NOTES ON MILITARY AND NAVAL AFFAIRS.

THE FIGHT AT FORT PICKENS.

Since our last we have an official account of the fight at Fort Pickens. It seems that Colonel Brown, the commander, attacked the forces of General Bragg, to punish them for their attack on him, and also for the purpose of stopping the operations at the Navy Yard. A noisy bombardment was kept up for two days, the 22d and 23d of October, between Fort Pickens and the beleaguring fortifications which surround it in a semicircle for an extent of some four miles. The Navy Yard was partially burned, and nearly all the guns in the rebel batteries were silenced. Two of our naval vessels, the *Niagara* and the *Richmond*, took part in the attack, and the former threw her 11-inch shell among the batteries with great effect. On the first day nearly all of the crew of the *Niagara* crowded on deck to witness the action; but on the second day the watches off duty were ordered below, where some of the men went quietly to sleep in the midst of the tremendous noise, while others amused themselves in playing backgammon.

EXPEDITION TO NEW ORLEANS.

The steamship *Constitution*, which left Boston Nov. 21st, with the 26th Massachusetts, and the Ninth Connecticut regiments, composing a part of General Butler's division arrived at Fortress Monroe on Saturday, Dec. 14th. The troops were landed on Ship Island, Mississippi, on the 4th inst., by some rebel steamers captured by our fleet.

Ship Island is off the coast of Mississippi, on the line of approach to New Orleans, not by the way of the mouth of the Mississippi, but by the way of Lake Borgne at the East. It is between New Orleans and Mobile, about equi-distant from the two cities.

MUSTERING IN KENTUCKY.

The hostile forces are accumulating in large numbers in Kentucky, and great events are anticipated there soon. Some anxiety has been felt for the command of Gen. Schoepf, which is near Sommerset in the South east part of the central portion of the state. At last accounts, however, he was fortifying himself and it was thought that his command was safe.

WAR WITH ENGLAND.

All other events are just now lost sight of in the grave danger of a war with England. By the arrival of the *Europa*, at Halifax we have news of the reception in England of intelligence of the capture of Mason and Slidell, the rebel emissaries, by Captain Wilkes. The wildest excitement prevailed throughout England, and nearly all of the papers were calling upon the government to demand reparation for what they hastily conclude is an insult to the British flag. The case had been submitted to the Law Officers of the Crown, and the London *Times* says :—

It is, we understand, the opinion of these jurists that the right of the Federal government, acting by its officers, was *confined to the visiting and the searching of the mail packet*; that if any men or things believed to be contraband of war had been found on board of her, the proper course was to *take her into port and submit the question to the Prize Court*, which would hear evidence and argument on both sides, and would have decided the case according to precedent and authorities.

The *Post*, a paper that has always been peculiarly hostile to this country, expresses the opinion that the British government will demand the surrender of Mason and Slidell, with very humble apologies for the insult. Great preparations are being made in England for war, the exportation of Saltpeter and sulphur is prohibited, and arms and soldiers are being sent in large numbers to Canada. In the midst of the excitement, Mr. Bright, the democratic member of parliament for Manchester, had raised his voice in favor of peace, and his friend Cobden of the same party had requested a suspension of opinion until the facts and the law were better understood.

The total number of arms bought in Europe since the beginning of the war is about 200,000. Many of them are poor in quality, and all quite inferior to American made guns. A proper encouragement of American gun makers by making all future purchases of them, will unquestionably become the policy of our government.

The most valuable portion of the city of Charleston, S. C., was destroyed by fire on the 11th and 12th inst. The account which comes from Southern papers is confirmed by the commander of the *Illinois* who passed within ten miles of Charleston on the evening of the 12th, and saw that a vast conflagration was raging in the city.

The "Prince Alfred" Gun.

The Liverpool *Albion* says :—Last week we noticed the result of some experimental trials with this gun, which were illustrative of several points at present under discussion with regard to the efficacy of different kinds of ordnance when applied as assailant to the gigantic floating batteries recently introduced into the naval service of this country, and also of France. The experiments noted last week showed that a spherical solid shot, 140 lbs. weight, propelled by 20 lbs. of powder, against a target placed at 210 yards distance, composed of teak 18 inches thick, and covered with wrought iron plate 4½ inches, neither perforated nor broke the target although the plate was deeply indented, and the whole target was driven completely out of its place and overturned, notwithstanding all the precautions used to prevent its removal. Previous experiments made under the immediate direction of the government had shown that the most formidable ordnance which has hitherto been brought against the iron-plated frigates was the old smooth-bore 68 pounders, weighing 95 cwt., the ball propelled by 20 lbs. of powder; or, at all events, that these produced a more powerful effect against iron cased targets or ships than any of the more modern rifled cannon with which they have been tested. Calculating from the effects produced by the guns mentioned, a supposition gained credence that, by increasing the caliber of the gun and the weight of the projectile, a correspondingly increased effect would be produced. To test this theory, in some measure, was one of the objects sought to be achieved in the experiments with the *Prince Alfred* gun. The superiority of the smooth bore over the rifled cannon was believed to arise from the higher initiatory velocity of the shot from the former over the latter, the difference being as 2,000 feet per second for the smooth bore to 1,200 feet per second for the rifle; and reasoning *à priori* this appeared to favor the opinion as to the increased effect from the increased weight of the shot. The *Prince Alfred* being as yet of a smooth bore, of 10 inches in diameter, and carrying a spherical shot of 136 lbs., or exactly double that of the 68 pounder, the opportunity of testing the theory was a tempting one, and further experiments were tried with it on the beach between Crosby and Hightown in course of last week. The same target was used as in the previously recorded experiments. It was again fastened with the greatest care to ensure its offering the utmost possible resistance; a resistance, indeed, completely equal to that presented by the side of the *Warrior* or *Black Prince*, and placed at the same distance from the gun as on the former occasion. In this instance the ball was propelled by 30 lbs. of powder, or three-forths of the full proportionate quantity used in the case of the 68-pounder. The result was that the plate, which was struck near the center of the target, was partially broken; the indentation being upward of 6 inches, while the teak at its back was splintered but not penetrated. The shot, as has invariably been the case in such experiments, was broken into fragments. This concluded the experiments, as, from its shattered condition, the target could not have resisted the effect of another shot.

