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# The Volunteer Review

## AND MILITARY AND NAVAL GAZETTE.

A Journal Devoted to the Interests of the Military and Naval Forces of the Dominion of Canada

VOL. VII.

OTTAWA, (CANADA,) TUESDAY, JANUARY 21, 1873.

No 3.

### NEWS OF THE WEEK.

Count Schouvaloff, who arrived in London several days ago from St. Petersburg, was presented to the Queen.

Information has been received here that the ship Chillingham Castle was wrecked while on a voyage from Shields for Malta and 26 persons drowned.

Seven persons were burned to death in a fire at Litchfield, yesterday.

The *Daily Telegraph* publishes a letter from the Duke de Grammont, announcing an early refutation of Count Von Buest's statements as to Austria's policy towards France at the beginning of the Franco-German war. The Duke says he will prove that Austria, after the declaration of war, promised France material support. She only required time to arm herself and find a pretext for hostilities with Prussia. The opportunity would be furnished in an ultimatum to Prussia demanding the observance of the stipulations of the Treaty of Prague. This would be refused, and Austria would then join France in an alliance offensive and defensive.

The ship *Anna Lassen* from Lille Sand-Norway, for New York, was run into and sunk. Three of the crew were drowned.

An American bark, name unknown, is ashore in the British channel, and is breaking up. All on board are supposed to be lost.

The funeral of the late ex-Emperor of France took place at Chiselhurst, on the morning of the 15th inst. Although 10 o'clock was the hour designated for the procession to move from the late residence of the Emperor, it was thirty minutes after that time when the hearse which was to convey the remains to the chapel, drew up in front of the grand entrance of the mansion.

A deputation of Paris workmen who were to walk at the head of the procession, arrived at the same time. They wore *immortelles* in their coats, and carried wreaths of flowers in their hands. On both sides of the hearse were the Imperial Arms surmounted by the letter N. The great crowd, which steadily increased, surrounded the hearse,

and the funeral procession started for the chapel in the following order:

Standard bearer, with tri-color, borne on an ashén staff cut at the last moment before the cortege moved, the deputation of workmen from Paris, with uncovered heads, bearing their wreaths; the chapels of the family bearing aloft a golden crucifix. The hearse, drawn by eight horses with postillions, and the mourners, to the number of 800 in all, including the Prince Imperial who went uncovered.

Prince Joachim.

Prince Achille.

Prince Jerome Napoleon.

M. Rouher, and many distinguished Imperialists.

English noblemen, Paris priests, and others.

The Prince Imperial was very pale, and exhibited traces of the anguish he has undergone.

The Empress Eugenie was too ill to attend the funeral.

The coffin was covered with *immortelles* and violets.

There was no funeral sermon at the chapel. The Bishop of Southwark sang a *Requiem* Mass over the remains. He was assisted by Father Goddard, the spiritual adviser of the late Emperor, and all the priests who were chaplains at the Tuilleries during the reign of Napoleon. M. Lutz, the organist of St. George's Cathedral, London, was present at the chapel with his choir, and concluded the musical portion of the services.

The remains were deposited in the sacristy, which has been formed into a mortuary chapel until the removal of the body to France for final interment.

The procession was very long, and the hearse was at the chapel before the end of the cortege had left the family mansion. All the carriages and pedestrians were drawn up three abreast across the roadway, and in that order proceeded to the chapel. The Prince Imperial and Prince Napoleon returned to the Chapel in the same carriage. They were cheered by the crowds through which they passed. At least thirty thousand

people gathered to witness the grand procession.

One of the persons who came from France to attend the funeral of Napoleon, brought with him some soil dug from the garden of the Tuilleries, which he strewed over the coffin after it was deposited in the sacristy of the Chapel at Chiselhurst.

Many French spies were present at Chiselhurst this morning while the funeral services were taking place.

During the session of the National Assembly at Versailles on the 14th, Belcastel moved the interpellation of the Government with regard to the resignation of Count Bourgoinge the French Ambassador to the Holy See. He insisted upon the continuation of the protectorate at the Vatican. The Minister of Justice explained the circumstance which caused the resignation of Count Bourgoinge. The explanation was regarded by the Right as satisfactory, and the matter dropped.

The Committee of Thirty sat to-day at Versailles. President Thiers was present. The report of the sub-committee was read. It proposes the adoption of the following decree by the Assembly:—Whereas The Assembly integrally reserves to itself the constituent power. It hereby decrees, 1st. The President of the Republic shall communicate, with the Assembly by message; nevertheless he may be heard after announcing by message his intention to speak. At the close of his speech the debate will be adjourned to a subsequent sitting in order that a vote shall not be taken when the President is in the Chamber. Second—The President shall promulgate all the laws declared urgent within three days after their passage, or demand a fresh debate thereon; and all laws not declared urgent he shall promulgate within one month of their passage, or may suspend the third reading of the same for one month. After the dissolution of the present Assembly, its powers shall devolve upon two Chambers. The report also recommended that the Committee of Thirty be instructed by the Assembly to prepare a law regulating the elections and prescribing the qualifications of electors, and laws defining powers of a second Chamber.

## THE AUTUMN MANŒUVRES.

## THE SCENE OF OPERATIONS.

(From the Broad Arrow

(Continued from Page 16)

TUESDAY, SEPTEMBER 10TH.

*Battle on the Avon.*—The battle which was to decide the fate of the campaign, was fought to day. To make the result intelligible to the reader, we must state what is called the "general idea" of the day's proceedings. The Southern Army was supposed to have been reinforced by troops which had got possession of Salisbury, and the invaders were therefore free to follow up the advantages gained on previous days. Their camp last night was at Berwick St. James, while that of the defending army was on Winterbourn Stoke Down, three or four miles further north. The force of Sir John Michel very nearly occupied the ground which his antagonist held before he fell back yesterday, and his army lay to the west of the road from Salisbury to Devizes, in front of Berwick St. James, with the left towards Winterbourn, and the right near Stapleford Down. The idea of his movement seems to have been to keep part of his light cavalry on his left, and to move it so as to give the notion that he was going to march on Amesbury and turn Welpole's right, while Brownrigg's Division made a *détour* by the valleys over the course of the Winterbourn, to cross the Avon, and then strike for the main road to London; Horsford's Division moving on a shorter line and more directly for the river, so as to leave Walpole on the right or wrong bank, with a very strong position on the ridges over the road from Salisbury (which was supposed to be in Michel's possession) to Amesbury to face, with what appetite he might. This pretty plan of action was crossed by Sir Robert Walpole's vigilance and dash. Pushing his force rapidly forward—at an earlier hour than he should have done, it is alleged—he took possession of the ridges running from Winterbourn village to Normanton Down, and sent out vedettes as far as in front as Lako Down, when the enemy's scouts came upon them between eight and nine o'clock. The infantry of both armies were at the time still some distance in the rear. Brownrigg had led his infantry well out of sight of the west of the Devizes road, starting before Horsford some time, and crossing the river without opposition, although Walpole's engineers maintained that the Durnford and Woodford bridges were blown up, and that the villages were defended by a figurative army. How that could have been if Salisbury and Wilton belonged to Michel cannot be easily understood. Anyway, Greathed's Brigade was at Woodford by half past nine o'clock, while the light cavalry of the Southern Army were manœuvring on the Downs eastward of the Druid's Head, and receiving punishment from guns posted at the edge of a small wood in their front. Far out on the plain the Household Cavalry could be seen, with helmets glistening in the sun, waiting as if for more serious work, but though it was believed Shute's Cavalry were also massed in the same direction, they could not be identified by spectators from the southern side. Brownrigg's Division had started at least an hour before any movement on Walpole's side gave a suspicion that he had detected Michel's plan, and pretty as the sight was of Hussars skirmishing along the front, with guns pounding

away from hills and woods at distant objects, it must be confessed that it would have been a more animating spectacle to a soldier, speaking relatively, to have seen an advance of the formidable body of cavalry composing Walpole's two brigades at a critical moment than their appearance as they manœuvred slowly in the plain, timorous, apparently, of a bold attack. Had they broken the crust, or rather the veil of Parke's cavalry they would have seen Horsford's columns on the line of march and have come down on the rear and flank of Michel's army without much to fear from his artillery or the force of cavalry then present. As it appeared to observers on the southern side they might have checked the execution of the whole plan, and if Walpole's object was, as asserted, to drive the enemy over the river, then they would have precipitated its execution with immense loss to the Southern Army.

Walpole's reconnaissance in front retired before the 7th Hussars, but presently their supports came up, and the Hussars fell slowly back to the Southern lines. By this time Walpole's artillery, which had been advanced to a position on Normanton Down opened fire. Then the 10th Hussars and Lancers made a dash for a commanding position known as Fox Hill, and having taken it they were soon followed by a battery of Royal Horse Artillery. The general progress of the fight can now be best described by taking the account of one side. A correspondent with the Southern Army thus says: "Before the guns could be unlimbered, they were surprised by a shot from some guns masked by the enemy close behind his cavalry skirmishers, and cleverly placed within a circle of barrows. Half a battery of our guns was brought down the slope below the Druid's Head to answer them, and for a time there was a terrific artillery duel at close quarters, until the enemy's guns had to retire harassed by cavalry. The Household Brigade were sent up to redeem the position by a charge, the magnificent weight of which would have been enough to send any cavalry regiment down. Meanwhile, the enemy was sending his skirmishers out, and our columns could be seen winding along the opposite bank of the Avon under cover of our position. At Box Hill evidently, then we were at our old game, and trying to get round the flank of our antagonist. One point we had already achieved by getting across the river undisturbed. Brownrigg's division was sent on to occupy the banks of the river and the heights opposite Normanton, while Horsford contented himself with drawing his forces gradually from the left, where they had been making a feint, and posting them along the hedges on Doreland and Box Hills, and in the villages of Woodford and Netton. Hardly had this been done before the enemy's skirmishers were seen advancing rapidly towards us. Having succeeded by a well directed fire in dislodging our guns from Box Hill, the skirmishers of Parke's Brigade made a rush which nothing could resist, and placed themselves amid a clump of trees crowning the knoll, whence they could sweep the slope in front. In vain our cavalry went at them with the most praiseworthy self sacrifice. The 102nd would not budge from a strong position thus gained, and soon the approach of the 23rd Regiment compelled the Hussars to retire at a gallop. Not satisfied with his achievement Parke pushed forward recklessly in the face of a terrific fire from our skirmishers, still safely sheltered behind the hedges. The presence of an umpire determined to do his

