Scientific American

NEW YORK, AUGUST 24, 1850.

Experiments in Aerostation.

The fundamental principle of navigating the air has long been known, but the practical application of the principle is a modern discovery. Any thing which is lighter, bulk for bulk, than the atmosphere, will ascend to a certain height and float in it. Rarified air was first used to inflate balloons, it being found that 435° of heat just doubled the bulk of a quantity of air. The discovery of hydrogen gas, by Cavendish, it being 14½ times lighter than air, gave an interesting impulse to aerostation, for in 1783 Messrs. Roberts & Charles, of Paris, discovered a way to retain this gas in a balloon, by a varnish made of india rubber dissolved in turpentine. This was a valuable discovery, because hydrogen will pass through metals, and there is a great difficulty in retaining it in any vessel. The next valuable discovery in the art was the application of light carburetted hydrogen for the purpose of inflation. The difficulty and expense of using hydrogen, renders its employment almost impracticable on a large scale. The carburetted hydrogen, although heavier, can be easily made, is cheaper, and it just reqnires a larger balloon than for hydrogen, to bring up the same weight. A great number of ascents have been made in balloons. Mr. Green is the hero of a hundred, and so is John Wise, of Pennsylvania, but hitherto all efforts to navigate the air economically and safely have not been successful. The two points stated are the drawbacks to aerial navigation. Whether we shall yet see the balloon managed with the precision of a steamboat or locomotive, and aerial voyages made economically and safely, we cannot tell, but we would like to see it. What a glorious thing it would be to safely ride upon the whirlwind and the cloud, and on some sunny afternoon take "the *high* road to Boston," to have an evening's revery on old Plymouth Rock.

Within a short period aerial navigators have become more numerous, daring and ingenious, and the result of a number of efforts may soon bring the art to perfection. If a new gas was discovered which would exceed hydrogen in buoyancy as much as hydrogen exceeds common air, we would have a hope of economical aerial navigation; and if some new motor was discovered which could exercise safely as much power as a steam engine, in one-sixth of the space and the same of the weight, then might we confidently say, "aerial navigation is now perfectly *practicable*, both as it respects economy and safety." Various plans have recently been tried to propel balloons, and some of them have been successful. Mr. Taggart has made more than one excursion from Lowell, Mass., manœuvring his balloon by machinery to go in any direction. Mr. Bell, of London, has made two or three excurions, propelling his oblate spheroid in all directions—up down, forwards and backwards, above Cremorne Gardens. MM. Baral and Bixio, two *savans* of Paris, recently went up in a balloon for making experiments. In spite of unfavorable circumstances, they ascertained the following results:—The experimental proof that the light is not polarized; The existence of compact masses of clouds of the depth of 3000 metres; and at a later date we find the aeronaut, M. Poitevin, of Paris, mounting his balloon and ascending to the clouds on horseback, voyaging through the air to the distance of 8 leagues. Mr. Wise, too, of Pennsylvania, the veteran atmosphere voyager, made two or three perfectly manageable ascents on the 3rd inst., at Lancaster, Pa. Only for the tearing of the balloon, when it descended after one of the partial excursions, we suppose he would have gone to Washington to pack off some of the spouters, in the true fashion of old Mr. Punch. What these experiments may lead to, we cannot at present tell, but we should be glad, although it is like hoping against doubt, if they would lead to making the art perfectly practicable as a system of transporting passengers safely from one place to another.

Cooking by Gas.

Among the novelties produced at the Grand Agricultural Meeting recently held at Exeter, England, was one which excited great curiosity; it was the cooking of the monster joint, called by M. Soyer the baron and saddle back of beef *a la* Magna Charta, weighing 535 lbs. For the first time in the annals of cookery, this was subjected to a new process of roasting, by use of an agent which has been discovered half a century, that is to say, gas. To gratify the curiosity of the public, it was placed in the middle of the castle yard, resting upon a dripping pan, environed with bricks and surrounded by 219 jets of gas, and covered by sheet iron. It took five hours to roast, and consumed 700 feet of gas of the value of 3s. ¾d. It weighed after being cooked, 497 lbs; the drippings 23 lbs; the osmazeme 3 lbs; thus losing by evaporation only 11¼ lbs. To cook this piece of beef by an ordinary fire would have taken fourteen hours. This apparatus was invented and fitted up by Mr. Warriner of London, who was prepared to have roasted all the dinner by the same means, that is, 400 chickens, 58 quarters of lamb, and 33 ribs of beef, at a cost of 12s for gas.

