ARTILLERY PRACTICE.

Trial of Gen. James' Rifled Cannon and Projectiles at Sag Harbor.

The Guns, Balls and Shells Used on the Occasion.

INTERESTING TABLES OF THE FIRING,

&c., &c., &c.

The present war has probably done more to develope the real strength of our people than perhaps anything else could have accomplished. It has thrown them more upon their own resources, and taught them to feel that in no way are they behind other nations. In the time of peace we boldly challenged the world to compete with us in our inventions. Reaping machines, sewing machines, engines, locks, &c., commanded the wonder and admiration of all, and our mechanics continued to astonish the world by the rapidity with which they produced this great labor saving apparatus. But now that rebellion and the prospect of a vast civil war have darkened our horizon, after a long continued and prosperous peace, the people of the United States are called upon to test their inventive powers in a way altogether different from that heretofore exercised. We have now rifles, pistols, swords, steam and breech loading cannon, together with an almost infinite amount of patent projectiles, intended to sweep our enemies off the face of the earth. The most prominent among them are James, Parrott, Hotchkiss, and others, and considerable rivalry exists as to which is the best. Each party, of course, claims the superiority of his invention, and has "friends at court" to urge his claim, and try and make the government adopt their pattern. James and some few others have a number of their guns and projectiles already in the service; but they have their favorites there as well as elsewhere, and it only makes "confusion worse confounded" to hear and read the various reports that emanate from our commanding officers, some of which speak in the most positive manner of the utter uselessness of a projectile that in a few days more is spoken of in the most flattering terms by some other officer equally experienced. Of course a great deal depends on the persons who fire the gun, as many fine and extremely useful inventions may be rendered perfectly useless by being operated upon by inexperienced persons, while, on the contrary, an inferior article may be made to answer the purpose, for a short time, by being handled by a person having a knowledge, both theoretically and practically, of the true principles of gunnery. Our naval and military officers have had too short an experience of practical war to condemn, upon a short examination, a thing that has been entrusted to them for an opinion as to its merits. A thing hurriedly looked at may be declared useless, which, upon a closer analysis, might be found to possess many good qualities. For this reason many of the new projectiles alluded to are being subjected to a severe test by the proper authorities, that there may be a fair decision rendered and no one wronged. We see no reason why there should be so much jealousy exhibited, as two or three inventors may accomplish the end desired by different means; and if so, there is plenty of room for both or all. The United States is building up an immense navy, and our seacoast will not be in the future left in the deplorably helpless condition that it is in at present, and has been for some time. The government has taken a timely step in the matter, and we shall want all the good guns that we can procure for some time. The great point to be attained, and to acquire perfection in which all are trying, is to successfully combine the greatest force with the greatest accuracy; and to accomplish this many have been vainly trying for years in all countries. Perhaps in this, too, America will stand pre-eminent, and claim her superiority as a nation of inventors, both in time of peace and of war.

One of the most prominent of these inventors is General C. T. James, the inventor of the projectile and cannon bearing his name. He has already a great number of his guns and balls in the government service; but he is anxious still further to show the excellence of them by repeated tests and critical examination by the best military and naval authorities that can be found. One of those interesting displays took place at Sag Harbor, L. I., last week, and the inspecting officer was no less a personage than Colonel Hudson, of General McClellan's staff, who has charge of the Ordnance Department, and bears the character of being one of the best artillerists in the United States. A graduate of West Point, he has made it a study for years, and thus stands very high as an experienced artillerist. Colonel Hudson was selected at the time of the commencement of our troubles to reinforce Sumter; but our readers are well aware of the sight that met his eyes when the vessels arrived off that fort to render assistance to that devoted little band of patriots.

The trial was to have taken place last Monday; but the extreme severity of the weather precluded all idea of such a thing, and it had to be postponed for a short time. The following days proving favorable, the firing was commenced on Tuesday afternoon, and continued daily until the afternoon of Thursday, when Colonel Hudson declared himself satisfied with the result, and the party left for New York that night.

THE GUNS USED.

The guns used by General James in his interesting experiments consisted of one forty-two-pounder, one thirty-two-pounder (both of iron) and one twelve and one six pounder brass pieces. The forty-two-pounder was mounted on one of the old fashioned gun carriages, such as were used in the olden time. It was rather stiff, but taken on the whole worked very well. The thirty-two-pounder gun had the advantage of being mounted on an entirely new carriage, made for it the day before, and the consequence was that the working of it was as near perfection as was possible without the aid of practiced artillerists. The small guns were both new, never having been fired before. Both of them were brought to the city by the steamboat for the express purpose of being used on that occasion. They were both mounted on the old style of gun carriage, that sadly needs the lightness and the finely finished appearance of the more modern carriage. They are both remarkably handsome pieces, and excited the admiration of all, not only by their performances, but also by their perfect finish.

