[For the Scientific American.]

Death of Mr. E. B. Horn.

Mr. E. B. Horn deserves more than a passing notice. He was one of the most ingenious mechanics and finest workmen we had in this country. Associated with Mr. Daniel Davis, Charles G. Page, and others, in their early experiments in electro-magnetism, he has constructed probably a greater variety of electro-magnetic engines than any other man in the world.

For several years he turned his attention to electro-magnetism as a motive power, and so early as 1835–6 was exhibiting an electro-magnetic engine which turned a lathe. He had also an electro-magnetic locomotive, with car attached, which, for a small pecuniary consideration, carried passengers at the various places in which the invention was exhibited. After many years expenditure of time and money, he finally abandoned the idea of ever obtaining power from electro-magnetism.

He was a most remarkable workman, and could do the most difficult work, and that, apparently, without tools. When a young man, he constructed a perfect watch (a fair time keeper), the materials of which consisted solely of sheet tin, solder, and iron wire. His friends used to say "he could make anything, from a watch to a locomotive." During the latter part of his life, he was engaged in the repair of clocks and watches of the most difficult and intricate construction.

He was modest and retiring in manners, being one of the old school mechanics. In his death, we have lost a worthy man, one regretted by all his friends and one whose place will not be easy to refill.

The greater part of his life was spent in Boston, Mass.

T. H.

THE VIENNA EXPOSITION BUILDINGS.

The *Engineer* publishes the following details relative to the magnificent buildings which are now being prepared for the great exposition in Vienna. The chief structural materials to be employed are stone, brick-work, zinc, glass, and wood-work. The great central rotunda, in which the choicest objects will be displayed, springs from the ground a circular façade of piers, of no less than 426½ feet in diameter. Above this rises the immense roof, surmounted by a lantern of cast iron and glass, the diameter of which is 105 feet. Above the latter is a second lantern, and then a cupola, the extreme hight of the finial being 300 feet. The vastness of these dimensions may be judged from the fact that the domes of St. Peter's in Rome, or St Paul's in London, or the steeple of Trinity Church in New York, might be easily set down within this enormous concave without nearly touching it anywhere. Access will be provided to the summit, from which an extended view of the city and adjoining country will be gained.

At three sides, the quadrangle round this central hall will consist of continuations of the exhibition galleries, but the fourth or north east side of it will be reserved for offices and administration rooms. There will be six grand entrances, of most imposing architectural design, and twenty-eight smaller entrances through the long sides of the structure. The great central quadrangle of lateral and transverse galleries will be about 755 feet square externally, and the total length of the grand central spine, 2,985 feet. The width of the latter will be 82 feet and its hight 52½ feet. All the galleries in both directions consist of brick walls to about half the hight, stuccoed into a bold sort of paneling exteriorly, between recurrent piers which rise to the hight of a frieze running the entire length. The space between the top level of the brick work and the frieze is glazed, the whole of the light being derived from the sides.

The building set apart for machinery is of brick, and is 2,614 feet long and 155 feet wide. Several boiler houses are annexed, and water and steam are laid throughout the structure. Connecting with two lines of rails within this building and with nine other tracks extending the whole length of the exposition, is the North of Austria railway, so that exhibitors will thus be enabled to bring their goods, without the risk of unloading, right up to the very point of location. There are four grand entrances to the machine hall. Sewerage is provided along its entire length, and, in addition to the supply of water laid along at high pressure, well water may be obtained at any desired spot by sinking to about ten feet below the surface.

The next most important building in point of size will be the picture and sculpture gallery of which the projected dimensions are 575 feet in length by 80 feet in width. It is thoroughly fireproof and is protected by every safeguard against dampness. The great barrack, constructed for no less than sixteen hundred of the Austrian sappers and miners with their engineer officers, is no great distance off, and the most careful watch, day and night, has been arranged against any accident happening to the treasures with which the picture gallery will be filled.