[This cooking by gas is not a new process, but certainly we have never heard of it being employed on so grand a scale before. It was a favorite idea with an old teacher of ours, that "the time would yet come when all our cooking, heating and lighting of dwellings would be done by gas, and that gas produced from water." The old Prof. has long since descended to the tomb, without seeing his prophecy fulfilled, but we have no doubt of its fulfillment at some day not far distant. It would be one of the greatest blessings ever conferred upon the human race, if by the simple turning of a faucet, the dinner could be cooked and the apartment warmed and illuminated. What do men and women toil and struggle so much for in this world, but for happiness; and domestic comfort is the seat and centre of all true enjoyment. Just think of all the clamjamfrey of stoves, furnaces, coal, and all their attendant dirt, lumber and trouble, being at once abolished for a more economical and cleanly agent to perform all their offices. Why, the very thought of it is enough to wreath every face in smiles, and set all the world in good humor.

To Subscribers.

Three weeks prior to the expiration of all subscriptions to the Scientific American, subscribers will receive a notice to that effect, in order that they may have ample time to forward the amount for renewal before the paper is discontinued. Our terms are advance cash, without respect to persons. We cannot employ agents to traverse the country to collect subscription money, for the reason that our paper has a large general circulation—making it too expensive to resort to the agency system. In making remittances for the new volume, it would be well for subscribers to call for whatever back numbers they have missed through the mail. They will always be sent if we have them on hand. We also request them to be particular in giving the address to which they wish the paper sent, in a plain manner, and not depend upon the Postmaster to mark it. The post stamp is often so blurred that it is with difficulty we are able to decypher the name, and are often obliged to delay sending on that account.

To all Whom it may Concern.

Mr. Wm. R. Greenleaf, of Silvercreek, N. Y., informs us by letter that there are hundreds of mechanics in the country who are manufacturing and selling Drilling Machines, for which John W. Hall obtained a patent about eleven years ago, and they are doing this because they are not aware that there is any patent on the machine. "The claim consists in the manner of forcing the drill, viz., by means of a screw with the mandrill passing through it." Mr. Greenleaf says we will confer a great favor upon many of our readers by publishing this, as the patentee is now passing through the country collecting damages for the infringement of his patent right.

More about the Electric Water Light.

The following is an extract from a letter received from Mr. L. A. Hudson, of Syracuse, N. Y.:—

"I wish to state that I have decomposed water with the Magneto Electric Machine, described in Vol. 2, No. 40, Sci. Am., (the machine is described as the invention of Messrs. Hudson & Cornell) which instrument has been much altered since that time. There have been many promises of an electric light, and I have long been in pursuit of this very object. From what I could learn of Mr. Paine's operations, I thought he was on the right track and ahead of me, so I kept cool and awaited the result. On the evening of the 12th inst., I passed a stream of hydrogen gas into a vessel containing spirits of turpentine, by leading the gas tube below the surface of the fluid. I placed another tube, which had 12 small orifices on the top of the turpentine bottle. On lighting the gas, the appearance was that of hydrogen burning in the atmosphere. By putting more pressure on the gasometer, the middle of the flame changed to a blueish white; more pressure was added, when a momentary sputtering of the gas took place, and there arose streams of a most brilliaht and highly illuminating white light. On the 15th I tried the experiments again, with the same success.

I am happy to make this statement as an evidence in favor of Mr. Paine.

L. A. Hudson.

Syracuse, N. Y., Aug. 17, 1850.

The Hydrogen Gas Light.

We published a few days ago a paper from Mr. Mathiot, from the Scientific American, stating that he had proved, by satisfactory experiments, that hydrogen can be used for illumination by passing it through turpentine.—Mr. M. leaves untouched the question of expense, which is considered by a writer in the Rochester Advertiser, of that city. He says:

"Admitting the brightness of the light in burning hydrogen united with the vapor of turpentine, described by Mr. Mathiot, the only point of consequence to the public is the cost of the light, volume per volume.

"Now 33 oz. of zinc with the due quantity of oil of vitrol and water, yields one ounce or twelve cubic feet of hydrogen. The zinc costs at wholesale about ten cents, which would be the cost of twelve feet of the gas, for the zinc alone, omitting the cost of the acid and turpentine. But twelve cubic feet of coal gas costs forty-eight mills, *or one half a cent*!!—Hence, the prepared hydrogen light would cost twenty times as much as the same light from coal gas in this city."—[Phil. Ledger.

