SUNLIGHT AND MOONLIGHT.

The following interesting report of a lecture by Prof. Morton, at the Academy of Music, Philadelphia, we copy from our esteemed cotemporary, the *Philadelphia Photographer* :

Assuming that his hearers were acquainted with the general laws governing the emission and reflection of light. Prof. Morton proceeded to explain the difference between regular and diffused reflection, illustrating this point by an original and singularly pleasing experiment. A large mirror was set midway in the stage, facing the audience, who could see themselves reflected on its ample surface. Over this mirror, an assistant, at a signal, let fall a delicate white veil, when at once there appeared, as if just within the surface of the glass, a phantom-like figure, which was then seemingly wrapped up in the veil, as that was rolled together, and appeared to fall with the falling tissue, as it was dropped to the floor. The appearance of this experiment was most beautiful and excited much attention. The lecturer then explained the method of its arrangement, in which a lantern, with a glass photographic picture placed at one side, and throwing an image obliquely on the mirror, played of course, an important part.

Various illustrations projected on the screen, from photographs of statues and mirrors, and landscapes with still water reflecting the adjacent objects, were then used.

To give such things due effect in such a building, is no easy task. The front of the stage is fifty feet in width, and the most distant of the audience more than one hundred feet from that point. An immense screen and powerful illumination are therefore necessary. The screen employed was of wet muslin, forty feet square, lowered into its place at the moment when required. To cover and illuminate brilliantly such a surface (sixteen hundred square feet), no ordinary lantern would suffice, and, accordingly, Professor Morton has had one constructed by Mr. Zentmayer, with condensers eight inches in diameter, and of three-inch focus, with which pictures of corresponding size are used. Thus, an objective of low power may be employed and loss of light avoided, as also a larger ignited surface of lime utilized without injury, on account of the corresponding increase of size in all parts. Most of the pictures used on this occasion were made by Mr. O H. Willard, photographer, who also operated the lantern, and whose skill was equally well illustrated by the pictures produced and the style of their projection. Some of the transparencies were, however, made by Mr. O. G. Mason, of New York, from Mr. Rutherfurd's negatives, and others again, by Mr. J. C. Browne, of Philadelphia, all gentlemen whose skill is well known to our readers.

After the illustrations of reflection above mentioned, came a series of moon photographs, intermixed with copies of lunar maps, and a number of admirable imaginary views of lunar scenery, from drawings prepared by Mr. James Hamilton, our eminent artist, who is so widely known by his marine pieces, and who can produce more apparent motion and commotion on canvas than any one living, we believe. These views were of the most impressive description, especially one of the lunar volcano, Copernicus, and its vicinity.

The direct lunar photographs by Mr. Rutherfurd, were also most effective. Thus, we beheld, to our great delight, a moon, round and full-orbed, as bright as the original luminary, but rolling on to the screen as a globe of thirty-five feet in diameter, her mountains and volcanic cones, and extended plains distinctly visible. And this was not a mere picture skilfully painted, but a veritable reflection of that orb. The moon's own face *photographed* by powerful lenses, and magnified by Mr. Rutherfurd, whose skill in this department is unrivaled.

The lecturer described and named the various plains, and peaks, and hilly ranges, as though he had just returned from an exploring expedition to these Rocky Mountain regions. We had the Ocean of Tempests, and Seas of Showers, of Serenity, of Vapors, and of Clouds (still called seas, though now known to be arid land wastes), defined and designated, while the heights of the peaks, the depths of valleys and volcanic craters, were indicated as clearly as those of any earthly elevations or depressions accessible to the foot of the surveyor

The planet Mars appeared, not as a brilliant speck or point of light, but as a vast round silver shield, with the marks of seas and continents distinctly traced. Another photograph, taken an hour later, and lo! the aspect of the planet had altered. A great snow-storm had been sweeping over it. Its majestic mountains and plains had been draped in a winding-sheet of frozen rain, and the dark wastes had become white, and the deep seas alone retained their original sombre hue. Think of a snow-storm in a distant planet, watched, and followed, and fixed on glass plates, and presented to an audience sitting comfortably in the opera-house of the city of Philadelphia.