The following table will show at a glance the weight of the pieces, together with the weight of the shot and shell each carries:—

Gun.	Weight.	Weight of Shot.	Weight of Shell.
42-pounder	9,400 lbs.	84 lbs.	77 lbs.
32	5,700 "	68 "	57 "
12	1,221 "	26 "	24
6	880 "	13½ "	12¼

The following will show the diameter of the bore of each gun, and the amount of powder used at each discharge:—

Gun.	Diameter of bore.	Charge of Powder.
42	7 inches.	8, 10 and 12 lbs.
32	6 4-10 inches.	6 and 7½ lbs.
12	4 62-100 inches.	2 and 2½ lbs.
6	3 80-100 inches.	1¼ and 1½ lbs.

Both of the large guns have seen service as smooth bore guns, the thirty-two-pounder being one of the government guns of that class that the General had rifled to throw his projectiles from. There are at least twelve, and probably fifteen hundred, of these guns lying at our various navy yards and government depots that have been declared useless. Take those guns and let them be properly rifled, and there would at once be placed at the disposal of the proper authorities an immense number of really valuable guns that are now lying perfectly useless. The transition would be simple and speedy. It will be seen in our table above that we give the diameter of the bore of the brass six pounder as 3 80-100 inches. This needs a little explanation. The regulation measurement is 3 67-100 inches; but in rifling them it was found necessary, in order to make a perfect groove, to cut away a small portion of the metal, making it as above. General James has adopted that size now in all his pieces of six pounds. The large guns have been for some time on the hill, and present a very formidable appearance with their huge black muzzles looking frowningly out upon the harbor, as if throwing defiance into the face of an approaching enemy. The smaller guns are carefully housed at night and attended with the same care that might be bestowed upon a thing endowed with life.

THE PROJECTILES.

It is in these that the invention of General James consists, which is the combination with a cylindro-conoidal projectile of an expansible ring or band, so that the expansive force of the gases generated by the explosion of the powder shall be exerted against the inside of the ring, and press it into the rifled grooves, thus giving it its rotary motion on leaving the gun. The mode of construction is to make the projectile with a broad recess or groove around it on the cylindrical part, from which recess ducts or passages extend through to the rear hollow end of the ball. To this is fitted a ring or band of metal, either lead or tin, so connected with the recess that it cannot be turned without communicating its motion to the projectile. This is covered with canvass saturated with grease. The force of the powder forces this up into the groove, stopping all escape of the gas, and giving the ball its terrific velocity and power.

It has been urged as an objection to this kind of projectile that the packing separates from it, and scatters, so that it might prove disastrous to some of the soldiers that it was not intended for, but the most reliable military authority states that it is no more dangerous than the ordinary wadding of a cannon, and, from our own experience, we can say that it is perfectly harmless. The Board of Officers appointed to inspect and report upon the projectile say, in regard to this:—"The observations of the Board on this point lead them to the conclusion that there is no more force in this objection than will apply for the same reason to the junk wads of heavy cannon."

For the shells a very simple and effective device has been adopted. It consists of an iron plunger set into the fuse hole on the end of the shell, with a shoulder to prevent its being forced into the cavity, and a nipple charged with an ordinary percussion cap. This plunger on the shell, striking any point or object at which it is aimed, is thrown forward with great violence against a brass head that is firmly secured into the head or end of the shell, exploding the cap and igniting the charge. A time fuse may be used, by inserting it into the point of the shell, with a few improvements. As no portion of the projectile touches the cannon but the canvass strip, it is utterly impossible for the gun to receive any injury by friction of two metals, thus rendering the grooves uneven. The Military Board referred to, in their report of the trial at Watch Hill, R. I., last year, say of the projectile—"that it is admirably adapted to the various calibres of guns now in use, requiring only that they be rifled, which can be done at any fort or place, and supplied with the proper ammunition," and "that in making new rifled cannon for use with James' projectile, the weight of the gun to throw the same weight of metal may, it is believed, be materially decreased." And they further recommend that fifty per cent of the serviceable cannon at our forts and arsenals be rifled at once and supplied with the necessary ammunition. The consequence is that General James has as much as he can do to supply the demand made upon him on all sides. The projectile was patented February 26, 1856, and reissued December 11, 1860.

THE SPOT SELECTED FOR FIRING.

The place on which General James' battery is mounted is a piece of open ground on the shore, that rises as it approaches the water, giving a natural elevation to a gun when it is lying at rest on the carriage. It completely commands the ship channel, and offers a terrible obstacle to the entrance of a hostile fleet, should such a thing be attempted. Immediately in front of it lies Cedar Island, at a distance of four miles, with its lighthouse, looking like a comfortable farmhouse. On the right of it is situated a dense woods, into which shot and shell may be thrown with the greatest safety, and the sand banks along the shore afford splendid targets. Stretched behind this eminence, to the right and left, lies the quiet and beautiful little town of Sag Harbor, with its handsome dwellings and tastefully arranged gardens, the cotton mill towering above all like a watchful guardian of its smaller and less pretentious neighbors. The steamboat wharf lies about a quarter of a mile to the left of the hill, and commands a splendid view of the firing when the General happens to try his favorites. It is also so situated as to command every point of the horizon, and from it a fine view of the harbor is obtained. Should we have trouble with any foreign Power, the peaceful residents of Sag Harbor need not fear intrusive visitors while they have a good battery of rifled cannon, properly mounted, upon that hill, and strong and brave hearts to man them.