For decorative purposes, a new material has been found and largely applied, which is said to possess great capabilities and beauty as well as remarkable cheapness. It is a coarse cloth woven from jute, upon which the means have been discovered for printing in colors, gilding, etc., so as to relieve the naturally fine straw color of that fiber; and surfaces wholly or partially covered with this material are said to show as much charm in beauty as in novelty.

Anti-Sea-Sick Steamers.

Mr. E. J. Reed, the late Chief Constructor of the Navy, is now engaged on plans for building for the Channel passage two ships of 350 feet in length, propelled by engines of 5,000 indicated horse power and capable of performing a distance of 20 miles per hour, for the purpose of testing the practicability of Mr. Henry Bessemer's new Channel scheme. His plan is to place the engines, etc., in the fore and aft parts of the vessel, and in the center to fix a hanging saloon, oblong in form and of dimensions 20 feet in length, 30 feet in width, and 20 feet in hight. For maintaining the level and to avoid any rolling motion to this saloon, Mr. Bessemer has contrived hydraulic apparatus to which are attached a pair of delicate equilibrium valves, and by watching a spirit level a man can, by a slight movement of a rod resembling the handle of a letter-copying press, control the slightest oscillations of the saloon with the greatest ease. It is expected that passengers can be conveyed across the English Channel in these swinging saloons without experiencing the dreadful qualms of sea sickness. An engraving of a swinging saloon for vessels, the invention of L. D. Newell, of New York, will be found in the SCIENTIFIC AMERICAN of May 21, 1870.

[From the American Journal of Science and Arts.]

The Nature and Duration of the Discharge of a Leyden Jar.

When the primary coil of an inductorium is connected with a voltaic battery, the act of interrupting the connection, as is well known, produces a current of electricity in the secondary coil, which can be accumulated in a Leyden jar, and then discharged by a spark. Now it is possible to adjust either the electrical surface of the jar, or its striking distance, so that, with a given coil, only a single spark will be produced each time that the battery circuit is broken; but in the great majority of cases, it will happen that enough electricity will be generated to charge and discharge the jar a number of times. The circumstance that electricity is continuously furnished by the coil during the fraction of a second, is favorable to the production of these multiple discharges, has been demonstrated by Professor Rood in a number of experiments; from which it also appears probable that an in increase in the striking distance is accompanied by a corresponding increase in the interval between the sparks composing the multiple discharges, though upon the whole it shortens the total duration of the act, by diminishing the actual number of discharges.

Still Later Intelligence from the Moon.

Mr. Birt, at the last meeting of the British Associatien, dealt with the observation of the spots on the floor of the crater Plato. It appears that changes in the appearance and luminosity of the streaks have been detected, and these changes are of such a character that they cannot be referred to changes of illumination, but depend upon some agency connected with the moon itself, while the color of the floor was found to vary as the sun ascended the lunar heavens, being darkest with the greatest solaraltitude. The reports indicate a strong probability that definite changes of an interesting character on the moon's surface will be discovered.

The Aurora Australis.

The aurora australis was visible at Melbourne, Australia, on the evening of April 11th. The streamers disappeared after about half an hour, leaving a deep red glow reaching an altitude of about 60°, which gradually grew fainter until it faded entirely away. Slight coincident magnetic disturbances were noted.

A New Organic Base.

Bouchardat has succeeded in obtaining a new organic base, containing oxygen, by acting upon one part of dulcite monochlorhydrin with ten parts of alcohol saturated with ammonia gas for six hours at 100°. The chlorhydrate of the new base is termed dulcitamine; its formula is $C_6H_{15}NO_5$, and it resembles glyceramine in many of its properties. Its discovery furnishes a new proof of the close relations between the triatomic alcohol, glycerin and the hexatomic alcohol, dulcite.

A New Fossil Bird.

The skeleton of a fossil bird, found during the past summer in the upper cretaceous shale of Kansas, indicates an aquatic bird as large as a pigeon and differing widely from all known birds in having biconcave vertebræ. The species is termed *ichthiornis dispar*.

New Tertiary Reptiles.