The magnetic telegraph can tell us what is happening in distant parts of our globe, but here is a messenger who comes to us, and tells us what is happening in the planet Mars, more than thirty-five millions of miles away! The storm signal is hoisted on the coast of England, and mariners know that a tempest is up and at work on the broad Atlantic, and may soon be looked for, howling along the chalk cliffs of the island, and thundering into its bays ; but the telescope, and the photographer with his baths and plates, here reveal how a tornado of sleet and snow is sweeping across the plains and oceans of the *planet Mars*.

Attention was next directed to the sun. His spots were, by means of photographic art, shown to be gigantic rents made in the robe of fiery cloud masses which compass the orb ; just as wild cyclones or great rotary storms might tear and rift the rain clouds which cover our sky, twirling them round and making tempest circles, with radii of thousands of miles. The rotary motion of these sun-storms could be distinctly traced in the several photographs made at different periods of their progress, and the laws which regulated their motion investigated and determined.

To illustrate the effect of such a temperature as that shown to exist in the sun upon some familiar elements, and to explain why these should occur as *vapor* in his atmosphere, the lecturer placed himself with a powerful oxyhydrogen blowpipe upon a platform secured to one of the stage straps, and was raised to a considerable height, from which point, by burning a thick rope of steel wire in the jet, he caused to pour down a broad sheet of scintillating sparks and minute globules of boiling iron, which spread over the floor and rolled toward the footlights with an effect never to be forgotten by one witnessing it.

The fixed stars as suns of other systems were next noticed, and in connection with some of the peculiarities which they exhibit, the subject of persistence of vision was introduced and illustrated by several beautiful experiments, among which the most remarkable was a large wheel, five feet in diameter, carrying six Geissler tubes of great size, through which, while in motion, flashes of electric light were passed from an induction coil, made by Mr. Ritchie, of Boston, (probably the most powerful in the world, having produced sparks twenty inches in length), belonging to the University of Pennsylvania. This apparatus produced the appearance of a star with countless colored, vibrating and ever-changing rays.

The final and perhaps most impressive expe[redacted]nt of the lecture was, however, that illustrating the d[redacted]te character of white light and the difference betw[redacted]effect as an illuminator and those of monochromatic light.

The drop curtain was lowered for a few moments, to allow of some scenic changes, and during this time the lecturer explained the subject in hand to the audience, and by aid of two large groups of chromatic burners, fed with spray of chemical solutions, produced lights of contrasting colors on opposite sides.

The curtain then rising displayed a brilliant palace scene, illuminated by several lime lights, judiciously placed. At a signal there then marched in a troup of brilliantly costumed masks (consisting of students of the University, who had volunteered for the occasion), bearing banners with appropriate colored devices.

The effect of this march was most striking, the tramp of the advancing columns, the rushing flutter of the banners crowding the stage, and the blaze of gaudy colors in the bright white light, formed a spectacle as pleasing as it was novel and unexpected. The masks having grouped themselves around the stage, at a signal the white light was turned off, and from six large sets of chromatic burners a flood of yellow light was emitted. Instantly the brilliant array became a troup of ghastly phantoms, clad in gray, and bearing banners with black and white devices.

The amount of yellow light was so great as to illuminate the entire house and reduce the audience to a concourse of sombre-clad spectres. The lights were then changed several times. This experiment was by far the most impressive thing we have ever seen, and by the precision with which everything was managed, reflects great credit on all concerned in its production

MANUFACTURE OF MALLEABLE IRON IN SCOTLAND.

In No. 1, of the current volume, we gave a condensed account, from the *Ironmonger*, of Cast Iron Working in Scotland. We herewith give, from the same source, a description of the manufacture of malleable iron, as conducted in that country.