THE FIRING—FIRST DAY.

Owing to the exposed situation of the battery and the heavy wind that was blowing, it was found impossible to try the guns with any degree of dependence on Tuesday morning, and it was accordingly deferred until the gale should have somewhat lessened. In the afternoon the guns were loaded and prepared for action, under the personal supervision of Colonel Hudson and General James. The first two shots fired were from the forty-two-pounder, with the intention of showing a straight shot and a ricochet shot on water. The distance selected for the first shot was one and three-quarter mile, the elevation of the gun being six and one-half degrees. The word was given to fire, and away sped the iron messenger on its errand, and well it performed it, striking a point on the bank within a few feet of the spot aimed at. The ricochet was next, and a splendid shot it was, skimming over the water, making three or four graceful curves in its course, which was straight as an arrow, notwithstanding the wind was blowing very hard.

The thirty-two pounder was next tried with a shell, at an elevation of three and a half degrees. The charge was six pounds, and the range one mile. Three of these shots were fired, two of them bursting in the bank aimed at, sinking themselves several feet before exploding. The other fell a little short, although perfectly in line. Two or three more shots were fired; but they had to cease on account of the high wind that prevailed, preventing accuracy at a long range. Although but a small beginning of the firing, Colonel Hudson expressed his pleasure at the result.

THE SECOND DAY'S FIRING.

Very little improvement was visible in the weather on Wednesday morning when the party arrived at the hill to commence the day's work. There was a perfect gale blowing, and the air was so bitingly cold as to laugh at gloves and overcoats, and render a hasty retreat advisable to all but those intimately concerned. The consequence was that the audience was very small, until the blowing abated a little, and the hill was more endurable. The firing on the second day was vastly superior to that of the first, and was continued both morning and afternoon. Several splendid shots were made, and some of very long range. The firing commenced at about eleven o'clock, two fine ricochet shots being fired from the forty-two pounder, both solid shot, weighing eighty-four pounds each. The effect of these ricochet shots on the water is very fine, and the spray they throw as they rise from the surface of the water is astonishing in its effect. At one time the ball will strike the water but once, dashing the spray in all directions, and then it will take an upward flight, and with a graceful curve bury itself in the woods miles away. At another time, when fired at a lower elevation, it will, after first touching the water, take six and even ten bounds before disappearing in the bank. The next shots were timed, the cannon being loaded with shell instead of ball. The following is a table of these shots, showing the length of time taken:—

Gun.	Projectile.	Range.	Elevation.	Time.
42-pdr.	Shell.	1¾ miles.	6 deg.	9 4-5 secs.
42-pdr.	Shell.	1¾ miles.	6½ deg.	11 1-5 secs.
42-pdr.	Shell.	2 miles.	7 deg.	12 3-5 secs.
42-pdr.	Shot.	3 miles.	15 deg.	20 1-5 secs.
42-pdr.	Shot.	4 miles.	28 deg.	26 secs.
42-pdr.	Shot.	5¼ miles.	28 deg.	38 2-5 secs.

We give the above as a fair sample of the whole, showing as it does the immense power of the projectile. Colonel Hudson made the remark that some of the shots made were the best he had ever seen; in fact, he could find no fault with any of them. Quite a number of the shots made were for the purpose of testing the accuracy of the firing at long ranges, both with shot and shell. Instead of the usual style of erecting targets at stated distances, and firing at them to determine the accuracy of the projectiles, different objects were selected, such as a clump of trees, or a spot upon some of the sand banks at a great distance from the battery. This system reduced the practice to what would actually occur upon the field of battle, and was the most severe test to which anything of the kind could be subjected.

One of the principal points in artillery practice is to make what are termed line shots, and to this much time was devoted. Several distances were chosen, such as one, one and three-quarters, two, and three miles, and the experiments went very far to prove the superiority of James' projectiles. In many instances the balls or shells would fall a little short or go some distance beyond the points aimed at, but in almost every case the shot would be in a direct line for the spot indicated. The audience, which by this time had greatly increased, would watch with breathless anxiety the course of the ball or shell, and as they saw it strike or burst in a line with the object, their admiration knew no bounds, and they would gaze at the cannons as if they were something supernatural.