The localities where the following new forms of vertebrate life were found are nearly all in the eocene beds of the Green River basin, first examined by the Yale party in 1870. We select several of the most interesting species from the detailed descriptions given. The *Thinosaurus pucidens* belongs to a genus including a number of large carnivorous lizards. The limb bones preserved resemble those of the iguanas. The remains of the species indicate an animal about four feet in length. The *Thinosaurus grandis* is a gigantic lizard, probably not less than seven feet in length and three or four times the bulk of *Iguana tuberculata*. Another member of the lizard family is the *Glyptosaurus princeps*. The entire body of this reptile was covered with ornamented osseous plates, most of them united by suture. It was about six feet in length.

Three other species of the genus *Glyptosaurus* were also discovered. Of another genus, *Oreosaurus*, which is considered nearly related to that above referred to, five species were determined A new and interesting genus of extinct lizards, the *Iguanavus exilis* has been predicated upon a number of vertebral and a few other isolated specimens, found in the eocene of Wyoming, which belonged to animals of about two feet in length. The *Limnosaurus zipliodon*, it has been determined, belongs to a genus quite distinct from the modern *Crocodilus*, the teeth differing widely from those of any known species of the latter.

PROFESSOR BAILLARGE, whose stereometrical tableau was illustrated in this paper on June 1, has been made an honorary member of the Society for Generalizatien of Education in France.

[From the Boston Journal of Chemistry.]

A Curious Optical Experiment.

By passing a current of sulphurous acid gas through a solution containing selenium (I used seleniate of potash), a beautiful pink precipitate is formed, which, while suspended in the liquid, gives to it a light green color by transmitted light, but a beautiful pink by reflected light. I have never seen this circumstance mentioned in print, although a similar phenomenon in the case of the aniline colors is well known. If a strong alcoholic solution of rosaniline is poured upon a watch glass or piece of mica, and evaporated to dryness, the thin scale of aniline is rose red by transmitted light, cantharidis or beetle green by reflected light. A solution of iodine green, very carefully evaporated at a low temperature, becomes copper red by reflected light, bluish green by the transmitted light. If, in preparing the iodine green, too high a temperature is employed, the green is converted into a purple.—*E. J. Hallock.*

Preservation of Wood by Kyanizing.

We were much interested in examining, at the late New England fair, held at Lowell, some specimens of wood exhibited by the proprietors of locks and canals on the Merrimac river. There were twelve different kinds of wood from the valley of the Merrimac, representing the following varieties: 1. Old growth White Pine; 2. Sapling White Pine; 3. Northern Hard Pine; 4. Spruce; 5. Hemlock; 6. Beech; 7. Black Birch; 8. Yellow Birch; 9. Rock Maple; 10. White Maple; 11. Brown Ash; 12. Poplar. They were sawn out in the summer of 1872, at the mill of Messrs. Norcross & Saunders, in Lowell.

Each stick was originally about eighteen feet long and nine inches square. Each was subsequently cut in two; one half was kyanized, and the other half returned in its natural condition. In April, 1863, the whole were set out together as posts, about one half their length in the ground, in dry gravelly soil, fully exposed to sun and weather; and they so remained until taken up, August 28th last, to be exhibited.

On examination of the specimens, it appeared that the kyanized halves showed scarcely any signs of decay, while those not kyanized were all more or less decayed, four of them, namely, rock maple, poplar, hemlock, and old growth white pine, so much so, that at the level of the top of the ground they had come apart. The spruce, Northern hard pine, and sapling pine were also considerably decayed, but held together. The beech, black birch, yellow birch, white maple, and brown were all somewhat decayed, but less than the others.

Kyanizing consists in soaking the wood in a dilute solution of corrosive sublimate. The process takes its name from the inventor, John H. Kyan, a native of Dublin, who died in 1850. It has long been considered the most efficacious method of preserving the timber of ships from dry rot.

Adulterated Cream of Tartar.