The conversion of pig-iron into malleable by the "puddling" process was commenced in Scotland about forty years ago, when a number of workmen from England and Wales were brought into Lanarkshire for the purpose of instructing the Scotch ironworkers. The first attempts, however, to establish this branch of trade, were not successful, and it was not until 1836 that it was fairly started. There are now nearly 400 puddling furnaces and 50 rolling mills in operation, which, in 1867, produced 143,000 tuns of malleable iron, valued at £1,006,600.

THE PUDDLING PROCESS.

The places in which the process is carried on are nearly all constructed on the same plan. The mill consists of a vast roof supported on iron pillars, so that the sides are quite open. The puddling furnaces are built at intervals along one or two sides of the mill ; and the floor, which is paved with iron plates, is crowded with machinery, a powerful steam engine occupying the centre. The work of the puddlers is probably the severest kind of labor voluntarily undertaken by men. The puddling furnace is a compact structure of fire-brick cased in iron. In consists of three parts—the fireplace, the hearth, and the flue. The fireplace is on the left hand side, and is separated from the hearth, which occupies the central place, by a low wall or ridge. To the right of the hearth is the flue, the entrance to which slopes downward from the hearth, so that when a fire is lighted in the fireplace, the flame is drawn close over the hearth in its passage to the flue. Each furnace requires two men to work it. One of these is the puddler, who has all the responsibility, and the other his assistant, who performs the portions of the work in which only slight skill is required. The quantity of pig-iron operated upon at a time is about four hundredweight, and is called a charge. One charge is got out of the furnace every two hours, and the work goes on night and day, from one week's end to the other, Sunday excepted—the men taking the night and day shifts by turns. After a charge is withdrawn, the furnace undergoes some slight preparation before another is put in. A coating of "bull dog"—a material prepared from the slag of the furnace—is laid upon the hearth, to fortify it against the intense heat. The pig iron, which has previously been broken into pieces of convenient size, is then thrown in, and the doors of the furnace are closed and sealed up with cinders. Intense heat is then generated. In about a quarter of an hour after the furnace has been sealed, the iron shows signs of melting, and an aperture in the hearth door about six inches square is opened. The puddler looks in at the opening, and determines whether it is time to disturb the iron. So soon as he sees the finer angles of the iron begin to melt, he thrusts in a stout rod of malleable iron, and moves the lumps of metal about, so that the entire mass may be equally heated. The puddler's assistant takes a turn at this part of the work ; and during its progress the heat is occasionally moderated by means of the "damper," or by dashing small quantities of water upon the iron. At frequent intervals, the puddling bar is withdrawn and cooled by being dipped into water. The iron dissolves gradually on the hearth, and after a time begins to heave and bubble, innumerable jets of flame bursting forth all over its surface. The desired chemical change is now going on. The hot air from the furnace sweeps over the iron and carries off a great part of the carbon, sulphur, phosphorus, and silicon contained in the pig iron. Care must be taken to prevent the metal from becoming too fluid ; and as soon as it attains a pasty consistency the heat is moderated. Meantime, the puddler uses his rod vigorously ; and as the metal now begins to "dry," the labor of moving it about is increased. The metal at length seems to curdle and become granular. As it then ceases to give off carbonic oxide, the heat of the furnace is again raised, and the particles of metal begin to adhere together. From this point the chief puddler undertakes and completes the operation. As the metal agglutinates, it becomes very difficult to move. The puddler has to exert himself to the utmost ; and he dare not relax his efforts for a single minute, else all the previous labor would be worse than lost. Though the perspiration trickles from his face and arms, and oozes through his scanty clothing, he must toil on. His eye is never removed from watching the contents of the furnace ; and the expression of anxiety on his face indicates that the operation has reached a critical point. When the metal has attained a certain degree of consistency, the puddler divides it into five or six heaps. He then works each heap into a "ball" or "bloom." The door of the hearth is opened, and one after the other the balls are drawn out with a large pair of tongs and dragged over the floor to the "shingling" hammer. As the balls are drawn from the furnace they have a spongy appearence, and slag and other impurities trickle from them. The operation we have described occupies, on an average, about two hours, and the quantity of unrefined pig-iron required to make a tun of puddled iron may be stated at from 22 to 23 cwt

SHINGLING AND ROLLING.