After a recess for dinner the firing was commenced again; but it differed very little from the morning's practice. Several excellent shots were made—line, ricochet and long range shots—all of which gave the greatest satisfaction, everything working to a charm. At sunset the firing was ceased, and matters were put to rights for the next day's practise.

THE THIRD DAY'S FIRING.

On Thursday the firing was continued. The morning was remarkably fine, scarcely a breeze stirring the surface of the water, affording a most pleasing contrast with the two days previous. Quite a number gathered together on the hill to witness the trial, among whom were several ladies, who helped to enliven the scene, although artillery practice was entirely at variance with their ideas of enjoyment. Tuesday and Wednesday having been devoted almost entirely to the heavy guns, on Thursday the twelve and six-pounders were principally used. A target was placed on the beach, about one thousand yards from the gun, at which shot, shell and cannister were discharged. Some of the shots were splendid; but the target was soon rendered useless by the use of shell and cannister, smashing it into such small fragments as to be suitable only for firewood. The guns were then turned towards such targets as nature afforded, and they were legion. The guns were loaded with cannister for the purpose of showing its effect upon water, a thing almost impossible upon land, as it fails to show in what direction the balls go, while upon the water every shot and its effect is clearly seen. A second or two after the discharge of the piece the water would bubble as if a hail storm had suddenly struck it, and that at a distance that put any fear as to the injury of our own troops entirely out of the question. After being tired with this practice, line shots were again tried with the most signal success. A stake standing upright in the water, at some distance, was selected as a guide, and towards it all the shots were directed. The first went a little short, the second struck directly at its base, the third a little beyond it, and the fourth just grazed the top. Every one of these shots was in a line as direct as possible; not one of them would have missed an object as large as a horse, much less a regiment. A battery would not be secure from such firing unless entirely out of range.

As Colonel Hudson was desirous of reaching Washington within a certain period, it was deemed advisable to bring the firing to a close on Thursday, the Colonel having expressed his entire satisfaction at the result of the practice, there being no point at which the slightest objection could be made. Everything was perfect, and there was no unnecessary delay, as is customary upon such occasions.

As the General was anxious to show the effect at long distance of the guns, it was arranged that as soon as the steamer that contained the party bound for New York had reached a certain distance, three of the guns should be fired—the signal to be a dipping of the flag. As soon as the boat got just opposite Cedar Island lighthouse, the flag was dipped, and a white smoke from the shore was the response, shortly followed by a rushing noise, not unlike the passage of a railroad train. The shots rushed by the boat, and buried themselves at a long distance away in the water. The sound of the report came some time after booming over the surface of the bay, long after the flash and smoke of the discharge took place.

Thus ended the trial of James' projectile, and it will be hard to find a better or more certain battery than a few of his rifled cannon, furnished with the proper projectile, could supply. In all one hundred and two shots were fired, not any of them missing fire, nor the slightest accident occurring. We are at liberty to say that Colonel Hudson is extremely gratified at the result of the firing. General James is busily engaged manufacturing from two to three batteries a week of his rifled cannon and projectiles, both for the government and for State purposes.

THE HON. C. T. JAMES.

General Charles T. James, ex-United States Senator, the owner and patentee of the projectile bearing his name, is a person who, although not what may be termed a professional artillerist, has studied the thing deeply, and has been many years devoting his leisure time to the improvement of projectiles, both of the cannon and the smaller arms. Long before the now famous Minie ball had been publicly endorsed General James used the identical pattern, and has at the present time in his possession the original moulds that he used in their construction. His present ball and shell are not the idea of an hour, brought forth by our present troubles; they are the result of many years' hard study and a persevering industry.

He is by profession an engineer, and used to manufacture on a very large scale for the various mills throughout the States, having at times as many as nine thousand or ten thousand people employed by him.

He was elected United States Senator from Rhode Island in 1851, for the long term of six years, and in 1857 returned again to private life. He was Major General of the Rhode Island militia, from whence originated his title of General, one that he is generally known by by all.

Competent judges have declared him to be one of the best unprofessional artillerists that is to be found in this country.

The New York Herald and Its Foreshadowings of Public Events.

THE QUESTION OF THE RECOGNITION OF A DISSOLUTION OF OUR UNION BY ENGLAND OR ANY OTHER EUROPEAN POWER.

[From the New York Herald of May 22, 1861.]

OUR RELATIONS WITH FOREIGN POWERS.

WASHINGTON, May 21, 1861.

Our government, it is quite understood, have decided on their course should any foreign Power display any disposition to truckle to the rebel States. Any act of intervention which affords direct advantage to the insurgent States, and which tends to hamper or obstruct the action of our government will lead to the most decisive measures on the part of the administration. Frequent consultations are taking place on the best means of avenging any interference in this domestic brawl, by England or other Powers, and a complete programme, it is rumored, will shortly be settled upon.