We have recently had brought to us two or three specimens of cream of tartar that were sold as perfectly pure. On examination, these were found to contain upwards of 25 per cent of gypsum. This impurity is easily detected, as pure cream of tartar is soluble in hot water, while gypsum is nearly insoluble. Therefore, if half a teaspoonful of the suspected article is put into a tumbler, and hot water poured over it, it will leave a white sediment if it contains gypsum, but will be totally dissolved if pure. It is well to observe in this connection that very little saleratus is now sold, the article commonly known by that name being supercarbonate of soda or "baking soda," as it is often called. We were amused, the other day, at hearing an order given in a grocery store for "one pound of baking soda and half a pound of saleratus." The baking soda was taken from a box containing it in bulk and the "saleratus" was supplied from some brand, that came done up, in paper. Both were really the same article, and sold at the same price. True saleratus is a sesquicarbonate of potash, and is more expensive than the soda salt.

NEW LINE OF ATLANTIC STEAMERS.

The Glamorgan is the pioneer vessel of a new line of steamers about to be established between Cardiff, Wales and New York, by the South Wales Atlantic Steamship Company. The Marquis of Bute, a peer noted for his enormous wealth, has interested himself greatly in the enterprise, and has granted it very extensive concessions, among which are the remission of all dock dues in the Cardiff docks for the space of one year, and the free coaling of the steamer for a similar period at the collieries owned by him. The Glamorgan is a big rigged screw steamer, and is fitted with all the improved marine appliances. Telegraphic arangements permit of instant communication between the captain and the helmsman, and a patent apparatus furnishes gas for the illumination of the vessel, at the rate of several thousand feet daily. The interior appointments of the ship contain every comfort and luxury, and provide accommodations for 700 passengers. Her tunnage is 2,500 tuns registered, with engines of 1,800 actual horse power.

THE discovery of coal beneath the Permian foundation in the neighborhood of Birmingham is likely to be followed by a similar discovery in the western portion of Lancashire. Mr. Edward Young, of Doughtybridge, who has surveyed and explored the district, is of opinion that there is a coal field of between 400 and 500 square miles, commencing near Southport, and extending to Liverpool one on the side and Lancaster on the other.

DESTROYING CATERPILLARS.—According to Schmidt, a remedy against caterpillars consists of 1 part of sulphide of potassium and 500 parts of water. Syringe the tree or plant with the above.

A Sensitive Water Fall.

BY PROFESSOR EDWIN J. HOUSTON.

The recent developments of acoustics have been rich in their revelation of the wide spread influence exerted by sound waves in shaping and molding matter, when in a condition to easily allow the movement of its particles. The eye as well as the ear can now be appealed to to detect the presence of these invisible waves. At their touch light sand strewn over these membranes is heaped up in miniature hills, with even greater precision and regularity than by grosser waves by the sea shore, the number and order of the hills, together with the relative size of their interlaying valleys, not only witnessing the work of the sound waves, but also indicating their exact nature and number. Water jets, gas jets, smoke jets and flames of most all gases are also under favorable circum stances likewise affected, changing their shape, size, direction and general appearance, in the most curious manner. So delicate, indeed, are some of these methods that waves, too feeble to allow of translation by the ear into sound, are instantly appreciated by the eye as motion.

There are many different ways in which sound waves can thus reveal their presence to the eye; we have sensitive waves both covered and naked, smoky and clear, silent and noisy; we have sensitive jets of gas, water and smoke, and many other instances of this kind of sensitiveness that will recur to the student of acoustics. I propose to add another, of quite a novel character, to the already lengthened list.

While spending a summer's vacation in Pike County, Pennsylvania, I had the good fortune to discover the sensitiveness of water to sound waves on a large scale. Among the many beautiful waterfalls in this portion of our State, I visited one in which a scanty supply of water was dripping from the moss covered walls of a precipice. Each stream poured from the end of a pendant of moss, formed generally of one or two tiny leaflets. The air was unusually still, and the streams preserved for some distance a vein remarkably free from ventral segments. Struck with this circumstance, it occurred to me to try the sensitiveness of these streams to the notes of the voice, and after several attempts I found a tone, a shrill falsetto, to which they would respond. On sounding this note, the grouping of the drops and the position of the ventral segments were instantly changed. As the streams were of different diameters, they were not all sensitive to the same note; but at one portion of the falls, from which about one hundred of these thin, delicate streams were dripping, a very large number of them responded. A friend who was with me, a gentleman of nice powers of observation, noticed the same phenomena.