[The Rochester gentleman has not quite hit the mark as a lover of science or a correct expounder of the economical value of hydrogen, as compared with carburetted hydrogen. Hydrogen can be produced by White's apparatus without zinc or acids, nearly if not as cheap as coal gas. Even allowing the cost of the hydrogen passed through turpentine to be very expensive, surely, as a matter of scientific discovery, it is of *some consequence to the public.*

American Association for the Advancement of Science.

The Annual meeting of this Association commenced on the 19th inst., at Yale College, New Haven. The proceedings of this Association are always of an interesting character, and we shall take the earliest opportunity of placing a clear abstract report of them before our readers.

Water Telescope.

The Vandkikak, or Norwegian Water Telescope has been introduced into the herring fishery of Scotland with great success. It is well adapted to discover shoals of herring at a considerable depth, but it is of no avail except in the calm quiet salt water lakes, or arms of the sea, which are so common in that country running far up between the highland mountains.

Meteoric Shower.

On the nights of the 9th and 10th inst., observations were made at Yale College for the yearly appearance of shooting stars. In three hours 451 meteors were observed. Some of them were of extraordinary splendor.

Restoring and Preserving the Sight.

A friend who had read the following valuable item of information but who had forgotten which way "to rub his eyes," for loss of sight by age, requested us yesterday to republish the process. It is as follows:

For near sightedness, close the eye and press the fingers gently from the nose *outward*, across the eyes. This flattens the pupil, and thus lengthens or extends the angle of vision. This should be done several times a day, till short sightedness is overcome.

For loss of sight by age, such as require magnifying glasses, pass the fingers and towel from the outer corner of the eyes *inwardly*, above and below the eye balls, pressing gently against them. This rounds them up, and preserves or restores the sight.

It has been already said that this is nothing new. The venerable John Quincy Adams preserved his sight in this way, in full vigor to the day of his death. He told Lawyer Ford, of Lancaster who wore glasses, that if he would manipulate his eyes with his fingers, from their external angles inwardly, he would soon be able to dispense with glasses. Ford tried it, and soon restored his sight perfectly, and has since preserved it by the continuance of this practice.

[The above is from the Pennsylvanian; we cannot endorse it, as we have no positive experimental facts in our possession respecting such manipulations for the preservation of the sight. We have been informed that this is the process pursued with such success by Prof. Bronson for restoring the eye sight. Its correctness can easily be tested by those who have weak eye sight.

Large Steam Hammers.

We beat the English on steam hammers. At the Kemble foundry, opposite West Point, there is one in operation which weighs 1,940 pounds—whereas the hammer inported from England to be used in an iron factory connecticut, weighs but 1,400 pounds.

[The above we copy from an exchange, just to observe that many people in their ignorance of a subject, overshoot the mark in commenting upon it. The above comparison, we believe, first appeared in the Albany Atlas, and it should never have been made, for if the size of the hammers only was concerned, no importation would have been made from England. The great hammer recently imported is not a common *trip*, but one of Nasmith's direct acting patent steam hammers.

A Self-acting Saw Mill.

The St. Louis Republican gives an account of a saw mill constructed on a new and singular principle. The inventor is Mr. Amos Jackson, of Potowantamie county, Iowa. The mill derives its power from the weight of the log to be sawed. The ways on which the carriage travels are fixed on bearings that enter into the frame; the opposite ends are provided with large segments of a cog-wheel working into a series of cog-wheels and pinions, thus when the log is pushed forward to the saw, its weight is brought to act with great force through the segments of a shaft, having several intermediate gearings to increase the speed sufficiently for driving the grand shaft. The price of these mills is said to be light compared with others, and they can be attatched to wheels for traveling through the country.

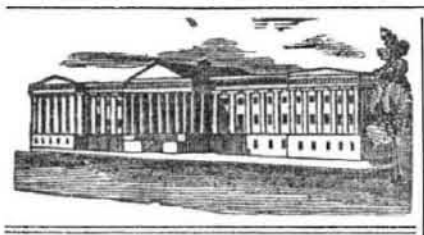
[This must be the famous log that sawed itself. We can see no reason why the inventor should place his mill upon wheels to travel through the country, except it is for the purpose of making the log draw itself, for surely the log which can saw itself will be able to draw itself.

Impostor--Look Out.

We have received several communications of late from the West, stating that G. Williams had been round collecting subscriptions for the Scientific American. The public are warned against him, as he is no agent of ours—and never will be, if we can help it.

Ohio State Fair.

