

upper extremity of the lever works in a slot in a plate, V, projecting laterally from the cylinder flange, I.

In operating with this machine, the plates to be riveted are suspended by an over-head tackle, in such a manner as to bring them between the dies, N and E. Then, on the plates being accurately adjusted, the attendant draws out the lever, T, which action admits the steam behind the piston, J, causing it to drive home the die carrier, M. On returning the lever to its original position, the steam enters in front of the piston, forcing it back in readiness for another stroke.

By means of this machine the work is done with greater regularity and without the disagreeable noise which is unavoidable in hand riveting. And the immense saving in time and cost will be apparent when it is stated that whereas, by the common process of hand riveting, three men and one boy can rivet only twenty-three three-quarter-inch rivets per hour, with this machine, one man and three boys can rivet with perfect ease and in the firmest manner, at the rate of six per minute, or three hundred and sixty per hour.

M. Lemaitre, of Paris, was the first to employ an independent steam cylinder for actuating riveting dies without the intervention of rotary movements, but in his machine a system of levers is interposed between the steam piston and the die, so that the action was far from being direct and simple as in the machine of the Messrs. Garforth.

M. Lemaitre's machine embodies an arrangement for holding the plates together during the riveting action; this consisting of a tubular presser, which descends in advance of the rivet die inside it. The object of this is, to prevent the metal of the rivet from spreading between the plates, and thereby rendering their contact imperfect; this defect has not, however, shown itself in the action of Messrs. Garforth's machine, which recommends itself both for its extreme simplicity and accurate action, and the consequent non-liability to get out of order.

NOTES ON MILITARY AND NAVAL AFFAIRS.

AN AVALANCHE OF GOOD NEWS.

As we go to press we are overwhelmed with the most cheering news from every direction. The vigorous preparations of the government seem to be at last completed, and we have begun to smite this rebellion with the whole power of the nation. We hear of the successful attack of the great naval expedition upon the forts at the entrance of Port Royal and the passage of a number of the vessels up to the town of Beaufort. In Eastern Kentucky a victory has been won by the Union forces under Gen. Nelson the most brilliant that we have obtained since the commencement of the war. The Union men of Eastern Tennessee are making war on the secessionists by breaking up the railroad and telegraph communications, burning the bridges, cutting the wires, &c. We also have reports, not yet fully confirmed, that General Price has been driven entirely out of Missouri into Arkansas, and that the privateer *Sumter* has been at last really captured.

THE NAVAL EXPEDITION.

Beaufort, which has been selected as the point of attack of the great naval expedition, is situated on the coast of South Carolina, about midway between the cities of Charleston and Savannah which are 104 miles apart. A low swampy tract of land borders the sea at this point, and a network of bayous extending inland from the ocean, divides the land into a number of islands, upon the largest of which, Port Royal Island, the town of Beaufort is situated. The town is on Beaufort river, some ten miles inland from the coast, and the heads on both sides of the inlet had been fortified by the secessionists to prevent the entrance of our fleet.

The account derived from the Charleston *Mercury* is that the fleet made its appearance off the entrance on Thursday, Nov. 7, and while some of the ships engaged the batteries at the entrance, others pushed on up to Beaufort, and preparations were being made to land the troops. The attack of our vessels was completely successful, soon silencing most of the guns in the batteries. One of our vessels was burned, forming a magnificent spectacle. The guns were successively discharged as the fire reached them, sending their shells ashore. The crew escaped through a hot

fire from the enemy. A vessel has arrived at Fortress Monroe direct from the fleet fully confirming the news of the success of the expedition.

THE VICTORY IN KENTUCKY.

The following is the brief telegraphic account of this brilliant affair:

CINCINNATI, Nov. 12, 1861.

General Nelson met the rebels under General Williams at Pikeville, Pike county, Ky., on Friday last, and gained a glorious victory. Colonel Luke Moore attacked the rebels in the rear with 3,800 men, while Colonel Harris, of the Second Ohio Regiment, with 600 men, attacked them in the front, Colonel Harris falling back and Colonel Moore pressing forward, until the enemy were brought into the midst of General Nelson's brigade, when our forces pressed them on all sides, killing 400 of them and taking 2,000 prisoners. The balance scattered in all directions. The Union loss is small. Generals Williams and Hawes are among the prisoners.

Pike county is the most easterly county in Kentucky, about in the middle of the border running north and south.