I was unable to determine the exact conditions of success, but am satisfied that they are not easily obtained, as at several other falls, where the streams appeared nearly of the same character, none were found that would respond to the voice, although a variety of different tones was tried. At other falls, however, a number of streams were found that were almost equal to the first in sensitiveness.

A heavy rain, which flooded the streams, prevented me from extending the observation. The publication of the facts will enable others to try the experiments for themselves.

The change in the grouping of the drops and the position of the ventral segments is, no doubt, to be ascribed to a vibration communicated by the sound waves to the delicate filaments of moss from which the water flows. These act somewhat in the manner of reeds, and simulate the orifice of the ordinary sensitive jet, by whose vibration the appearance of the issuing stream is altered.

The falls at which the observation was first made are situated on Adam's Brook, near Dingman's Ferry, about two and a half miles up stream from the stage road leading to Milford. —*Journal of the Franklin Institute.*

Economical Portable Engines.

A novel form of portable engine, built by Messrs. Davey Paxman & Co., has recently been tested at Cardiff, Wales, and, it is stated by the *Engineer*, performed admirable duty and was highly commended by the judges. The boiler is of the usual portable engine type, but improved by the addition of ten tubes, which serve to augment the fire box surface, break up and mix the gases on their way to the flues, and also promote circulation in the fire box and over its roof. The regular evaporation may be taken as over 10 pounds of water per pound of coal, as, on the occasion of the trial, the engine (8 horse power) evaporated 1,675 pounds of water with 168 pounds of coal.

There is a peculiarity about the valve gear which is worthy of notice. The ordinary slide valve, worked by an eccentric, is employed, but in the lid of the chest, slots are made on which works a grid valve with corresponding apertures. This valve has a throw of not more than one fourth of an inch, and is actuated by a crank on a long rod. The end of the latter is a bowl of hardened steel which takes against two cams on a sleeve on the crank shaft. A powerful coiled spring near the end of the rod pushes it forward and shuts the valve; and the sleeve on which the cams are fixed is traversed back and forward on the crank shaft by the action of the governor. When the latter is open, the narrow ends of the cam plates take the end of the rod, keeping the valve open for one tenth of the stroke; when the balls fall down, the sleeve traverses on the shaft and the bowl runs to the wide end and the valve remains open for about one half stroke. The grade of expansion is thus regulated with great precision by the governor. The gear makes no noise when at work, excepting a slight clicking sound; and, it is of great durability, as, after a months running, it showed no signs of wear, although the cam plates were only of wrought iron hardened with prussiate of potash.

The Utilization of Tide Power.

This question has been discussed lately in several quarters, and amongst others, Mr. Bramwell, in his address delivered as President of Section G of the British Association during the meeting of that body at Brighton, has directed special attention to it.

The plan which he suggests, says *Engineering*, is that advantage should be taken of the natural configuration of the coast in certain places to form storage reservoirs, from which the water might be discharged at low tide, and made to work turbines, which should in their turn drive pumps employed in pumping water into hydraulic accumulators. From these accumulators the water, under a high pressure, is to be distributed to the places where it is wanted to drive machinery.

At first sight this appears to be a very plausible idea; but a more careful examination of the features of the case shows that although plausible, it is by no means promising, except under certain unusually favorable conditions. To explain this it will be as well, in the first place, to show the cost of the power producer with which the tide motors will have to compete.