The time for holding the State Fair at Cincinnati has been changed to the 2d, 3d, and 4th days of October next.



☞ Our weekly List of Patents and Designs contains every new Patent, Re-issue and Design emanating from the Department, and is prepared officially, expressly for the Scientific American, and for no other paper in the city, consequently other journals are obliged to wait the issue of the "Sci. Am." in order to profit by the expense to which we are subject, and of course must be one week behind. Those publishers who copy from this department in our columns, will, in justice to us, give proper credit for the same.

LIST OF PATENT CLAIMS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending August 13, 1850.

To N. Barlow, of St. Louis, Mo., for improvement in friction clutches.

I claim the sliding collar, connected to and in combination with the nut, substantially in the manner and for the purposes herein specified. [See engraving of this apparatus in No. 35, Vol. 5.]

To Bartholomew Beniowski, now residing in London, England, for improvement in Cylinder Printing Presses. Patented in England Oct. 14, 1847.

That which I claim is constructing a printing machine in which the form or forms of types or blocks are placed on or secured to the inner or concave surface of a cylinder or drum, which is made to revolve and carry the form or forms secured thereto from the inking rollers to the printing or impression cylinders, all of which parts are mounted inside the cylinder or drum.

Second, I claim the methods above shown and described of making the inking rollers or balls of printing presses or machines.

To J. G. Davis, of Buffalo, N. Y., (Assignor to A. B. Warren & J. G. Davis, for improvement in the manufacture of Candles.

What I claim is the arrangement and manner of operating the knives by which the cylinder of fat, with its central wick, is cut into suitable lengths for candles, and the fat removed from the end of the wick.

I also claim the device for regulating the length, and delivering the candles, substantially as herein desoribed.

To J. F. Tozen, of Rochester, N. Y., for improvement in instruments for Vaccinating.

What I claim is the sliding cylinder, in combination with the thumb-key, spring and piston, for the purposes herein described and set forth.

To Adam Hays, of Madison, Ind., for improvement in Splints for fractures.

What I claim is the cutting out a portion of the splint to afford an opportunity for dressing as often as may be necessary, the upper and lower portions of the splint being kept firmly united by means of a brace, so as by extensions and counter extensions, to keep, throughout the treatment, the proper relative position of the parts concerned, the slide being replaced after each dressing, or any other device substantially the same.

To G. Houston, of Washington, N. C., for improvement in weighing machines.

What I claim is the iron frame, together with the skids and regulating screw, used in combination, with a weighing beam, as described in the foregoing specification.

To Wm. H. Hovey, of Hartford, Conn., for imment in Packing Boxes and Axles.

What I claim as new is the oombination of the metallic packing ring, having its outer periphery of conical form, the arched springs having their ends inclined to fit the said ring, and the regulating screws, with the journal box and the axle, in the manner and for the purposes substantially as described. [This is a very excellent improvement, and is used by Tracy & Fales on the cars made by them in Hartford, Conn.]

To Allen Judd of Chicopee, Mass., for improvement in Pentagraphs.

What I claim is the instrument constructed and arranged as above set forth, consisting of a pencil, moving parallel with the eye tube, with which it is connected, as herein described, and marking on a vertical plane, or a plane, parallel with their axis of horizonta motion, such objects as the sight through the eye tube passes over. [See engraving in No. 1, Vol. 5.

To W. B. Kean, of Worcester, Mass., for improvement in Bench-hooks.

What I claim is forming the head with any suitable number of edges, of any required form, to suit various kinds of work, and having the spindle, of which the head formed part, ground and fitted in a socket, set at an inclination to the bench, so that any edge of the head can be set to the work and secured by a spring catch, and whatever edge is turned to the work will be higher than the back or opposite edge.

[This is a very unique device.]

To A. McKinney, of Montgomery, N. Y., for imment in apparatus for regulating the setting of Bows in Wagon-tops.

I claim the combination and arrangement of the rules, the rods, the pins, the adjusting screws and the holdfast bolts, arranged and adjusted upon a frame, in the manner and for the purposes substantially as herein described.

And I also claim the adjustable rule sliding in the swinging bar and attached to the same frame with the before described combination, in the manner set forth. [This invention is one of more than ordinary importance.]

To R. Milligan, of Rarden, Eng., for improvement in ornamenting textile fabrics. Patented in England March 18, 1850.