duty should have stopped this stupid advance at once; but no, 'the cry is still they come,' and so we must needs retire. I believe one of the umpire staff who was present had the extraordinary audacity to remonstrate with Parke, but of course he did not carry his firmness so far as to order that brigadier to go back, as he certainly should have done. Far away to our right, Brownrigg's artillery could still be heard with those of Lord Mark Kerr, but very weakly, and there could be no doubt that Staveley was pressing the main attack on Horsford, in hope of turning our left so as to cut off our communication with Salisbury. That he intended to do this, if possible, at all hazards was equally evident, for he hesitated at no sacrifice of life or expenditure of powder. Slowly, inch by inch, we were driven from the hedge rows into the villages. The Dirty Half Hundred, now better and more appropriately known as the "Fighting 50th," held the village of Woodford against attack in all directions in the most splendid way. Not a man of their force could have faced that steady well directed fire, and if they had, we may be sure the 50th would not have been unworthy of their better name. They were, however, ordered to retire, which they did fighting stubbornly until they crossed the bridge. Their retreat was covered by another regiment of the same brigade, the 1st Provisional Battalion of Volunteers. The way in which the 'gentle amateur' did this work was worthy of all the praise they have received since joining the camp. Every bit of cover was taken advantage of, and not a shot wasted. Sir John Michel congratulated Colonel Weston on having the honour to command such a splendid battalion. Even their fire, however, could not check the enemy's advance. It could only protect our regiments while they crossed the bridge. Nearly the whole of his brigade was taken by the fire of four batteries placed by Horsford on the heights above, and it is very questionable whether the bridge could ever have been crossed in real warfare, exposed as it was to this artillery fire, and to the bullets of the riflemen in the valley. Crossed it was, however, just before twelve o'clock, but the enemy found us stronger than he had expected. The delay had given Horsford time to call up a brigade from General Brownrigg's division, so that we had really a much larger number than our assailants, and every advantage of ground in our favor. The 'cease fire' sounded at this point, and the last battle of this year's manœuvres was at an end. It is always difficult to obtain the decision of the umpires, but substantially, I believe it was to the effect that the Southern Army had made good its previous victories, but at great loss, and its position at the end of the strife was considered precarious. This somewhat ambiguous verdict left it open to the generals on both sides to take credit to themselves for having done a smart thing, and may be taken as an instance of the happy talent of the Commander in Chief for smoothing down the ruffled feathers of his subordinates. Tomorrow we shall be very quiet, and engaged only in preparations for the grand march past on Thursday. The hour fixed for this event is twelve o'clock, and the place Beacon Hall, near Amesbury. The two armies are encamped near each other tonight in the neighborhood of Durging Down." For the sake of doing full justice to this interesting engagement we subjoin another sketch of the day's operations by the correspondent of the *Times*, writing from Ogbury Camp.

"The battle which was to decide the fate

of the campaign was fought today, but with such complete change of position on the part of the rival armies, and with results admitting of so many different interpretations by staff officers and umpires, that I feel wholly at a loss to offer any authoritative exposition or summing up of the day's operations, and shall accordingly confine myself to a statement of what I actually saw. Knowing that the umpires, foreign officers, &c., were to rendezvous at the Long Barrow Cross Roads, the junction of the Salisbury and Amesbury cross roads, I proceeded to the "Druid's Head," a point about a mile nearer to Salisbury, and of some consequence locally from the fact that Mr. Woodford, of sporting fame, has his training stables here. The Druid's Head lies as nearly as possible midway between the positions occupied by the rival camps last night, and as the exact intentions of the rival commanders are not allowed to transpire, and the printing even of 'confidential memoranda' has been abandoned, through fear of a surplus copy getting astray, a central position taken up before the commencement of hostilities has its undoubted advantages for understanding what follows. Early as I thought I was on the field, flag signallers were already on the alert, and light cavalry were sweeping round in the distance, trying to make out the plans and dispositions of the enemy. The sort of instinct that is acquired after some familiarity with autumn manoeuvres led me pretty straight to the infantry columns, but a glance showed that the usual order of proceeding had been inverted. Sir A. Horsford's Division, which has hitherto executed most of the long marches, was on its way indeed, but the second Division under General Brownrigg, had left camp earlier, and was now some miles in advance. The direction taken by the columns was puzzling. Hitherto in all the engagements the efforts of the Southern Army, as the invading force, had been to march northwards, with the ultimate object of wheeling to the right and so making good their way to London. They now, quitting their camp of the night before at Berwick St. James, marched, as nearly as possible, south or south east. Some light, however, was thrown upon their intentions by the detaching of some infantry battalions with half a dozen guns across the plain to hold a strong position on their left at Box Hill, an eminence with a clump of trees upon it, from which it takes its name. As soon as the Box Hill is occupied, it becomes the point by which the force guided its march. Having gone to the south or south east sufficiently far to reach a deep winding valley leading down towards the Avon, Sir A. Horsford, following in the footsteps of General Brownrigg, turned due east and made a preparation for crossing the Avon at Woodford. Once across the river and in possession of the strong chain of hills lying to the north and north east of the village of Woodford, the Southern Army would be on its way to London, and would have slipped, so to speak, out of the hands of the Northern Army, which had been confronting it the night before, between Stonehenge and Amesbury. The valley through which the column marched was long and winding, and thus protected from the enflading fire of artillery but there were some long stretches of ground where the Northern guns, had they known what was going on, would have delighted to play. First in order came the Rifle Brigade, with a supporting force of artillery, and the pontoon bridges of the Engineer train; then the Brigade of Guards, followed by the wagons, forges, and led horses of the En-

gineers; and after them the several infantry battalions composing the division, dotting the valley with lines and patches of green and grey and red. In all, the 1st Division alone could not have covered less than a mile from front to rear; probably it exceeded that length, as sufficient distance was observed to enable the battalions to halt, wheel upon to the brow of the hill overlooking the valley, and come into action in case of need. The march of the column was steadily directed upon Woodford—that is to say, the Woodford to which the bridge across the river Avon belongs; for according to what seems the inevitable tendency in this part of the country, there are three Woodfords—Upper, Lower, and Middle or Church Woodford. And I believe it is a moot point at this moment among Engineer officers whether the bridge actually crossed properly belongs to any of the Woodfords, and I ought not to be laid down as that of Great Durnford.

While the column was thus upon its march, heavy firing was going on upon the left, but as this was supposed and asserted to be according to programme, no notice was taken of the marching division. The Northern Army, having made good use of its artillery, yesterday, began again early this morning. At first they were really firing only at the pickets and outposts of the Southern Light Cavalry, but having driven these in they made up their minds apparently that Box Hill was the key to the Southern position, and determined to assault it, at all hazards. In reality, it was held only by the weak brigade detached from Sir A. Horsford's left, aided by a small detachment of Light Cavalry. But the Northern Army evidently thought they had a strong force to deal with, for they advanced to the attack with no less than seven brigades of infantry. Box Hill was gallantly held for some time, but in the face of a line thus extended, there was ultimately nothing to be done but to withdraw to the ridge, a mile or so behind which was the hill projecting one side of the valley through which Sir A. Horsford's force was still on its march. A retrograde movement was further manifested by the fact that Marshall's Life Guards were to be seen in the extreme distance, making a *detour*, as was afterwards ascertained, of fully nine miles to get in rear of the Southern lines. The 16th regiment and the Rifles accordingly fell back but in beautiful order, occupying a succession of positions, out of which they never could have been driven, save by overwhelming force, and from which, even as it was they must in real war have inflicted heavy losses upon the enemy. The small detachment of the 7th Hussars helped them as long as was possible; but when at last they had to retreat and cross to the opposite bank of the river, it was most interesting to see how, at a mere wave of the officer's sword the *vedette*'s came in, drew together, and retreated in a formation that the enemy would have thought twice about attacking. The Northern infantry, however, marched like tigers. The Southern skirmishers delayed, but were powerless to stop their advance; and the last of Sir A. Horsford's battalion had fairly to cross the river at a run. Under cover of a hot fire kept up by some of their comrades from the garden walls and rears of some of the houses in the village, most of the 16th succeeded in making their escape. But the pursuit was too hot to permit them all to escape, and the Southern Engineers had to blow up the bridge while some of their men were still on the opposite bank. This was the case notably with the Rifle Brigade, who after all their

zealous exertions and hard fighting, were abandoned unavoidably to their fate. The line of skirmishers in rear—about a quarter of the regiment—prepared to sell their lives dearly, and, from the position which they occupied, actually kept for some time two whole regiments of the Northern Army in check. But the Life Guards, after their long and, as it seemed up to this moment, purposeless ride, appeared on their flank on a still higher crest of the ridge, and rode straight at them. The Rifles formed, not in squares, but ranks two or three deep *en echelon*, so that the horsemen as they advanced, and still more as they retreated, would have received the fire of the whole line. The moment of their success, however, was fatal to the Rifles, for the umpires held that being exposed to two dangers—from cavalry on the summit and lines of skirmishers in the valley—the Rifles in forming square to resist the Life Guards, made themselves into easy marks for the infantry fire. They were accordingly ordered to retire, and as, in obedience to this injunction, they crossed the brow and prepared to descend, they had the further mortification of seeing their own comrades, and supports of the same regiment, prisoners and strictly guarded by a large party of the Blues. Twenty minutes were allowed for the repair of the bridge, but in what seemed, in the midst of the stirring events just described, a much shorter time, the Northern Army were allowed to cross the Avon, and advance to the attack of Sir John Michel's troops in their new position. So far and no further, however, was the order of the day. The Southern Army was so posted that advance against their artillery and infantry was hopeless, and in the skirmishers near the river, it was authoritatively stated that the Provisional Battalion of Volunteers, and notably the two companies of 'the Inns of Court,' had distinguished themselves and rendered substantial service. When the daily conclave of generals and umpires was held, subsequently this regiment was selected to guard the enclosure within which the deliberations were held.

"Up to this point, I have described what I actually saw, as far as more fighting went it seemed to me that the portion of the Southern Army which was engaged was overwhelmed and in part captured by the North. On the other hand, the chiefs of the Southern Army hold that their object, which was not to fight, but to march round the Northern Army, and so get nearer to London was absolutely accomplished, inasmuch as General Brownrigg's Division actually reached the London Road, while the rearguard, under Sir A. Horsford, barred the way to pursuit. The Southern artillery officers also insist that the guns, both of Sir A. Horsford's and General Brownrigg's force some thirty or forty in number, were so placed many of the movements executed by the Northern Army across the river and likewise the passage of the bridge would have been impossible. To these guns, however, firing from some distance, no attention seems to have been paid. This is a matter which will happen, for nothing is more difficult than to tell, at a distance, in what direction guns are pointed. There is a puff of smoke which the wind possibly throws back before the report is heard, and under such circumstances, not only is it impossible to tell the direction of the shot, but the guns themselves may be easily mistaken for those of the opposite army. Sir R. Walpole's army are equally satisfied that they have succeeded in the object which they had in view, which was to cut off the enemy from his base of supplies, and for this purpose to place

themselves between the invaders and the sea coast. Each army, therefore, meant to march round the other; and, apparently, both sides might have been pleased, and the double event accomplished without any actual collision, had it not been for the impressions—spontaneous or produced it is hard to say, for on this point statements differ—that Box Hill was the centre and key of the Southern position. The relative merits of these marches and countermarches can only be estimated at their proper value when taken in connection with the forces supposed to exist upon paper."

