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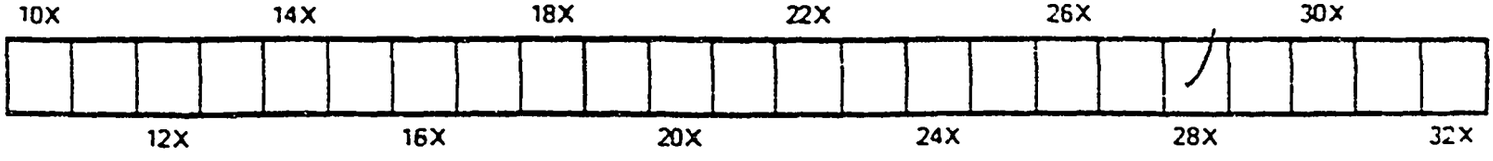

The Volunteer Review
AND MILITARY AND NAVAL GAZETTE.

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

VOL. VI. OTTAWA, (CANADA,) MONDAY, JULY 22, 1872. No. 30.

REPORT OF THE ADJUTANT-GENERAL

(*Continued from Page 340.*)

CAPTAIN SCOTTS'S REPORT AND DIARY.

Fort Garry,

Nov. 23rd, 1871.

Sir,—I have the honour to report that the Manitoba Expeditionary Force under my command, composed of nine officers and 203 non-commissioned officers and men, embarked on board the steamer Chicora at Collingwood, on the 21st October, and arrived at Fort Garry on the 18th November, thus making the whole march in twenty-eight days. According to instructions I herewith transmit a memorandum of each day's progress and proceedings.

October 22nd.—We arrived at Sault Ste. Marie at 11.30 p.m., after crossing Lake Huron, without meeting with any difficulties.

October 24th.—We safely performed the voyage on Lake Superior, and arrived at Prince Arthur's Landing at 1 o'clock, p.m. to day. On entering the bay one of the paddle wheels of the boat was damaged, the repairing of which detained us an hour. At 2 o'clock p.m. the troops disembarked, but we experienced considerable difficulty in removing the stores, as there was a heavy storm, and the scow could not reach the shore in safety. The steamer Manitoba, with fifteen span of horses, eight head of cattle and a large quantity of supplies for the use of the troops, arrived at Thunder Bay at 4 p.m. As there were a sufficient number of voyageurs in the employ of Mr. Dawson who were thoroughly acquainted with the route, it was deemed advisable to send back those who accompanied the Expedition to Thunder Bay, thus saving a considerable addition to the expenses.

October 25th.—Sent off fifty men this morning under command of Captain Fletcher, and another fifty under Lieut. Simard this afternoon, with orders to make Shebandowan Lake in two days. Completed the disembarkation of stores from the steamer Manitoba, to-day, and caused the cattle to be driven to Shebandowan Lake, there to be slaughtered and the meat to be put in bags for the use of the troops.

October 26th.—It has rained incessantly since landing. At six o'clock this morning *the remainder of the Force* consisting of six officers and 103 men, (less two men discharged—one medically unfit for duty and the other for bad conduct), marched off for Shebandowan Lake. There was a heavy hailstorm this morning which turned to snow in the afternoon. This, coupled with the bad state of the roads after three days rain, made it very difficut marching.

October 27th.—First Brigade arrived at the Shebandowan last night; the second at 11 a.m. to-day, and the third at 4 p.m. One hundred men in four large boats in tow of the tug, left for Kashaboine Portage at 1.30 p.m., the remainder of Force camped at the Shebandowan overnight. Weather very cold last night and to-day. Twenty teams of horses and wagons were employed in transporting the stores from Thunder Bay to Shebandowan. The march of forty-five miles to Shebandowan was made in less than 34 hours from starting.

October 28th.—The tug which was to have returned at 9 a.m., did not arrive till 4 p.m. owing to an accident to her engine. The remainder of the force embarked at 4.30 in tow of the tug, arriving at Kashaboine Portage at 10 p.m. All the stores were transferred over the portage to-night, a team of horses being used for the purpose.

October 29th.—We portaged six boats this morning, and started off for the Height of Land Portage at 11.30 a.m. The tug was unserviceable owing to the cold weather. While crossing Kashaboine Lake, a heavy snow-storm came on, and two of the boats were lost for several hours. Arrived at Height of Land at 2 p.m., and completed portaging boats and stores across at 11 a.m. At this hour there were about eight inches of snow on the level, and the Bay was slightly frozen for a distance of one hundred yards. The tug of Lacs des Mille Lacs, we ascertained, was useless, pipes being frozen.

October 30th.—Owing to a strong headwind and high sea, we could not make a start until 11 o'clock a.m.; arrived at Baril Portage at six p.m. The entrance to the portage was frozen and we were compelled to cut through a half mile of ice three quarters of an inch thick. Completed moving our boats and stores across at 12.30 this night.

October 31st.—Reached Bruile Portage at 9 o'clock a.m. and left for French Portage at noon, arriving at the latter at 4.10 p.m. Completed the transfer of boats and stores over French Portage at midnight.

November 1st.—Loaded boats at five o'clock this morning and placed three soldiers and one voyageur in each to take them down French Creek. The remainder of the Force marched over the two mile Portage to French Lake. Boats arrived at noon, having taken six hours to run down the Creek. We reached Pine Portage at 5 o'clock p.m.; moved the boats and stores across during a tremendous snow-storm; rowed over the Little Lake to Dieux Riviere and camped there for the night.

November 2nd.—Left Dieux Riviere Portage this morning at 10 o'clock. Owing to the shallowness of the water in the creek leading out from the portage the men were compelled to jump into the water and haul the boats along, although the creek was partly frozen. When we reached Maline River we found the water so shallow that several new portages had to be made. Camped on west side of third portage for the night.

November 3rd.—Arrived at Island Portage this afternoon at 3 o'clock, Transferred boats and stores across, and started over Lac La Croix preceded by the tug at 5 p.m., arriving at Loon Portage at 11 p.m. The weather during the past few days has been very cold and disagreeable, notwithstanding which the men are in good health and spirits.

November 4th.—The boats and stores being portaged at 11 a.m., we started for Loon Lake, before reaching which we had to cut through ice ½ an inch thick, for a distance of 200 yards. Loon Creek (length 6 miles) was so shallow that it took some of the boats thirty hours to get through, and the men were compelled to be in the water the greater portion of the time. In many places the water was only three inches deep and the boats, therefore, had to be unloaded and the stores carried along the shore, while it required not less than twenty men to pull the empty boats through the mud.

November 5th.—The whole of the 1st Brigade and three boats of the third arrived at Kettle falls to day. The tug did not arrive from Fort Francis until this afternoon, but the wind being favourable the eight boats set sail across Rainy Lake for Fort Francis, with orders to remain there until the arrival of the whole force.

November 6th—Four boats which had been brought across Kettle Falls Portage this afternoon were towed a distance of ten miles down Rainy Lake by the tug. The tug was ordered back to Kettle Falls to bring the remaining three boats which were expected to arrive there to-night, and the boats dropped by the tug proceeded on their way to Fort Francis, rowing against a head wind.

November 7th.—The tug left Kettle Falls this morning with the last boats in tow. At eight o'clock p.m. to day the whole of the expeditionary force were under canvas at Fort Francis. The men had endured great hardships so far, but fortunately there was only one case of sickness, caused by an accident in carrying a load across the third Loon Portage.

November 8th.—The Rainy Lake tug was moved across the portage into Rainy River, where the Lake of the Woods and Rainy

River tugs were in waiting, and in tow of the three tugs the whole of the expedition moved down Rainy River at 11 p.m. After running twenty five miles we camped for the night.

November 9th.—Started at 7 a m. Run the Manitou and Long Rapids, but at the latter owing to low water, the men marched along the shore for a distance of 2miles, leaving four in each of the boats to run them down. Reached Hungry Hall, near the mouth of Rainy River, at 7 p.m. this day.

November 10th.—Started at 2o'clock p.m. but were compelled to camp at the mouth of the river, owing to a heavy storm on the Lake. At 6 p m. we attempted to cross the traverse, but were unsuccessful, and had to run to an island to remain there overnight.

November 11th. This morning the boats were ordered to set sail independent of the tugs, the wind being favorable. Shortly after starting we were glad to meet Lieut.-Colonel Smith, who was on his way to meet us. The majority of the boats sailed to within 15 miles of the North West Angle, and the remainder were towed by the tugs. Camped there for the night on an island. From thence as far as the eye could reach in the direction of the Angle was one sheet of ice.

November 12th.—A storm last night fortunately broke up some four miles of ice, and we started in the morning passing through the broken ice and then cut through solid ice for a distance of three quarters of a mile, a Hudson Bay Company's boat leading. (We brought three of them from Fort Francis.) The ice gradually increased in thickness, and finding it impossible to take the boats further, we landed on an island some eight miles from the Angle. One of the tugs which had been previously shelled with iron made an attempt to cut through the ice, but was unsuccessful, getting completely wedged in.

November 13th.—At 1 p m. to-day the troops started to march on the ice towards the Angle. Having to keep close to shore round the bay, increased the march to ten miles. Captain Armstrong with a rear guard of twelve men was left on the island in charge of baggage, stores, etc., and the voyageurs also remained to erect huts over the tugs and boats. Each soldier on the march carried his rifle, accoutrements, knapsack and blankets. On arrival at the North West Angle, the men were very tired after the march over smooth ice. Several of the men were exhausted when within three miles of the Angle, but they were carried on hand sleighs; piercing cold weather all day.

November 14th.—We were up at 5 o clock this a.m. Loaded carts, one to each squad of thirteen men, and with thirteen waggons to carry half the men, started for Fort Garry at 7 o'clock a.m. The waggons relieved the marching men every hour. Arrived at Birch River (thirty miles) shortly after dark. Tents were already pitched for us by order of Lieut.-Col. O. Smith. One man attacked by inflammation of the bowels was left at the Angle in charge of Dr. Codd.

November 15th.—Reveille at 3 30 this morning. Started at five, and reached our camping ground for the night (33 miles from Birch River) at 3 p.m. The day was intensely cold, but the men, although weary and footsore were in good spirits. Tents were pitched here also awaiting our arrival.

November 16th.—Reveille at 3.30 a m. Started at 5 and reached Prairie du Chene at 5 p.m. Snow fell steadily during the day. Doctor Codd arrived at this place this evening, bringing with him the sick man left at the Angle, and another (one of the rear guard) who was taken ill with inflammation of the lungs.

November 17th.—Snow continued falling all last night, succeeded this morning by a piercing cold wind. We intended reaching Fort Garry this evening, but owing to extreme cold were compelled to camp in the wood when within thirteen miles of the Fort. A number of the men became exhausted from cold, we took them into a shanty, and under proper treatment speedily recovered.

November 18th—The weather last night and during the whole of the day was intensely cold. We arrived within a mile of Fort Garry at twelve noon. Here the force was ordered to fall in with arms and accoutrements, and we marched across the Red River and Assiniboine on the ice to the Fort. Lieut.-Col. Smith, the officers and men of the Garrison and a large number of the inhabitants of Winnipeg, were assembled at the Fort to welcome us. With the exception of the two already mentioned the men were in tolerably good health, considering the great hardships and fatigue which they had undergone.