What I claim as my improvement is the new or improved ornamental fabric or manufacture made substantially as specified, viz., having any ground suitable or unsuitable for receiving and exhibiting bright color or colors when imprinted thereon, and having figures, stripes, or other portions of surface floated over the said ground in material and color suitable for representing such bright color or colors, and having such bright color or colors printed on the said boated surfaces.

To J. Pirsson, of New York, N. Y., for improvement in Pianofortes.

What I claim is combining two sets of strings operated by separate actions with one and the same sounding board, whereby I am enabled to produce greater effects both in quality of tone and in power than heretofore, and also to maintain the unison of the notes, and the tune to a degree not possible before; the whole being constructed and operated substantially in the manner described herein.

To W. Robinson, of Lebanon, Conn., for improvement in Ship Ventilators.

First, I claim the ventilating chamber constructed in the manner substantially as described, having a tube, or air passage, communicating with the cabin or between-decks of a ship or other vessel, entering it, and provided with a register, either for the purpose of admitting pure air, by long tubes to the lower parts of the cabins or between decks, or for carrying off the ventilated air by short tubes from their upper parts.

Second, I do not claim the use of a float valve in the ventilating tube, irrespective of the manner of applying them, but I claim having the two float valves attached together in the manner described, and each acting independently of the other upon a separate seat in the ventilating chamber, so that any water passing one valve may be shut off by the other.

To J. C. Tennent & J. Workman, of Philadelphia, Pa., for safety apparatus for steam boilers.

What we claim is the application of a rope, made of any combustible material (using for this purpose wool as prepared in the manner before noticed, or any other material which will answer the intended effect,) to the upper surfaces of one or more tubes or flues of a boiler, which, when said tubes or flues are uncovered of water, will burn off or part in the manner as before described, for the action of the excessively heated metal and surcharged steam, which rope is connected with, and by its parting actuates the apparatus herein described, or any part thereof, for the purpose either of giving alarm or putting in action means of safety, or both, substantially as herein described.

RE-ISSUES.

To J. Pecare & J. M. Smith, of New York, N. Y., for improved concealed trigger for fire-arms. Patented Dec. 4, 1849. Re-issued Aug. 13, 1850.

What we claim is the construction of a concealed trigger, capable of being disclosed and made ready to operate by simple pressure imparted by the hand to its rear end, as described herein.

To John Hinton, of Pack's Ferry, Va., for improvement in Harvesters of clover heads and other grain. Patented May 22, 1849. Re-issued Aug. 13, 1850.

What I claim is, first, the combination and arrangement of the transverse pendent finger bar, the mortised right-angled plates, the adjustive slide bars and knife or cutter, with the revolving axletree of spring conveyor bars, arranged and operating in the manner described, by which the heads of clover, wheat and other description of grain are severed from the stems or stalks, and delivered into a receiver.

Second, I also claim the combination of the right-angled rods, fingers and pendent bar, with the transverse timber for adjusting the knife and fingers, longitudinally and vertically in connection with the spring conveyor bars, as described and represented.

DESIGNS.

To W. Bryant, of Boston, Mass., for design for cast iron bracket.

To J. F. Rathbone, of Albany, N. Y., for design for Coal Stoves.

To R. J. Blanchard, of Albany, N. Y., (Assignor to B. P. Learned & G. H. Thatcher) for design for stoves.

To S. S. Jewett & F. H. Root, of Buffalo, N. Y., for design for stoves.

The Industrial Exhibition of 1850.

The N. Y. Herald says, "From the little we hear of the preparations on the part of our people to exhibit specimens of their industry and ingenuity in the great Fair, which is to be held in London next year, we are very much inclided to believe that the project does not meet with as much favor as might be expected. We do not know how to account for this apathy. It may be that our citizens are working cautiously, and are determined to take the world by surprise, in the beauty and elegance of the articles which they propose exhibiting, and are therefore silent. We hope sincerely that such is the case. American mechanics and artisans need not fear competition with any nation in existence, in any department of industry; and we are confident they do not. We cannot, however, account for the apparent apathy which exists on this subject. It must be recollected that the time for the opening of the Exhibition approaches rapidly, and that there are but a few months more within which to prepare for it. We expect to see our people secure their full share of the prizes, and will be much disappointed if they do not."

[In regard to the above, we can assure the Herald, and all others interested, that our mechanics are preparing to exhibit at the World's Fair some of the boldest and most striking specimens of their ingenuity. From our intimate association with the various branches of American industry, we are probably better able than any other journal to know the actual state of this matter. We are constantly receiving letters from different sections of the country, asking advice how to proceed, and it is a matter of some regret that no depository has been selected in this city for the receptacle of such articles as are already prepared. This is the point where the largest share will be delivered for shipment, and some responsible person should be appointed to take charge of them. Several of our acquaintance have already gone to England with operating machines, for the purpose of introducing them into use, prior to the Exhibition.