WEDNESDAY, SEPTEMBER 11TH.

To-day is a day of inaction, but by no means of idleness in camp, for all over the downs in the neighbourhood of Amesbury there is rubbing, and cleaning, and brightening, and polishing going on to an extent which for the last fortnight would have been simply impossible. Officers even do not seem to take an interest in the lustre of their own swords, and may be seen in some cases, in the shade of their tents, engaged in conquering some particularly obdurate rust-spots collected in the course of the rainy battles at Colford or Berwick St. James. It is only now that the two armies are drawn together that one can form an adequate conception of the number of men, horses and vehicles of all kinds that go to the formation of a force of 30,000 men. The downs, not only of Durrington, but those lying to the north and north east of Amesbury, are white with saw like edges of canvas, which attract attention all the more from being exactly double the extent of the camps hitherto seen during the manœuvres. This morning early the Militia regiments and Volunteers were engaged for some time in releasing for the march past to-morrow, as to which proceeding very different opinions are held and expressed. Good marching regiments think a march past to-day is likely to unsettle men and make them nervous to-morrow. With regiments that are not good marchers the case of course, is different. But there will be few of the regiments to-morrow which will not march at least as well as any regiments with which the foreign officers are likely, mentally, to compare them. In the afternoon most of the men who could get leave might be seen striking across the Downs in the direction of Stonehenge, which is only about two miles from the nearest camp. No leave, however, was granted until after the camps and tents had been inspected, and everything found to be in satisfactory order. Many would gladly have availed themselves of the opportunity of travelling to Salisbury by omnibuses and other vehicles which sprang up as if from the ground at Amesbury, but the distance was too great to admit of this being done by any but those who could obtain special leave of absence.

The Provisional Battalion of Volunteers—that mainly formed of contingents from metropolitan corps, such as the Inns of Court, London Scottish, and the Artists; but which also includes companies or half-companies from both the universities, from the town of Oxford, and from Hanpts—is naturally in high spirits at the marked compliment which has been paid it by Sir John Michel, the general commanding the Southern Army, of which it forms part. After the conference of umpires and general officers ended yesterday afternoon, this battalion, which had been kept back to guard the enclosure, was marching off to its new encampment, when Sir John Michel, riding up to

the head of the battalion, caused it to halt and said a few words to the Volunteers in the nature of an address, which he explained he was anxious to offer them, as it would probably be the last opportunity which would present itself while they were under his command. Addressing the men as "Soldiers"—a little compliment implying equality, which gratified the battalion very much—he said, "I have watched you carefully during the time you have been under my command, and you conduct, both in the camp and in the field, has been most creditable and satisfactory." This praise, coming as it did from a leader of duiring the manœuvres it was known that he had been fearless in the expression of his own opinions, but equally ready to hear and weigh the opinions of others, not only gratified the battalion immensely, but affords a valuable testimony from competent authority to the use and value of the Volunteers in time of emergency. Coming from Sir John Michel the statement was additionally welcome to the Volunteers of this reason. The original instructions for the manœuvres contemplated that the Militia and Volunteers were always kept in reserve and used in the front line. Sir John Michel, however, at a critical moment in one of the battles—at the suggestion, it is said, of a leading member of his own staff, determined to try what the Inns of Court and other corps could do in skirmishing, and this duty, performed under his own eye, was discharged so much to his satisfaction that he never hesitated afterwards to employ the battalion.

(To be continued.)

A telegram from Havannah states that the Spaniards, to assist in subduing the final remnants of the insurrection, are constructing a stockade sixty miles long across the island of Cuba. This stockade is 15ft. high, and at every kilometre there is to be a stockhouse, redoubts being placed midway between these stockhouses. There is to be a military encampment at every three miles, and a railway and telegraph are to be constructed inside along the whole line. Nine miles of it are already completed, and the entire work is expected to be done in three months. A force of 5000 troops will be required to guard it, and the object of the work is to prevent the Central and Eastern Departments from holding communication.

The Minister of Public Works and the Minister of Justice and ecclesiastical officers have resigned. Their successors have not been appointed.

**BREAKFAST.—EPPS'S COCOA.—GRATEFUL AND COMFORTING.**—The very agreeable character of this preparation has rendered it a general favorite. The *Civil Service Gazette* remarks:—"The singular success which Mr Epps attained by his homœopathic preparation of cocoa has never been surpassed by any experimentalist. By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills." Made simply with boiling water or milk. Sold by the Trade only in 1lb., 1lb., and 4lb. tinned packets, labelled JAMES EPPS & Co., Homœopathic Chemists, London, England

Though peace reins in Europe from the North sea to the Caspian, the great powers seem intent on preparing for war. Austria has just increased the term of compulsory military service from two to three years, and the Prussian and French are experimenting with cartridges and firearms which are said to exceed in murderous possibilities all previous implements. Even the rice eating and cold blooded Chinese are adopting the latest scientific improvements in the way of wholesale killing, and Japan is threatening Corea with war vessels of the Western pattern. Africa is free from the war mania, and while Livingstone manages to get along peaceably enough, imaginative New York Bohemians who endeavored to penetrate the unexplored wilds, find themselves attacked by immense armies of savages, armed with rifles, and determined to die rather than submit to an interview, together the world seems not to have accepted the settlement of the Alabama claims as the inauguration of an era of universal amity.

The Cortes reassembled at Madrid on the 14th. In the Lower Branch, Senor Sala:in:quired of the Government whether it was true that notes had passed between the Government of Spain and the United States on the subject of slavery.

The President of the Council, in reply, said he was glad to have an opportunity to make a parliamentary denial of such an assertion, and formally declared that no communication had been exchanged between the Governments of Madrid and Washington on the subject of slavery. He further stated that he had instructed the Spanish ambassadors to the various powers to deny that the Spanish Government had received any notes from Secretary Fish on this question. The Government was unaware of the existence of a note from any foreign Government on the subject of slavery in Cuba. If Secretary Fish had sent a note of such a character to Minister Siskies, the latter had not communicated it to the Government of Spain. The Government obeying its own conscience, had presented a bill in the Cortes for the emancipation of slaves in Porto Rico, and no foreign pressure whatever has been brought to bear in this matter.

The first execution that has taken place in this city since the revolution of 1863 occurred today. The crime of the condemned was triple assassination. The customary procession through the streets was prohibited. An immense crowd gathered to witness the execution.

Don Carlos has arrived at Rion, a village of France in the Department of Lendes.

A London letter says that the retirement of Bismark from the Prussian cabinet is really due to differences arising between him and the Emperor William, on the church question. The Kaiser became alarmed at Bismark's course towards Catholics and declined further to follow the Prince in his policy.

Von Scheladow, Minister of Agriculture in the Prussian Cabinet, has resigned, and Von Koingsmark has been appointed to succeed him.

The steamer Corado arrived to-day. She brings Hong Kong dates to Dec. 12. The Korean question was assuming a serious aspect. The Japan *Gazette* considers war imminent.



CORRESPONDENCE.

The Editor does not hold himself responsible for individual expressions of opinion in communications addressed to the VOLUNTEER REVIEW.

MONTREAL.

(FROM OUR OWN CORRESPONDENT.)

On Monday last His Excellency the Governor General accompanied by His Worship Mayor Coursol, and Lieut. Hamilton, visited several of the public institutions of this city. He first went to the French Parish Church, which he much admired, they then proceeded to inspect the various departments in the Court House, afterwards visited the Hotel Dieu, where the Roman Catholic Bishop of Montreal is confined by sickness; His Excellency paid the Bishop a bedside visit.

His Excellency the Governor General and Countess of Dufferin gave a dinner party Tuesday night at the St. Lawrence Hall, to which the following were invited—The Bishop of Montreal and Mrs. Pronden, and Miss Bradshaw; the Mayor and Madame Coursol; Hon. T. and Mrs. Ryan; Hon. Henry and Mrs. Starnes; Mr. and Madame and Mlle. Cuviller; Dr. and Mrs. McDonnell; Dr. and Mrs. Campbell; Mr. and Miss Allan; Mr. and Mrs. Gilliespie; Mr. and Mrs. Davidson, and Rev. Mr. Norman.

On the previous Saturday His Excellency visited the Victoria Skating Rink in the afternoon.

Messrs. Olive and Lovless who have been taking evidence in Ottawa respecting the St. Alban's raiders, for the mixed commission, have arrived here, where they will take the evidence of Mr. King of the Bank of Montreal, and others. Mr. King, it is to be supposed, will be examined on the value of American currency and gold at the date of the raid. This city, it may be remembered, made good the sum of £53,000 currency stolen from St. Alban's banks by the raiders; which sum, by the Washington Treaty, the American Government have to refund.

The citizens look to His Excellency the Governor General promises to be a very successful affair.

The torchlight procession of snow-shoe clubs across the mountain (Wednesday night) in honour of His Excellency Lord Dufferin, was a great success; and one of the finest scenic effects. The weather during the day had seemed rather critical, but the night was favourable, and as the hour of eight o'clock draw on hundreds wended their way towards the McGill College gates, where the procession was to start. Sherbrooke street in that neighbourhood soon became nearly blocked up with sleighs; whilst crowds lined the sidewalks, and windows, balconies, and steps were fully occupied. The snow-shoe clubs mustered strongly in their picturesque con-

ture, and with torches, which were soon seen blazing, whilst their bearers stood ready for the march. His Excellency at length arrived with Lady Dufferin, amidst a good deal of crowding of sleighs. He was received with enthusiastic cheers, and the procession was quickly in motion, reaching from the College gates to Union Avenue, and forming a brilliant spectacle. The Alexandra headed the column, followed by the other clubs, namely, the Victoria, Canada, and Maple Leaf; the Montreal Club bringing up the rear.