THE DESTRUCTION OF GUYANDOTTE.

We have the following horrible account by telegraph from Cincinnati, dated Nov. 12th:—

The defeat of the Union forces at Guyandotte was accomplished by trickery on the part of the inhabitants. It seems that a force of rebel cavalry, variously estimated at 500 to 1,000, had concentrated in the country back of the town. These proposed, with the assistance of the rebel inhabitants of Guyandotte, to annihilate the Union forces in the town. This force consisted of 250 Virginians belonging to a Virginia regiment, and a few of Colonel Zeigler's Fifth Virginia Volunteers.

It was arranged between the rebel cavalry and the rebel citizens to massacre our troops in cold blood. Accordingly, the rebel citizens were very kind to our troops last Sunday evening, and invited them to their houses on various pretexts, and all who were off duty accepted the invitation. While they were being entertained, at about half-past eight o'clock, the rebel cavalry dashed into the town. Signals were displayed from every house where the Union troops were, and into these the rebels rushed, murdering the unarmed soldiers in cold blood. The rebel citizens—men, women and children—rushed to arms, and aided the cavalry in the slaughter. The Union troops in camp prepared as soon as possible for defence, but were overpowered, and had to break. Very few men were killed in the engagement with the cavalry, nearly all being murdered in the houses.

When Colonel Zeigler arrived, and on learning the particulars of the affair, he ordered the destruction of the town. The buildings were immediately fired, and the whole town is now reduced to ashes.

MISCELLANEOUS.

Important changes are officially announced in two of the military departments. Major-General Henry W. Halleck is appointed to command the department recently under Gen. Fremont. It consists of Missouri, Iowa, Minnesota, Illinois, Arkansas and that portion of Kentucky west of Cumberland river. Gen. Halleck is considered one of the ablest officers in the army. General Don Carlos Buell is appointed over Ohio, Michigan, and that portion of Kentucky east of the Cumberland river, and the State of Tennessee. Gen. Hunter is appointed to command the department of Kansas, to include the State of Kansas, the Indian territory west of Arkansas and the Territories of Nebraska, Colorado and Dakota. The Department of New Mexico, to consist of the Territory of New Mexico, is to be commanded by Colonel E. R. S. Canley, United States Army.

Advices from the Kanawha state the secessionists, who had been shelling the camp at Tompkins from Cotton Hill, had retired upon the approach of a force under Col. De Villiers. Nine of the enemy's pickets were killed; but no loss on our side. Col. De Villiers has taken possession of the hill.

The people of Maryland, at their recent election for State and judicial officers, have shown their devotion to the Union in a most unmistakable manner, by giving immense majorities for the Union candidates. At the last accounts Maryland had organized already, or was in process of completing, twelve regiments; a result really gratifying to think of after the desperate efforts made on all sides to cause her to abandon the Union.

Casper D. Schubarth, of Providence, R. I., has been awarded a contract for the manufacture of 20,000 Springfield rifles, at an aggregate cost of \$400,000.

A factory is being fitted up in Providence for their manufacture. Our readers will find an engraving of Schubarth's breech-loading rifle on page 136 of the present volume.

Quartermaster-General Meigs has come to the manufacturing districts to contract in person for army cloths. A very large amount of red tape will be cut in pieces by this arrangement. The presence of this faithful and capable officer will prove of equal advantage to the manufacturers and to the government, and will simplify and improve the arrangements for supplying the army. Gen. Meigs is unquestionably one of the ablest and best men in the government service. He knows his business without advice from others, and faithfully performs it. Gen. Meigs is a thorough military man, and had he been in command of the western department instead of Fremont we should not have had the disgraceful exhibit that now stares us in the face from that department.

We understand that Gen. McClellan approves the proposition for an exchange of prisoners. This has been his sentiment from the start, and declares that "the principle of an exchange of prisoners is demanded by the highest considerations of policy and humanity." This is sound logic, and would be carried out with a recognized government at war with us. If the government consents to an exchange of prisoners the Confederacy is thus far recognized, and would place us in a position toward the rebellious States similar to that occupied by England and France, against which several of our sensation daily papers protested in severe language, thereby injuring the course of our government very materially. We, however, favor some system of exchange.