It is the puddler's duty to convey the "balls" from the furnace, and to place them one by one on the anvil of the "shingling" hammer. Before the invention of the steam hammer, a somewhat clumsy contrivance was used for squeezing the slag out of the puddled iron, and beating it into shape. Now the steam hammer is every where employed for that purpose. When a puddler lays a "ball" on the anvil, he waits to see the result of the first blow, and from it he is enabled to judge of the quality of his work. The "shingler" then steps forward and takes charge of the "ball." His feet and legs are encased in iron armour, his body is covered by a stout leather apron, and he wears a mask of the same material. One stroke of the hammer makes apparent the use for this warlike attire, for it sends out in every direction jets of liquid fire, which patter against the legs of the workmen, and would inflict fearful injuries were they to come in contact with the skin. The manipulation of the ball under the hammer is severe work, and requires great expertness. The "shingler" uses a pair of tongs about four feet in length, and with these seizes the ball and turns it on the anvil every time the hammer ascends. He so manages that it assumes the shape of a brick, and the operation occupies only two or three minutes. The "shingler" passes the metal, yet at white heat, to the "rollers," who pass it through a series of grooves in a pair of solid iron cylinders. By this means it is drawn into bars of the required size.

The iron produced by the above process is called "puddled bar," and it has to go through another operation before it is suited for even the commoner purposes of the blacksmith. In order to produce what is known in the trade as "common iron, the puddled bars are cut up into short lengths, and a number of these are laid in a heap of sufficient size to make a bar of any stated dimensions. They are then placed in a "re-heating furnace," and exposed to a free circulation of heat. In about half an hour the iron becomes heated to what is known as the welding point, and is then removed and passed through the cylinders as before. When the rolling is completed, the bars are taken away by boys, and cut to the desired length by means of a circular saw, which passes through the metal with astonishing rapidity and with a hideous noise. The bars are then straightened on an iron plate, stamped with the maker's name, and allowed to cool. From the moment the iron is taken out of the re-heating furnace until the bars are ready for the market, the utmost expedition is required on the part of the workman ; and their operations, especially when witnessed at night, form one of the most interesting sights connected with the manufacture of iron. When a finer quality of iron is required, another welding and rolling are given to it. These repeated heatings however, entail a considerable loss of material—equal, we believe, to eight or ten per cent for each heat. In making the best quality of malleable iron, it is usual to refine the pig-iron before putting it into the puddling furnace. The refining is done in a furnace especially constructed for the purpose, and the process consists in fusing the iron with coke, and thus ridding it of a large proportion of its impurities.

Correspondence.

The Editors are not responsible for the opinions expressed by their correspondents

The Microscope.

Messrs. Editors :—The microscope has revealed in nearly every department of science, much that before its invention and present high degree of perfection, was entirely concealed from the most careful observer. It has opened new fields of thought, has disclosed new truths, and has unlocked many of nature's mysteries. Its revelations of the character of the earth's crust, of the wonders of the vegetable kingdom, and of the marvelous structure of animal organisms are grand and imposing. Information so valuable should be rendered more popular and generally useful; and is it not important to consider the best means of accomplishing this desirable result, and of creating a taste and love for the investigation of nature by this valuable instrument? While the present mode of study, each individual pursuing his own investigations or giving individual instruction, is well adapted for the few it is not applicable to large classes. It is evident that could the microscopic representations be of such a character as to admit a simultaneous view by all present, their usefulness would be greatly enhanced.