It appears that more than a month ago our government gave notice to the Powers of Europe who took part in the Congress of Paris, in 1856, that they were willing to accept the code they adopted at that period, which declared privateering to be piracy. How, then, will it be possible for England, one of the Powers in question, to refuse to accept the unqualified offer of our government to adopt their own code? And how will it be possible for her after this, to treat the rebel States simply as belligerents, however plaint may be the opinions of the legal advisers of the crown? Is England disposed to become the patron and partner of pirates?—for such her own laws pronounce privateers to be.

This timely act of our government places England in a false and untenable position if she persists in regarding the privateers of the South merely as belligerents.

This movement in the British Parliament is considered by the administration merely as a party measure, meant chiefly to embarrass Lord Palmerston. They feel sure that the people of England are strangers to it.

It will be gratifying to the country to learn that our government has received the amplest assurances from Austria that she will have nothing to do with the rebel States whatever; whilst Prussia has not hesitated to manifest in plain terms her unequivocal sympathy with our country.

The Secretary of State has given notice to Mexico and to other States that the Monroe doctrine will be carried out with all the energy and resources of the government, and that nothing in the shape of foreign intervention will be tolerated or submitted to for a single hour. Mexico has been assured in the most positive language that she can depend on the active and determined support of this country, should any European Power attempt to violate her soil. A warning has been given to Spain that if she ventures to accept the artful proffer of Dominica she will do so at her peril. This subject is one of too much delicacy to treat with freedom; but if I may infer from the droppings of those who are the best informed, I should say that Spain would do well to exercise the utmost discretion in her foolhardy attempts to extend her dominion in this part of the world.

It is certainly remarkable that the three most despotic European governments, those of Prussia, Austria and Russia, have hastened to express their sympathy with our internal troubles, and intimate their indisposition to give any direct or indirect aid or comfort to the Southern rebels, while the rulers of England and France, whose boast is a certain liberality of political sentiment and action, are slow in assuming a position on the side of law, and justice, and humanity, against anarchy, usurpation and barbarism. Russia has evidently well remembered the American sympathies shown to her during the Crimean war.

The government regards with absolute certainty the speedy termination of our domestic difficulties should the rebel States receive no aid or comfort from England, and they are quite resolved not to deliberate for a single moment should England manifest any such insane disposition, but to launch against her the thunderbolts of a war that would not cease till every Power in Europe was involved. On this vital matter the President, the Secretary of State and all the Cabinet entertain but one view, and are animated by the same sentiments. They feel they can rely to any extent on the courage and energy of the nation, which will sustain them at every sacrifice against England and all the world, when they see their dearest rights assailed and their best interests rudely trampled on. It is fortunate for the country, at this momentous crisis, that there should be no division of counsels as to the best and safest policy both at home and abroad. It is equally fortunate that the President and Cabinet put so high an estimate on the sagacity and firmness of the Secretary of State, as well as upon his thorough knowledge of the condition and interests of Europe, that they are content at all times to defer to his views and support his suggestions. It cannot but fill with surprise all who may have followed the career of this able statesman to see his usual caution and moderation suddenly converted by the force of events into boldness and decision. It is consoling to think that whilst the portfolio of the State Department is in his hands there will be no blunders to regret, and certainly no timidity to deplore.

THE TRENT SETTLEMENT.

IMPORTANT FROM WASHINGTON—MASON AND SLIDELL TO BE DELIVERED UP IF DEMANDED.

[From the New York Herald of Dec. 21.]

According to our latest advices from Washington, all apprehensions of a rupture with England upon the late affair of the Trent may be dismissed. Our Cabinet, we are informed, looking to the absorbing and paramount issue—the suppression of this Southern rebellion—will yield to the present demands of England as the conditions of her neutrality, even if these demands involve the restoration of Mason and Slidell to the protection of the British flag, and a disavowal of and an apology for their seizure by Captain Wilkes.

In adopting this alternative of submission to these peremptory demands, the administration runs the hazard of disappointing the popular sentiment of our loyal States. But a little reflection will satisfy every intelligent mind of the wisdom of deferring a final settlement with England until we shall have made an end of this Southern rebellion. There have been some conjectures that arbitration may be resorted to; but it is better gracefully to yield to the exigencies of the crisis, and promptly relieve England of her convenient pretext for a quarrel, without the intervention of any third party. Let our government, then, meet the requisitions of Lord Lyons, in the restitution of Mason and Slidell to British protection, and in an acknowledgement that, while Captain Wilkes would have been right in seizing the Trent steamer and in bringing her before a prize court for adjudication, he was wrong in limiting his proceeding to the seizure of his prisoners; and that we regret that his controlling considerations of international courtesy and leniency should have resulted in the very offence which it was his particular object to avoid.