The allowance of clothing to our soldiers is much greater than to soldiers in European armies. Our troops get one uniform coat and two sack coats a year, and a pair of trousers every five months. In the French army the allowance for three years is only one tunic and three pairs of trousers, while a shell-jacket is given every two years. In the Sardinian and Belgian armies, the great coat is expected to last eight years. But the great durability of the clothing of European armies is easily accounted for when we consider the care which is taken to insure good materials. Every yard of cloth is subjected to very minute and distinct examinations by boards of officers, assisted by experts who weigh it, shrink it and examine it inch by inch, against a strong light. They also apply chemical tests to detect the quality of the dye, and the manufactories are at all times open to inspectors, who watch the fabrication at every stage.

Shortly before his retirement, Lieut. Gen. Scott obtained positive information that his entire estate, all of which is situated in Virginia, had been seized and sequestered for the benefit of the so-called Confederate government. The current monthly pay, subsistence and allowance of Lieut. Gen. Scott, were, and by order of the President continue to be, while he is upon the retired list, as follows:—pay, per month, \$270; rations, per month, \$360; allowance for servants, per month, \$90; allowance for horses, per month, \$50. Total monthly pay, \$770—which makes an annual income of \$9,240.

It is understood that the necessary documents were taken out in the Naval Expedition to form, in the places occupied by the Federal troops, Territorial governments, to be in force until the authority of the United States is restored over an entire State, when the old State form will be reestablished.

The Norfolk (Va.) *Day Book* is now printed on brown wrapping paper, and the character of its editorials seems to have suffered corresponding degradation. Its last stroke of wit is this: that it has seen some candles made from the tallow and fat of dead Yankees, and that they are as bad as candles as the New Englanders are as men.

There are between two and three thousand people on that part of Mattaras banks extending for forty-five miles north of the Inlet. These are true to the Union. Many have come to our forts, and taken the oath of allegiance. By the action of the rebel forces they have been deprived of their means of subsistence, and are suffering great privations. A great public meeting was held in this city on the 7th inst to give aid and comfort to these devoted people. George Bancroft, the eminent historian, presided. Any one disposed to aid them can remit to J. M. Morrison, President of the Manhattan Bank, New York.

Cannonade.

In a general sense a cannonade is the act of firing artillery during a battle or a siege. Technically, a cannonade means an engagement between two armies in which the artillery alone is active, while other arms are either passive or do not, at best, overstep the bounds of mere demonstration. The most celebrated instance of this kind is the cannonade of Valmy, between the Prussians and the French, in 1792. The French general, Kellermann, awaited the attack of the Prussians on a range of heights, his artillery placed in front of his troops. The Prussians drew up on the opposite range of hills, brought forward their artillery and the cannonade began. The Prussian infantry formed several times for the attack, advancing a little, but, on the French remaining firm, withdrew before coming within musket range. In this way the day passed, but the next day the Prussian army began their general retreat. In most general engagements such cannonades occur. In the Sikh war, for instance, as we were, recently informed by a British officer at present in this city, who had been through the India campaign in 1842-5, the course of the British army was to pour a few volleys of artillery into the enemy, then charge, and wind up with cold steel. But, generally speaking, cannonading serves to fill up the intervals between a repulsed attack and another attempt to dislodge the enemy; and they form the *finale* of most drawn battles. A cannonade, however, is most frequently used for purposes of demonstration, rather for moral support on the side using it than for physical destruction against the enemy. A cannonade, unless in very exceptional cases, causes greatly disproportionate results compared to the amount of ammunition used. In the battles about to be fought in this country, especially between the armies on each side of the Potomac, artillery will play a more important part than in any wars recorded in history.

Iron Sides and Big Guns—Experiments.

A series of experiments have been completed at Shoeburyness, England, with a target, constructed like the side of the iron frigate, *Warrior*, in order to afford a practical test of its qualities in resisting the shot of the most powerful rifled guns. The target was 20 feet wide, and in height equal to the frigate's side above the water line. The firing occupied two days, and at a distance of 200 yards from the target. Three shells, filled with sand, were fired from a 100-pounder Armstrong; two shells from a 68-pounder cannon gun; the same number of shells, with percussion fuzes, were fired from the same guns. Three solid cast-iron shot were then fired with the 100-pounder Armstrong; one from a 120-pounder (called a shunt gun); two solid shot from a 68-pounder, and one 200 lb. shot from a shunt gun. A great number of shots were fired on the second day, from the same guns, with the same charges of powder. With the two days' firing not a breech was made in the target, and only one bolt was started. The most of the shot and shell were fired with 12 lb. charges of powder—some with 10 lb. charges; the 60 lb. shot were fired with 16 lb. charges, and the shunt gun, with 120 lb. shot, was fired with a charge of 20 pounds of powder. This one penetrated $3\frac{1}{2}$ inches into the plate, but did not break it. Two shot of a novel form were fired, from which it was expected the target would be pierced like a piece of pasteboard. These were solid, having steel cylindrical punches projecting. Each of these cost \$35, and was fired with a charge of 16 pounds of powder. One missed, the other penetrated three inches, and stuck fast close to a spot where the target had been previously struck with five shot and shell. The results of this firing have been very gratifying to the British naval authorities. They consider that the sides of the *Warrior* are invulnerable to the shot of the most powerful artillery in the world.