The conduct of both officers and men during the whole route was highly commendable all having worked diligently and cheerfully, and manifesting a desire to make the expedition a complete success, by endeavouring to reach Fort Garry in the shortest possible time, thus showing that Canadian soldiers are capable of enduring any amount of fatigue, and overcoming all obstacles.

I cannot close this without speaking highly of the valuable aid rendered by Mr. Dawson in every possible way through out the whole route. He worked most energetically in sending supplies ahead, and by his personal exertions in this respect contributed much to the success of the expedition.

I have the honour to be, Sir,
Your most obedient servant,
THOS. SCOTT, Captain,
Commanding Manitoba Expedition.

To Col. Robertson Ross,
Adjutant Gen. Canada, Ottawa.

TORPEDOES AND FORTS.

The *Morning Post*, writing on the next. "Forts *versus* Guns," comes to the conclusion that both will sink into a secondary position when a new weapon, now in its infancy, is perfected. The weapon alluded to is the torpedo, the value of which is far from being duly appreciated. The experience of the late American war, however, demonstrates that a combination of forts and torpedoes will effectually prevent a fleet from passing a channel which could with almost impunity be entered if its defence were entrusted to forts a one.

Out of many examples of this fact, our contemporary mentions the case of Fort Sumter, at the entrance of Charleston Harbour into which the Federal fleet unsuccessfully attempted to force a passage in the spring of 1863. Here the channel was blocked by a barricade, as it may be called, of piles with torpedoes, so placed as effectually to resist all the efforts of the fleet to penetrate it even when the fort was in ruins and its guns had been frequently silenced. Nor can it be urged as an argument to weaken the force of of this fact, that the attacking fleet was of no great strength, for it consisted of at least eight ironclad monitors, each heavily armed of which one was sunk, and others received severe injury from the fire concentrated upon them. The point to be observed here seems to be that the forts alone could not have produced this result, even had the entrance to the harbour been barred by an unarmed obstruction, for such an obstacle might without serious difficulty have been removed during the night by men in craft of so small a size as to have evaded notice; or, if discovered, to have escaped damage from artillery, and its removal once effected, the ships might have run past the batteries with ease. Neither can torpedoes alone be depended upon for perfect defence, as was exemplified at a later date than the attack on Fort Sumter, by the taking of Spanish Fort by the Federals, although those engines were used to protect it. In the same war it was found that the presence of batteries aided by a partial obstruction was not sufficient to exclude a determined enemy. This was the case at the lower Bay of Mobile, which was taken by the Federal fleet, not, indeed, without loss, as one ironclad was blown up by a torpedo.

It would appear, therefore, that the only reliable defence for a harbour is a system of armed obstruction—that is to say, barricades to which torpedoes are attached, supplemented by forts on shore or floating batteries. Thus protected, fort would be practically impregnable, if not quite unassailable and this most important object would be effected at a much smaller expenditure than the ineffectual defence by heavily armed forts would entail. Of the destructive power of torpedoes, and their utility in stopping the passage of rivers, a remarkable instance is given in a pamphlet on "Submarine Mines," by an officer of the Royal Engineers who has been the pioneer of torpedoing in this country, and has given to the subject a vast amount of careful study. In recounting the destruction of a gunboat—the *Commodore Jones*—it is stated that the vessel, which was reconnoitring, was blown up by two mines which had been dropped in the James River by the Confederates, and "on the explosion taking place, the gunboat appeared to rise and then bend a little in the middle. The movement was followed almost immediately by the explosion of the boilers, which sent everything into the air. . . . The affair was followed by a most remarkable stillness only broken by the splash of falling bodies and fragments." The attacking Federal fleet at once beat a retreat; having lost the gunboat and nearly the whole of her officers and crew from an enemy whose presence was wholly unsuspected.

IMPROVEMENTS IN TORPEDOES

The scientific committee at Woolwich are making extended investigation into the characteristics of the several kinds of torpedoes invented and the conditions most favourable to their use. The trials are generally conducted in secret—often by night—and in the Royal Laboratory. The study of torpedoes, now that the weight of guns and the thickness of armour-plating appear to have reached their utmost limits, is assuming the first importance in naval and military circles; and a course of four lectures on the subject just delivered at the Royal Artillery Institution, Woolwich, by Mr E. O. Brown, assistant chemist to the War Department, have been attended by large number of officers belonging to the scientific corps. Certain systems now undergoing investigation are neither new nor secret; some are already in the possession of foreign Governments, and others have been unfreely discussed and exhibited that foreign officers are at least as well acquainted with them as

our own. The most common description of submarine mine, of which there are some thousands stored away in Woolwich Dock yard, consists of a simple iron case, nearly oval in shape, and calculated to contain some 500 lbs. of gun-cotton, which, as the explosive agent, is preferred to any other yet discovered. These the investigators think as suitable as any which can be provided for barring the entrance to ports and rivers, and for protecting assailable places round the coast; and, as far as present experience extends, there appears to be no better mode of mooring them than by the mushroom anchor, nor any more suitable method of ignition than by electric wires, under the control of intelligent observers on shore or in friendly ships. The application of electricity to this purpose has been greatly advanced by recent researches at the Royal Arsenal Chemical Department, and an apparatus has been devised by which an operator, seated at a key board any distance away, can not only tell instantly which of his line of torpedoes has a ship above it, and fire away one or all as rapidly as he pleases, but by which he can test and discover the locality of any fault in his cables without interfering with the mines themselves. There are also torpedoes intended to be fired on contact, the construction of which is such that, on being struck by the keel of a ship, a glass tube is broken, and a small quantity of sulphuric acid, mingling with a chemical compound, generates heat and fires the charge; but from the liability of this system to endanger other ships besides those of the enemy, and the extra risk involved in laying them down the electric plan is, except in very special cases, preferable.

It is, however, with aggressive or locomotive torpedoes that the committees appointed by the War Office are at present, and have been for some time past, specially engaged. The most primitive of these is that of fixing a charge of 50 or 100 lbs. of powder at the end of a pole projecting twenty feet over the bows of a small boat, which a daring crew may take alongside the enemy, thrust under water, and fire, either by electricity or percussion. Although the "cutting out service was several times tried during the American war with fatal results to the crews engaged, the experiments which have been lately made in England show that with proper care the outrigger system, as it is called, may be adopted with absolute immunity to the operators, and it has been authoritatively pronounced "a most formidable means of attack." Another system which has been favourably reported upon is contrivance for steering a torpedo by means of a line from the deck of a fast sailer, so that the machine shall be led as it were under an antagonist one or two hundred yards away, and fired. It has been found by repeated experiments that these torpedoes, skilfully managed, may be manœuvred with great success. One of the newest and most promising locomotive torpedoes, several modifications of which are being constructed at the Royal Arsenal, is called the "fish torpedo," from its singular form and mechanical action. It is about 5 feet long by 2 feet through its greatest diameter, and is furnished with fins and a tail to act as propellers, worked by a little engine inside, the motive power of which is compressed air. It may be set to run in any direction, and at any required depth under water, while its inventors claim for it the power of navigating an unlimited course of 800 yards, a doubtful quality although it has been tried up to 150 yards, and answered well. This torpedo is intended to be fired from ships constructed or adapted for the purpose. A tube, 28 feet long, is to be inserted longitudinally in the ship below the water line; the mouth, which projects from the bows, being fitted with a cap to keep out the water. Two sluices in the tube allow the torpedo to pass into it, the cap is removed, the ship takes aim, and the torpedo is shot out by a propeller. As it emerges, a steel vane in action the atmospheric engine, and the destructive fish proceeds at the rate of about ten miles an hour, and with remarkable accuracy towards its prey. On striking, a charge in its head is ignited by a percussion fuse, and, the charge being a heavy one, there are few if any ships afloat that could withstand the shock. Its principal defect is its liability to be affected by currents, and the consequent uncertainty as to its hitting its object, especially if that be a ship in motion, but, as its success in any one instance would practically amount to certain destruction of the vessel assailed; the system is engaging at the present time more attention than any other.—*Telegraph.* (London)

CORRESPONDENCE.

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

HORSE AND FIELD ARTILLERY.

SIR—I wrote once before on the above subject advocating the necessity of our having more Batteries of Field Artillery than we now possess, at the same time that I decried the absurdity of establishing Batteries of Garrison Artillery for permanent service. At that time I suggested that the different branches of the Artillery service should be kept (and taught) as distinct as possible, since which time (now about a year ago) I have seen the same idea advocated by one of the leading English newspapers, I refer to the London *Standard*, which came out in a very sensible editorial on this subject in one of the three months of the current year, I forget which now. The arguments advanced by the *Standard* were, in my opinion, sound and conclusive, tho' new and contrary moreover to the established ideas of artillery theorists in general. They were these: "Make, said the *Standard*, each branch of the Artillery service into a separate regiment; let an officer on entering the Artillery choose which branch he may prefer to enter, or place him in that for which he appears most fit on examination; let the promotion go on in each separate regiment; thus each officer will become thoroughly conversant with his own peculiar work; will take special pride and interest in his particular march and will consequently be far better up in his work than if he were liable to be exchanged from one branch to another, besides which fact, there are many officers who prefer the detail and work of one particular branch to that of another; also there are many officers who are more fit for (and prefer) one branch than another; thus, there are many officers who prefer the detail and work of Horse to Field as there are others who prefer Garrison to either Horse or Field Artillery."

These, Sir, were some of the arguments advanced by the *Standard* in the editorial to which I refer. If this be so with the Royal Artillery officers, with how much more force will the case apply to volunteer Artillery officers of our Canadian army. We *cannot train* our Artillery officers as the officers of the R. A. are trained, as they cannot spare the time to devote to studying the science of the profession which it requires, therefore, I say, it behooves us to find a way by which we may teach each branch separately instead of the present actual of gunnery system which is, par parenthesis, a perfect failure as a *school of gunnery*, it at the present time being merely the refuge of two or three young men who, having no profession but some political influence, managed to get in as a sort of quiet retreat from the cares and concerns of working for a living in some other business. Speaking of the school reminds me of a case which requires some ventilating; there is one young officer in "A" Battery who joined the school from the Infantry (was attached to a Field Battery who would not have him with them, by the way, during camp) and the Colonel of his regiment refused to keep him on the strength when the camp ended, so that now he really belongs to nothing but "A" Battery; might I ask, Sir, is this sort of thing to become the custom of the service? That rules and regulations be set aside for political purposes, say boldly once for all, and it is acknowledged to be so by M. P's of both sides of the House, that politics and political influences have *too much* to do with the choice of Candidates for positions in the Volunteer force, which thing, will some day be the cause of the ruin of the force. However to my subject. We in Canada have not the men who can spare sufficient time to learn the details and workings of each separate branch separately; or in other words, let us have our Garrison Artillery, Field Artillery and our horse Artillery, and let us teach each their own peculiar duties, even, if we have to increase our Staff of instructors. At present, as I said before, the school of gunnery is merely a pleasant retreat from business, or a refuge from the toils of the law students office etc., for one or two who can afford to live at a mess (there are only 3 officers in A Battery, I believe altogether) and keep up the respectable appearance of gentlemen.

