

NOTES ON MILITARY AND NAVAL AFFAIRS.

When Gen. McClellan was called to the command of the Army of the Potomac he sought to restrain within reasonable limits the freedom of the press in the publication of military intelligence. There was no attempt at coercion, but journalists were appealed to to cooperate as far as possible to aid the government in suppressing the rebellion. Previous to the battle of Bull Run, which resulted so disastrously to our arms, every conceivable item of news concerning army movements was promptly spread before the public in the daily and weekly newspapers, and when the brave Gen. McDowell began his march toward Manassas all his movements were minutely described in sensation reports, so that all the enemy needed in order to know just what was doing to defeat him was to procure a file of some daily paper, and the whole story was before him. With the increase of the army, and conscious of the growing strength of the government, the press began less and less to respect the wishes of Gen. McClellan, and in its desire to gratify the intense thirst of the people for news, a return was had to the old sensation system of publishing everything that came within its reach. Jeff. Davis needed no spies to ferret out the operations of the government: the press told all, and a great deal more than proved on investigation to be true. The government has found at last that a reasonable censorship over the press was necessary, and accordingly it has issued an interdict which will in some measure prevent a premature publication of important military intelligence. The situation of the country is now exceedingly interesting, and there is no doubt that still greater movements are on foot than have yet transpired. A good deal of general information respecting them has been received in this city; but, with a desire to support the government to the fullest extent, we think all our cotemporaries should exercise extreme caution and respect for the mandates of the government.

Our summary of intelligence respecting military and naval matters will relate chiefly to what has transpired, and not to what the Government is intending to do. A few days more of patient waiting will reveal some gigantic operations. The city of Nashville is now occupied by the Federal forces under General Buell, and the flag of the Union is floating once more from the dome of that Capitol city.

The Confederate forces under Gen. Johnston were falling back at last accounts, on the line of the railroads toward Chattanooga, which is close on to the Georgia line. His forces are represented as discouraged and demoralized by the disasters which have attended them. Where they may finally make a stand, it is impossible to guess. With a view to secure the best interests of the cheated and deceived people of Tennessee, the President has appointed Hon. Andrew Johnson, now Senator from Tennessee, and one of the "noblest Romans of them all," Brigadier General and provisional Governor. He will repair at once to Nashville to organize a State government, and arm and protect the loyal citizens of that State, and will be furnished by the government with fifty thousand stand of arms for that purpose.

The gunboats that were disabled at Fort Donelson are completely repaired, and the *Carondelet*, which received fifty-four shots in that fight, had the impudence a week afterward to threaten Columbus. The *Pittsburgh*, which was deprived of her rudder, and damaged in other respects, went on to the ways one day, and came off on the next, "spilling for a fight."

Within one day last week, 20,000 troops arrived and departed from Cairo, and it is said that General Pope would lead 25,000 upon New Madrid, a town on the Mississippi river in the southeast corner of Missouri. The greatest activity prevailed throughout all the West, and blow after blow will be struck in good sledge-hammer style; we trust always with success.

Columbus, Ky., the proclaimed Gibraltar of the Mississippi, is no longer tenable. After an immense amount of labor and expense in fortifying this naturally strong position, and which was placed under command of the pet General Beauregard, has been evacuated, and is now occupied by the Union forces. This event took place on the 4th inst. under direction of General Cullum, Chief Engineer of General Halleck's staff. It is said that rats always flee

from a falling barn; thus it is with the Confederates. The roof of their edifice was knocked in at Forts Henry and Donelson, and out they run from their hiding places as fast as their legs can carry them. They threaten to make a stand at island number 10 in the Mississippi, 45 miles below Columbus, but it will not avail; the river must be cleared. Halleck and Foote will be after them with a sharp stick, and we may hope that ere long the "father of waters" will be free from obstruction, and our deluded fellow citizens return once more to their duty. Nobody knows where General Price is. He is fleeing before Gen. Curtis's forces far down into Arkansas.

Thus much for the Western department. Turning to the Eastern divisions, Major General Banks's forces have successfully crossed the Potomac at Harper's Ferry. This was accomplished on Tuesday, the 25th ult, and they have now possession of Bolivar, Loudon Heights, and Charlestown, the few rebel troops retiring as the Government troops advanced. There were but few inhabitants left in that country, and these were in a state almost of starvation. Refugees are now beginning to return to their homes.