The English Botten Army Blankets.

The editor of the Boston *Commercial Bulletin* states that he went into the United States depot for army clothing, at the corner of Mercer and Howard streets, and examined the army blankets which have been imported from England. He pronounces them to be rotten and asserts that they are made of rags taken from the cast-off garments of the paupers of the United Kingdom. He says, "we took hold of one of these blankets in order to pull it out from under five

or six for examination, when the piece in our hands parted company from the main body." This piece he took to Boston, and it is now in the sanctum of the *Bulletin*. These imported blankets are gray, and are not at all like the army blanket of the British soldier, which is white, and made of excellent long wool; and is capable of enduring two years' hard service. Has the government been swindled in the purchase of these shoddy foreign blankets, and who is responsible for the fraud?

Hot Shot.

Col. Scott, in his able military dictionary, gives the following account of the manner of using hot shot, and the peculiar destructiveness of this missile. The reader will remember that it was hot shot which made Fort Sumter untenable for our gallant garrison; and it would be a curious retribution if, after Charleston is destroyed, the insurgents were in turn driven out of the forts in the bay by hot shot fired from the shore.

The charges for hot shot are from one-quarter to one-sixth the weight of the shot. With small velocities the shot splits and splinters the wood so as to render it favorable for burning. With great velocity the ball sinks deep into the wood, is deprived of air by the closing of the hole, and chars instead of burning the surrounding wood. It should not penetrate deeper than ten to twelve inches. Red-hot balls do not set fire to the wood until some time after their penetration. They retain sufficient heat to ignite wood after having made several ricochets upon water. The wads are made of clay or hay. Clay wads should consist of pure clay, or fuller's earth, free from sand or gravel, well kneaded, with just enough moisture to work well. They are cylindrical, and one caliber in length. Hay wads should remain in the tub to soak at least ten or fifteen minutes. Before being used, the water is pressed out of them. When hay wads are used, vapor may be seen escaping from the vent on the insertion of the ball; but as this is only the effect of the heat of the ball on the water contained in the wad, no danger need be apprehended from it. With proper precautions in loading, the ball may be permitted to cool in the gun without igniting the charge. The piece, however, should be fired with as little delay as possible, as the vapor would diminish the strength of the powder. Furnaces for heating shot are erected at the forts on the sea coast. These furnaces hold sixty or more shot. The shot being placed, and the furnace cold, it requires one hour and fifteen minutes to heat them to red heat; but after the furnace is once heated, a twenty-four pounder shot is brought to a red heat in twenty-five minutes; the thirty-two pounder and forty-two pounder shots require a few minutes longer. Three men are required to attend the furnace: one takes out the hot shot and places them on a stand to be scraped; another scrapes them and puts them in the ladle; and the third supplies cold shot and fuel.

Promotion in the French Army.

Up to the rank of captain inclusive, two vacancies in each regiment are filled by seniority, and the third by choice; and on the colonel rests the responsibility of these latter promotions, since he takes the initiative in presenting the officers he deems worthy of advancement, and without his consent it is impossible, no matter what interest may be employed, to secure the promotion of any subaltern under his command. Each year he makes a list of those officers in the different grades whom he considers most deserving and capable; he names four captains for the rank of *chef-de-bataillon*, or major, seven lieutenants for captains, and as many sous-lieutenants for lieutenants, together with any number of sous-officers he thinks fit for commissions. This list he submits to the inspecting general, who, after having personally examined the candidates, has the power of rejecting any of them whom he may consider unqualified, or of changing their respective numbers of merit, by placing No. 4 first, and No. 1 last; but he can neither add to nor travel out of the list presented to him by the colonel. The amended or sanctioned list is submitted by the inspecting general to the marshal commanding the district, accompanied by his own opinion and by him again it is laid before the Minister of War; and it is in this stage only that interest can be made available, as the minister may select any one, even the last upon the list for the step, though even he is without power to promote any officer not upon it.