Half a dozen good instructors in each Province could do far more good than the money at present thrown away on these schools can ever effect. But before all things let each party in the Dominion Parliament refuse to use political influence in Militia affairs.

Your truly,

A BELIEVER IN HORSE AND FIELD ARTILLERY.

2ND BRIGADE CAMP, P. Q.

THE LAPRAIRIE CAMP.

(By a special Correspondent.)

This Camp under the command of that much respected and efficient officer Lt.-Col. John Fletcher C. M. G. was formed on the 21st June last, and broke up on the 6th July, instant. The following corps were present.—The Huntingdon, Missisquoi, and Brome Troops of Cavalry, drilled as three squadrons, under the command of Lieut.-Col. R. Lovelace, late of H. M. regular army; the Montreal Field Battery, Lt.-Col. Stevenson; 21st Batt. Richelieu Light Infantry, Lt. Col. Merchand; 50th Batt., Huntingdon Borderers: Lt Col. McEachren, C. M. G.; 51st Batt. Hemmingford Rangers, Lt.-Col. Rogers; 52nd Batt. Brome Light Infantry, Lt. Col. Rowe; 70th Batt. Shefford Highlanders, Lt.-Col. Miller. Brigade Staff:—Lt. Col. Fletcher, C. M. G., Brigadier, Major McNaughton, Brigade Major, Lt.-Col. Mobre, (late of H. M's. 60th Regiment) Camp Qr.-Master Capt. Amyrauld, Instructor of Musketry, Capt Brosseau Supply Officer, Lieut, Baker Orderly Officer.

On the 14th instant His Excellency the Governor General accompanied by the Adjutant General and Staff visited the camp, and inspected the force. After the general salute, the Governor General rode along the line and then took up his position at the saluting point while the force marched past, first came the cavalry, under Lt.-Col. Lovelace, an old officer who has seen service in different parts of the world, has served on the staff in the Austrian Cavalry, and in command of an Arab Regiment of horse during the Crimean War, he sat on his horse as a soldier, as he led his horsemen by, Col. McEachern commanding the 50th, the corps who beat back the Fenians at Trout River in 1870, is a fine specimen of a Canadian officer and wore his well merited honor on his breast. The infantry marched past rather too slowly, the air played was well enough performed by the bands, but it was not a proper quickstep. After the infantry marched past, the cavalry ranked past by fours at a gallop, and did it very fairly, indeed, considering that they have had only fourteen days instruction, under the Lt. Col. commanding. A sham fight terminated the proceedings, and the entire force being formed into a hollow square, the Governor General presented prizes to the successful competitors at target-practice. His Excellency then spoke a few words to the effect that it was a great source of pride and gratification to him to find everywhere a spirit of patriotism and loyalty to the Queen, throughout the whole population. He thought the camp training gave the people an *esprit de corps* and made them better citizens, better subjects to the Queen, and better able to do their duty to their native land. Three hearty cheers were given for his Excellency, and after lunching at the Barrack, returned to Montreal by the 2 o'clock boat.

The admirable sanitary and other regulations, the excellent quality of the rations, forage, &c., has made the Laprairie Camp, a perfect success. Much credit is due to the Supply Officer, Captain Brosseau, and to Col. Moore, the Camp Quarter-Master for the regular issue of rations and camp equipage. Colonel Fletcher who is a most popular commanding officer in the 2nd Brigade, was presented by the officers of the camp prior to its breaking up with a handsome testimonial as a proof of the esteem and respect in which he is held by all ranks of the force.

The Montreal Field Battery under Lt Col. Stevenson, remained four days only in Camp. They had a most creditable inspection on the day previous to their leaving for Montreal. Col. Strange of "B" Battery was the inspecting officer.

To the Editor of the VOLUNTEER REVIEW.

DEAR SIR.—The Dominion Forces have been honored in some half dozen instances by a recognition of services, in the person of its officers, in the shape of the C. M. G.

I venture to submit to the authorities through your columns that no officer who has received that distinction has been more deserving of a recommendation for it than Lt.-Col. Scott, who commanded the Second Manitoba Expedition.

Yours obedient,

G. W. G.

June, 1872.

FROM MONTREAL.

[BY OUR OWN CORRESPONDENT.]

However satisfactory the recent camps in the Province of Ontario may have been, certainly the position of affairs in the Lower Provinces have not enjoyed the same felicity. In point of numbers and popular interest, there is no comparison, and one is somewhat puzzled to account for the different workings of a militia law common to both Provinces.

In Ontario the people interest themselves in the volunteers, and town Councils are found to grant the men who do turn out an extra addition to their pay; why is the Province of Quebec so apathetic in this respect? The question is easier asked than solved: for a cause there must be a reason, are the people of one province more loyal than the other?

The citizens of the city of Montreal, I regret to say, discountenance the volunteer movement, throw cold water upon the ardor and patriotism of its would be defenders; the merchants would stamp it out were they able, too many young men who have lost their situations for having turned out for their annual drill, can *testify* unfortunately to this fact. What is the remedy? Balle. And it is the only one, and the officers of the various volunteer organizations are vainly looking to that measure to replete their impoverished regiments. We have the spirit and we have the men, but those men depend on others for a livlihood, and they are cajoled or threatened as the case may be and reduced from the path that patriotism and loyalty teaches them is the true one, viz., the welfare and defence of one's country. A complete re-organization of the force, but *not*, and increased pay, would *do much* to revive the drooping energies of the Volunteer Militia; the question of the manner of holding camps too, might well be re considered these small isolated camps such as we have just had, are not such as would tend to infuse any very great amount of ardour and *esprit de corps* among the volunteers. They want to be together, to see each other, thus stimulating a certain degree of rivalry and military pride. Pomp and glory are essential to the soldier, let him be proud of his profession and let him have the means and opportunities of display.

The Camp of '71 at Laprairie, where the two districts were united, attained this object. Then the people had every *opportunity* of seeing for themselves, the duties of a soldier were far from easy and that the money voted for the purpose was not thrown away as is by so many asserted. The various camps in all parts of the Province, by all accounts, passed off very happily, true discipline and order prevailing. The men had nothing to grumble at save the hot weather at Beauharnois with Col. d' Odet d'Orsonnes as brigadier of the camp, the utmost good feeling existed. The gallant Colonel, who is by the way a rigid disciplinarian though none the less a courteous and urbane officer received a proof of the esteem in which he is held by the officers under his command in the shape of a very flattering address accompanied by a valuable set of plate. Colonel Fletcher was the recipiant of a purse of money. Colonel Lovelace drill instructor at same camp; Major Labrahche commandant at St. Eustache and others were also recipients of addresses, all expressive of the sentiments and good feeling of the donors.

The Camp at St. Andrews under Colonel Bacon was very successful. With all the opportunities and natural tendency for grumbling, not a murmur has been heard.

The food and supplies were always of the very best description, and the men had always more than they could eat as the poor more than one parish could gratefully testify to.

Lieutenant-Colonel Osborne Smith, C.M.G., has been two or three days in town, on his way from Fort Garry to Cacouna, where he proceeds for change of air after an attack of severe illness.

There is great jubilation over the fact of the Canadian Team having won at Wimbledon the cup presented by the Rajah of Kolapore and for which they went over to compete. The Artillery regimental matches take place at Point St. Charles on Saturday next.

Lieutenant Colonel Fletcher has transmitted from River du Loup, a reply to the address recently presented to him by the men now residing in Montreal who had served in the Scott's Fusileer Guards. In the reply, he thanks them for the welcome to Canada, and trusts that the connection which has arisen between them from having served together in the same regiment may never cease.

I fear to make my letter too long, and other various suggestions in regard to Militia Camps I shall leave over for another time.

B.

To the Editor of the VOLUNTEER REVIEW.

SIR,—Is Her Majesty's Commission binding? i. e., in other words, is it good for the face of it, when issued?

Next week communication Military Cadets holding commissions *vs.* unqualified officers not commissioned.

ONE INTERESTED.

OUR Correspondent's meaning is not clear—all officers holding Her Majesty's Commission—there are no *unqualified officers*.—ED. VOL. REV.

OUR NEW COLONY.

The new Colony of Elmina and Dutch Guinea has been formally transferred to the British Crown, in terms of the Royal Convention ratified at the Hague on the 17th of Feburary last. The ceremony was observed on the 6th ultimo with considerable military display. Governor Pope Hennessy, the Administrator in Chief, and representative of Her Majesty on the West African Settlement, with other officials, were conveyed from Cape Coast Castle to Elmina in the Governor's yacht, the *Sherbro*, accompanied by Her Majesty's ship *Rattlesnake*, Commodore Commerel, Her Majesty's ship *Seagull*, and the colonial steamer *Nellie*. As soon as the ships anchored, marines and bluejackets from the *Rattlesnake* and *Seagull* to the number of about 120 men were landed, as also some 60 of the 2nd West India Regiment. The Governor-in-Chief arrived at half past one precisely, and was received by a salute of seventeen guns. The Administrator of the Gold Coast, Mr. Usher, accompanied by the Chief Magistrate, the Colonial Secretary, and his private secretary went on shore immediately after, and a procession was formed, preceded by the band of Her Majesty's ship *Rattlesnake*. An immense crowd followed, and it was with great difficulty that the Dutch marines and soldiers could prevent the mob from filling the castle to overflowing. Various preliminaries having been arranged there, the two Governors, attended by their respective suits and accompanied by the troops, proceeded to the flag staff, where the English flag was hoisted, the *Rattlesnake* saluting with 101 guns. The King of Elmina and the chiefs of the various tribes of the country were present, and the treaty was read and interpreted to them by Governor Ferguson. He in their presence, handed Governor Hennessy an ancient gold and ivory *baton*, which belonged to the famous admiral de Ruyter, and they expressed, as they had done on a previous occasion their full approval of the transaction. The salutes being over, and the chiefs and their followers having retired, the English and Dutch governors, with their suits, repaired to the dining hall of the castle when the health of the sovereigns of the two nations was proposed and duly responded to.

Since the ceremony the British naval, civil, and military officers have been received by the inhabitants of Elmina with universal manifestations of good will. The town is likely to become the chief place on the coast of Guinea, as it is in many respects preferable to Cape Coast Castle Settlement. It has a safe landing place, and facilities for the formation of a good harbour; and it has from the Sweet River and other streams an abundant supply of fresh water, an advantage denied to Cape Coast Castle, the inhabitants of which are entirely dependent on rain water tanks. Elmina, like other old Dutch colonial towns, has good streets and roads; the houses are good, they are massive and built of stone, two or three stories high and with some pretensions to architectural beauty. The fortresses of St. Jago and the Fort and Castle of St George d'Elmina are by far the strongest, most commodious, and best preserved buildings of the kind in the West of Africa.