An explanation of this character, we presume, will be considered amply satisfactory, as an atonement to the insulted flag of England. It may be painful and humiliating to us. But who will reproach the surprised traveller for yielding to the demand of "Your money or your life," with the highwayman's pistol at his head? Our government will be amply justified in this reparation by the public opinion of our loyal States, considering the rejoicings of our rebellious States at the prospect of securing the aid of England's fleets and armies in the enterprise of the occupation of Washington. We are called upon now to exhibit the virtues of patience and moderation towards a domineering foreign Power, and to submit to its arrogant demands and pretensions, in order to grapple the more effectively within insolent domestic enemy beleaguering our national capital. But as Rome remembered Carthage from the invasion of Hannibal, and as France remembers St. Helena, so will the people of the United States remember and treasure up for the future this little affair of the Trent.

Nor do we suppose that the pacific solution of this difficulty, upon the basis of England's offensive ultimatum, will be without equivalent or compensation. We expect that it will secure a more decent regard hereafter for England's professions of neutrality than she has heretofore exhibited; that such scandalous neutral hospitalities as those lately extended to the piratical steamer Nashville, at Southampton, will not be repeated; and that such commercial ventures as that of the steamer Bermuda to Savannah will cease to be made by British subjects from English ports, under the connivance of her Majesty's government. Granted that these demands of England in this matter of Mason and Slidell were framed for war, and not for peace, we have the right to call for a faithful adherence to this peace which has been conceded where war was expected and designed. But we are asked why these humiliating concessions upon a quibble and a pretext? If England's purpose is war, will she not find some other pretext upon which there can be no concession? We answer, that by yielding to the arrogant demands of England upon this pretext of to-day we shall have reduced her to bonds of peace from which she cannot escape except as a reckless filibuster, liable to be outlawed by every other European Power.

Meantime, with the re-establishment of our peaceable relations with England, we shall be at liberty to bring our whole military power to bear by land and sea upon this domestic rebellion. We hope, too, that, admonished by the restless impatience of England and France for cotton, President Lincoln and his Cabinet will vigorously push forward the movements of our fleets and armies, and put an end to all European notions of an inevitable Southern confederacy by the speedy overthrow of the spurious revolutionary league of Davis and his confederates. Then, with this rebellion suppressed, with our revolted States restored, with an army of a million of men in the field, with a powerful navy, including a good proportion of iron-plated ships, and with our seacoast and frontier defences upon a war footing, we shall have the power to settle, not only our outstanding accounts against England, but the power to prescribe the extent and the limitations of European authority on this continent.

Fire at Hornellsville.

HORNELLSVILLE, Dec. 26, 1861.

A fire this afternoon destroyed the Rose & Turtle block, a three story building, and two dwellings adjoining. Also, Livingston's liquor store, A. Pope's manufactory, reading room, the Masonic Evening Star Lodge and Russell's paint rooms. Insured in the Home, New York and Hartford Companies. Loss $6,000 to $10,000.

TOTAL ECLIPSE OF THE SUN.

The Law of Eclipses—The Eclipse of the Sun this Morning—Diagrams of the Phenomenon at Different Points of the Globe, &c.

The almanacs of 1861 have stated that a total eclipse of the sun was to take place to-day, visible only as a partial one at Washington.

Before entering upon a description of the present eclipse, a few simple words on that portion of the law of eclipses referring to that of the sun may not be out of place. An eclipse of the sun is caused by the moon in its transit around the earth passing between the sun and the earth; and, as both moon and earth receive their light from the sun, the first in passing obscures from the earth the light of the last, causing a partial darkness. At those places where the total eclipse is seen in its entirety a darkness is thrown upon the earth almost equal to night, so much so that birds have even been known to go to roost. An eclipse of the sun can only take place when the moon is at that phase known as new moon.

By the lunar tables of Hansen and those of the sun by Le Verrier, the path of the centre of the shadow during the present eclipse will be as follows:—

PATH OF THE CENTRE OF THE MOON'S SHADOW OVER THE EARTH DECEMBER 31, 1861.

[Mean time at Greenwich, which is nearly five hours later than at New York.]