What means are there, then, of exhibiting to audiences the results obtained by the microscope? Photography has recently come to the aid of the educator and has enabled him to faithfully represent many natural objects and phenomena. It has enabled the microscopist also, to a certain extent, to make his observations more public The stereopticon, which has of late years become indispensable to the lecturer on scientific subjects, has developed a new use of photography as it has been made to enlarge the photographic views, and has adapted them directly to class illustration. It is an aid also to the microscopist, but as it mainly exhibits the external appearances, and the microscope reveals not only these, but the more minute and delicate internal structure, it is inadequate to faithfully show the full capabilities and manifold uses of this noble instrument.

Something more is needed. The earnest educator is not content to stop here but desires a more satisfactory arrangement to illustrate microscopic objects, something that will not only enlarge the views, but will enable an audience to see them simultaneously. Can not some of your numerous inventors devise an instrument to be attached to the stereopticon, to subserve this important purpose by projecting upon a screen a greatly magnified image of any transparent specimen which has been prepared for the microscope, in the same manner that the stereopticon exhibits the photograph. J. G. M.

Philadelphia, Pa.

Opaque Glue.

Messrs. Editors:—I see, page 39, a recipe of a correspondent for making opaque glue, which is as injurious to the glue as the bone dust proposed for that purpose in a former number. Bone dust being gritty and not uniting with the glue, spoils it entirely. I find by analyzing a specimen of very white opaque glue of excellent quality, that the white substance is nothing but carbonate of lime very finely divided, probably introduced in the form of the so-called Paris white. I find in trying the mixture of this substance with glue, that it has two effects beneficial to the manufacturer: first, in giving a dark colored glue a lighter shade and thus presenting an appearance of a higher priced article, and, second, in adding to the weight of the glue by the addition of a substance only about one tenth of its value. The beauty of this adulteration is that the sticking qualities—which are of course the only ones the consumer cares for—are not in the least deteriorated, but on the contrary seem improved.

P. H. Vander Weyde, M. D.

New York city.

Western Archæology.

Messrs. Editors:—Your reference in No. 1, current volume, to the researches of Dr. W. De Hass, in the rich mound field in Illinois demands a more lengthy notice. These explorations are the most important and extensive yet made in the West. They promise results of the utmost value to the science of archæology. Dr. De Hass has prosecuted these researches with great zeal and industry. His present field of operation is one of the most extensive in the United States. It incloses several groups of mounds numbering in all over 200, arranged with system, care, and judgment. The mounds have been regarded by some scientific men as natural, but these investigations have determined beyond a doubt their artificial character.

The relics of art discovered are numerous and interesting, and embrace a great variety of stone implements, weapons, and ornaments. Among them are some of an agricultural type, unlike any similar implements discovered in this country or Europe. These prove that the original occupants of the fine alluvial opposite St. Louis were agricultural as well as hunters and fishermen. These implements, of which quite a number have been secured from mounds and other ancient depositories, and the adjacent plains, are of flint. Two types prevail, one from five to fifteen inches in length and three to four inches in breadth; the other shaped like our domestic hoe. These are well and artistically made. The cutting edges of all show fine polish by attrition in the soil. One of them which I have examined is of a fine variety of quartz almost approaching chalcedony.

These early inhabitants of the West had attained great proficiency in working stone. The fictile art also flourished in much perfection, among them. They manufactured a great variety of utensils. They were all hand-made and generally sun-dried.

The collection of relics from mounds made by Dr. De Hass, is very extensive, and is a valuable acquisition to the archæological collections of this country.

Agricultural Machinery for South America.

Messrs. Editors.—Our farmers in this part of the world are not satisfied with either the Sickle Cradle, Reaping machine, or Header; but they want a machine which will thrash, winnow, and bag the grain at one operation.

We have some of Mr. Fowler's agricultural machinery here; some of them are on the two engine arrangement, each having the power of self-propulsion. They move over the headlands one on either side of the land under operation; the plow being pulled alternately back and forth by the engines which are 14-horse power each. I am told there are similar machines used in Australia but worked by horses. We want, in this case, a machine which can be worked by such engines as above mentioned.