Governor Hennessy has issued two proclamations. In one addressed to the Netherlanders subjects on the coast of Guinea, he announces that Dutch subjects who conform to the laws and regulations of the British Government will be treated on the same footing as British subjects in all points, whether as travellers, householders, traders' or manufacturers. He adds in the same document that the Dutch officials and pensioners of the Netherlands Government who choose to remain in the colony will always represent in his eyes an enlightened and useful administration that existed for 235 years on the coast of Guinea, and may at all times rely on his friendship. The other proclamation is addressed to the native population. In it the Governor sets forth that the various tribes of the Elminas, and the representatives of the other native populations, have voluntarily come to him and expressed their entire concurrence in the transfer, and declares that H. My's rule extends as fully to the Elminas as to the Fantees, or any other of the West African native tribes, but will be equally displeased with any tribe that fosters disturbances in the neighborhood of any British settlement.

One advantage we shall gain by acquiring the colony is a new tariff which Governor Hennessy has prepared for the British coast of Africa. It will sweep away the whole of the *ad valorem* duties which till now have caused so much trouble. Hitherto, every article imported into Elmina has been taxed but a few days after the annexation of the colony to England all the duties were to be removed, except those on spirits, tobacco and gunpowder. A small tax was to be imposed upon spirits, which was expected would make up for the loss of revenue on food, clothes, &c. and it was hoped that the new tariff would lead to a considerable increase of revenue.—*Times*.

BURIED ARMAMENTS.—A singular discovery (says the *Gibraltar Chronicle* of the 16th) has been made within the last few days within a few yards of the senior naval officer's office, close to the *Queen Glendower*, convict hulk, by the dockyard diver. Eight beautiful brass guns, 6 pounders, weighing over 1 cwt. each, were brought to light on the 8th inst. The guns appear to be of a very ancient date, fitted for flints, and are in a good state of preservation. Besides this a large quantity of timber, supposed to have belonged to the vessel from which the guns were taken off, together with a quantity of shot, iron, a bronze pestel and mortar, &c., have been found. The guns have no mark on them. They were taken charge of by Captain Phillimore, under whose direction the search continues.

THE GERMAN ARMY.—The following is a condensed *etat* for 1873:—The total of the regular standing army is 401,700 men, 17,000 officers, 98,800 horses, and 1700 medical men. The Prussian contingent for the infantry is 113 regiments, guard and line, including five sub-officers schools, and a gun practice school. The Prussian body comprises 6585 officers, 16,833 sub-officers, 1663 commissioned, and 5484 private drummers, and bandsmen. 167,204 privates and sergeants and 4236 artizans—total, 199,760 men, besides 685 surgeons, 344 paymasters, 343 armourers, and 3206 horses. There are besides 9 Saxon, 2 Mecklenberg, 8 Wurtumberg, and 17 Bavarian infantry regiments, The Jaeger (voltigeurs or chasseurs) are represented by 13 Prussian, 2 Saxon, and 1 Mecklenburg regiment and 10 Bavarian battalion—total, 14765. The *cadres* of the landwehr only contribute 4876 officers and men. There are 93 cavalry regiments (71 Prussian), with 65,274 officers and men, 313 doctors, 94 paymasters, 534 veterinary surgeons, and 93 armourers and saddlers to each regiment. The field artillery musters 21 regiments, 30,269 officers and men, and 14,878 horses; siege artillery, 15 regiments, 13,730 men—the two together forming about 44,000 men, with 15,000 horses. Finally there are 18 battalions of engineers. (7476), 18 battalions of the train (4180 men) with 175 medical men, and 3409 horses, &c. The Landwehr may be fairly estimated at 900,000 men, ready at short notice, not to mention the Landsturm.

REMITTANCES Received on Subscription to THE VOLUNTEER REVIEW up to Saturday, the 20th inst:—

PORTSMOUTH, Ont.—Lieut. Thomas Kelly, $2.
COLLIN'S BAY.—Paymaster J. B. Fairfield, $1.
PETERBOROUGH.—Lieut. Wm. Johnston, $2.
BURRITT'S RAPIDS.—Major R. O. Campbell, $2.
TORONTO.—In list of remittances published in No. 28, July 8, instead of Capt John Grant, read Capt. John Gray, $1; Ens, Lawrence Buchan, $2.

(*Per Agent.*)

POINT EDWARD, Ont.—Capt. Jones, $1.
DRUMMONDVILLE.—Lt. Col. Barnett, $2; Capt. H Bender, $6.
BRANTFORD.—Capt. Curtis, $2.
HAMILTON.—Capt. Mackelcan, $1, Capt, Harmottle, $1; Major Irving, $2; Lt. Col. Villier, R.M $2; Capt, Grant, $2.
BELLEVILLE.—Capt. Lazier, $2.
COBOURG.—Capt. Gifford, M.P., $1.
MONTREAL.—Lt. Col. McKay, $2; Lt. Col. Baillie, $2; Lt. Col. Spicer, $2; Major Shackel, $2.
QUEBEC.—Capt. Lampson, $1; Capt. Colfer, $1, Capt. R. Hamilton, $2.
HUNTINGDON.—Lt. Col. T. Reid, $2.
ST. ARMAND STATION.—Capt. Sixby, 60th B., $2.
WATERLOO.—Major F. E. Fourdrinier, 79th B., $2.
ST. JOHNS.—Lt. Col. Marchand, 21st Batt., $1.

CONTENTS OF No. 29. VOL VI

The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

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

OTTAWA, MONDAY, JULY 22, 1872.

LIEUT.-COLONEL WAINEWRIGHT GRIFFITHS, at present on a tour through British Columbia, has kindly consented to act as the Agent for the VOLUNTEER REVIEW in that Province.

TO 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.

Broad Arrow of 22nd June, announces another disaster to the 18 ton guns. It would appear that they are really unable to stand any test whatever, and although our contemporary lays the whole blame on a *vicious* system of *rifling*, it is a question whether the material employed in the fabric of the gun, the mode of manufacture, and the subsequent mechanical manipulation it experiences have not all a share in the disasterous results.

The following is the paragraph referred to:

"Last week we recorded the disability of the third of the 18 ton guns, split on board the *Hercules*. We have this week to record that another 18 ton gun has been burst by the quiet shell firing on the sands of Shoeburyness. Our splendid guns seem unable to withstand the combined influence of the gunning twist and the studs which are its necessary adjuncts. Well may the talented officers of the Laboratory complain, that despite the unwearied skill and assiduity they have brought to the task, some of the finest castings that their experience has enabled them to make are rendered of no avail by the vicious system of forcing hard metal into the projectiles already weakened by the stud holes. It appears that on this occasion the inner coil was cracked in three places, viz on the driving side of the upper groove, right through the steel to the outer coil; a second crack was found on the leading side of the lower groove; and a third, extending through to one of the holes bored into the tube for the insertion of the pins which carry the shot bearer. Are these cracks, as in the case of the first two 18-ton guns disabled in the *Hercules*, "exactly what might have been expected," to quote the words of the Director of Naval Ordnance?"

With respect to this question of *material* the United States have a gun known as the *Rodman* in use—it is simply a cast iron gun. The *Army and Navy Journal* (U.S.) in its issue of the 6th inst., noticing the appointment of *two* boards on armament by the Secretary of war, thus writes of it:

"It cannot but be reason for congratulation that this all important subject of armament is to receive increased attention. Enough matters necessary to our future welfare are suffered to lie ignored, but this is one that by its nature cannot be long neglected. The work of arming ourselves is as difficult as it is important. With all the care and money that England has spent on her heavy guns, those she has made cannot be considered satisfactory. They neither burn powder enough nor are able to stand the pressure of that they do consume. Our great Rodmans are respectfully sneered at in Europe, as thoroughly well executed performances, but radically useless in principle. For all that it cannot be denied that they do what we expect of them, and without bursting. They stand heavier charges and have been more daringly proved than any other of the monster cannon. They fire the calculated shot and bear the calculated powder. They are not single specimens of exceptional workmanship, but form a regular and tolerably numerous class of guns in our service. But we know very well that our service needs to have a *share* of rifled guns, and we trust that our manufacturers will be successful in constructing them as in making the cast-iron guns which were once considered as much beyond the powers of man as the huge affairs of wrought iron now in use were unthought of."

As the case now stands it is very probable that Great Britain after all her costly outlay does not possess a single effective piece of artillery on the new system—"that of built up rifled guns"—and that a repetition of the process which the failure of the celebrated Armstrong system entailed will be a necessity.

Owing to the rotation of a projectile around its own axis the difficulty of determining the velocity of such rotation it has been impossible hitherto to calculate the exact spiral twist which should be given to the bore of the gun when rifled, and it is a matter of doubt owing to the great difference of force applied to the initial velocity by difference in quality and quantity of powder whether it is possible to construct a formulæ for determining the angle of the spiral, and it would appear that it must be mechanically determined by practical experiment.

One fact at least is known with reference to this, and that is an alteration in the angle of the *twist* retards the velocity of the projectile and consequently endangers the safety of the gun.

It has also been proved that an increasing spiral gives more steadiness and less deviation to the shot once it has left the gun. On this principle the 18 and 35-ton guns have been rifled, and *Broad Arrow* argues with great probability that it has been the cause of their destruction.

The limit of the application of what is known as *monster artillery* appears to have been reached; it is a question whether a charge of 80 to 120 lbs. of powder can be reduced to a state of combustion between the time the moment of inertia in the shot is overcome and it leaves the muzzle of the gun. It has been asserted that a large proportion of those charges have been blown out unconsumed.

Another mechanical difficulty attending this system of rifling is the breaking up of the *studded* shot in the bore of the gun—those studs are of hard metal and are swaged into holes bored in the shot; now as its centre in a muzzle loader is below that of the bore of the gun the first effort of the force applied throws it against the upper side and it leaves the gun by a series of rebounds the effect of which is to drive the studs as wedges into the shot thus splitting it up.

It is evident that the facts now ascertained point to the breech loading system as being that best adapted for large guns, as it allows a shot to be used which can interpose between the explosive force of the powder and the shot some substance that will fill the grooves and prevent the escape of the gas generated, allow the projectile to acquire the full initial velocity gradually, and by giving time for the full combustion of the charge insure a regular rotatory motion to the shot.

On this subject *Broad Arrow* says:

"For the greatest strain does not, in the case of using pebble powder, come upon the gun until the projectile has moved forward some inches, consequently the inertia against spinning has to be overcome when the shot is moving rapidly, and the strain upon the gun most intense. Reviewing this phase of the question, Captain O'Hea, one of the best authorities on rifling, recently stated that it would be better, could such a thing be done, to reverse the French (or so-called Woolwich) rifle twist, so as to get the full spin impressed upon the projectile soon after starting, and then to let it slip out of the muzzle without obstruction.

"*Engineering*, as well as the *Mechanics' Magazine*, concurs with the other mechanical journals, the *Naval and Military Gazette*, the *Standard*, and the leading papers at our great naval ports, in denouncing the present gun system, which, as they point out, is so faulty that the *Hercules*, which alone has had any lengthened experience with its application in the 18-ton guns, cannot get through "the ordinary quarterly training practice" at her guns without disabling three out of her eight

18 ton guns in less than three years" Well may naval commanders feel alarmed at the prospect of being knocked over by the broken piece of the shell of a *friendly* vessel; and well may the captains of our turret ships hesitate at firing over or near bulkheads which a split projectile might unhappily pass through to the great destruction of life. We are still at peace, and we trust that the favorable opportunity for reviewing the condition of our guns, as well as improving our powder and keeping it dry for any emergency, may not be lost."