At M. T. Gr. h. m. sec.	In Lat. North. deg. min.	In Long. West. deg. min.
ECLIPSE CENTRAL.		
0 18 39	19 36.6	85 7.0
18 42	18 56.6	83 30.4
19 0	17 51.8	81 0.4
20 0	16 14.8	77 6.3
21 0	15 14.9	74 51.8
22 0	14 28.6	73 0.1
23 0	13 50.0	71 25.8
24 0	13 16.9	70 4.8
25 0	12 47.2	68 50.8
26 0	12 20.2	67 41.8
27 0	11 55.8	66 38.3
28 0	11 33.8	65 39.4
29 0	11 13.8	64 44.2
ISLAND OF MARGARITA.		
0 30 0	10 55.1 N.	63 52.3 W.
NORTHEAST EXTREMITY OF VENEZUELA.		
0 31 0	10 37.5 N.	63 2.9 W.
GULF OF PARIA.		
0 32 0	10 21.0 N.	62 15.8 W.
ISLAND OF TRINIDAD.		
0 32 30	10 13.1 N.	61 53.0 W.
33 0	10 5.5	61 30.7
ATLANTIC OCEAN.		
0 34 0	9 51.0 N.	60 47.5 W.
35 0	9 37.4	60 5.9
36 0	9 24.4	58 25.7
37 0	9 12.1	56 46.9
38 0	9 0.5	55 9.3
39 0	8 49.6	57 32.9
40 0	8 39.3	56 57.5
45 0	7 54.9	54 13.8
50 0	7 21.0	51 47.4
55 0	6 55.2	49 33.9
1 0 0	6 36.6	47 30.6
5 0	6 24.0	45 35.2
10 0	6 16.7	43 46.2
* 15 0	6 14.4	42 2.5
20 0	6 16.5	40 22.9
25 0	6 22.8	38 46.9
30 0	6 33.1	37 13.8
35 0	6 47.3	35 43.1
40 0	7 5.2	34 14.0
45 0	7 26.8	32 46.1
50 0	7 52.1	31 19.0
55 0	8 26.9	29 52.3
† 58 40	8 44.2	28 48.6
2 0 0	8 53.3	28 25.5
5 0	9 29.5	26 58.0
10 0	10 9.7	25 29.4
15 0	10 53.8	23 59.1
20 0	11 42.1	22 26.5
25 0	12 35.0	20 50.7
30 0	13 32.9	19 11.0
AFRICA.		
2 35 0	14 36.0 N.	17 26.2 W.
40 0	15 45.5	15 35.1
45 0	17 1.8	13 34.9
50 0	18 26.5	11 24.1
55 0	20 1.4	8 58.4
3 0 0	21 49.2	6 12.2
5 0	23 55.3	2 55.2 W.
10 0	26 29.2	1 13.1 E.
12 0	27 43.5	3 16.6
14 0	29 9.5	5 43.6
16 0	30 54.3	8 49.6
17 0	31 59.1	10 48.8
MEDITERRANEAN SEA.		
3 18 0	33 20.9 N.	13 23.6 E.
19 0	35 28.7	17 39.0
19 12	36 17.6	19 21.2
19 18	37 7.2	21 7.8
GREECE.		
3 19 17.7	37 32.5 N.	22 3.2 E.

*Least north latitude of Central Path.

†Central on the meridian of the Place.

The centre of the shadow first touched the earth at a point in the Caribbean sea about two degrees south of Cape San Antonio, Cuba; it thence passed in a southeasterly direction, a little south of Jamaica, north of Curacoa, across the island of Margarita, the northeastern extremity of Venezuela and the southwestern extremity of the Island of Trinidad, to the Atlantic Ocean, where, in longitude forty-two degrees west, it attains its least north latitude, six and one-fourth degrees; then changing its course to the northeast it touched Africa near Cape Verd; thence passed across Senegambia, the Great Desert, Tripoli, and the Mediterranean to Greece, where it left the earth near the ancient city of Corinth, having occupied in its passage across the earth three hours and forty seconds.

The width of the moon's shadow on the earth did not at any place exceed forty miles, and the duration of total darkness a minute and a third; where the moon was low the width of its shadow did not exceed ten miles, and the duration of totality lasted only a few seconds. In the southwest part of Trinidad it was fifty-nine seconds. Nevertheless this eclipse will be the last total obscuration of the sun which occurs under favorable circumstances for observation until that of April 25, 1865, since, although the moon's shadow will reach the earth on May 5, 1864, it barely does so, and only in distant points of the Pacific Ocean.

The whole of the eclipse has been visible as a partial one in the British Provinces of Prince Edward Island, New Brunswick, Nova Scotia and Newfoundland, but at all places in the United States except Eastport the sun did not rise until after the commencement of the obscuration. Throughout the Atlantic States, however, the sun rose before the greatest obscuration, and before the end, at all places situated east of a line drawn from a southern extremity of Texas to the middle of Lake Superior; west of that line the eclipse ended before the sun rose.

The following is the time announced by astronomers when the eclipse shall have commenced at the various places named:—

At Charlottetown, Prince Edward's Island, the sun's centre rose at 7h. 49m. A. M. (neglecting refraction), and the eclipse began at 8h. 7m. 1s., at a point in the right side of the sun, 106½ degrees from the vertex, as seen through a telescope, which does not invert. The magnitude of the obscuration will be three digits.

At Halifax, N. S., the sun's centre rose seventeen minutes to eight o'clock, and the eclipse began at twenty-four seconds past eight, at a point 102 degrees from the vertex to the right.

At Eastport, Maine, the sun's centre rose at sixteen minutes to eight o'clock, the eclipse having commenced thirty-two seconds previously at a point 99 deg. from the vertex to the right.

At Harvard College Observatory, Cambridge.
Latitude 42 deg. 22m. 48 sec.; longitude 71 deg. 7 min. 39 sec.