I think no land could be imagined more suitable for the use of agricultural machinery than this country. The surface is slightly undulated with hardly a break to interrupt the rapid progress of the implement. The climate is also very favorable to produce abundant wheat crops. But the greatest advantage perhaps we have here is that the berry gets quite seasoned in the fields, so that it can go at once into the elevator without the risk of heating.

I presume that taking into consideration what has been said about our farmers, the engines, the machines in Australia, the climate, the formation of surface, and the seasoning of the berry, you will have a very clear idea of what we require here.

If you can inform me through your valuable paper or otherwise, of any similar machine already invented, or present the idea to your inventors for consideration, you would confer upon us here a favor and open a market for your manufacturers. Thos. Thomas.

Rosario, Argentine Republic,
South America.

Boiler Foaming.

Messrs. Editors:—Please find inclosed our subscription for renewal. We find your paper of invaluable service, and do not think we can too highly appreciate its known merits, containing, as it does, many valuable suggestions of no small importance to our business. We beg to lay before you one of our troubles, in the hope and belief you may aid us.

We have two boilers horizontally set, having each two fifteen-inch flues and connected by a steam cylinder or cross pipe about fifteen feet from the front of the boiler. From the center of this, or from a point over the space between the boilers, rises a pipe with a safety valve attached and a branch pipe leading steam to an engine cylinder twelve by twenty-four inches making eighty revolutions, placed eighty feet from the boiler, and having a very regular motion.

From the end of the cross pipe over the boilers leads a steam pipe of the same diameter as the other—two and a half inches, to a steam cylinder of the same dimensions, twelve by twenty-four inches—placed ninety feet from the boiler, and making one hundred and fifty revolutions per minute. The steam or leading pipe in both cases being boxed and packed with sawdust to prevent radiation of the heat and condensation of the steam.

These are the conditions; now for the facts. The first engine works water occasionally, three or four times a day; but stopping the engine will stop this trouble for some time; but the other—that at ninety feet distance—works water from the boilers in such quantities as to make the engine almost useless and this whether the water is high or low in the boilers. Water comes out freely from the exhaust pipe even when the lower gage barely shows water in the boiler, and water blows out also from the safety valve in large quantities even when the upper gage cocks are perfectly dry.

We have always used water from one source, an open well, the water of which is also used for drinking purposes; it appears to be clear spring water.

[From the statements given above we should judge tl at the water was changeable, as the overflow is intermittent. Another point for consideration is that the steam is taken off from the boiler at about over the first bridge wall, the hottest point, or where steam is made most rapidly; hence the water is carried up with the steam mechanically. If the cross connection or steam drum was placed immediately over the front end of the boiler or some eight feet further back than its present position, we think the condition of the steam would be improved and no water would be carried off with it. A float of wood or metal suspended in the boiler would probably be effectual in preventing foaming. It should be some two inches less in diameter than the diameter of the boiler at the water line. It should be secured by wires directly within the connections, the wires being of sufficient length to allow it to float on the surface of the water on the line of the lower gage cock.—Eds.

How to get the Right Shape of the Moldboard of a Plow.

Messrs. Editors:—Many years ago I used to run a cast-iron plow that "wouldn't scour" through the mucky soil of our western prairies. I had to carry along a wooden paddle for cleaning off at the end of each furrow, and I found the moldboard encumbered with a coating of dirt varying in thickness, but assuming curvilinear concave and convex lines that were always the same in the same soil. The thought occurred to me, that if the plow had been shaped like this clod of dirt upon it, it would have scoured, and saved me the trouble of carrying the "spatula"

Let the plow maker make any kind of rough plow; take it to the kind of soil adapted to his market, and run a furrow; then mold his patterns from this, with the dirt on, and I think he will "get a fit." C. B.

Lyons, Iowa.

Trenton, N. J., Box 136, July 20, 1868.