Broad Arrow gives the following description of one of the vessels of the British Navy and the great contrast between it and the recent built *Monitors* is at once apparent. There can be little doubt of the fighting power of such a vessel provided she is properly armed, but the use of the ram is problematical—Admiral Sir GEORGE SARTORIUS and its other admirers to the contrary not withstanding.

At present there are lying at Kingstown in Ireland, the squadron commanded by Rear Admiral HOSKYN, C.B., consisting of the *Minotaur*, the flag ship, the *Northumberland*, *Hercules*, and *Sultan*.

"The *Minotaur* and *Northumberland* are sister ships, each being 6812 tons burthen, reduced by allowance for engine space to 6621 tons, and 1350 horse power nominal, capable of being worked up to 4000 horse power indicated. The *Hercules* is a somewhat smaller man of war, being of 5234 tons, and 1200 horse power. The *Minotaur* was ordered to be built on September 2nd, 1861, and was launched from the yard of the Thames Ironworks and Shipbuilding Company, Blackwall, December 21st, 1863. The dimensions of this noble ship are as follows:—Length between perpendiculars, 426 feet; beam, 59 feet 4 inches; depth, 41 feet 6 inches; engines by Messrs. Penn and Co., on the truck principle, 1350 horse power. Her internal construction is of the most massive description, and she is built upon a huge bar of iron 40 inches in depth. To this the iron ribs are bolted on at intervals of 23 inches. The ribs do not, however, rise in unbroken lengths throughout the ship, but are constructed in short lengths, so as to meet other iron ribs which are bolted on to them. Some idea may be obtained of the enormous strength of this huge fabric, when it is stated that the lower ribs are 10 feet in length, and no less than 18 inches in depth, dividing the ship into a series of honeycomb cells, formed by their connection with the longitudinal girders. The upper deck is iron, covered with planks of oak. Headroom between decks, in the *Minotaur* is unequalled by any other man-of-war, having on the main deck 9 feet 2 inches, and on the upper deck, 7 feet 2 inches in the clear. The most novel contrivance, however, are the wing passages passing all round the ship and divided into watertight compartments by wrought iron bulkheads, by means of which if a shot entered through the outer skin, the damage and leak would be curtailed to one section. Her ram bow projects seven feet below water, and is not a portion of the framework, but is bolted on to it. This piece of forged iron weighs no less than 36 tons. The armour plating runs all round the ship, and is 5½ inches thick. The *Minotaur* weighs, as she now lies in the man-of-war roads, off the East Pier, Kingstown, 12,908 tons. Her speed is 14½ knots per hour The *Minotaur* has ten boilers, and to each of these boilers there are four furnaces, so that there are twenty each side of the stokehole, in which over seventy men work. Attached to each fire draft plate, by which the engines can be suddenly stopped. The great quantity of ashes generated by such an amount of fuel is taken off in a novel manner. Over the heads of the stokers there is a tramway for buckets which, on being filled, run beneath a large tube, where they are hoisted up on deck by the aid of a small engine. When on deck there is another tramway, leading to the ship's side, and the ashes are there precipitated into the sea through a pipe. Sailing full speed the *Minotaur* burns 260 tons a day, but she can be put under steam at a ton an hour, at which she would go about seven knots."

The *Minotaur* is a sea-going armor-plated vessel of the same class as the *Monarch*.

We have been in the habit of keeping our readers *au fait* in every new developement of Artillery; Torpedoes, or Armored vessels, under existing systems; and from the first announced our disbelief in the successful application of any of the inventions, from the fact that they were *mechanical impossibilities*, not in design or construction, but in application.

Events have proved the truth of the conclusions arrived at. Armored vessels have been built of monstrous size and admirable construction, but then they are not ships—they have a greater tendency to seek the "bed of the ocean" instead of "the bosom of the waves"—are quite as dangerous to friends as foes and can neither manœuvre together, singly off a lee shore, nor in an open seaway—in fact are not safe at anchor and cannot be kept there without having steam up.

They are armed with a corresponding set of monstrosities in the shape of guns—to be sure they can throw a 700 lbs. shot and use up 120 lbs. of powder as a service charge—provided the gun does not burst in the operation or the shot broken up in the bore.

And last, but not least, is the torpedo whose value the *Broad Arrow* gives under the caption of—

THE LAST TORPEDO PERFORMANCE.

"The experiments at Shoeburyness last week included a crucial trial of the latest developed form of the submarine torpedo, the result of which is that we know what the Government have got for the large outlay to which we have more than once alluded. The new weapon does indeed take the name of "the rocket torpedo"; but after all, we can only regard it as an old friend in a new form, though, for that matter, it may well stand upon its own merits. The fish torpedo, set in motion by compressed air, was slow in its motion, and uncertain in its aim. The rocket torpedo was expected to produce the same results with more certainty of aim, and undoubtedly with the advantage of a higher rate of speed, since it was to be discharged from a cannon sunk in the sea and ignited by means of an electrical fuze. It is a little amusing to find that the rocket torpedo has performed the very tricks of which the fish torpedo was suspected to be quite capable, and which we may yet have the opportunity of seeing it perform *in propird persona*. The only fit comparison we can find for its vagaries is with the eccentricity of a penny cracker on Guy Faux Day. There was a great splutter of flame and smoke in the water, out of the midst of which darted the rocket, which divided in two parts; one going seaward, the other rising in the air, "considerably higher than the cip of the shears," and then after some graceful curvatures worthy of Harlequin, making an ugly rush at the spectators on the jetty. Fortunately no one was struck, and hilarity succeeded to the alarm which the freaks of this terrible missile, whose progenitor was expected to revolutionize the Navy, had at first excited. When the tide fell, search was made in the sand. The steel pointed conical end of the weapon was found only a few feet distant from the gun, and turned to within a few degrees of the exactly opposite direction to that of its projection. It was well, therefore, that its career was cut short. The other parts were lying about hard by.

"The explanation of this eccentric behaviour on the part of the new projectile is that the central charge chamber, which was meant to be loaded with gun cotton in actual service, had been "driven in by the pressure of the gasses of combustion"; that "the rocket tubes had thus got loosened, one had burst nearly from end to end, and the gasses thus generated within the copper cylinder rent it to pieces as soon as it got away from the barrel of the gun." It is said that the inventor is by no means disheartened by the result, being of opinion that the driving power has proved sufficient (we should think so!), though the regulating power might be susceptible of improvement. No doubt the spectators on the jetty, who were almost victimised, were of the same opinion. As for ourselves, we cordially agree with the inventor in both conclusions—and in the latter especially, if such experiments are to be performed in the presence of two Royal Dukes, and a host of distinguished officers whom the country could ill afford to lose, in addition to the large sum which must be set down to the cost of this revolutionary engine, as one may justly term it.

"At the moment when our predictions have been verified by the behaviour of the most improved form of the submarine torpedo, it is satisfactory to hear that the War Office is in treaty with Captain Harvey for the purchase of twenty-five of his ocean torpedoes, the perfect safety and effectiveness of which have been proved by experiment. The adoption of this weapon by the American Government, and the practice made with it, as we have recently heard, in their Mediterranean Squadron, show that the amount of skill required in using it is in these days no valid reason why it should not be adopted. Again, the objection sometimes heard, that these torpedoes require to be launched a long time before the attack, is not well founded as they can be kept triced up, hanging by their tow-lines, and ready to be let go. Perhaps the most important problem to be settled is how far they can be used with safety in fleets, not only as offensive weapons, but to prevent ramming. On this point there is certain to be much difference of opinion, and only experience can decide to what extent they may eventually be utilised in line of battle. In the meantime it is obvious enough that the rocket torpedo, and its elder brother the fish torpedo, are *hors de combat*, and that experiments with these weapons are about as much to the purpose, albeit as recent events have proved they are as full of wild fun and extravagantly grotesque issue as speculations on the feasibility of a cavalry charge in the balloon warfare of the future."

We take the following extraordinary paragraph from the *Broad Arrow* relative to the manner in which practical engineering is carried out at the head quarters of the *scientific corps of Great Britain.*

"An immense reservoir is being constructed at the back of the Royal Military Academy at Woolwich, to replace a large tank made of iron, which when erected on an assigned level, was found when full of water to be about one foot higher on one side than the other. This new reservoir is required to supply the Royal Arsenal with water for the hydraulic engines."

Such a blunder would not be perpetrated in the backwoods of Canada; care should be *taken that the levels for the reservoir are* a little more accurate. Is the above the result of admitting to commissions in the Scientific Corps by competitive examinations?

A GREAT VICTORY.—A cable telegram from London, July 13th, says: "The Canadian team of riflemen have succeeded in winning the Rajah of Colapore's challenge cup at Wimbledon, beating the United Kingdom team eight points. This is the first match yet shot."

REVIEWS.

We have received the Prospectus of a "History of the Royal Regiment of Artillery, compiled from the original records by Capt. FRANCIS DUNCAN, M.A.D.C.L., Royal Artillery, Superintendent of the Royal Artillery Regimental Records, Fellow of the Geographic Society of London, and of the Royal Geographic Society."

The History is "Dedicated by permission to H. R. H. the Duke of CAMBRIDGE, K. G., &c. &c., Colonel of the Royal Artillery." The first volume which is about to be issued embraces the period from the first formation of an Artillery corps "to the Peace of 1783." It contains *thirty* chapters of what must be to the historian, antiquarian, or professional artillerist matter of absorbing interest, the titles of which are as follows:

"The Master General of the Ordnance and the Honorable Board.
"The Infancy of Artillery in England.
"The Restoration and Revolution of 1688.
"Landmarks.
"Marlborough's trains.
"Annapolis.
"The birth of the Regiment.
"Albert Borgard.
"Twenty years.
"Formation of the Royal Military Academy.
"A Sterner School.
"Woolwich in the olden time.
"To 1755.
"The Royal Irish Artillery.
"The *first Battallion*—History of the companies their succession of Captains and present designation. The second Battalion—History of the companies, their succession of Captains and present designation.
"During the Seven Years' War.
"The siege of Louisburg.
"Minden, and after Minden
"The third Battalion—History of the com*panies, their succession of Captains and* present designation.
"The siege of Belle Isle.
"Peace.
"The fourth Battalion—History of the companies, their succession of Captains and present designation.
"The Journal of a few years.
"The great siege of Gibraltar.
"Port Mahon.
"American War of Independence.
"The Gunner who governed New York.
"Conclusion of the War.
"History, succession of Captains, and present designation of the troops, and companies belonging thereto.
"Royal Horse Artillery.
"Fifth Battalion.
"Sixth Battalion.
"Seventh Battalion," with an introductory chapter and appendix.

A copy of this most valuable work should be in the hands of every artillery officer, and we hope our readers will largely patronise it. Any of our friends in this locality who will send their orders to Messrs. JOHN DUNIE and SON in this city will have them attended to. The work is being published by "JOHN MURRAY, Albemarle street, London."

The author Captain DUNCAN has served in Canada, is well known as a literary and sci*entific man of mark and one who specially* understands the value of these Colonies to Great Britain, as an admirable lecture delivered by him in December, 1870, before the Russell Institute, London, on "Our Garrisons in the West" amply proves.