The plate which had sustained so crushing an ordeal was made at the Mersey Steel and Iron Works, and was of similar quality to those which covered and protected Jones's angular target, which stood so well in the experiments made at Portsmouth. The resisting power of this plate excited the admiration of several officers who were present at the experiments with the *Prince Alfred*, as, although the indentation was more than six inches deep, it was not entirely fractured. It was also incidentally suggested, as worthy of consideration, how far it might not be desirable to increase the charge of the powder to 40 lbs., which would be in the same proportion as the charges generally used with the 68 pounder.

It was incidentally mentioned on the ground that the gun will soon be removed to the Mersey Iron Works for the purpose of being rifled, and so fitted to carry elongated shot of 500 lbs., when it is expected the experiments will be resumed. If, however, as experience has hitherto shown, the smooth bore has so decided an advantage, from the greatly superior initial velocity of the shot, the expectations fairly arising as to the effect of so enormous a shot may not be fully realized. Be this as it may, however, the experiments referred to are of the greatest importance, although hitherto carried on on a comparatively small scale, as they tend to prove that a 4½-inch plate, when well made, is sufficient to resist a shot double the size and weight of a 68 pounder, which has hitherto proved its most dangerous antagonist. Founded on the theory which has been previously alluded to as to the effect of the increased size and weight of shot, it has been asserted that our floating batteries might be easily destroyed by merely increasing the size of the ordnance brought against them; and that, consequently, our French neighbors might reap little advantage from their start in having cased their frigates. Experiments, however, show that a limit to the cohesion of cast-iron shot has been reached; and almost practically demonstrate that plates 5½ inches, or, as now proposed, 6½ inches thick, if properly made, will be completely impenetrable, whatever the size of the ordnance brought to bear against them may be.

The Eye and Vision.

Although we derive so much pleasure and obtain so much knowledge through the sense of vision, very few persons are really acquainted with the powers and peculiarities of the eye. Thus our range of vision is bounded by the objecting parts of the face. In relation to this Dr. Alfred Smee says :—"If the eye be steadily directed toward one point, it is sensible of the presence of objects over a vertical range about 121° and a lateral range of about 149°." But perfect vision is only obtained over a range of about 2° 18′ which in practice is in the relation to the distance of the object to be viewed as 1 to 25. Thus at 25 inches distant, a person will be enabled to read a word one inch long without the slightest motion of the eye, and at twelve inches distant a word half an inch long may be read in the same way. Where the optic nerve penetrates the eye, the retina is insensible to light, which causes a total loss of vision over about 6° 20′ —the commencement of the insensible spot being 12° from the center of vision. As the result of this there is a portion of the field of view, equal to one-eighth the distance of the object, which is utterly lost: and though it seems at first thought incredible, it is nevertheless true, that in regarding a range of hills eight miles distant, one mile of the range is not perceived by the eye.

THE IMPORTANCE OF CURRYING ANIMALS.—It is well known that every hair, whether long or short, is covered with numerous little barbs, like the barbs of fishhooks, and, therefore, when a number of hairs are brought in contact with each other, and moved back and forth, they will work in among each other, and often form a mass so tangled—like the mane of a colt, which our ancestors, have often taught us to believe were the stirrups of witches, which were accustomed to ride them in the dark nights—that it is difficult to disentangle them. The only means that cattle have of scratching themselves many times is to apply their tongues; and when the hair comes off, as it many time does, by the handful, more or less of it will adhere to their tongues, and many times find its way into their stomachs; and the reciprocating motion of the stomachs of animals which chew the cud would soon form a bunch of hair into a pellet; and, as more hair was taken into the stomach from day to day, it would be very sure to all collect in one mass. Now, when an animal begins to shed its coat of hair there always appears to be more or less irritation of the skin, and if the card or curry-comb is not used pretty freely the tongue must be applied; and if an animal is well curried every day, when it is shedding its coat, it will be far less liable to collect hair in its stomach. A ball of hair—being indigestible—in the stomach would be very likely to injure its energies so as to produce disease, and enventually, premature death.

A SEVERE JOKE.—Immediately after the capture of Hatteras, Senator Simmons, of Rhode Island, fitted out a schooner, called the *Charity*, with an assorted cargo, including a large quantity of whisky, and sent her down the coast on a trading venture. She took a Collector to Hatteras, and on arriving there the Collector procured a building from the commissary, which he proposed using as a custom house. Capt. White's papers, however, were very irregular, and on the 17th inst. Capt. Worden, of the *Stars and Stripes*, seized the *Charity* as a prize, and sent her to New York. The Collector, captain and crew of the *Charity* arrived here in the *Spaulding* on the 19th. They are very indignant at their treatment.