The sight was very striking, as the long and moving row of torches cast a weird light on those beneath them, and giving glimpses of their stalwart forms and fleecy dress. The pace at first was brisk, but slackened a little at the Reservoir Hill. The Governor General watched the progress of the clubs in their fiery march for a few minutes, and drove away towards St. Lawrence Main street, to take the high road to the Mountain. The crowd, too, rapidly dispersed. We shall not attempt to follow the clubs in their tramp; suffice to say that in due time they arrived at Mr. McGibbon's whose grounds were illuminated with Chinese lanterns, and whence ever and anon rockets shot up into the air. The guests, amongst whom was the Mayor and other well known gentlemen, were ushered into the supper room. Mr Warren, President of the Alexandra Club, presided, and after the hospitalities of the host and hostess had been partaken of, the health of Her Majesty and the Royal Family were given and responded to. The health of His Excellency and the Countess of Dufferin have been proposed, His Lordship replied addressing the company as "Brother Snowshoers." He alluded to the kindness he and his Countess had received from their first arrival in Canada, but no warmer reception had they ever met with than the one they experienced to-night. He had been exceedingly struck by the picturesque appearance of the torchlight procession, which reminded him of a fairy scene. He had remarked, too, with great pleasure, the interest which Canadians took in athletic sports and he was sure that tobogganing must be delightful when it was taken part in by ladies (Laughter.) Besides these, we had also skating and snowshoeing. Certainly, when the women of Canada entered into these diversions, the men, there was no doubt would be hardy, brave and loyal. His Excellency concluded by proposing the "Snowshoe Clubs of Montreal." A number of other toasts were given, and brief speeches were made, after which the party rose from their supper table, and soon afterward the Earl and Countess returned to the city, escorted by members of the clubs as far as the Mile End.

REVIEWS.

We have to acknowledge the receipt of the *Phrenological Journal* for January.

We have received from the Publishers *The Aldine* for January. It is a superb number, and stands unrivalled as a literary and artistic work of art. The two Chromos "The Village Belle," and "Crossing the Moor," from the oil painting of J. J. Hill, an English artist of repute, are unrivalled. *The Aldine* is the cheapest and best literary publication in America. The subscription price, including Chromos being only \$5 per annum.

The Minister of War at Berlin, it is stated will require from Parliament an extraordinary credit for the arming of the infantry with the new rifle. The cost of this reform is estimated at from one million and three-quarters to two millions and a quarter sterling. Possibly the Landwehr may retain the old needle gun, in which case the cost will be reduced by about a fourth. The money required for the twenty seven new field batteries added to the army will be defrayed out of the ordinary budget; but the War Minister will probably require an additional vote for the expense of transforming the 150,000 Chassepot rifles destined for the cavalry. Large sums will be also needed in order to complete the various fortification decided upon for the protection of the empire. This is a work, however, which will be accomplished gradually, and there is enough in hand for the works already begun. The fortification of the empire is to be completed upon a new system of defence, which has been recommended by the committee appointed to deal with the question some time ago. A number of fortified towns will cease to be maintained, while a number of new ones will be established. Among the former—which the committee recommends should be no longer upheld, though their existing fortifications will not be at once demolished—are Erfurt, Stettin, Rastatt, Minden, Wittenberg, and Neisse. Phalsburg, Bitche, Schelestadt, and Dresden are to be dismantled. The towns to be transformed according to the latest methods of fortification are Metz, Strasburg, Diedenhofen, Old Brisach, Mayence, Cologne, Wesel, Glogau, Thorn, Posen, and Konigsberg. The works at Strasburg are now being constructed, and those at Mayence will be commenced next spring. From the towns named as henceforth the strong places of the empire it will be seen that the system of fortification chiefly provides for the defence of the western frontiers and the Baltic and North Sea coasts, thus providing against the two hereditary foes of Germany, Russia, and France.

REMITTANCES Received on Subscription to THE VOLUNTEER REVIEW up to Saturday, the 11th inst.

ROCKVILLE, Ont.—Lieut.-Col. Jackson.....	\$2.00
Lt. Col. McDougall.....	2.00
Lt.-Col. Buell.....	2.00
Lt.-Col. Cole.....	2.00
Capt. Lowe.....	2.00
Capt. McClean.....	2.00
OWEN SOUND, Ont.—Major G. Brodier.....	4.00
NEWMARKET, Ont.—Lt. T. W. Robinson.....	2.00
WOODSTOCK, Ont.—W. H. Ingraham.....	4.00
OTTAWA, Ont.—Hon. The Senate.....	2.00
HAMILTON, Ont.—Lt. R. B. Barnard.....	2.00
HAMPSTEAD, Eng.—Capt. G. A. Raikes.....	2.50
DANVILLE, Que.—Qr.-Mr. T. P. Cleveland.....	2.00
RIXTON FALLS, Q.—Capt. John Wood.....	2.00
Lt. Thos. McGrail.....	2.00
WINDSOR, N.S.—D. H. Hind.....	2.00

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The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

"Unbribed, unbought, our swords we draw, To guard the Monarch, fence the Law."

OTTAWA, TUESDAY, JANUARY 21, 1873.

CORRESPONDENTS.—Letters addressed to either the Editor or Publisher, as well as communications intended for publication, must, invariably, be pre paid. Correspondents will also bear in mind that one end of the envelope should be left open, and in the corner the words "Printer's copy" written, and a two or five cent stamp (according to the weight of the communication) placed thereon will pay the postage.

The Accounts for Subscriptions to the "Volunteer Review," are now being made out, and will be forwarded by post to each subscriber, and after allowing a reasonable time for settlement, if not paid, the paper will be stopped and the Accounts placed in Court for collection.

(Continued from Page 15.)

We can't conclude our notice of Capt. Dawson's able lecture on Naval Guns without pointing out to our readers the great necessity of keeping simplicity of design and construction constantly in view, in relation to both our naval and military armaments.

Referring to our own comparison of the the slide valve of a locomotive engine, we witnessed the destruction of an entirely new engine on its trial trip by a grain of silice, not larger than the head of a pin, getting between the valve face and seat, and of course, preventing the shutting off steam. On examination it was found to have bitten in deeply to the latter, raising a burr that no outside force could put the valve over, and the engine ran through a brick building into a ploughed field, where it brought up with all its machinery wrecked.

In the heat of action and handling the heavy shot of modern artillery, is there any guarantee that a similar occurrence as far as the grain of silice is concerned would not be repeated, and the jamming of the shot in the bore of one of the monster guns cause its destruction, with probably the loss of the ship on which it was mounted? It seems to us that, in addition to the mechanical impossibility of having a rifled gun in accordance with the theoretical conditions of the system in operation, we have the contingencies of damage to the shot by handling and the introduction into the gun of foreign substance, which will prevent the shot being sent home. In no case can the first condition of rifling, viz, no windage, be obtained, because the hard metal of the shot cannot be forced into the grooves of the gun, and the long iron bearing or flange system will be as great a failure as the stud.

The whole theory of rifled artillery is built up on the success of the application of the principle to small arms. The Minié rifle was the first attempt at improving military weapons. It had an elongated bolt with raised central band, and a small cast-iron cup rested on the powder. When the charge was ignited, the impact of the explosion forced the cup into the bolt, expanding the metal and filling the grooves. It was liable to the serious disadvantages of having the cup driven through the bolt, if the latter was in any degree retarded, leaving it in the barrel and rendering the weapon useless. The Snider Enfield has a wooden plug in it, forcing the metal of the bolt into the grooves, and thus prevents windage. The advocates of the various systems of rifled artillery must provide some means of effecting a similar operation with the hard metal bolts which they intend should be fired from these improved guns; for as long as there is windage, the advantages of rifling will be neutralized.

Capt. SELWYN, in speaking of the system, says:—"I was in Brazil the year before last, and a Brazilian officer there, the best authority they have on guns, gave me the results of his experience of the Whitworth guns. He said, the gun has never been fired against an enemy, but has killed twelve of our own men! Now, that was done simply from the fact that, as even such a mechanical authority might be expected to do, 'Sir

JOSSELYN had ignored the fact that, in those curiously constructed grooves, the discharged powder was likely to leave some sparks. It did so leave sparks, and, in loading the gun, blew the gunners away from the muzzle; but this is nothing to what follows as a consequence. I must draw your attention to the fact that the whole of Capt. Dawson's lecture has shown us that those tools on which we have been in the habit of relying—on which, I am sure, Sir GEORGE SARTORIUS will bear me out in saying he has always relied without the slightest fear or the slightest care—are failures. Formerly, if we threw our guns overboard for a year, and took them up again, they were as good as they were before. If we subjected them to all kinds of maltreatment in handling by Jack's anxiety to put a great amount of metal into his enemy, it did not matter what he did to them—they were always good. But here is a picture before us in which we see a fleet manned and sent to sea, exercising the seamen in the use of those guns, and the very exercise has broken down the guns before they came into action."

There is one point in Capt. SELWYN's address in which a very serious defect in the present system is incidentally pointed out, and that is the retention of fire in the grooves of the gun, an evil aggravated by the difficulty of swabbing out the bore during an action at sea, and which might not be attended with serious consequences on shore, but of vital importance in naval warfare; and the liability of accidents from this cause will be seriously aggravated by using slow burning powder—a condition necessary for ignition and combustion where large charges are used, and that is a necessity entailed by employing a heavy projectile.

Efficiency, in every sense of the term, appears to have been sacrificed to the idea of long range. Capt. SELWYN expresses the opinion of all practical seamen gunners when he says:—"Do not go in for it; hit your blow hard at a short distance; wait till you have got within that distance; do not make the mistake of allowing each man to believe he may hit a mosquito five miles away."

Experience has proved that, as far as accuracy of shooting at sea is concerned, the advantages, if any, are with the smooth bore and as the number of effective hits are equal, it is not a matter for much wonder if seamen like Capt. SELWYN should prefer risking his reputation and life on a weapon that he could be certain would not fail him at the critical moment.

In summing up these the conclusions arrived at by the facts detailed, it is evident the systems of rifled artillery in use are defective. First, in the mechanical construction of the guns; secondly, in the form and principles of rifling; thirdly, in the form and metal of the projectile; fourthly, in the mechanical impossibility involved in the

principles of rifling, viz., that there shall be no windage, and that the shot must leave the gun rotating on its axis; fifthly, in the liability of the complicated mechanism of the machine to get out of order; sixthly, in the danger incurred by the necessity of using a slow-burning explosive agent; and lastly, in the impossibility of imparting proper rotative power to the shot.

Whatever may be the requirements of military operations, naval warfare demands a gun that can be used as roughly as Capt. SELWYN describes, without injury. Simple in mechanism, of great endurance, and a projectile that will roll home. Seaman gunners are not favourably disposed to long shots; they like to see the splinters fly, as they are assured their labour is not thrown away, and there is no use whatever in furnishing them with weapons which they have never proved and in which they can have no confidence.