The crossing was accomplished by means of a pontoon bridge, no accident resulting therefrom. General McClellan superintended this movement in person, and his appearance among the troops on the Virginia side, was attended with demonstrations of joy. He is a magnetic man, and has a strong hold upon the confidence and affections of his troops.

The Savannah *Republican* not only admits that the communication between Fort Pulaski and Savannah is wholly cut off but declares that the Unionists have erected three batteries on the river in the form of a triangle which it is impossible for any vessels in the rebel service to pass.

The military committee of the senate has reported favorably upon a bill to establish a national foundry, fixing its location on the tide water of the Hudson river. This is right and proper. There should be an establishment of this kind near this city.

A gentleman from Hunter's Bottom, in Kentucky, states that the cannonading at Fort Donelson was distinctly heard at that point. It is 200 miles in a straight line from Fort Donelson. The sounds were so distinct that the people were of opinion that a great battle was raging at Louisville. The Madison *Courier* also states that the sounds were indistinctly heard at that point. There must have been something of a noise at Donelson.

In looking at a shell after it is finished, many are puzzled to determine, there being but a single little hole in the hollow ball, how the core is taken out. The core is composed of sand and flour, and after being properly moulded and finished is placed in an oven and baked like a loaf of bread until it becomes hard. The hot metal, when it is poured into the mold, burns the flour out, and the sand crumbles so as to be easily taken out.

The St. Louis *Republican* says there are no armed rebel bands in the State of Missouri. The last military vestige of insurrection has been swept away. It declares that the loyalty of Missouri is fixed and immovable, and it is the duty of all her citizens to cheerfully acquiesce, since opposition is fruitless."

It is announced that the United States Collector at Louisville is authorized to make arrangements for opening trade along the Cumberland and Tennessee rivers, the same as before the rebellion, with the exception of articles strictly contraband of war.

Generals Buell, Smith, McClernand, Sigel and Burnside are promoted to the rank of Major Generals, for gallant and meritorious conduct.

Gen. Fredrick W. Lander, a brave and meritorious officer, in command of the forces at the extreme right on the upper Potomac, is dead. He received a wound at the battle of Ball's Bluff, and gradually sunk under its effects. He won fairly his honors, and died like a true soldier, with his sword upon his side. He was a warm personal friend of Gen. McClellan, and the order of the Commander-in-Chief which conveys a notice of Gen. Lander's death to the army is an eloquent and affecting tribute to the memory of the deceased soldier.

Generals Lloyd Tighlmon and Simon B. Buckner, are now safely housed in Fort Warren, Boston harbor. It is to be hoped that their power to do mischief, is effectually barred. The country cannot afford to let go its hold on these men.

Naval Intelligence.

THE ERICSSON IRON-CLAD GUNBOAT—Now called the *Monitor*, which has frequently been noticed in these columns, made a trial trip on the 3d instant, with a view to test the steering qualities, which were found on a previous trial quite defective. She left the Brooklyn Navy Yard in the morning, and steamed down the bay to about five miles beyond Fort Lafayette, returning to her anchorage in the evening. A naval commission, composed of Commodore Gregory, Chief-Engineer Garvin and naval constructor Hart, was appointed to accompany her.

The Commission report that her steering qualities are all that could be desired. One man steers her with perfect facility. She makes a complete revolution, in either direction, within three times her own length, and within five minutes of time. The guns were fired to test the question which had been mooted, of whether the concussion within the turret would not be so great as to injure seriously the ears of the men. First a blank cartridge was fired with the hatches in the roof open. Then a charge of canister, weighing 135 pounds, with 15 pounds of powder, with the hatches still open; and finally the same charge, with the hatches closed, as they will be under the fire of the enemy. It was found that in every case the concussion in every part of the interior of the turret was considerably less than when standing near such a gun fired in the open air. The sailors stationed at the guns, and who expect to handle them shortly against the enemy, all expressed themselves as much delighted at the success of the trial. The speed of the vessel by the ship log was 6½ knots, the engines making 65 revolutions. It is expected that after the grease gets out of the boilers, so that they will not foam, a considerable increase in the speed will be attained. The engineer of the vessel, Mr. Isaac Newton, reports that the engines work beautifully. The compass in the iron pilot house did not work altogether satisfactorily, but no difficulty is apprehended with regard to its adjustment. The *Monitor* is armed with two 11-inch columbiad guns, and will prove an ugly customer if her machinery works well.