ANCIENT CANNON.—Mr. James Bruce writes to say that in the arsenal of Dresden are to be seen several "organ cannon," one consisting of 64, and another of 100 tubes. That which was used before Gremenstein consists of twenty similar tubes; six of which form the lowest row; five the second; four the third; three the fourth, and two on the top. Each row turns on a swivel separately everywhere. It is proposed to construct similar guns for the martello towers, in England, to be fired by electricity or steam.

The French Telegraph on the Field of Battle.

A letter from Chalons, in the *Nord*, describes various improvements in the adaptation of the electric telegraph to the exigencies of active campaigning. The writer says:—"We have had experiments with the telegraph, which succeeded perfectly, and which are very curious. Means have been discovered to establish a portable telegraph. A carriage is constructed for that purpose, in which several cylinders or enormous bobbins are fixed, round which is rolled a quantity of iron wire of the thickness of a strong cord. This wire is passed by machinery into the box of one of the wheels, and according as the carriage moves the wheel turns and unrolls the wire. A platoon of cavalry soldiers follows. Two men alight at every fifty paces to raise the wire on a slight stick. Four others do the same while the first are moving forward, and raise the wire with a forked pole, which they fix in the ground, and which is fastened with cords strengthened with iron plates. The horses in the carriage go forward at a gallop, and the telegraph is fixed with extraordinary rapidity. The apparatus is worked in the carriage, which serves as an office. When it is intended to return, the action of the cylinders is reversed, and the carriage is turned round preceded by the men, who take down the poles, replace them in a light wagon, and wind up the bobbins."

An Extraordinary Compliment.

At the meeting held at the Cooper Institute on the 7th inst. in behalf of the North Carolina loyalists, Gen. Burnside, in his address, paid the following extraordinary compliment to Major-General McClellan:—

I do ask your forbearance for, your patience with, your confidence in, the young chief who has now assumed the command of our armies. [Great and enthusiastic cheering and waving of handkerchiefs. "Three cheers for McClellan," which were given, the audience rising and waving their hats.] I have known him most intimately, as students together, as soldiers in the field, and as private citizens. For years we have lived in the same family, and I know him as well as I know any human being on the face of the earth, and I know that no more honest, conscientious man exists than Gen. McClellan. I know that no feeling of ambition beyond that of the good and the success of our cause ever enters his breast. All that he does is with a single eye, a single view to the success of this government, and the breaking down of this rebellion. I know that nothing under the sun will ever induce that man to swerve from what he knows to be his duty. He is an honest, Christian-like and conscientious man, and now let me add one thing, that he has the soundest head and the clearest military perception of any man in the United States.

THE PNEUMATIC POST.—The London *Engineer* says that on the 15th ult. further experiments were made at Battersea for the purpose of showing the action of the pneumatic principle for the conveyance of passengers and parcels for the purpose of experiment. Two carriages only are used, each weighing about one ton, and loaded with 10 bags of gravel, each containing one cwt. These vehicles were drawn, or rather propelled, through the tube over a quarter of a mile long by the pressure of the atmospheric air in rather less than 30 seconds. At other trips a mattress was placed over the bags of gravel in each carriage, and some of the visitors passed through the tube. The journey was of course made in perfect darkness, but beyond this there was no unpleasant sensation whatever.

FRUIT PRINTING.—A German journal, the *Agromische Zeitung*, publishes the following:—"At Vienna, for some time past, fruit dealers have sold peaches, pears, apples, apricots, &c., ornamented with artificial bearings, designs, initials, names, &c. The impression of these things is effected in a very simple manner:—a fine fruit is selected at the moment it is beginning to ripen, that is, to take a red color, and paper in which the designs are neatly cut out is affixed. After a while the envelope is removed, and the part of the fruit which has been covered is brilliantly white. By this invention the producers of fruit may realize large sums."

By the latest arrival from England we are informed that there were only 300,000 bales of American cotton in Liverpool against 550,000 bales at the same period last year. The consumption of cotton in England has been greatly reduced, owing to the demand for manufactured cotton goods having fallen off to a very large extent. Many thousand barrels of flour that would otherwise be required for making starch and paste for cotton cloth will not be required.