We have repeatedly published the details of the organization of our military system, for the purpose of enlightening our English contemporaries thereon, and in our third volume the Militia Bill, under which it was effected will be found. Our readers will rather be surprised to read the following extra from an editorial on "School Drill" in the London School Board District, from the pages of the *Volunteer Service Gazette* of 21st December last.

"What can be done in this way is well exemplified in the letter from Canada which Mr. MacGregor is good enough to communicate to us, and which will be found in another column. The writer of the letter in question (a Canadian Volunteer) tells us how, after the alarm of the Fenian invasion, which had caused him to take up soldiering in earnest, he, a teacher in a school, set to drill his pupils. His efforts, and those of others, were so successful, that there seemed every likelihood that, with the support of the Government (which he and his colleagues were fortunate enough to obtain for a time), there really would have been a good general system of elementary military instruction for children organized throughout the Dominion, and, possibly, as the writer says, every boy would have become a desirable recruit, and Canada might have been the Prussia of America. We are not concerned with the influence, which, as Mr. MacGregor's correspondent tells us, operated to break up his hopeful scheme, and we can only trust that wiser counsels will soon prevail, both at home and in the Dominion. It is quite clear that not only the boys, but the teachers, were perfectly ready to learn all the soldiering they could learn. We are quite sure that English boys, if taken in the right way, will be quite as zealous as the Canadians were, and that the London School Board will have no cause to regret the step it has taken in making artillery drill a part of its programme.

"SCHOOL DRILL."

To the Editor of the *Volunteer Service Gazette*—

"Sir—I beg to enclose a letter which I received from an energetic Volunteer in

Canada on the subject of School Drill and its results.

"It may be well to mention that all the boys attending our London School Board schools (where there are already about 30,000 children on the books) are drilled so that they may instruct the 100,000 children in London for whom the School Board is rapidly providing schools.—Yours truly,

"J. MACGREGOR.

1, Mitre-court Buildings, Temple,  
December 13, 1872.

Toronto, Ontario, Nov. 23, 1872

"Dear Sir—In 1867, the year that followed the invasion of Canada by the Fenians, I, like other young Canadian Volunteers, attended a military school here, in order to perfect ourselves in drill. After passing the school, I went into the country to teach a common public school in the county of Simcoe, Ontario. While there, at their own eager request, I entered upon the task of drilling the children in the various movements of squad drill. By a little judicious care and attention, I found that in an astonishingly short time they were able to execute the various movements with the steadiness of veterans, and with beautiful accuracy. The novelty and fame of their accomplishments induced the young men of the neighbourhood to form themselves into a Drill Association who also requested my services. They were gladly given, with the same satisfactory results. I said to myself, "This is really the cheap and effective way of defending the nation.

"Shortly afterwards, in detailing my experiences to a circle of teachers, I found that a young school teacher named Brokoski, had caught the idea of making the scheme wider and more national by endeavoring to interest the Government in it, and we concluded to make the county of Simcoe an experiment. Brokoski was, by the by, of Prussian extraction, his uncle being colonel of the Brandenburg Hussars, in the service of Prussia. He, however, hated the Prussian Service and the Prussian Institutions, and was as devotedly loyal to the British flag as it is possible to conceive. We issued circulars, and about thirty teachers responded. Our scheme was to drill the teachers, so that they could impart their drill to their pupils. We agreed to meet for a certain period every year at Barrie, the county town for drill purposes.

"Judge Gowan of Barrie, one of the ablest and shrewdest men in the Dominion, came to our first meeting, and spoke with the utmost enthusiasm of our project, Colonel McKenzie, of Barrie—who, I may say, is the father of the Volunteer movement in Canada—also gave us cordial support. We were eventually visited by the Hon. William McDougall C. B., Adjutant General of Militia; and so highly did he appreciate our efforts, and the plan we had in view, that he immediately extended Government recognition and support to us, and placed those teachers who were military cadets on the list of drill instructors, drawing Government pay in that capacity. Every single step we made proved the soundness of our scheme.

But after this came the resignation of Adjutant General McDougall, who was appointed Governor of Manitoba.

M. Cartier, the French leader in Lower Canada, was made Minister of Militia. He immediately proceeded to throw cold water upon every branch of the Volunteer Service,

until the other day, at the reception of Lord Dufferin, the Lower Canadian Volunteers were objects of shame and derision to the whole Dominion.

"Of course, it is a tribute that we owe to our own self respect as a nation that we should be able to say that we are in a state of defence. But how are we to defend the long line of frontier that we present to the United States—a power of 40,000,000—for whom we are but a mouthful? Of course, we have a good deal to expect from their sense of justice, but that has nothing to do with justice to ourselves.

"Fortifications are simply ridiculous—they would ruin us. A standing army would be about equal to the same thing. The only alternative is to make ourselves a nation of soldiers, and at the same time interfere as little as possible with our daily avocations—precisely the end aimed at in our scheme.

But our scheme was the first point of attack made by Sir George Cartier, and being only an experiment, it was doomed. And thus, by the stupidity and indifference of Cartier, a scheme was rendered abortive that would have rendered every boy a desirable recruit, every young man a soldier, and would have made Canada the Prussia of America.—Yours, very respectfully,

C. J.

There can be no doubt but that Mr. MacGregor referred to is a highly respectable man, but we are at a loss to know who the *Backwood's Brat Slasher* that hails from Toronto, Ontario, and whose patriotic exertions in company with the distinguished Prussian, the nephew of the Colonel of the Brandenburg Hussars, may be.

It is an old and true proverb that we must go from home to learn news of ourselves and in this case it receives a beautiful illustration, especially as the pedagogue would-be Commander in Chief of the Baby's Brigade confounds the would-be Governor of Manitoba and Major General P. L. Macdougall, shewing thereby his intimate acquaintance with the Staff of the Canadian Army and the public affairs of the country in which he takes such a deep and leading interest.

The whole history of the transaction narrated is apocryphal. There was no need for selecting drill instructors from military school cadets who have just three months to acquire the vast amount of knowledge the enterprising pedagogue takes credit for; and the influence of a common school teacher—for such he appears to have been—did not extend to a county, very seldom beyond his own school section, which is generally only a portion of a township.

We could pass over the romance, but the libel on our gallant French Canadian fellow-subjects is too gross to be borne, and is a direct falsehood as well.

We have had plenty of sucking generals, from the lance corporal to the ensign, but it is the first time we ever came in contact with one whose trade was learned in the log school house of a backwoods township, and whose efforts to Prussianize Canada met with such an ignominious failure.



We beg to assure the *Volunteer Service Gazette* that Mr. MAUGREGON's correspondent, although he may be a youthful Von Moltke, is yet "to fortune and to fame" unknown," as far as the Prussian Army is concerned; that the whole is a graceful and airy fiction, and if the experiment of the London School Board has nothing better to depend on, it rests on a very unsafe foundation indeed.

At the same time, we would remark, that the idea of making a "Prussia" of Canada would be about as ridiculous as making Caffres of the good people of London. Our military system is far superior to theirs, inasmuch as it suits our social condition, and no one seeks to evade the service, while we have 45,000 men of an active force, and could put 100,000 in the field without resorting to the school-mistress and his birch rod, and we shall freely make a present of himself and his great experience to the London School Board.

Tactical revolution is the natural result of precision of fire and long range in artillery and small arms, and is a matter for very serious consideration to all military organizations, inasmuch as it contains the whole elements of efficiency and success, all other things being equal.

Experience has established the fact, that the advance in column, so long the favourite mode of attack in the armies of continental Europe, is no longer possible, that it simply means destruction; and that even the *thin red line* of the British Army would be useless against the arms of modern warfare.

Since the days of FREDERICK THE GREAT, Prussia has taken the lead in developing the tactics of modern warfare, and she has profited by her late experience so far as to attempt a reformation of her infantry tactics. She has already reorganized her artillery. Her cavalry has been almost without need of improvement, because they were first organized for work, and not for show.

This revolution in tactics has attracted considerable attention in England; and we copy the following article, entitled *The New Prussian Infantry Tactics*, from the *Broad Arrow* of 13th Dec:—

This subject appears to be attracting so much interest amongst military circles, that we have no hesitation about giving our readers all the information on this point possible.

A Russian officer has published the observations made by him during a recent visit to Berlin, with reference to the new tactical formations now actually undergoing trial in the Prussian infantry. In order to understand the following remarks, it is necessary that the reader should know that a Prussian regiment consists of three battalions, each consisting of four companies. These companies are each divided into three subdivisions or pelotons. When the battalion is deployed in line, the third or skirmishing peloton of each company is posted in rear of

the 1st, 3rd, 6th, and 8th subdivisions of the four companies. His remarks:—

"To show how the instructions contained in the Cabinet Order of the 4th July last have been carried out the following formations were executed by a battalion:—

"First Formation.—At the commencement, in order to form the line of skirmishers the subdivisions of skirmishers of the 1st and 4th companies were sent to the front; the 1st and 8th subdivisions of the battalion belonging to these companies formed their reserves, and also deployed in skirmishing order, constituted their immediate supports, and also their reinforcements, if it should be necessary to augment the fire. This second line remains a short distance behind the first line, and like the latter, it is to lie down when necessary. Consequently, the 2nd and 7th subdivisions of the battalion form the first line of battle, properly so called. The two other companies formed into company columns, either in close order or also in open order, form the second line of battle.

"Second Formation.—The peloton of the battalion, the first peloton of the skirmishers, the eighth peloton of the battalion, and the fourth of the skirmishers, are thrown out as skirmishers; behind them, as reserves, the second and seventh pelotons in line of battle, and then the third, fourth, fifth, and sixth pelotons of the battalion, as well as the second and third of the skirmishers in one line.

"What has just been said of a battalion applies equally to regiment and to brigades."

With this system applied to brigades of infantry, the following is the disposition of the troops:—

"First Formation.—The first corps d'attaque is formed, 1stly, by a line of skirmishers composed of the peloton of skirmishers of the first and fourth companies of the three battalions of the second regiment; 2dly, by a second line of the immediate reserves of each battalion, comprising the first and the eight pelotons. These pelotons are formed into sections, and march by one of the flanks, forming thus for the whole front, twenty-four small reserves; 3rdly, by a line formed of the second and seventh pelotons of each battalion, likewise in column of sections marching by one of the flanks; these columns are posted on the wing flanking the small reserves above mentioned; 4thly, by a line formed of the remaining companies of the three battalions, i. e., of the second and third companies of the three battalions, also in column, marching by one of the flanks. The number of these columns for the whole line is six, and they are placed two and two behind the centre of the line of skirmishers, of the battalion. These four lines constitute the first corps d'attaque. The second corps d'attaque is formed with the first and second battalions of the first regiment. These battalions are formed into two lines, the first of which is composed of eight pelotons of each battalion in column, and also formed to one of the flanks; the second of the four pelotons of the skirmishers posted behind their respective battalions and also in deep order. The third corps d'attaque comprises the third battalion (Fusiliers) of the first regiment in company columns.