	H.	M.	Sec.	A.M.
Sun's centre rises (neglecting refraction) about 17 min. after beginn'g	7	34	40	A. M.
Greatest obscuration	8	3	54	A. M.
Eclipse ends	9	6	59	A. M.

Digits eclipsed 4 deg. 21 min., or about a third.

At New York the end will take place a few minutes earlier.

At Key West, latitude 24 deg. 32 min. 58 sec. north, longitude 81 deg. 48 min. 7 sec. west, the most southern point of the United States.

	H.	M.	Sec.	A.M.
Sun's centre rises (neglecting refraction) December 31	6	48	0	A. M.
Greatest obscuration	6	56	28	A. M.
Eclipse ends	8	5	7	A. M.

Digits eclipsed, 10 degrees, 2 minutes, or more than five-sixths.

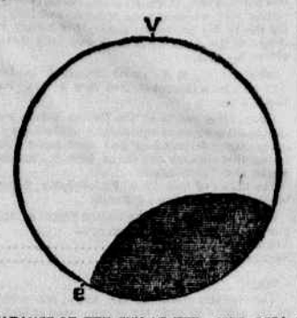
At the city of Chicago, Ill., latitude 41 degrees 53 minutes 48 seconds, longitude 87 degrees 37 minutes 45 seconds, the sun's centre rose at twenty-eight minutes to eight o'clock, and the eclipse ended at eleven minutes and sixteen seconds to eight o'clock, or only sixteen minutes after sunrise.

At the city of Washington (Observatory), sun's centre rises at twenty-four minutes past seven, and the eclipse ends at thirty-six minutes eight-fifth seconds past eight A. M.

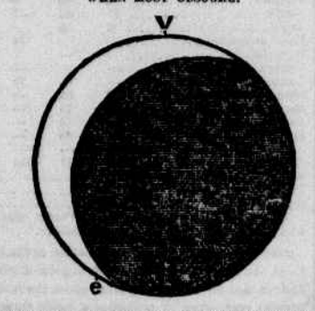
At the following cities the end of the eclipse will take place nearly as follows:—

	Sun rises. H. M.	Eclipse ends. H. M.
New Haven	7 31 A. M.	8 57¾ A. M.
New York	7 29 A. M.	8 52 A. M.
Philadelphia	7 27 A. M.	8 46 A. M.
Baltimore	7 25 A. M.	8 38¼ A. M.

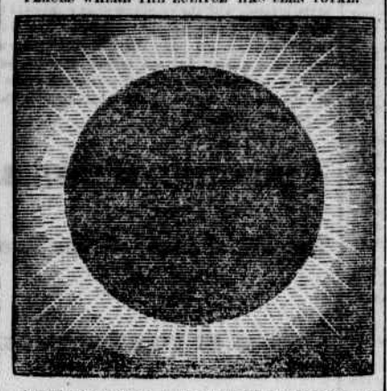
The following diagram will show that portion of the sun darkened at the time of the greatest obscuration at New York city. Time shortly after half-past eight A. M.:—



APPEARANCE OF THE SUN AT KEY WEST, CUBA, ETC., WHEN MOST OBSCURE.



APPEARANCE OF THE SUN AT THE SOUTHWESTERN PART OF TRINIDAD, NEAR TRIPOLI, AND ALL OTHER PLACES WHERE THE ECLIPSE HAS BEEN TOTAL.



A total eclipse of the sun at any particular place is of very rare occurrence, not happening oftener on the average than once in about a century and a quarter, yet as on the 31st inst. the line of the central eclipse will, in latitude 31 54 north, longitude 10 40 east (near Tripoli), cross that of the remarkable one of July 18, 1860, in that point and its vicinity, two total eclipses will be visible in less than eighteen months.

The next total eclipse of the sun visible in the United States occurs on August 7, 1869, when the shadow of the moon will pass over part of Virginia, &c.

In the year 1865 there will be two eclipses of the sun, both of which will be central on the continent of America.

The first occurs on April 25, when the moon is so very near the earth that where central near noon, the width of the moon's shadow will be about 175 miles and the duration of total darkness about five minutes. It will be central a little south of the city of Rio Janeiro, Brazil, &c.

The second, in 1865, happens on October 19, when the moon is almost at its greatest possible distance from us, the duration and width of the ring and the extent of the annular appearance will therefore be very large. The central line passes from Olympia, Washington Territory, to Charleston, S. C., and thence to Cape Verd Islands. At Charleston the duration of the ring will be nearly seven minutes, and where longest, nearly nine.

Board of Education.

An adjourned meeting of the Board of Education was held last evening—William E. Curtis, President, in the chair. After reading the minutes of the previous meeting, which were approved, a large amount of routine business was disposed of.

The annual report of the Finance Committee was then read, and ordered to be printed in pamphl