To the exertions of such men society is doubly indebted: in the first place for their disinterested exertions in the pursuit of science, and secondly by the labor undertaken to furnish the truths thus acquired at the least possible cost to the people. We hope Captain DUNCAN'S enterprise will meet a proper reward.

Our neighbors are remarkable for the thoroughness with which they carry out any enterprise in which they may be for the time engaged, as an instance of this, *The American Land and Law Adviser*, published at Pittsburg, Pennsylvania, is a weekly journal of 16 pages, devoted to matters connected with "Real Estate, Finance, Building and Popularization of Law. It also finds time to patronize the fine arts, one page being devoted to designs for houses, one of its most prominent vocations, however, may be gathered from the following notice by a contemporary:

"The (Pittsburgh, Pa.,) *Real Estate Register* comes to us this week enlarged to a beautiful sixteen page, sixty four column, illustrated weekly, *with the name changed to the American Land and Law Adviser*. The original features introduced into the old paper by its publishers caused it to be sought after by persons in all parts of the United States, and thus encouraged by the public patronage the publishers now determine to give to the *people a paper every way worthy of the* name they have chosen for their new weekly. The *American Law and Land Adviser*, is a weekly journal of real Estate, Finance, Building, and Popularization of Law." The issue before us is *absolutely a necessity* to every landed proprietor or real estate owner in the country, as well as every citizen in the United States that wishes to keep posted in that indestructible element of value—Real Estate. The law department of this excellent weekly is edited by the ablest law counsellors in the country, who answer *free* of charge, all questions of law submitted to his paper—with a clearness and accuracy, that makes them to be understood by men of the most ordinary intelligence. This feature alone should cause it to be taken by every farmer and land owner in the country. The illustrations on the first page, of original designs for cottages and suburban residences, gotten up expressly for this journal, is also a feature that commends itself to those about to build, and if we are to judge the future by the first issue, now before us, we will say it alone is worth many times the subscription price. The Weekly Correspondence:—from the General Land Office at Washington, D. C. giving the latest laws governing the Public Lands, Homestead and Preemption; as well as that from all parts of the country:—is also a valuable feature: to say nothing of its news and general information, found in no other journal in the United States. To crown all, the enterprising publishers offer, by way of inducing an examination and subscription, a beautiful $5.00 Cromo, of either of the following subjects: "The Lost Babe," or "The unwelcome visitor." All for the exceedingly low price of $2.50 a year,—embracing a beautiful parlor picture, and over 800 pages of useful reading matter, and illustrations. We would say to all our readers, send stamp for a sample copy. Address CROFT & PHILLIPS, Publishers, *American Land and Law Adviser* Pittsburg, Pa,

"*Lights and Shadows of New York Life, or the Sights and Sensations of the Great City.' A work descriptive of New York City in all its various phases. Its Splendors and Wretchedness; Its High and Low Life; Its Marble Palaces and dark Dens; Its Attractions and Dangers; Its Rings and Frauds, Its Leading Men and Politicians; Its Adventurers; Its Mysteries and Crimes. By James McCabe, Jr.*

What Paris is to the Frenchman, or London to the Briton, New York is to the American. It is not only the Metropolis, but it is the chief attraction upon this continent, the great centre to which men and women resort for both business and pleasure, and as such is a source of never-failing interest. Of late years several attempts have been made to reproduce its varied attractions in book form. The most successful result of these efforts is the book now before us. The author has had unusual facilities to see every feature of the great city, and has written the work with an enthusiasm which is apparent in every page. He has not merely produced a sensational story, but has given us a record of actual facts, of which he is personally cognizant.

The book is as fascinating and absorbing as a novel, and were it not for the evidence he furnished, we should be tempted to believe that he has carried us into the realm of fiction. He tells us the history of the great city which has grown to be the most remarkable in America, and relates its old traditions with zest and humor. He introduces us to all classes of people, and initiates us so into their ways and manner of life. He brings us face to face with great merchants and bankers, actors, editors, working women, ballet girls, thieves, gamblers, sailors, quacks, firemen, and a host of others. He delights us with his sketches of the better and brighter side of city life, of the genius, enterprise, charity and humanity of the great city, and appals us with his thrilling accounts of the darker and more terrible side of the life he is delineating.

A truthful picture of New York life cannot be otherwise than deeply interesting Our auther has succeeded admirably in his task, and we predict for his book a large sale. It is brim full of useful information, brilliant and fascinating, and an emphatic warning against the vices of the city. It is pure and lofty in tone, and while it discusses fully many of the darker sides of city life, it does so with delicacy and candor. An interesting feature of the book is a powerfully written history of the Tammany Ring frauds with sketches of the actors therein.

It is comprised in one large octavo volume of 850 pages, illustrated with nearly 200 fine engravings of noted places, life and scenes in New York, and published by the National Publishing Co., of Philadelphia.

The low price at which the work is issued brings it within the reach of all, and no one who wants to know New York as it really is, should fail to buy this book. It is published in English and German, sold by subsciption only, and agents are wanted in evey country.

NEWS OF THE WEEK.

Great Britain is enjoying a season of unexampled prosperity.

An influential meeting of Roman Catholics with the Duke of Norfolk at their head, has been held in London for the purpose of protesting against the action of the Italian Government with respect to the papal authorities, and of the German Parliament with reference to the law proscribing the Jesuits.

Captain D. R. Cameron of No. 7 Battery, 2nd Brigade, Royal Artillery, has been appointed one of the Commissioners for surveying and marking out the boundry line between Canada and the United States from the Lake of the Woods to the Rocky Mountains, under the 2nd Article of the Treaty of October 20th, 1818.

The *Anchor line* of steamers has a tonnage afloat of 45,000 tons; the latest addition to the fleet is the *California* which is to be placed on the Glasgow and New York line. She is of the following dimensions:—Length over all 375 feet, breadth of beam 40 ft. 6in., depth of hold to upper deck 31 ft. 6in., gross tonnage 3,434 tons. She is propelled by compound Engines of 500 (nominal) horse power, with a stroke of 4 feet and with a pressure of 60 lbs. of steam to the square inch: she is expected to make 14 knots an hour.

The late practice at Soebury ness has given the *coup de grace* to the 35 ton gun—the celebrated *Woolich Infant*. All the trials of those monster muzzle loaders have been distinguished by anomalies that it is impossible to account for in any other way than by some mechanical fault in the gun, the shot, or the powder—facts go to prove the *rifling* in the gun and the *studs* in the shot as being the prime agents in the failures.

Mr. Justice Keough has been compelled to leave Ireland and take refuge in England, owing to his action in the contested election case of the County of Galway.

The Board of Arbitrators at Geneva have hitherto transacted all their business in secret; speculations are rife however amongst the London journals as to the amount of award against Great Britain being large although much smaller than that claimed by the United States.

The Conservative party, as led by Mr. D'Isarli, are conceded the title of the *Constitutional party*, by the English liberal papers—a name very likely to bring a vast accession of strength from the extension of the franchise to the working class and the passing of the *ballot bill* which will effectually take the vote of working men out of the hands of the manufacturing monopolists.

At a meeting at the Crystal Palace on 24th June, Mr. D'Israli stated that the efforts of the Liberals had been steadily directed for over *forty* years towards a disintegeration of the Empire. That they were very near being successful and only for the *sympathy* displayed by the colonists would be wholly so—which is a mere eupheuism—for the fact *that the integrity of the Empire is due to Canadian Statesmen.*

A son of Mr. Gladstone's has become a member of the Church of Rome, having been received by Monsignor Capel.

Archbishop Manning has at length been gratified with the object of his ambition—a Cardinal's hat.

President Thiers has evidently worn out his popularity, and as soon as the French territories have been vacated by the German troops another revolution in Paris may be looked for.

The *San Juan* question has been placed before the Emperor of Germany; it is expected his decision will be given before the end of July.

King Amadeus has occupied the throne of Spain about two years, and in that time has had at least seven changes of ministry.

Cable despatches contain an account of an attempt on the 19th to assassinate the King and Queen of Spain. The Royal couple were driving home at midnight when their carriage was fired upon, but neither of them was struck. One of the assassins was instantly killed, and two others were captured by the King's escort.

The Mikado will shortly leave Yokohama and proceed via the Suez Canal to Europe.

An attempt has been made at Nygata to restore the late Tycoon; about 40,000 persons were implicated, and it was not suppressed without great loss of life.

There is a story that the British Charge d'Affairs refused to meet the Mikado except he was permitted to stand in his presence instead of *squatting.*

The Revolution in Mexico is still in progress, with the usual amount of murder and plunder.

The Emperor of Brazil has refused to receive the Paraguayan minister, and war appears to be imminent.

In Cuba brigandage dignified with the name of revolution is rampant, it lives by the assistance of the people of the United States and the connivance of the Washington Government.

The *Peace Jubilee* at Boston has come to an end—a vast amount of noise with profit to no one but the promoters.

The election campaign still progresses—Grant vs. Greely—the tanner against the typesetter.

Justice, in the shape of a New York Jury has failed to bring in a verdict against Stokes for the murder of Jim Fisk. A model Republic alone could have any squeamishness about taking the life of a deliberate villian and assassin; but it is characteristic of the morals of those regenerators of society that the more notorious the ruffin the more estimable and prominent the citizen.

Fort Sully, Dakota, 16th.—About one thousand Indians have collected at a point on the route west of the river to be taken by the Yellowstone expedition, which is to leave Fort Rice on the 25th instant, and that they will prevent, if possible, the proposed survey of the Nofthern Pacific Railroad through their country. The surveyors' escort will consist of 1,000 men and a battery of Gatling guns, under command of General Stanley, one of the best Indian men on the frontier, who will be able to resist any attack, and prevent interference.

The Dominion is on the eve of the general elections for the second Parliament of Canada—the event creates no wild excitement or unusual exhibition—but the electors are quietly preparing to return men deserving of their confidence to represent them in the Great Council, and to give a just and liberal support to the Statesmen who have preserved the British Empire.

Mr. J. Bolton, late M. P. for Charlotte County, New Brunswick, died after a short illness on the 15th inst., universally regretted.

There are rumors of some opposition to a surveying party in British Columbia by the Indians, but it is merely a mihor difficuly.

DO NOT BORROW TROUBLE.

BY MRS. A. M. KIDDER.

Do not borrow trouble!
Do not ring Hope's knell!
Trust your cause to Him who daily
"Doeth all things well."

He will never give you
One more drop of woe,
Than will serve to make you better,
While you live below.

He will never rob you
Of a jewel bright.
But you'll find it far more radiant,
In your crown of light.

And will never let you
Feel the cruel rod,
But to draw your spirit nearer,
To the throne of God

INVESTMENT OF FORT PULASKI.

(Condensed from Ried's "Big Bio in the war.")

Up the river a few miles from Fort Pulaski lies Jones' Island, the southern shore of which forms for several miles the northern bank of the stream. Near the middle of this stretch rose the trifling elevation of Venus' point, on which it was proposed to make a battery. This would isolate Pulaski. The nearest spot where the soil was sufficiently solid to permit the encampment of troops was Dafuskie Island, four miles distant. From this place there was water communication between New Wright, and Mud Rivers to the shore of Jones' Island opposite Venus' Point. Thence across the oozy, shaking marsh of the island the artillery must be transported by hand for a distance of three-fourths of a mile.