IRON-CLAD SHIP.—The iron-clad vessel, now being constructed by Messrs Cramp & Son of Philadelphia, as we learn from the *Ledger*, is rapidly approaching completion. She is 245 feet long, 57 feet six inches beam and 25 feet hold. From the builders we learn the following details in reference to this vessel. She has two floor timbers to each frame, each 40 feet long, 18 inches deep and 13 inches thick; the balance of the frame is 10 inches thick and tapers from 17½ inches at the floor head to seven inches at the plank sheer. The spaces between the frames are fitted in solid from the keel to the plank sheer, and she is caulked inside and out before the plank is put on. She has eight courses of keelsons 20 inches deep and 14 inches thick, besides the main keelson, which is 20 inches deep and 18 inches sided. This keelson has two 1½-inch copper bolts to each frame, fastened through frame and keel, making over 200 copper bolts four feet six inches long and one and a half inches thick for the main keelson alone. The berth deck clamps and bilge streaks are nine inches in thickness. The gundeck clamps are eight inches in thickness, and those on the spar deck are seven inches thick. On each side of the keel are three courses of gar-board streaks and the planking on the flat of the bottom is five inches thick, gradually increasing in thickness from the turn of the bilge to the iron plating, where it is nine inches. The iron plating will extend the whole length of the strip four feet below the water and three feet above, and for 180 feet amidships will be carried up to the plank sheer. The average thickness of the timber behind this plating will be twenty-one inches. The spar deck will be covered fore and aft with one inch iron plates before the deck plank is put on. In order to prevent any violent rolling of the vessel at sea, there will be three courses of the planking on each bilge projecting outside of the bottom planking ten inches. The ship will be provided with extra steering apparatus so arranged that she can be worked without the rudder, if necessary. The weight of the hull of this ship will be 1,970 tons, the iron plating 820 tons, and the total weight, including outfits, machinery, fuel, &c., will be about 3,880 tons, and notwithstanding this weight, her draft of water will not exceed 15 feet when ready for sea. The machinery for this vessel is being constructed by Messrs Merrick & Sons.

The iron-clad gunboat built at Mystic, Conn., and described on page 131 of our current volume is now lying at the dock at Green Point. We examined her a few days ago, and were much pleased with the beauty of her model, and with her general appearance. Her armor will doubtless prove effective against any ordinary shells, and probably also against solid shot, except those fired from very heavy cannon. As the sides rise from the water's edge they slope inward, but not at a very sharp angle, probably sufficient, however, to deflect shot at short range; the case in which it would have the most force. The vessel is rigged as a brigantine, and as the standing rigging is of wire rope, it presents a very light appearance. We have little doubt that she will prove a very efficient and serviceable vessel of war.

Cannon Manufacture at Pittsburgh.

During the year past the following ordnance, chiefly of a heavy caliber, as we learn from the *Dispatch*, has been manufactured for the government at the Fort Pitt Works, Messrs. Knapp, Rudd & Co., Pittsburgh, Pa.

FOR ARMY.		
Description.	No.	Weight.
Twelve-inch rifle columbiad	1	52,005
Eight-inch howitzers	10	25,832
Seven-inch rifled columbiad	1	9,711
Eight-inch columbiads	51	428,600
Nine-inch heavy mortars	30	514,500
Four-and-a-half-inch rifled siege guns	20	71,000
Ten-inch columbiads	10	161,000
Ten-inch siege mortars	44	82,720
Eight-inch siege mortars	12	11,280
Total	179	1,366,648

FOR NAVY.		
Description.	No.	Weight.
Eleven-inch Dahlgren shell guns	3	57,300
Nine-inch Dahlgren shell guns	62	567,300
Thirteen-inch heavy mortars	14	240,100
150-pounder rifle blocks	9	158,400
80-pounder rifle blocks	19	241,300
50-pounder rifle blocks	36	306,000
35-pounder rifle blocks	47	244,400
Total navy ordnance	190	1,814,890
Add army ordnance, as above	179	1,366,648
Total of all ordnance	369	3,181,538