Messrs. Editors:—I am a young. unmarried man, active, energetic, used to business, with good references, etc., and a cash capital of about $10,000.

I would be glad of an opportunity to purchase whole or part interest in a really good thing. If, therefore, you ever give me a list of your patents, and such information as I may ask for, I shall be obliged to you, and shall be ready to make a fair offer, if anything suits. Yours, etc.,

Wm. H. Higbee.

[The proprietors of this paper don't engage in the sale of patents, therefore the above writer cannot be accommodated at this office. We presume, however, that some one of our 35,000 subscribers has a patent he is willing to part with for ten thousand dollars.—Eds.

How to Engineer a Claim through Congress.

The Washington correspondent of the *Cincinnati Times* says: "Another widow lady has been pressing her claims before Congress, and has also been successful. Her name is Martha M. Jones, and she is the administratrix of Samuel J. Jones, her husband, who obtained a patent some years ago for an improvement in zinc paint, which patent his widow desires to have extended. She is possessed of indomitable perseverance, is good-looking, intelligent, and highly educated. She stated her own case to the House Committee on Patents, and the bill she was interested in passed the House and went to the Senate. She knew if it was not attended to quickly, it would go over to the next session, and perhaps might not be acted upon for a year or two. Consequently, on Wednesday afternoon, she took a position in the marble room, and sending her card to various Senators, succeeded in gaining an interview with each one, for as one would come out to converse with her she would request him to send out another, and in this way she stated her case to all personally. She was a lady of winning ways, and worked upon the susceptibilities of the grave and dignified Senators till she succeeded in gaining all in her favor except Senator Willey of West Virginia, who stoutly opposed the bill. He was alone in his glory, however, for when the vote came to be taken he was the only one opposed, while all the rest were in favor of the bill, which of course passed, and the lady went on her way rejoicing. In the course of the debate Senator Willey 'twitted' his fellow Senators for being captivated with the intelligence and vivacity of the lady who had so eloquently pleaded her own case, which little piece of sarcasm caused quite a laugh among the 'the grave and dignified' legislators, all of whom 'acknowledged the corn,' and Reverdy Johnson frankly admitted that he felt a great admiration for the lady. The most amusing part of the debate was Senator Willey's effort to prove inconsistency upon the lady in her statements before the Patent Committee, of which Willey is a member. In her written statement she set forth that her beloved husband, Samuel Jones, was deeply distressed in mind one night, and could not sleep. About midnight he jumped up, exclaiming, 'I have it! I've got it!' meaning he had solved the problem of his invention. She begged him to come to bed, but he walked the floor all night, and in the morning made a practical test of his invention, which succeeded even beyond his expectations. This was all very pretty, but Senator Willey insisted upon it there was a material discrepancy in the statement, inasmuch as the Samuel Jones aforesaid had applied for and obtained a patent in England for the same invention two years before this affecting incident occurred. It was no use talking, however, against the appeals of a good-looking and interesting widow; so the worthy senator had all the opposition to himself, and came off 'second best.'"

Telegraph Lines.—In the report upon the Universal Exposition of Paris, prepared by M. Neumann, in the name of the Austrian Commission, it is shown that the telegraphic lines of the whole world have a total length of 47,255 geographical miles. There are in Europe 8,000 telegraph offices, and 4,000 in the other continents. No less than 1,300,000 hundred weights of metal have been used for the conducting wires, and the expenses of establishing all the lines are estimated at nearly $42,000,000.

Aurora Works the Telegraph.—During the recent displays of the magnetic storm, or Aurora Borealis, which was an object of wonder and admiration, the telegraph operators at Valparaiso and Fort Wayne, Indiana, curious to test its effect in working telegraph lines, disconnected the batteries from the line and put in ground wires, when they got magnetism sufficient to work the instruments quite well, enabling them to communicate with each other.

There will be another concession of prices for dispatches over the Atlantic cable after the 1st of September. The rate will then be $12 50 in gold for ten words between any part of Great Britain, and New England and New York.