"Second Formation.—The three battalions of the second regiment constitute the advanced line, with its first and fourth pelotons of skirmishers deployed in front, behind them the first and eighth pelotons also in skirmishing order. Then on the wings, the second and seventh pelotons behind and in rear of the centre of the line, the second

and third companies in columns formed to a flank. The whole of this forms the first fighting line or the advance; further in rear is the second line formed of the eight company columns of the first and second battalions of the second regiment. Then as third line, the three battalions of the first regiment are formed up behind in one line. Formed in this manner, a brigade of infantry divided into six or seven lines, consisting of small fractions of troops, companies, subdivisions and sections, renders it very difficult for any one who wishes to arrive at an exact idea as to the correct number constituting the force."

The advocates of these new formations support their theory by saying that this breaking up of a corps into small bodies, presents great facilities for taking advantage of any irregularities in the ground (even on a drill ground) and also that it makes it very difficult for the enemy to get an estimation of the strength which he has before him. On studying this formation, one finds that reserves formed on one of the flanks present a small object for the enemy to direct his fire upon, but only when one is placed exactly on their prolongation; if on the contrary, one sees them from the side obliquely, the depth of these reserve columns presents a long and compact line; and consequently a very large target. It would be very interesting to have some artillery practice against targets representing individual soldiers, in order to find out how much less a subdivision formed up in column to a flank would suffer, than a subdivision in line of battle, with intervals between the files."

We quite agree with *Broad Arrow* that any formation involving the slightest approach to a column is not only objectionable, but, that, owing to the mobility of field artillery, will be sure to be outflanked at a distance to which the rifle cannot reach, and swept away. There is another aspect of the case—in breaking up a battalion into pelotons, will not its value as a unit of force be destroyed, and will it be possible to concentrate those pelotons for an advance at the proper moment?

The perfection of tactics is always to be superior to your adversary at the point of attack. How can that be managed, if battalions were to break up into squads—each under independent commands? and amidst the confusion of an action, how are those squads to be concentrated so as to form a battalion? Because it is evident that in attacking a position it must be assumed that the enemy has occupied it in such force as to render it necessary, to overcome its resistance by a numerically stronger force. Squads cannot be moved simultaneously or with the precision of a battalion.

It is doubtless a wise measure on the part of the Prussian authorities to reorganize their military forces on principles best adapted to their habits and ideas; but, as their service has a far smaller number of officers to a battalion than ours, their power of manœuvring or holding the men in hand must be considerably less, or the rank and file must be more highly drilled and of far greater mental capacity and culture. It is well known that they are not equal, instead

of being superior to the average British soldier in any capacity; and while it may be possible to handle them in peace manoeuvres, a very different state of affairs will be experienced in actual warfare.

We should like to see the whole question of skirmishing intelligently discussed, and the pending change in tactics adopted with reference to the management of a battalion under fire, and to the preservation of its organization in action. We do not believe in half battalions. It is not possible to handle such a body effectively; and we are satisfied that the whole problem of tactics must be solved by actual practice in a manner consonant with our organization.

We publish to day a letter which appeared in the *U.S. Army and Navy Journal* of 28th December, on the question of the rival torpedo boats of Messrs. Ericsson and Lay, the perusal of which will not give the reader any very satisfactory idea of the mechanical value of either.

The admission made by the gallant writer that the Lay torpedo is "intended to attack an enemy going straight for the opponent; and after performing her mission properly she will not be expected to return, is of a character to shew the impracticability of a system that will sacrifice a boat at every operation.

With all due deference to the inventors, the Board of distinguished officers and the gallant Commander KIRKLAND, the Lay torpedo boat is quite as complicated a machine as the Ericsson, and both are wholly unsuited to the objects for which they are ostensibly intended.

Capt. KIRKLAND forgets that the slack of the telegraph wire of the torpedo boat will have the effect of causing that complex machine to drift out of its course, especially if the tide is running down, so that attack at high water is only possible. Moreover, the danger of fouling is one that cannot be avoided or evaded, and the chances of rising again if submerged are very small. Altogether, it is evident such a craft will be of little use, except as a toy; and as it is not necessary for ironclads to anchor within one mile of shore, its value as a weapon of defence would be nothing. The distance cannot be increased, because the slack of her connecting cable would only add to her tendency to drift.

It is evident that torpedoes must be confined to narrow rivers; and they can only be used as obstructions, being more easily placed, but not as effective as piles.

The explosive force of a submarine mine rarely extends over a radius of fifteen or twenty feet; an ordinary seine made of two inch rope, sunk to a depth of twelve feet outside the hawse swivel of an ironclad, would render the torpedo boat useless. There are other ways of neutralizing the efforts of this puny substitute for a good gumbolt.

We copy from the *Broad Arrow* an article on *American Harbor Defence*, which appears to bear out what we have always held to be the fact with respect to *torpedoes*, that they are auxiliaries only to be classed with piles, abatis, *chateaux de friese*, booms, or any other method of obstructing passages and holding an adversary under fire till his demoralization or destruction was accomplished, but that they could not be used as active means of offence, and that their value as defensive agents would be neutralized by simply landing a force to storm the supporting forts or turn their defences, and that they can be avoided in almost any case.

As seaports will be assailed from the sea, it is evident their first line of defence must not be close in shore, and, as *Broad Arrow* points out, any nation trusting exclusively to inshore defence, abdicates its rights as a maritime power, and relies more on the forbearance of its neighbors than on its means of active resistance.

In the event of any European contest, for the balance of this century at least, it will not be necessary to take the United States into account at all, and English statesmen should realize this fact: that she has no navy, is not in a position to create one, and that this Dominion is able to hold her military power in check, if England will only do her duty on the seaboard.

It is evident that the English military journals have at length fathomed the full depth of Yankee pretension, and that they are enabled to set a true value on the efforts our neighbors are able to make. Forty millions of people, scattered over a surface of two million square miles, are not formidable opponents; especially when every part of that territory is traversed by navigable rivers, easily accessible, and there does not exist any efficient means of keeping an enemy at arms-length.

**THE DRILL SHED COLLAPSED.**—Last night about half past ten o'clock, the residents in the vicinity of the Drill Shed were startled by a crashing noise, and on examination it was found that the drill shed roof had caved in, and the whole institution became flattened out. The scene today was one of general destruction, the debris being strewn around everywhere. Some of the arsenies were stove in, and a number of muskets stowed therein considerably damaged. Fortunately there was no fire in the building or a general conflagration and "blow up" would have been the result. No person was injured, but the family of Sergeant Major Evans, who reside in the northern part of the building, had a narrow escape. The roof had been in a shaky condition for some time, and the mass of snow accumulated on it was too much for it, and down it came. The structure was built some years ago by Messrs. Christie & Owens, and cost \$6,000 and at last it has succumbed to the tumble down fate of the drill sheds throughout the Dominion. It is somewhat marvellous that so many of them have come to grief after so short an existence.—*London Herald*, Jan. 4 1873.

The *Japan Mail* denies that the clergy have been invited by the Japanese Government to take part in the discussion of the question of religious toleration.

Many pirates have been captured and destroyed.

All actors and wrestlers in Japan have been notified that they can persue their profession only three years longer, when they must follow some useful employment.

Males Japanese are no longer required to shave their heads, but a topknot must be retained.

The Japanese Government has granted the petition of the native merchants to be allowed to construct telegraphs and rail roads.

The Aguero expedition is reported to have made a landing in Cuba on the Edgar Stuart.

The *Herald* states that the steamer Edgar Stuart, which recently sailed from Aspinwall and Carthage, had a full cargo of arms and ammunition and some volunteers.

The steamship Erio, Capt. Finkle Paugh, of the United States and Brazil steamship Company's line, which sailed from Rio Janeiro on the 26th Dec. for New York via West India ports, was burned at sea on the 1st of January, off Pernambuco. All on board were saved.

The mail steamer from Rio de Janeiro with advices to the 14th Dec. has arrived. There had been bloody election riots in the City of Parana and several persons were killed.

A letter from a naval officer states that the population at Tientsin, near Pekin, are much alarmed, from the fact the Chinese being liberally supplied with breech-loading arms.

The Minister of Public Works and the Minister of Justice and ecclesiastical officers have resigned. Their successors have not yet been appointed.

The obsequies of the late ex-Emperor of France were celebrated in this city today and participated in by immense crowds of people. The mayor and prefect and troops stationed in the city also took part in the ceremonies.

A boiler in a factory at Charleroi exploded this morning, with most fatal results. Four persons were instantly killed, and a large number wounded, some of them in a very serious manner.

The *Levant Times* announces that the Sultan has confided the instruction of his youngest son, Abdul Medjid, to Hali Pasha Grand Master of Artillery. His Imperial Highness, who is not five years of age, will commence his studies after Bairam, by daily attending the gun factory, Tophaneh

### THINGS THAT NEVER DIE.

The pure, the bright, the beautiful,  
That stirred our hearts in youth;  
The impulse of a wordless prayer,  
The dream of love and truth;  
The longings after something lost,  
The spirit's yearning cry,  
The striving after better homes—  
These things shall never die.

The timid hand stretched forth to aid  
A brother in his need,  
The kindly word in grief's dark hour,  
That proves the friend indeed;  
The plea for mercy, softly breathed,  
When justice threatens nigh,  
The sorrowings of a contrite heart,  
These things shall never die.

The memory of a clasping hand,  
The pressure of a kiss,  
The kindly word in grief's dark hour,  
That make up love's first bliss;  
It was a firm, unchanging faith,  
And holy trust on high,  
These hands have clasped, these lips have met,  
These things shall never die.

The cruel and the bitter word,  
That wounded as it fell,  
The chilling want of sympathy,  
We feel, but cannot tell;  
The hard repulse that chills the heart,  
Whose bones were bounding high,  
In an unfading record kept,  
These things shall never die.

Let nothing pass, for every hand,  
Must find some work to do;  
Lose not a chance to waken love,  
By firm, and just, and true;  
So shall a light that cannot fade  
Beam on thee from on high;  
And angel voices say to thee,  
"These things shall never die."

### THE RIVAL TORPEDOES.

To the Editor of the Army and Navy Journal.