PROJECTILES, ETC.		
Description.	No.	Weight.
Nine-inch navy shells	1,820	125,580
Eleven-inch navy shells	829	106,941
Ten-inch navy shells	1,054	106,454
32-pounder navy shells	1,027	22,504
Total navy shells		361,569
Eight-inch mortar shells	1,000	40,000
Ten-inch columbiad shells	1,000	101,670
Nine-inch shells	1,600	110,400
Thirteen-inch mortar shells	6,000	1,890,000
42-pounder rifle shells	700	34,300
24-pounder shot	3,000	69,000
12-pounder shells	600	3,600
12-pounder spherical case shot	1,600	9,600
24-pounder spherical case shot	800	14,400
12-pounder shot	1,200	13,200
6-pounder spherical case shot	1,000	6,004
Total		2,301,170
Eight-inch mortar beads	6	4,800
Ten-inch mortar	10	18,000
Add weight of guns		3,181,538
Total		5,505,508
Add navy shells		361,569
Total weight		5,867,077

Or 2,938 tons of iron, nearly.

The extraordinary demand did not begin until the middle of April, 1861, and since that time the capacity of the works has been constantly increasing. The additions now making to the buildings will give a capacity many times greater than that comprehended in the above statement.

TREASURY NOTES BY THE CART LOAD.—Some curious experimental philosopher, it seems, has taken the trouble to measure bodily a certain portion—less than one-third—of the huge mass of government credit which our city banks in the last summer and autumn so loyally agreed to shoulder. Twenty-one millions of the amount in treasury notes at 7.30 interest, have just been delivered to the banks by Mr. Cisco, the sub-treasurer. They are found to consist of 72,829 separate obligations, in various denominations, from \$50 to \$5,000. By careful measurement they are ascertained to form a column of notes, piled singly, twenty-seven feet high, and moreover made a large load for the cart.

MIDDLINGS cotton are selling at 24 and 25 cents per lb. The market is dull and there has been a decline from the prices which prevailed a month ago.

FULMINATING SUBSTANCES.

In a variety of chemical combinations, it happens that one or more of the principles assume the elastic state with such rapidity, that the stroke against the displaced air produces a loud noise. This is called fulmination, or more commonly detonation.

Simple fulminating powder is made by triturating in a warm mortar, three parts by weight of niter, two of carbonate of potash, and one of flowers of sulphur. These substances should be triturated separately, then mixed. Its effects, when fused in a ladle, and then set on fire, are very great. The whole of the melted fluid explodes with an intolerable noise, and the ladle is commonly disfigured, as if it had received a strong blow downward.

If a solution of gold be precipitated by ammonia, the product will be fulminating gold. Less than a grain of this, held over the flame of a candle, explodes with a very sharp and loud noise. This precipitate, separated by filtration, and washed, must be dried without heat, as it is liable to explode with no great increase of temperature; and it must not be put into a bottle closed with a glass stopple, as the friction of this would expose the operator to the same danger.

Fulminating silver may be made by precipitating a solution of nitrate of silver by lime water, drying the precipitate by exposure to the air for two or three days, and pouring on it liquid ammonia. When it is thus converted in a black powder, the liquid must be poured off, and the powder left to dry in the air. It detonates with the gentlest heat, or even with slightest friction, so that it must not be removed from the vessel in which it is made. If a drop of water fall upon it the percussion will cause it to explode.

Brugnatelli made a fulminating silver by powdering a hundred grains of nitrate of silver, putting the powder into a glass, and pouring on it, first, an ounce of alcohol, then as much concentrated nitrous acid. The mixture grows hot and boils. By degrees the liquor becomes milky and opaque, and is filled with small white clouds. When all the grey powder has taken this form, distilled water must be added immediately to suspend ebullition, and prevent the matter from being redissolved. The white precipitate is then collected on a filter, and dried. The force of this powder greatly exceeds that of fulminating mercury. It detonates in a tremendous manner on being scarcely touched with a glass tube, the extremity of which has been dipped in concentrated sulphuric acid. A single grain placed on a lighted coal makes a deafening report.

A hundred grains of mercury are dissolved with heat in an ounce and a half by measure of nitric acid. The solution, when cold, is poured on two ounce measures of alcohol, and heat applied till an effervescence is excited. As soon as the precipitate is thrown down, it must be collected on a filter, that the acid may react on it; then washed and dried by a very gentle heat. It detonates with a very little heat or friction.

Three parts of chlorate of potash, and one of sulphur, triturated in a metal mortar, cause several successive detonations, like the crack of a whip, reports of a pistol, or the fire of musketry, according to the rapidity and force of the pressure employed. A few grains, struck with a hammer on an anvil, explode with a noise like that of a musket, and torrents of purple light appear round it. Thrown into concentrated sulphuric acid, it takes fire, and burns with a white flame, but without noise.

