wire is drawn up, and by this wire some pulleys and tackling. "Steeple Jack" then ascends hand over hand, and places an iron band around the chimney, which he secures tightly. Planks are then drawn up and laid upon irons projecting from the band, and thus in a short time a scaffolding sufficient for his purpose is erected, and at a cost very much less than that of a regular builder's. "Jack" had two or three assistants, and managed in his aërial manner, to pull down one of the factory chimneys which had become so badly out of repair as to require rebuilding. He is still engaged in repairing others. His scaffolding looks at a distance like a huge india-rubber band, around the chimney, with ropes depending from it.

An exciting occurrence, displaying great intrepidity, and involving the utmost peril to the person concerned, took place lately at Millbank Chemical Works, Garngad-road, Glasgow. Messrs. Burns & Son, of Ayr, who have been employed in similar duty at Townhead and other establishments, had been engaged to point a stalk at the works mentioned, measuring 260 ft. in height. The preliminary process of flying the kite was gone through no fewer than fifteen times, but on each occasion it failed, in consequence of the string being burnt through by the gas and flames emitted from the stalk. About an hour and twenty minutes were spent in these fruitless endeavors, when Mr. Burns, resolving that whatever personal risk might be incurred, the object must be accomplished, determined for this purpose to ascend the stalk himself. Accordingly, in spite of the remonstrances of his son, he proceeded to mount by the aid of the conducting-rod but no sooner had he got safely at the top than the rope was again burnt through, and he was left hanging by the hands. Not a moment was to be lost. The son flew the kite in about five minutes afterwards, and having succeeded in once more fixing the rope, the father was got down; he was, however, in an extremely exhausted condition, and notwithstanding the leathern gloves he wore, he was much burned about the hands, while his left side was likewise considerably scorched.

Correspondence.

The Editors are not responsible for the Opinions expressed by their Correspondents.

English Iron and Iron Screw Steamers.

MESSRS. EDITORS:—The national—I may almost add, the world's supply of iron, has hitherto been shared by England, Scotland, France, Germany, Belgium, etc.—Scotland doing the lion's share. Now, however, the laurels are fast being wrested from Scotland, and England must inevitably defeat all rivals. Imagine! The main Cleveland seam, in Yorkshire, has been estimated to contain 20,000 tons of ore per acre, and at this rate there must be within the limits of the area named close upon five thousand million tuns of ironstone! It must be borne in mind that it is not poor ironstone, as it yields in many cases upward of 33 per cent of metallic iron, and in some instances 41 per cent. It is probable that something like 6,000,000 tuns of Cleveland ore will be required next year to keep all the blast furnaces in the district engaged! At present the annual make of Cleveland pig iron is estimated at 1,439,640 tuns, and at this time next year it is assumed that the make will be increased to 1,739,640 tuns of pig iron. At this moment Cleveland is making about one third of our production. The prime requisite in the shape of raw material is raised so cheaply that it can be laid down at the furnaces at a cost of 3s. per tun, less, at the present rate of exchange, than $1 per tun of 2,240 lbs. Containing, therefore, from 28 to 41 per cent of metallic iron, the ore for a tun of iron costs less than 10s., or $3!

Perhaps one of the applications of iron that interests Americans mostly is that for maritime purposes. Twenty years ago, and since, wooden ships as we all know, were discarded for iron, and a wooden-ship builder of consequence now-a-days is a thing of the past. But now iron ships—yes! iron shipbuilding is going to decay, so far as sailing vessels are concerned. Those that, at the time referred to, cost £25, say $150 per tun, can now be had at one half, and no takers! What next? Why, iron steamers—long, 300 to 400 feet iron screw steamers—these are to supersede everything and do the traffic of the world. The ink is scarcely dry on the prospectus of one of our new local companies, who have contracted to build twelve such iron screws. And they are right, apart from the question of capacity; they sail so shallow that they will float "almost wherever it is damp;" but, if not this, they will, at any rate, save the Cape of Good Hope by the Suez Canal, and, in due time, Cape Horn by the canal of Panama. ALEX. S. MACRAE.

Liverpool, England.

Value Received.

MESSRS. MUNN & CO.:—Some four or five years ago I made a tool called "Substitute for the Slide Rest," which I advertised and sold through your paper. After I had made a number of them the party who manufactured absconded with the patterns, and brought me to grief. This is in the nature of things, and although I have held up my head since I don't wish to complain. But I *do* complain that for about every week since parties write to me asking for price list and cuts, and I wish they would stop it. How long after a man is dead and forgotten will people keep writing to him, if he has adve tised in your paper?

This is to give notice that I have had the worth of my money in advertising and don't wish any more.

EGBERT P. WATSON.

New York city.

Testimony of a Veteran Inventor.