We do not hesitate to say that at the present time no mill engine of any size should be consuming more than 2½ lbs. of coal per horse power per hour. We are quite aware that there are thousands of stationary engines which are consuming more than double this; but this fact does not affect the question, as tide motors, if they are to be successful, must be able to compete with engines of an economical type. Again, allowing for holidays and other stoppages, an ordinary mill engine has to run about 2,800 hours per annum, and, taking the consumption at 2½ lbs. per horse power per hour, this gives the annual consumption per horse power as $2{,}800 \times 2{\cdot}5 = 7{,}000$ lbs., or allowing for lighting up, etc., say 3½ tuns. The present price of coal is abnormal, and does not, therefore, form a basis for such calculations as those to which we are now directing attention; and taking into consideration the fact that tide-motors, if successful, would themselves tend to produce a reduction in the price of coal, we think we shall be treating them liberally if we estimate the average cost of the coal with which they would have to compete at 16s. per ton. Taking it at this price, we should have the average cost of fuel per horse power for a really good engine $= 3\frac{1}{2} \times 16 = 56$ shillings, or £2 16s. per annum; or for a thousand indicated horse power, an annual cost for fuel of £3,800. Besides saving fuel, the tide motor would also render unnecessary the boilers at present employed, and there is, therefore, to be placed to its credit the cost of maintenance of these boilers, the interest of the capital sunk in them, and the stokers' wages. For the thousand indicated horse power which we are taking as our example, these items would probably amount in the aggregate to about £800, thus giving, say, £2,800 + 800 = £3,600, as about the annual sum which a mill owner would be justified in paying for a supply of water capable of developing 1,000 horse power during ordinary working hours. The cost of engine superintendence, oiling, etc, and miscellaneous charges, would probably be about the same, whether steam or hydraulic engines were used, and these matters, therefore, need not be considered here.

Let us now examine the other side of the question. The annual charges, to which an establishment for utilizing the power of the tides would be subject, would be the interest on the money expended on the works and machinery, the cost of maintenance, and the expense of superintendence, collection of rates, wages of sluicemen, etc. In the aggregate these charges could scarcely be estimated as amounting to less than 15 per cent on the capital expended, and in the case of an establishment supplying power in moderate amounts over an extended district, it would probably be even more than this. Taking, however, the annual charges as amounting to 15 per cent on the capital, and taking, also, the yearly rent which might probably be paid for a supply of water capable of developing 1,000 horse power as £3,600, we find that the capital which it would be justifiable to expend on tidal works capable of supplying that amount of power would be £24,000, a sum which, we venture to say, would in but exceedingly few instances suffice for their execution.

It must be remembered that the expenditure of say £24,000 for each 1,000 horse power which the tidal works would be capable of supplying to factories would have to include not merely the construction of the storage reservoirs with its sluices, etc, but also the cost of the turbines, pumps, hydraulic accumulations, and last—but by no means least—that of the pipes by which the water under pressure would be conveyed to the works where it could be utilized; and hence, as we have said, we believe that there are very few situations where the requisite works and plant could be provided for the sum which it would be justifiable to expend.

Surface Friction in Water.

The results of several experiments made by Professor W. Froude may be approximately stated in brief, as follows:—

1. As regards the relation of resistance to speed. With the surface coated with shellac varnish, Hay's composition, Peacock's composition, or tallow, the resistance varied very nearly as the power 1·83 of the speed; with the surface coated with tinfoil, very nearly as the power 2·05 of the speed; but the experiments with the tinfoil are not yet complete.

2. As regards the relation of resistance to quality of surface With the surface coated with shellac varnish, Hay's composition, Peacock's composition, or tallow, the resistance differed extremely little, such variations as occurred scarcely exceeding one per cent, and being probably not greater than belonged to the small differences of smoothness in the laying on the composition.

With the surface coated with glue, and thus simulating the sliminess of a living fish, three successive experiments were tried at the same speed, so as to test the effect of the gradual growth of the slimy character. The first experiment showed an increase in resistance of two per cent, the last of four per cent, as compared with the shellac surface which the glue resembled before immersion, a proof that the attempted imitation of the fish's surface was not advantageous.

Comparing a tinfoiled surface with one coated with shellac, when the length is one foot, the resistance of the former is on the average only two thirds that of the latter; making the comparison with planes of 1 6 in length, the ratio is three fourths; and with planes of 16 feet, more than nine tenths, instead of two thirds; indeed, the total difference becomes progressively less as the planes compared are longer. At higher speeds also the difference tends to become less, in consequence of the higher power of the speed to which it is proportioned with the tinfoiled surface.