Six parts of the chlorate of potash, one of sulphur and one of charcoal, detonate by the same means, but more strongly, and with a redder flame.

Sugar gum, or charcoal mixed with the chlorate, and fixed or volatile oils, alcohol, or ether, made into a paste with it, detonate very strongly by the stroke, but not by trituration.

The chloride of azote is the most wonderful fulminating substance known. It is an oily looking liquid, and a small globule of it no larger than a grain of mustard seed, to which heat was applied in a glass, shivered it to fragments. A small globule thrown among olive oil in a tumbler, produced a most violent explosion, and broke the glass in pieces. A small grain of it when touched with a piece of phosphorus on the end of a penknife, shattered the blade to pieces in an instant. The iodide of azote is also a powerful fulminating substance, and detonates with the smallest shock.

A detonating powder can be made with 1 part by weight of the chlorate of potash, 1 of yellow prussiate of potash, and 1 of dry white sugar, carefully mixed together in a mortar, with a wooden spatula. Each substance should be reduced to powder by itself, otherwise it would be dangerous to pound them together. If to this powder 1 part of sulphur is added, a good percussive powder for guns is obtained.

The fulminating composition for percussion caps, consists of fulminating mercury 3 parts, chlorate of potash 5, sulphur 1, powdered glass 1.

Another kind consists of chlorate of potash 6 parts, sulphur 3, powdered glass 1, and pounded charcoal 1: these parts mean weight, such as one ounce for the unit. The chlorate of potash is exceedingly dangerous when rubbed with sulphur. These fulminating powders are affected by the force applied, and the rapidity of its action.

The British Wool Trade.

The London *Shipping Gazette* publishes some interesting statistics respecting the wool trade. The imports of colonial and foreign wool into England in 1861 prove that the progress of sheep farming in the British colonies has made rapid strides of late years. Although there was a slight falling off in the arrivals of wool last year from Hobart Town, Launceston, South Australia and India, the total supply from British possessions amounted to 329,417 bales, against 308,078 bales in 1860, being an increase of 21,339 bales. The total exports of English, Irish, and Scotch wool last year were upwards of 17,000,000 lbs., against 11,500,000 lbs. in 1860, and the increase in the shipments of foreign and colonial qualities was about 6,000,000 lbs. France stands first as the great consumer of British native wools; and Germany, as well as Belgium, has imported largely. About 30,000 bales of inferior wool have been exported to the United States.

A Splendid Work of Art.

The leading incidents of the present war are soon to be represented to the public by means of probably the most beautiful and effective panorama ever exhibited in this country. On the occasion of a recent visit to the national metropolis we entered the studio of Stanley, the well-known delineator of Indian life, and found that gentleman and Conant, of St. Louis, and Hillyard, of New York, and Lamb, now of Washington, and other eminent artists earnestly engaged on this great work, confident in their belief that it would be received with unprecedented popular applause, a belief in which we most heartily and hopefully concur. Art, which can honor every subject it commemorates, is itself honored when devoted to promoting the *amor patriæ* of the American people in this hour of anxiety and depression.

MOTION OF ELECTRICITY.—The mode by which the rate of motion of electricity was obtained by Prof. Wheatstone, is so curious that it deserves to be described. He caused the electricity from the common machine to pass through a long coil of insulated wire, in which were two or more breaks across which sparks must necessarily pass. A mirror was made to revolve with immense rapidity before this coil. The reflection of the sparks was thus thrown occasionally, when the mirror was in the right position, upon a canopy above, graduated in divisions. The reflection of one of the sparks was found always to lag behind the other, on account of the time occupied by the electricity in passing through the intervening portion of the coil, the effect of which was multiplied by the revolving mirror. The length of the coil between the breaks and the rate of revolution of the mirror being known, and the distance of the reflected sparks from each other being observed, the rate of motion of the electricity was easily calculated.

TOO LARGE A CONTRACT.—Jefferson Davis, in his inaugural message, says "events have demonstrated that the government had attempted more than it had power successfully to achieve." Instead of seizing Washington, sacking Philadelphia, and carrying the Confederate flag over the roof of old Fanueil Hall itself, he acknowledges, and facts demonstrate, that he cannot hold his own. He evidently feels that he has taken too large a job.

A 10-INCH round shot weighs 136 pounds.