Coal Formations.

The purest coal often exhibits impressions of plants, agreeing in species with those found in a more perfect state in strata of shale accompanying coal. The vegetable origin of this fuel is still more unequivocally shown by its internal structure when seen under the microscope, consisting, as it does, of woody fibre, dotted and scaleform vessels, and cellular tissue. This structure is observable not only in bituminous coal, but even in anthracite, where the change from the original wood has been carried farthest. The various plants which, by their decomposition, have produced coal, were not drifted into their present position, but grew in almost every case, on the spots where the coal is now found. This is proved by the position of erect trees, the lower portions of which rest on seams of coal, and by the abundance of stumps and roots, occurring both in North America and Europe, in the underclays or floors of coal-seams. The name of stigmaria has been given to the vast abundance of these roots, which were first shown by Dr. Binney, of Manchester, to belong to fossil trees called sigillaræ, a conclusion previously thrown out as a conjecture, on botanical grounds, by M. Adolphe Bogniart. Sir C. Lyell described, in 1842, ten forests of superimposed fossil trees, at right angles to the places of stratification, on the shores of the Bay of Funday, in Nova Scotia; and recently Mr. Richard Brown has found, in a single coast section in Cape Breton, forty-one underclays with roots, and eighteen tiers of upright trees of the genera Sigillaria, Lipidodendron, and Calamite. These remains of fifty-nine submerged forests extend through a thickness of 1600 feet of strata. Their entombment implies the repeated subsidence of land, such as took place during the earthquake of 1811–12, when part of the alluvial plain of the Mississipi, called "The Sunk Country," near New Madrid, ninety miles long by thirty in breath, was submerged. Thousands of dead trees are still standing there under water, while a still greater number lie prostrate.

The manner in which the interlaced roots of the deciduous cypress are fixed in blue clay at the bottom of every large swamp in the Delta of the Mississipppi, affords some analogy to the old carboniferous underclays, and to explain the new admixture of earthly matter in coal. Sir C. Lyell refers to the exclusion from the central parts of those cypress swamps in Louisiana, of the turbid waters of the Mississippi. The margin of the morass supports a dense growth of reeds, canes and brushwood, through which the sedimentary waters must flow very slowly, parting with all their alluvial matter before they reach the interior of the vast timber covered swamps.

Recent artesian borings, 400 feet deep, have shown both in the deltas of the Po and Ganges, that the substance of ancient terrestrial surfaces, once supporting turf or a forest, have sunk far below the level of the sea. The number and richness, however, of the seams of coal stored up in the carboniferous strata, doubtless indicate a peculiarity of climate and vegetation more favorable than any which now exists for the accumulation of vegetable matter. As to the climate of the coal period, the evidence of palms having flourished at that time, which was formerly supposed to imply a tropical heat is now questioned by able botanists, and as tree-ferns abound in New Zealand, the caulopteris of the coal being wet, have required a high temperature. The absence of coal in winter may have caused the extension of certain tropical forms in the coal period far into high latitudes, and the absence of great heat in summer may have checked the decomposition of plants, till continuous masses of them were buried under sediment thrown upon them when the land was submerged. The length of time during which dead trees continue to stand erect in submerged areas in the plains of the Mississippi shows that the envelopement of upright carboniferous stems in shale and sands may have taken place very gradually.

Lake Superior Copper.

The Cliff and Minnesota mines have recently been turning out immense masses of copper ore, and great difficulty appears to be in getting it from the mines in peices small enough for shipment. Seven pieces taken from the Cliff mine weighed 29,852 pounds; four from the Minesota, 14,641. The masses are so heavy that it takes teams of ten, twelve and sometimes fourteen horses, to haul them the distance of three quarters of a mile from the mines to the lake. The copper is too tenacious and compact to be broken in peices in blasting, and it has to be cut up in peices with a long chisel, three-fourths of an inch in width, by chiping off piece after piece with a heavy hammer. By this slow and expensive process these large masses of copper are cut up into pieces for shipment. A schooner recently sailed for a port down the Lake, with upwards of sixty tons on board, and the docks are filled with masses of the most enormous size, waiting shipment. Is it not possible that this copper could be sawed much easier than cut with the chisel?