3. As regards the relation of resistance to length of surface. There plainly is a very considerable diminution of average resistance per square foot as the length of surface is increased, and this probably from the cause already indicated, though the rate of diminution becomes gradually less as the surface becomes longer; there is, in fact, as great a diminution between three feet and four feet of length as between 30 and 50.

Manufacture of Carbonate of Potash.

In France, carbonate of potash is manufactured from the residues of molasses after fermentation. After taking out the sugar, or as much as possible, and fermenting the uncrystallized sugar, the residuum from the fermentation (*vinasse*) is evaporated and calcined, and the different salts separated in a very complicated manner. The principal product of this manufacture in the end is carbonate of potash, an extremely valuable article; but up to some years ago it was not possible to obtain that article in sufficient purity by this process, particularly owing to the presence of the cyanides. The cyanide of potassium was in itself a most disagreeable ingredient if it was not completely destroyed, and in trying to destroy it, the result was that carbon was formed in the modification of graphite, and it was quite impossible to burn the potash sufficiently white. It had a gray color, and was not marketable, or rather only marketable at a very low price. The furnaces are calcining furnaces, and are constructed rather differently from our carbonating furnaces. The working door is exactly opposite the firehole, and the fire escapes through a flue at the top, just above the working door inside. After a certain time the salt gets to that point that it will be impossible to destroy the cyanides, so as to burn out the carbon completely, without fluxing the salt at the same time, because the carbon would be there as graphite, and it is quite impossible to burn it out at a temperature at which the carbonate of potash does not fuse. When it has arrived at that stage, the furnace man fills his furnace with a thick smoke. He then suddenly opens the working door, which is right opposite the fire, and thus burns the smoke throughout the furnace; and it appears as if by a kind of infection, perhaps by the local heat produced right through the salt itself, the cyanide is completely destroyed, and also the graphite burnt off. The product coming from this process is a most beautiful white carbonate of potash of great strength.—*Mechanics' Magazine.*

The August Meteors.

The meteoric shower of the 9th, 10th, and 11th of August last was observed at several points on the continent of Europe, and the following results were obtained: At Turin, Italy, during the first night 127 shooting stars were counted; a fine aurora also took place, lasting 13 hours. On the second night 334 meters were noted, accompanied by an auroral light lasting three hours from midnight. The third night being cloudy, but 54 stars were observed. At Marseilles, France, 164 meters were counted on the first night, and 170 on the second. The point from which all seemed to radiate was in the constellation *Cygnus*. A faint auroral light was remarked. At Geneva, nearly half of the stars composing the shower came from different directions. At Alexandria, Egypt, 1,167 meteors were noted on the second night, and at Barcelona, Spain, 886.

M. EISENLOHR, of Heidelburg, has recently translated an ancient papyrus found in a tomb in Egypt, which he considers affords abundant proof of the verarity of the Scriptures regarding the foundation of the Mosaic dispensation. The text of the papyrus is an "allocution" of King Rameses III, concerning the important events of his reign; it recounts how a religious revolution was suppressed, which could be under no other leadership than that of Moses, and describes the series of events ending in the exodus of the Israelites. It has been known, though not on indisputable basis, for some time that Moses was contemporary with Rameses III, and it is believed that the reason his writings do not speak of the conquests of the monarch is that they took place during the wanderings in the desert.

CELERY AS A NERVINE.—A correspondent of the *Practical Farmer* says: "I have known many men, and women too, who, from various causes, had become so much affected with nervousness that when they stretched out their hands they shook like aspen leaves on windy days; and by a daily moderate use of the blanched foot stalks of the celery leaves as a salad, they became as strong and steady in limbs as other people. I have known others so very nervous that the least annoyance put them in a state of agitation, who were in almost constant perplexity and fear, and who were effectually cured by a daily moderate use of blanched celery as a salad at mealtimes. I have known others cured by using celery for palpitation of the heart.