Across this uncertain slime a wheel barrow track of plank was laid. Poles were cut on Dafuskie Island and taken by boats into Mud River to make a wharf for the landing of the guns, and bags filled with sand were carried over by the batteries. Finally on the 10th of February, the hope of aid from the navy being abandoned, the flats on which the guns were loaded were towed out through the sluggish rivers by row-boats, against the tide, and landed at the wharf. At the same time another party on the opposite side of the island, at Venus' Point, was at work on the platforms of the battery. First bags of sand were laid down on the oozy soil, till the whole surface was raised five or six inches; then over these went a flooring of thick planks nearly but not quite in contact with each other. Across these at right angles, other planks were laid till finally, the platform was raised some twenty inches above the natural surface. All the while this work went on, the unsuspicious rebel gunboats were plying up and down the Savannah river, in full view. Then at daylight the work was left, and all hands went back to Dafuskie.

The next night came the hardest task. Over the twelve feet deep mud of Jones island were to be dragged back on Mud River to the site for the battery at Venus Point, three 30 pounder Parrotts, two 20 pounders and a great 8-inch siege howitzer. The Captain shall tell us how this seemingly impossible task was accomplished:

"The work was done in the following manner: The pieces, mounted on their carriages and limbered up, were moved forward on shifting runways of planks about fifteen feet long, one foot wide, and, three inches thick, laid end to end. Lieutenant Wilson, with a party of thirty-five men, took charge of the two pieces in advance (an 8 inch siege howitzer, and a 30 pounder parrott), and Major Beard and the Lieutenant, with a somewhat larger force, of the four pieces in the rear (two 20 and two 30-pounder Parrotts). Each party had one pair of planks in excess of the number required for the guns and limbers to rest upon, when closed together. This extra pair of planks being placed in front, in prolongation of those already under the carriages, the pieces were then drawn forward with the drag ropes, one after the other, the length of a plank, thus freeing the two planks in rear, which in their turn, were carried to the front. This labor was of the most fatiguing kind. In most places the men sank to their knees in mud; in other places much deeper This mud being of the most slippery and slimy kind, and perfectly free from grit or sand, the planks soon became entirely smeared over with it. Many delays, and much exhausting labor, were occasioned by the gun carriages slipping off the planks When this occurred, the wheels would suddenly sink to the hubs, and powerful levers had to be devised to raise them up again. I authorized the men to encase their feet in sandbags to keep the mud out of their shoes many did this, tying the strings just below their knees The magazines and platforms were ready for service at daybreak."

When day dawned, therefore, the Savannah river was closed. But now a fresh peril arose. The artillerists as they stood around their newly planted guns, presently perceived a foe creeping up around and upon them, against which their Parrotts and mortars were of no avail. The tide rose within eight inches of the surface! A high wind would have sent it over. And the worst was not yet, for the spring tides were approaching. Captain Gillmore met this new danger by constructing a levee entirely around the battery, sufficient to secure it against ordinary seas. If storms should come it must take its chances.

A few days later and other batteries were planted to co-operate with this one, in completely investing Pulaski below, and blockading Savannah above. Then Captain Gillmore was ordered down to Tybee Island to undertake his greater work.

On the 21st of February the first of his required artillery, and ordnance stores for the siege arrived. General Sherman now determined that his hopeful young engineer should have all the honor of success, or bear all the burden of defeat; and he accordingly authorized him to act as a brigadier general (pending the appointment to that rank, which he had so icited for him from the President) and to assume command of all the troops required for the siege. Thenceforward he had all the matter entirely in his own hands.

The point on which batteries were now to be erected was not unlike that at which General Gillmore had recently been labouring. Tybee Island, like Jones' Island is a mud marsh. Several ridges and hummocks of firm ground, however are to be found up on it, and along Tybee roads, where the artillery was to be debarked, stretched a skirting of low sandbanks, formed by the action of wind and tides. From this place to the proposed site of the advanced batteries was a distance of two and a half miles The last mile was in full view of Fort Pulaski, and within range of its guns. It was, besides a low marsh, presenting the same obstacles to heavy artillery that had been encountered in the work at Venus Point.

The first difficulty was not in landing the guns. The beach was open and exposed, and often a high surf was running. The guns were lowered from the vessels upon which they had been sent down from the north upon lighters, over which a strong deck had been built from gunwale to gunwale. Then at high tide, row-boats towed these lighters to the shore. Ropes were then attached to them, and the men on shore careened them, thus rolling the heavy masses of iron overboard in the surf. When the tide receded they were left dry, and the troops then seized upon them, and dragged them by main strength up the sand-bank, out of reach of the next high tide.

Then came the task of planting them in battery in the yielding marsh, in sight of Pulaski, without being discovered. "No one" says General Gillmore "except an eye-witness, can form any but a faint conception of the herculean labor by which mortars of 8 12 tons weight, and columbiads but a trifle lighter were moved in the dead of night, over a narrow causeway, bordered by swamps on either side, and liable at any moment to be overturned, and buried in the mud beyond reach. The stratum of mud is about twelve feet deep, and on several occasions the heaviest pieces particularly the mortars, became detached from the sling carts, and were with great difficulty, by the use of planks and skids, kept from sinking to the bottom. Two hundred and fifty men were barely sufficient to move a single piece on sling carts. The men were not allowed to speak above a whisper, and were guided by the notes of a whistle.

The work went on without discovery, and apparently without even arousing the suspicions of the fort. Its seeming impracticability was the safeguard. The batteries nearest the fort were carefully screened from observation by gradual and almost imperceptible changes in the appearance of the brushwood and bushes in front of them—no sudden alteration of the outline of the landscape being permitted. Thus, in silence and darkness, 11 batteries, mounting heavier guns than were ever before used in the United States service, gradually arose before the unsuspicious fort. As the dangerous part of the work was completed, less care was taken about discovery, and the enemy finally learned the location of two of the less important batteries; of the very existence of the others he would seem to have had no conception.

By the 1st of April a change in the command had been made. The popular impatience at the lack of results under General Sherman's management had led to his removal. General Hunter, on taking command, found the investment of Pulaski complete, and the preparations for opening the bombardment had advanced. He inspected the work, but made no change whatever. General Gillmore was left in command, and eight days later was ready to open fire.

For eight weeks the troops had been engaged, day and night in the most exhaustive labor, at an inclement season, and in the most malarious of localities. They had completed 11 batteries along the coast of Tybee Island nearest Pulaski, at a distance from the fort ranging from 3,500 to 1,650 yards, and had mounted 36 heavy guns, of which 10 were rifles, as follows: Two 84-pounder James, 2 64 pounder James, 1 48-pounder James, and 5 30 pounder Parrotts. The smooth bores were, 12 13 inch mortars, 4 10 inch siege mortars, 6 10 in. columbiads, and 4 8-in. columbiads. It was soon to be seen that most of this array of smooth bores on which three-fourths of the time and labor had been spent, were useless. The whole length of the line formed by these batteries was 2 559 yards. In front of it, with 7·2 ft. thick brick walls standing obliquely to the line of fire, on a separate little marshy island a mile or more distant, stood Pulaski, isolated from Savannah by the bat-

teries up the river, but still able to keep up frequent communication by courier through the swamps.

On the evening of April 9 1862, General Gillmore issued his general order for the bombardment. It was remarkable for the precision with which every detail was given. The instructions, with few exceptions, were adhered to throughout. For their striking illustration of the unerring as well as protestimated results of applied science, engineers and artillerists will hold them not among the least remarkable features of the siege. They were addressed to raw volunteer infantry, absolutely ignorant of artillery practice till the siege commenced, and taught what little they knew about serving the guns, in the intervals of leisure from dragging them over the beach into battery. Plainly if the young engineer should succeed it would only be because adverse circumstances could not hinder him.

On the morning of the 10th General Hunter decided to delay the bombardment till the garrison should be summoned, in his felicitous phrase, to surrender and restore to the United States the fort which they held. The commanding officer tersely enough replied that he was there to defend and not to surrender it. General Hunter quietly read the response; then stepping to the door, said, "General Gillmore, you may open fire as soon as you please," in a moment a mortar from battery Halleck flung out with its puff its great load of metal, and the bombardment had begun. The enemy opened vigorously, but rather wildly in reply.

It soon became evident that the fire of the mortars, comprising nearly one half of the artillery bearing on the fort, was comparatively useless. For one shell in ten fell within or upon the fort. The columbiads did not seem to be particularly efficient, but the rifles soon began to indent the surface of the wall near the south east angle. Neither the garrison nor our own soldiers saw much in the bombardment promising decisive result; but by one o'clock, General Gillmore was convinced that the fort would be breached, mainly by the rifled projectiles, which the telescope showed to be already penetrating deeply into the brick-work. It was also evident that on breaching alone, with, perhaps an assault when the breach was practicable, could dependence be placed The garrison could stand the mortar fire far longer than the assailants could have kept it up.

At dark the bombardment ceased, three mortars and a rifle, keeping up a five minutes discharge through the night, to prevent the garrison from making repairs. Ten and a half hours of heavy firing from the whole armament of the batteries had apparently resulted only in a somewhat shattered appearance of the wall about the angle where the firing had been directed, and in the dismounting of two barbette guns, and the silencing of three in the casemates. But, in fact, the breach was almost effected, altho' the garrison does not seem to be aware of it. General Gillmore had selected the point for the breach with special reference to his knowledge of the location of the magazine. the moment his rifled balls passed through the wall of the fort, they would begin to strike the wall on the opposite side of the work

On the morning of the 11th the bombardment was resumed. The damages to the wall soon became conspicuous, and the heavy shots from the columbiads now served to shatter and to shake down the masonry which the rifled projectiles had displaced. By 12 o'clock two entire casemates had been displaced, and in the space between these the rifle balls were plunging through to the rear of the magazine. The danger of being blown up became imminent, and the commandant hastened to call together a council of officers. They voted unanimously for surrender, and just as their flag came fluttering slowly down, General Gillmore was giving his directions for opening up another embrazure. He passed over at once and received its surrender.

The loss on our side was one man killed, so perfect had been the engineering skill that directed the construction of the defences along the line of batteries. The garrison of the fort lost several killed and wounded; 360 were surrendered.

The immediate result of these operations was the total blockade of the port of Savannah. and the reduction of the principal defences of the city against attack from the sea. But their remote consequences were far reaching, and constituted an era in military sience. General Gillmore himself has set forth some of them. "It is true beyond question," he says "that the minimum distance, say from 900 to 1,000 yards at which land batteries have heretofore been considered practically harmless against exposed masonry, must be at least trebeled, now that rifled guns have to be provided against." and, he confidently adds, "with heavy James or Parrott guns the practibility of breaching the best constructed brick scarp at 2,300 yards to 2,500 yards, with satisfactory rapidity admits of very little doubt. Had he," he says "possessed our present knowledge of their power previous to the bombardment of Pulaski, the eight weeks laborious preparation for its reduction could have been curtailed to one week. as heavy mortars and columbiads would have been omitted from the armament of the batteries as unsuitable for breaching at long ranges." In short he has shown the enormous power of the new heavy rifled artillery at unprecedentedly long ranges and in those thirty six hours firing had unsettled the foundations of half the fortifications of Europe and America.