Sir: Your issue of December 14 contains an article from that distinguished inventor Mr. John Ericsson, calling attention to a description of a "movable submarine torpedo" forwarded by him to Vice-Admiral D. D. Porter, and to the Chief of the Naval Bureau of Ordnance on the 13th of April, 1870, and remarking upon the attention which such letter received in language which might be construed as little short of a censure upon the officers mentioned.

Mr. Ericsson also attacks the torpedo boat designed by Mr. J. L. Lay in five different points (nearly all of its important features).

1. As to its position in the water when attacking.

2. As to the location of its explosive charge against the body attacked, and with regard to the surface of the water.

3. As to the insufficiency of the motive power and its dangerous character.

4. As to the complexity and delicacy of the machinery used in steering, the experience and attention required on the part of the operator, and his inability to watch the movement of the boat himself and consequent dependence upon the instructions received from another person. Comprising also a very incomplete description of the steering gear.

5. As to the want of capacity to carry sufficient motive power, combined with the difficulties arising from the weight, combrousness, and complication of the entire structure.

These remarks of Mr. Ericsson reflect in a certain way upon the knowledge of requirements for war purposes of the examining board, and I, as a member of that board am not at all disposed to admit the self-asserted superiority of the accomplished inventor and theorist over such practical and renowned men as Rear-Admirals John Rodgers, John L. Worden, and Commodore

J. C. Howell, and others of the board, in any other branch than that in which Mr. Ericsson excels—to wit, invention and design.

Without commenting upon the reception of his offer by the naval officers mentioned, which we are led from Mr. Ericsson's silence to believe might have been an example for that awarded it by the Naval Committees of both houses of Congress, I desire to defend the judgments, of the Naval Board ordered to witness the experiments, and if impossible to show, what to all the board and to the distinguished spectators, both national and foreign, was evident, viz: that one of the solutions of the difficulties attending the defence of the weak against the strong afloat, has been found in the highly satisfactory performance of the Lay torpedo.

As Mr. Ericsson is an inventor of renown, the disparaging remarks made by him about the torpedo boat in question will possibly (and very properly) cause doubts to arise in the minds of the many as to the results to be obtained from this machine; but practical men, seamen and others, will be quite willing to accept the judgment (made after witnessing the performance of the boat) of such men as Rear-Admirals John Rodgers, and John L. Worden—men who from actual experience in naval warfare are quite as well able to judge of the offensive powers of this machine as the "inventor." Mr. Ericsson, if not much better; and I do not think that I flatter these gentlemen in a overpowering degree in making this assertion.

Mr. Ericsson's first point of attack is that "the torpedo boat, floating at the surface of the water, will be easily crippled by a watchful enemy even in a calm, while in a sea-way its destruction will be inevitable."

Boats floating awash do not present as a general rule very much of a mark, even when lying still and when the marksmen are well trained and expect shots. This boat of Lay's in running throws the water over her back entirely, and is so much submerged that at a distance of three hundred yards she is not perceptible without the aid of a glass. Marksmen with carefully sighted rifles would have very little chance of making a bull's eye on her, and even if struck, the very small angle which the direction of the shot would make with the surface would prevent its doing any damage, and more particularly so, if the top plates are made of steel, an improvement which has already been proposed and accepted.

The idea of depending upon heavy artillery for the preservation of the ship would be out of the question, as taking too many chances. A sea-way would be very much more favorable for the boat, as firing at it would be somewhat similar to shooting on the wing, when from the rolling of the ships they would have even chances of presenting their most vulnerable parts to the explosive. (The very great advantage which this boat would have, is in being able to attack at night with hooded electric lights, by which she can be steered more easily than in daylight, and which no enemy ahead could discover; but which would be clearly visible to the operator.) The form of the hull of the boat is of such a nature as to withstand any sea-way permitting ordinary navigation, and therefore there is no reason for Mr. Ericsson's mark of inevitable destruction.

The second point for attack which Mr. Ericsson discovers is that, "The explosion of the torpedo-boat takes place too near the

surface to affect seriously an iron-clad ship carrying 12 inch thick armor, six feet below water line." This remark shows the inexperience of Mr. Ericsson in the matter of explosives, as we have reasons to show from experiments made with nitroglycerine, that five hundred pounds of that explosive (the charge carried by the Lay torpedo) if fired alongside the 12 inch armored iron-clad of which he speaks, would either send the vessel and crew to the bottom by tearing out her side, or else would so crush her as to render her abandonment a matter of healthy necessity to her inmates. Should there be, however, any doubt on the subject, the Lay torpedo is provided with an effectual apparatus, by means of which it can at any time when desired, be plunged to distance of from fifteen to twenty feet below the surface.

Mr. Ericsson's third caused of inadaptability of the Lay torpedo to the practical requirements of defence, is that, "The motive power of the torpedo-boat is of a dangerous nature, owing to the enormous pressure of the acting medium, 600 lbs to the square inch. At best it is insufficient, and ceases the moment the small quantity of carbonic acid capable of being carried is consumed; any mischance calling for prolonged action of the propeller will exhaust the motive power, hence the craft will be useless in such a case and inevitably lost, no means having been devised for bringing it back."

Six hundred pounds of pressure to the square inch is dangerous, as Mr. Ericsson very properly remarks: so is 100 lbs per square inch, as has been often proved by boiler explosions to the entire conviction of the spectators, who may have had any doubt on the subject previously; but as 100 lbs. pressure to the square inch is carried safely in boilers by testing them to an increased amount, so the wrought iron flasks containing the carbonic acid for the Lay Torpedo and which are previous to use tested to 2,240 lbs. per square inch, may be considered to be not dangerous to an extraordinary degree, which we are led to believe from Mr. Ericsson's words. In fact, it seems strangely inconsistent that an individual who could (from his language) stand on the deck of a ship drawing considerably more water than he did and carrying perhaps hundreds of human beings, and with the knowledge of his responsibility for their lives, coolly direct the inevitable destruction of a death-dealing monster like Lay's torpedo by small-arm men, should be so very apprehensive of the danger from gas contained in an iron flask of very nearly four times the strength required to hold it in subjection. With regard to the insufficient quantity of motive power, which Mr. Ericsson mentions, it seems that Mr. Ericsson would require that a boat built to run from New York to Staten Island, and fueled accordingly should go outside and continue on to Europe, and in case of non-arrival she would carry "insufficient" fuel. Mr. Ericsson is undoubtedly correct, from his point of view. The Lay torpedo does not carry gas enough to run indefinitely. She has been purchased by the Government because she will go a distance of one mile and return using a certain amount of gas. In case it is required to send a boat two miles and return, it will be of course necessary to put in more gas double the quantity. There is no difficulty whatever in putting hundreds of pounds of gas in a flask, provided always the flask has capacity for that, therefore if no more is required of the motive power than its known capacity to do work, Mr. Lay's torpedo labors under no disadvantages with regard to fuel, other

than those which attend all vessels using an exhausting material.

The last part of Mr. Ericsson's objection was not a question overlooked by the board, who were satisfied that the wire cable of Lay's torpedo is of sufficient strength to pull her astern in case of utmost necessity, which would in actual warfare rarely or never occur, as the boat is intended to attack an enemy going straight from the operator to the opponent, and after performing her mission properly, she will not be expected to return.

Mr. Ericsson objects to Lays's torpedo, and consequently criticises the intelligence of the board in such matters by his article No. 7, which is his.

Fourth point of attack, and too longly to quote entire. We will first remark that the apparatus used in starting, stopping, and steering the torpedo is neither complex nor delicate. Any person with a common school education in electricity will without any difficulty comprehend, and with a little practice be able to prepare for work the whole arrangement of the machine, in fact its great value is in its extreme simplicity.

The necessity of carrying the cable in the boat and paying out from her is patent to any man familiar with nautical affairs.

The experience required by the operator is imply to be able to read the words, "port, starboard, steady, start and stop," to know the meaning of those words and also how to steer any ordinary boat. The amount of attention required is simply to put the boat straight end on the object to be attacked, to keep it there and "go for it." Both the experience and attention can be supplied from any U. S. ship or naval station, where seamen, and very ordinary seamen, are to be found.

As Mr Ericsson has not been able to obtain the particulars of the arrangements by which the rudder is kept in position when going straight ahead, he will perhaps be glad to know, through the medium of your valuable paper, that this question also arose in the minds of the board and that examining the arrangement, its nature was found to be "india rubber" in cylindrical form, about fifteen inches long and one inch thick, the middle made fast to the tiller head and the two ends shackled to the sides of the boat.

The important device for the admission of water to make good the loss of wire reeled off, and for the weight of the gas expended (the latter not mentioned by Mr. Ericsson), and the other necessary but simple and practical device of the inventor, Mr. J. L. Lay, for the proper introduction of the motive power to the cylinders, excited the admiration of the whole board, which will no doubt feel itself flattered both individually and collectively by the reflection that in admiring the excellent workmanship of the Messrs. Clute Bros. & Co. they have unknowingly, and apparently accidentally concided with the professional opinion of a great inventor and engineer.

Mr. Ericsson's remarks on the trial at Newport, however, completely dispel the idea that perhaps the opinion of the board and of the celebrated inventor, hitherto opposed to each other, were beginning to coincide. His comments upon the height of tide required show that he knows absolutely nothing about the floating requirements of the "Lay torpedo," which can, like any other boat drawing three feet of water, navigate and manoeuvre wherever she can float. The state of the tide having nothing whatever to do with it, beyond that of properly supporting her.

His assertion "that the drifting of the boat after stopping the motive engine, was resorted to at last in order to reach the mark" shows conclusively that his knowledge of the circumstance and of the management of the boat is exactly equal to that mentioned above concerning the requirements of the Lay torpedo. The boat was run out, turned round at will, and brought back to ward the launch, running from left to right across a line from the operator instead of directly from him as she is intended to go (the most unfavorable line of approach). A small error in calculating the distance with the eye, brought the torpedo boat between the operator and the launch, just alongside of it; the torpedo was stopped, allowed to drift clear and then started ahead pointed for the launch, and run into her, exploding the torpedo which she carried on her bow, to the entire satisfaction of the board and of the foreign officers present, and I may say of the spectators generally.

Having thus explained to the public the reasons why the board dare to differ from the great inventor in their opinion of the Lay torpedo, I will refer to the design of that gentleman for supplanting the same, "fatal defect" and all.

1. Ericsson's Submarine Torpedo being immersed from fifteen to twenty feet below the surface of the water must be out of sight of the operator and consequently cannot be steered with sufficient certainty, practically (however well theoretically) to hit anything save perhaps the bottom of the neighboring shore. If by any contrivance on the surface its position is made known to the operator, there is nothing to prevent "a watchful enemy" from seeing it also and making his preparations for defence.