GENTLEMEN:—I have this day sent you a box containing two models, and shall be with you on Friday, to explain the same and have the papers drawn. I have taken out upwards of thirty patents, and have had some difficult cases, and I must say that nowhere have my interests been more zealously guarded than by you, nor any specifications more clearly and definitely drawn. I consider your efforts as second only in importance to the inventive genius of our country, in developing its resources at home, and honor abroad With high esteem, I am respectfully yours,

JOSEPH A. MILLER, Mechanical Engineer.

Boston, Mass., Oct. 20.

Inventions at the South.

We are happy to recognize a gradual increase in the number of inventions coming to us from the South. Dr. R. J. Draughon, of Claiborne, Ala., under date of Oct. 11, 1869, writes us as follows:

MESSRS. MUNN & CO.:—It was with much gratification that I received by to-day's mail your communication, conveying the information that my patent was, on the 1st inst., allowed. I now write to convey to you my sincere thanks and kind wishes for the kind and generous manner in which you have conducted my business.

The Fossil Man of Onondaga.

Letter of John F. Boynton, Geologist, to Prof. Henry Morton, of the Pennsylvania University:

DEAR SIR:—On Saturday last, some laborers engaged in digging a well on the farm of W. C. Newell, near the village of Cardiff, about 13 miles south of this city, discovered, lying about three feet below the surface of the earth, what they supposed to be the "petrified body" of a human being of colossal size. Its length is ten feet and three inches, and the rest of the body is proportionately large. The excitement in this locality over the discovery is immense and unprecedented. Thousands have visited the locality within the last three days, and the general opinion seemed to be that the discovery was the "petrified body" of a human being.

I spent most of yesterday and to-day, at the location of the so-called "fossil man," and made a survey of the surroundings of the place where this wonderful curiosity was found. On a careful examination, I am convinced that it is *not* a fossil, but was cut from a piece of stratified sulphate of lime, (known as the Onondaga Gypsum). If it were pulverized or ground, a farmer would call it plaster. It was quarried, probably, somewhere in this county, from our Gypsum beds. The layers are of different colors—dark and light. The statue was evidently designed to lie on its back, or partially so, and represents a dead person in a position he would naturally assume when dying. The body lies nearly upon the back, the right side a little lower; the head leaning a little to the right. The legs lie nearly one above the other; the feet partially cross one another. The toe of the right foot, a little lower, showing plainly that the statue was never designed to stand erect upon its feet. The left arm lies down by the left side of the body, the fore arm and hand being partially covered by the body. The right hand rests a short distance below the umbilicus, the little finger spreading from the others, reaching nearly to the pubes. The whole statue evidently represents the position that a body would naturally take at the departure of life.

There is perfect harmony in the proportions of the different parts of the statue. The features are strictly Caucasian, having not the high cheek bones of the Indian type, neither the outlines of the Negro race, and being entirely unlike any statuary yet discovered of Aztec or Indian origin. The chin is magnificent and generous; the eyebrow, or superciliary ridge, is well arched; the mouth is pleasant; the brow and forehead are noble, and the "Adam's apple" has a full development. The external genital organs are large; but that which represents the integuments, would lead us to the conclusion that the artist did not wish to represent the erectal tissues injected.

The statue being colossal and massive, strikes the beholder with a feeling of awe. Some portions of the features would remind one of the bust of DeWitt Clinton, and others of the Napoleonic type. My opinion is that this piece of statuary was made to represent some person of Caucasian origin, and designed by the artist to perpetuate the memory of a great mind and noble deeds. It would serve to impress inferior minds or races with the great and noble, and for this purpose only, was sculptured of colossal dimensions. The block of gypsum is stratified, and a dark stratum passes just below the outer portion of the left eyebrow, appears again on the left breast, having been chiseled out between the eyebrow and chest, and makes its appearance again in a portion of the left hip. Some portions of the strata are dissolved more than others by the action of water, leaving a bolder outcropping along the descent of the breast toward the neck; the same may, less distinctly, be seen on the side of the face and head. I think that this piece of *reclining* statuary is not 300 years old, but is the work of the early Jesuit Fathers in this country, who are known to have frequented the Onondaga Valley from 220 to 250 years ago; that it would probably bear a date in history corresponding with the monumental stone which was found at Pompey Hill, in this county, and now deposited in the Academy at Albany. There are no marks of violence upon the work; had it been an image or idol worshiped by the Indians, it could have been easily destroyed or mutilated with a slight blow by a small stone, and the toes and fingers could have been easily broken off. It lay in quicksand, which, in turn, rested upon compact clay.