The man that did this was a young captain of Engineers, who had never seen a gun fired in battle till on this expedition who had nevertheless staked his succes in his profession on the soundness of his theories about artillery, and in doing so had faced the opposition of the talent and experience of the entire brilliant corps of which he was one of the youngest and less known members.—*U. S. Army and Navy Journal.*

THE GERMAN FLEET.

The *Allgemeine Zeitung* publishes some remarks by "an eminent officer of the French navy," on the German fleet. "Nothing prevents the German Empire," he says "from creating a powerful navy. Its coasts on the Baltic and the North Sea extend for a distance of 1,400 kilometers, and a canal sufficiently deep for ships of war, will soon unite those seas, and make the difficult passage of the Sound and Belt unnecessary. As for the mercantile marine, it is known to be superior in tonnage to the French; the number of sailors at the disposal of Germany is, therefore, sufficient to provide for a very considerable naval force. . . . The coast, too, is so protected by rocks and sandbanks that it presents very great obstacles to the attack of a hostile fleet, and when the works at Kiel, Memel, Pillau, and at the mouths of the Elbe and Weser are completed, it will require a very large number of small ironclads to enable an enemy to effect a landing or any other hostile operation. It thus appears that Germany neither wants coasts, nor ports, nor seamen. What she wants is ships. She has only five ironclads, with as many corvettes and a few smaller vessels; her iron clads, the *Konig Wilhelm* especially, are very good, but the other vessels are almost useless." In regard to the torpedo vessels lately adopted by the German Admiralty, the officer observes:—"the small size of these vessels, their slight elevation above the surface of the water, and the impenetrability of their plates will make it possible for them to approach a fleet at anchor even in the daytime if it does not keep an ironclad ready with steam up to drive the aggressor back. At night their operations would, of course be much easier, and it would be necessary to have a small fleet of cruisers to watch their movements. . . There is nothing more dangerous than vessels lying deep in the water; artillery is almost powerless against them. This was strikingly shown in the war between Paraguay and Brazil, where rafts with big guns slung upon them did immense injury to the Brazilian fleet. All the Brazilians could see were the guns and the gunners, and it was impossible to take aim at such small objects in the heat of a naval battle, . . . Three of the German torpedo vessels have already been constructed and three more are now being built at Dantzic; and ten officers and 340 men, selected from the German navy for their special qualifications, are to be employed exclusively in the management of this most important part of the service. We also had a torpedo school at Rochefort before the war, but economical considerations have compelled us to abandon this work we had then commenced. It seems to me that nothing can be more sensible and effective than the new organization of the German navy, and when it is complete, which will not take a very long time, Germany, though not a first class naval power, will be in a position to deal hard blows at other nations with fleets of much greater pretensions; for the navies of England, France, Russia, and the United States have had to go through experiments, the fruits of which Germany is now reaping without any cost to herself."

The Portsmouth, N. H. *Journal* of June 29 says; "Commander Matthews, in command of the Torpedo Station at Newport, R. I., visited the naval Station on Thursday of last week, to test the torpedo apparatus of the U. S. S. *Dakota*. A torpedo containing 135 pounds of powder was attached to a spar and sunk at an angle of 35 degrees on the starboard bow of the vessel, at a depth of about thirteen feet and a distance from the ship 30 feet. The explosion threw an immense volume of water into the air, a quantity going up as high as the mast heads and coming on board. A large number of fish of several kinds was soon seen floating on the water, killed by the powerful explosion. A 76 pound torpedo was taken on board the ship's launch and exploded with results quite satisfactory. The experiments made were entirely successful. A large party of officers were present."

Three Austrians have patented a process for conveying away under water, the smoke of river and ocean steamboats. It is said to be a complete success. The invention will greatly increase the efficacy of submarine vessels, while it will enable all ships of war to do away with their most vulnerable point —the funnel.

THE EMPLOYMENT OF CAVALRY.

A thoroughly practical, without being a too technical, paper by Captain H. M. Hozier, 3rd Dragoon Guards, on "The Employment of Cavalry, as illustrated by the Franco-Prussian War," was read at the Royal United Service Institution yesterday (Friday). Captain Hozier gave his views of cavalry reform by the light of his personal experiences as a special correspondent at the seat of war. He showed, by a series of facts and comparisons, that the Prussian cavalry were a superior and more suitable force in the field than the French had been. The Prussians did not profess to have heavy cavalry, but their light cavalry was in reality heavier than the French cuirassiers. It was the drill duties and tactical application of the troops that rendered the mounted portion of the Prussian Army so invincible and so strong as they appeared in the late campaign when opposed to French mounted troops. While the Prussian horses are of a powerfull breed, the product of a large stud kept up for the purpose of producing the sounder horses, the French troopers are all mounted on Arabs, a weak and puny sort of horses, which were in the late campaign easily put *hors de combat* by Prussian cavalry. Captain Hozier described numerous instances of cavalry charges bearing down everything before them, and especially French cavalry. At the Battle of Orleans the charges of Prussian cavalry broke the French infantry battalions in all its positions, and mainly contributed to the annihilation of the Army of the Loire. But it was only in strength, discipline, and courage that the Prussian cavalry was so powerful. The Uhlan were an active, intelligent, and almost ubiquitous force. Their vidette duties were admirably performed, while, on the contrary, the French troops appear to have had no idea of videtting, reconnoitring, and cutting off stragglers for the purposes of priority of information regarding strategical movements and positions.

The conclusion arrived at by Captain Hozier, with regard to a good cavalry arm, were as follows.—The desiderata were as taught us by the Prussian arm: 1. That we should keep up large studs and foster a breed of the strong and powerful horses for cavalry purposes. 2. That the cavalry arm of the Service should be strengthened numerically. 3. That "out heavy cavalry force should be more developed. 4. The vidette duties should be inculcated upon the Prussian system. 5. That tactically and strategically, the movements of the cavalry should be promptly organised for service upon a system similar to the Prussian. 6. That the use of topographical maps should be inculcated as a branch of military studies. 7. Abolish all weighty accoutrements for cavalry. The lecture was received with much applause, and the chairman (General Sir E. Cust), in thanking Captain Hozier for his valuable communication, said that as an old cavalry officer he had never listened to a clearer and more practical lecture. It had shown how important an arm of the Service the cavalry was, and how it could be utilised to advantage in war. After the recent experiences of the continental campaigns it was highly incumbent on the English War Department that it should pay all possible attention to the cavalry arm of the Service as well as the infantry.—*Broad Arrow*, 16th March.

THE PRINCE OF WALES.—One of the most gratifying incidents of last week was the re-appearance of the Prince of Wales in the House of Lords for the first time after his severe indisposition. The Prince paid the Peers the compliment of visting them on the earliest possible day after his return from the continent. Shaking hands with several Peers on the Ministerial side, he stopped at the Treasury bench, and took a seat next to Lord Granville. The Foreign Secretary had been looking at the bar, and when he turned his head, his surprise and gratification at seeing the Prince were expressed in the most lively manner. After a brief but most friendly conversation, the Prince shook hands with the Marquis of Ripon and the Earl of Kimberley, and then bent his steps towards the cross bench, still shaking hands with the Peers on his way. When he left the House, he returned to the Throne entrance on the other side of the clerk's table, which enabled him to exchange salutations *en route* with the Conservative Peers. The Prince stopped at the woolsack to take a seat by the side of the Lord Chancellor, with whom he held a long and pleasant conversation. The Prince afterwards stood at the rail, and chatted with several of his friends and acquaintances. The unaffected pleasure of the Peers at seeing him again, the mingled warmth and respect of their salutations and the kindness, affability, grace and *bonhomie* with which the Prince acknowledged and returned their courtesies, made the scene a very pleasant one.—*Exchange.*

Engineering for last week points out that the recent splitting of the tube of the 35 ton gun was not caused by the powder pressure but by the hard stud on which this capitally made shot—to speak of its metal only—rested. Had the accident been due to the powder pressure, the crack would have been made in the upper groove of the gun, where there must necessarily be greater pressure from the gases escaping over the shot than in the lower part of the bore. when there is no perceptible rush of gas. The article states that "the centre of the crack is fourteen inches outside the point at which the maximum pressure is received", and adds that the recovered projectiles show that some of their very hard studs "overrode the grooves" and that other studs were partially sheared. The writer then goes on to say that had the axis of the shot coincided truly with that of the gun, the stud would have passed evenly through the bore without those "eccentric powder pressure varying from twenty-seven to sixty six tons on the square inch." As regards the probable effect produced by what Colonel Owen calls the *oblique* movement in the bore of the gun of studded projectiles, we are officially told, says our contemporary, that cracks found in stored shot generally run through their stud holes, and *that a blow upon the stud splits the* projectile with surprising ease, while it may be safely hammered upon any other part. This being the case, we fear that projectiles which *rest* in the bore of the gun *upon a single stud*, and are forced down by the powder gases so violently as to flatten the stud sufficiently to leave the impress of the rifle groove upon the base of the shot, can not be fired past supporting vessels, or over boats, or on the decks of turret-ships, without incurring a grave risk.—*Broad Arrow.*

While some of the distinguished visitors to Shoeburyness, on Thursday week, were examining the penetration of the two 700-lbs. Palliser shot into the 18½ inches of iron and 12 inches of wood which constituted the target, others were seen picking up some of the pellets of powder thrown out of the gun unconsumed, which lay in the grass about twenty yards from its muzzle. The question naturally arises whether this waste powder would have been consumed had the gun been heated by continuous firing? Further, what relation obtains between heated chambers and rapidity of powder consumption, and how far the 35-ton gun, or more properly, the 700 lbs. shot, resting on two studs would endure the *extra shock* or "kick," due to heated chambers? As the *Devastation* class are being built, at a cost of £400,000 a piece, for the exclusive use of 35-ton guns, this point should be kept in view in any future test to which the gun is subjected. *Broad Arrow.*

DOMINION OF CANADA.

MILITIA GENERAL ORDERS.

HEAD QUARTERS,

Ottawa, 19th July 187"

GENERAL ORDERS (20).

ACTIVE MILITIA

REGULATIONS FOR ANNUAL DRILL OF 1872-73.

ARTILLERY.

Adverting to Paragraph 16 of G. O. (14)' 31st May, 1872, the period of the assembly, at Fort Henry, Kingston, of the Napanee, Trenton and Cobourg Garrison Batteries, is hereby changed from 20th July to 5th September next, and for the Durham (Port Hope) Field Battery, is hereby changed from 25th August also to 5th September next. And the place and date of the assembly of the Collingwood Garrison Battery is changed from "New Fort Toronto, 20th July" to "Fort Henry, Kingston, 5th October."

Provisional Battalion on Service in Manitoba.

Leave of absence is hereby granted to Captain Allan Macdonald, for two months from 12th instant, on private affairs.

By Command of His Excellency the Governor General,

WALKER POWELL, Lt. Colonel,
Deputy Adjutant-General, Militia,
Canada.