2. In this Mr. Ericsson's appreciation of the destructive effect of several hundred pounds of nitro-glycerine appears to have developed somewhat more, or else he could not have thoroughly understood the explosive intended to be used with the Lay torpedo. (The board will have reason to commence flattering itself again.)

Agreeing with Mr. Ericsson as to the safety and reliability of the motive power for his submarine torpedo, "atmospheric air under moderate pressure," it would yet seem that his method of supplying the same to the engine, through a tubular cable, although a very comfortable an inexhaustible one would be somewhat difficult to practically realize.

In carefully reading over the comparisons set up by Mr. Ericsson, I note that while he attempts, not always with success, to describe the Lay torpedo minutely, his own design is comparatively undescribed and therefore in order that it may not be supposed that this great gogginess in the description of the tubular cable, etc., by which air is conveyed from the air-pumps on shore to the engines in the torpedo is intentional, let me ask, What size of tubular cable is it intended to employ in order to transmit sufficient power to the fifteen-horse power engine in the torpedo? Of what strength of material to withstand the pressure required to force such motive power through two miles (the distance required of Lay's torpedo) of tubular cable; and further What will be the external diameter of the cable? What size of reel would be necessary to accommodate the required two miles? What size of engines to operate the same, and what size of air-pumps to transmit the requisite pressure through the two miles of tube.

Supposing its external diameter to be one

inch, the smallest delivering area which would allow the torpedo to even approximate the speed claimed by the inventor, we should have a circumferential area of frictional surface of 2,763.2 square feet, to overcome which friction would require all and more power than Mr. E. calculated to put in the boat, although he claims that he has practically demonstrated its capability to tow one-half a mile of tubular cable at the rate of ten knots per hour without absorbing more than one-third of the motive power of the boat. Mr. Ericsson would confer a great favor on the mechanical world generally, by explaining mathematically the process of towing, and whether he supplied the apparatus with air through the cable at the time of towing the same at a rate of ten knots per hour.

Does Mr. Ericsson's tubular cable float, or does it sink?

If it floats, there is nothing to prevent an enemy from cutting it, by running astern of the torpedo with a boat picking up and cutting the cable and thus depriving Mr. E's operator at that place of employment. Should the cable sink the friction is greater, and in case of turning the torpedo, should the cable foul any object such as rocks, accidental anchors, etc., the cable would be not only choked, cutting off the supply of motive and steering power, but the boat would be firmly anchored, so that not even Mr. Ericsson's superior intelligence in such matters could command the working capacity of this engine to such an extent as to drag the tube when fouled as described. And here, by way of comparison, let me remark that the Lay torpedo, which pays out as she goes, can foul all the cable which she carries, as fast as paid out, without any detriment whatever to her management, rate of speed, or efficacy, which is not only evident from an inspection of the arrangement of the cable, but has also been shown practically in the experiment at Newport.

The stress laid by Mr. Ericsson upon his ability to reel up cable and thereby retire his torpedo from any unexpected difficulty, appears to be a flight of imagination on his part, and presents so many difficulties that practical men will not be ready to accept it as gospel. One of the first difficulties presenting itself to the mind is, the inability of an operator to discover whether a torpedo a mile off and 15 feet under water, should go to port or starboard, ahead or astern. As for hauling it astern by the cable, supposing that the operator desired to make that movement the same can be done with the Lay torpedo, which the board has approved of. The wire of which is sufficiently strong to perform that operation and also to anchor her by if necessary.

Referring to the authority of Mr. Ericsson for the description of a boat 10 feet long and 19 inches diameter carrying an engine of 15 horse power, 400 lbs. of nitroglycerine, and towing a tubular cable half a mile in length at the rate of 10 miles per hour, I have only to remark, that Mr Lay's torpedo carries only an 8 horse engine conveniently and at the utmost could only accommodate as to space one of 12 horse power, yet Lay's torpedo has 15 feet more length and 17 inches more diameter, than the one designed by Mr. Ericsson. There is no practical way of accounting for this difference, and when we add that the displacement of a cylinder 10 feet long and 19 inches in diameter equal 1,260.92 lbs. of water which with an exponent of 0.63 would allow a displacement of the hull of 853.42 lbs. of water, while the approximated weights would be as follows.

Full hull of 1-16 Iron and strong to stand the strain of towing, at least.....	127lbs.
Charge of Nitro-glycerine.....	400 "
15 horse engine of the finest construction, including shaft, wheel, bearings, etc., complete.....	500 "
Rudder, bearing, etc.....	25 "
Fuse nipples and gravitation cylinders, etc.....	75 "
Total .....	920lbs.

This little comparison shows at a glance that Mr. Ericsson's torpedo, as described by him, would have about 1 10th more specific gravity than the element in which she is to float, and that consequently, her first action would be to go to the bottom, without stopping at the fifteen feet depth mentioned by the inventor. Such being a fact, there is no longer any necessity for wasting more time on this apparent incongruity, and I have now to add, that even if Mr. Ericsson's hull, etc., were a success, which seems very doubtful according to dimensions and description as given by him, that although small and easily transported, it is not in itself complete, as it requires the enormous reel to accommodate the two miles of tubular cable-engine, boiler, air pumps and other paraphernalia, which would be a cumbersome and complicated mass to handle, and would be exposed to destruction from an enemy's fire if placed on the open coast, without a fortification to defend it. While the Lay torpedo, when charged, is complete, offering only a single object 25 feet long and 3 feet diameter to be handled, and permitting the operator with his dial plate to find a place of protection anywhere where a hole large enough to hide a man can be excavated.

The employment of two separate propellers, wheels, turning in opposite directions, in order to prevent a rotary movement of the hull, is of itself sufficient proof of the want of practical experience in submarine boats; for, with a proper location of the machinery and other weights, it would be impossible to rotate the hull, supplied with the largest power which she could accommodate.

In conclusion I shall be gratified to learn that there be no other "fatal defects," than those already cited in Mr. Ericsson's submarine torpedo.

WILLIAM A. KIRKLAND,  
Commander United States Navy, and one of the Board ordered to inspect the Lay torpedo.  
Newport, R. I., December 17, 1872.

AMERICAN HARBOUR DEFENCE.

A fortnight ago we endeavoured to make the readers of the *Broad Arrow* acquainted with the present condition, and prospects of the United States Navy. We did not venture to suggest that the North American Government was rapidly ceasing to be a maritime Power; we preferred to say that the Navy was being starved to pay the national debt, since that date, however, we have official documents in which the larger fact is admitted. A system of harbor defence is being devised which is to protect the United States "against the Maritime Powers." A confession of this nature is worth a ton of criticisms by a foreigner. When Americans admit their inability to cope with other powers on the open sea, and contemplate the possibility of the unopposed invasion of their waters, their naval position sinks to that of a third rate Power, and the scream of the American eagle ceases to be more alarming than that of a parrot or a popinjay.

The new system of harbour defence has been indicated in the last two or three reports of the Chief of Engineers to the

Secretary of War, and it may be succinctly described as the gradual replacement of the old earthen barbette batteries by a different class of structures, something on what we know in this country as the Moncrieff style in which the gun shall rise to fire, and then return out of sight. Within the range of these harbor forts torpedoes are to be planted or placed in readiness for discharging against the enemy's vessels. In a few very wide channels ships are to be sunk, as in Sebastopol Harbour. By these means the Americans hope to give their harbours protection against even the most recently constructed and powerful "ironclad vessels of the maritime Powers." But even here we discern the influence of what Carlyle designates as the cheap and dastly. The Americans have not devised, and do not think of building, a single casemated structure. They allow that such forts afford adequate protection from a front, a flank, and on overhead fire, but they are frightened at the cost, as in the case of the struggle of armour *versus* guns. They propose to use high sand parapets, with substantial traverses on each side—a combination which will secure, they think, the necessary protection, and "substitutes sand, as a cheap material, "for the costly iron shield-turrets." The guns, as we have said, are to be so mounted as to run up to fire and down to load. Carriages for these purposes have been approved and constructed. But when all has been done the artillerymen will be but indifferently protected from a vertical fire, and from the explosion of heavy shells. They cannot live in sandbag forts, and hence a proportionate amount of barrack building will be necessary. The forts are to command the torpedo-line so that the enemy will have some clear indication as to the site or ground of their submarine engines. Trials have been proceeding for some time at Willett's Point, and the chief engineer states that investigations have gone so far as to enable the authorities to fix upon the special system that shall be adopted.

The sum which has been estimated as necessary to apply the system to the principal American harbour is £250,000 but of this only £60,000 is to be voted in the coming financial year, so that the most important harbours may be first protected. Upon these points we shall probably have more details after a time, should the Chief Engineer's recommendations be adopted, and should Congress see fit to vote the necessary supplies. At present, many of his suggestions are *sub judice*, and that all of them will be carried out is more than the most sanguine can expect. The United States is in no particular hurry in these matters, and feels a sense of security in its insecurity that would be foolishness in a European Power.

We may gather confidence from a comparison of our own efforts with what is doing on the other side of the Atlantic. Our important naval stations are tolerably secure. Our ironclads are both numerous and efficient, and we are not arrested by economic notions in the work of defence. Some commercial ports require immediate attention, but we shall hardly think of building sandbag forts because they will be cheap and may be thought efficient. Torpedoes will be employed, no doubt, in the event of a war, but to what extent, and under what system, we cannot yet precisely determine. But, under any circumstances, we have a respectable fleet, upon which we can rely and we have not yet consented to lose our rank as a maritime Power. *Broad Arrow*.

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NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned and endorsed "Tender for Repairs of River Works," will be received until Friday, the 21th instant, at noon, for the performance of certain repairs at Calumet Mountain, Hull and South Chaudiere on the Ottawa River, and at certain Stations on the Gatineau and Madawaska Rivers.

Specifications can be seen at the office of the Superintendent of the Ottawa River Works, on and after Monday, the 20th instant, where printed forms of tender and other information can be obtained.

The Department will not be bound to accept the lowest or any tender.

By Order,

F. BRAUN,

Department of Public Works,

Ottawa, January 13th, 1873.

Secretary.

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NOTICE TO CONTRACTORS.

SEALED TENDERS, addressed to the undersigned and endorsed "Tender for Petewawa Works," will be received until Thursday, the 16th instant, at noon for the performance of certain repairs of Slides, Dams, &c., from the First Caste to Thompson's Rapids, on the Petewawa River.

Specifications can be seen at the office of the Superintendent of the Ottawa River Works on and after Friday, the 16th instant, where printed forms of Tender and other information can be obtained.

The Department will not be bound to accept the lowest or any Tender.

By Order,

F. BRAUN,

Secretary.

Department of Public Works,

Ottawa, 6th January, 1873.

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