My conclusion regarding the object of the deposit of the statue in this place, is as follows: It was for the purpose of hiding and protecting it from an enemy who would have destroyed it, had it been discovered. It must have been carefully laid down, and as carefully covered with boughs and twigs of trees which prevented it from being discovered. Traces of this now decomposed vegetable covering, can be seen on every side of the trench, and it is quite evident, this vegetable matter originally extended across and above the statue.

Above this stratum of decayed matter, there is a deposit of very recent date, from eighteen inches to two feet in thickness which may have been washed in and likewise turned on by plowing. A farmer who had worked the land told me that he had "back furrowed" around it, for the purpose of filling up the slough where the statue now lies.

It is positively absurd to consider this a "fossil man." It has none of the indications that would designate it as such, when examined by a practical chemist, geologist or naturalist. The underside is somewhat dissolved, and presents a very rough surface, and it is probable that all the back or lower portion was never chiseled into form; and may have been designed to rest as a tablet. However, as the statue has not been raised, the correct appearance of the under surface has not been determined, save by feeling as I passed my hands as far as I could reach under different portions of the body, while its lower half lay beneath the water.

This is one of the greatest curiosities of the early history of Onondaga county, and my great desire is, that it should be preserved for the Onondaga Historical Society. Efforts are being made by some of our citizens to secure this in the county where it belongs, and not suffer it to bear the fate of other archeological specimens found in this region.

Syracuse, October 18th, 1869.

Peat Manufacture in Ohio.

According to a writer in "Putnam's Monthly," for November, the following is the method employed in the manufacture of Peat near Ravenna, Ohio:

"The peat is dug to a depth of from eight to fifteen feet with shovels and slanes, the latter being a kind of spade, with a wing at the side bent at right angles with the blade, so as to form two sides of a square, and loaded into dump cars which are drawn up an inclined plane upon iron rails by friction gearing, and the contents rapidly emptied into an immense hopper containing one hundred and fifty tuns of crude peat. At the bottom of the hopper is a large elevating belt, running over drums upon which the peat is thrown and rapidly carried into the condensing and molding machine. Two men are all that are required to keep the machine full. The condensing and manipulating machine is run by steam-power. It receives the crude peat from the elevating belt in a wet or moist state, and delivers it in a smooth, homogeneous condition, through ten oval-shaped dies, each 3¾ inches by 4¾ inches in area, from which it is delivered on drying racks, passing horizontally under the machine. Each rack is 26x72 inches, constructed of light pine, holding five bars or canes of peat, which, when dry, will yield, to each rack, from thirty to sixty pounds of fuel, according to the density of the peat. The racks are carried from the machine on an inclined tramway made of light friction wheels, so that the racks will almost glide from their own gravity. These racks are taken from the tramway and set up like an inverted V, on the drying ground, where, being exposed to the sun, and the air circulating freely around and between the bars, they dry in from ten to twelve days, and are ready to be loaded into cars for shipment and use. The distance between the legs or base of the V being the same as their length, the drying ground is greatly economized. An acre will hold about five thousand of these racks, from fifteen thousand to twenty thousand being a requisite complement for the machinery. Sixteen men and ten boys on the rackway will make eighty tuns of prepared fuel per diem—indeed, there is hardly a limit to the capacity of the machinery if labor enough is employed. With thirty-seven men digging and clearing off the racks from the tramway, one hundred and fifty tuns of dried fuel can be made per day. This fuel can be delivered at a less price than the best coal, and the cost of preparing it for market is lighter than that required in coal mining. It can be afforded as low as $4·50 per tun, and even lower, within a reasonable distance from the bogs, and it is more economical than coal.

"An analysis of the surface peat of this bog gives the following result: carbon, 68 per cent; oxygen, 18; water, 16; and ash 3·68 per cent. It also contains ammonia, acetate of lime, fixed and volatile oils. The deeper the peat found, the richer is it in carbon, and there are portions of the bog which will yield 70 to 75 per cent of carbon. The average amount of carbon, thus far ascertained by analysis of the various peat bogs of the United States, equals 50 per cent."

THE use of ornamental pyrographic woodwork is being revived in England. In the ordinary samples, the designs are burnt into veneers of sycamore or maple, and are supplied wholesale to builders, cabinet-makers and others, ready for laying in the ordinary manner; but, if preferred, the designs can be applied to the solid work, to insure greater durability. By the use of wood so ornamented all necessity for painting is, of course, avoided. It is inexpensive and worth looking to.

A VEIN of excellent coal has been discovered, extending along the line of the Kansas Pacific Railroad east of Denver. This discovery shows that the workable coal-beds of the Rocky Mountains extend miles eastward into the great plains, and is of the greatest importance both to settlers and to the railway company.

THE Union Pacific Railroad Company have commenced the erection of snow fences along the line of their road between Omaha and the Rocky Mountains.