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The Volunteer Review

AND MILITARY AND NAVAL GAZETTE.

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

VOL. IX. OTTAWA, (CANADA,) TUESDAY, MARCH 9, 1875. No. 10.

The Volunteer Review is published *EVERY TUESDAY MORNING*, at OTTAWA, Dominion of Canada, by DAWSON KERR, Proprietor, to whom all *Business Correspondence* should be addressed.

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TO CORRESPONDENTS.

All Communications regarding the Militia or Volunteer movement, or for the Editorial Department, should be addressed to the Editor of THE VOLUNTEER REVIEW, Ottawa.

Communications intended for insertion should be written on one side of the paper only.

We cannot undertake to return rejected communications. Correspondents must invariably send us confidentially, their name and address.

All letters must be Post-paid, or they will not be taken out of the Post Office.

Adjutants and Officers of Corps throughout the Provinces are particularly requested to favor us regularly with weekly information concerning the movements and doings of their respective Corps, including the fixtures for drill, marching out, rifle practice, &c.

We shall feel obliged to such to forward all information of this kind as early as possible, so that it may reach us in time for publication.

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VOL. IX. OTTAWA, (CANADA,) TUESDAY, MARCH 9, 1875. No. 10.

NEWS OF THE WEEK.

The following have been selected as the Wimbledon team for 1875:—Capt. E. Arnold, 74th New Brunswick; Private A. Bell, 10th Onterio; Sergt. W. Bishop, 63rd Nova Scotia; Private Copping, Three Rivers Battalion, Quebec; Sergt. Carleton, 63rd Nova Scotia; Sergt. Major Cruit, 2nd Grand Trunk Artillery; Ensign Fitch, 78th Nova Scotia; Capt. Graham, Halifax Field Battery; Major Gibson, 13th Ontario; Sergt. Harris, 1st Garrison Artillery, Nova Scotia; Sergeant Hill, 1st Battalion, Quebec; Private Logie, 71st New Brunswick; Private Mills, 10th Ontario; Capt. Nelson, 78th Nova Scotia; Private Perkins, 71st New Brunswick; Private Pinder, 71st New Brunswich; Sergt. Power, 63rd Nova Scotia; Sergt. Stevens, 63rd Nova Scotia, Ensign Waters, 25th Ontario; Ensign Wright, 50th Quebec. Waiting men: Gunner Little, 2nd G. T. A., Ontario. Private Paulin, 63rd Nova Scotia; Private Murison, 13th Ontarion; Capt. Matherson. Governor General's Foot Guards, Ontario; Lieu.-Col. Beer, 74th, New Brunswick. 4 from Ontario, 4 from Quebec, 4 from New Brunswick, and 4 from Nova Scotia.

The Winnipeg deputation had an interview with the Premier on the 2nd inst., and urged the early completion of the Pembina branch; also, the construction of a railway and passenger bridge over Red River, as well as a change in the route, so that the railway may run south of Lake Manitoba, or through the settled portion of the country instead of across the middle of the lake at Rat Portage.

The city Council of Winnipeg have unanimously decided that the city would give bonds of fifty per cent of the cost of the railway and Bridge in consideration of its being built at Winnipeg.

We understand the Premier has refused to change the route of the Canada Pacific to run south of Lake Manitoba, instead of across the Narrows, as it would lengthen the road thirty miles. The Dawson route, immediately after the construction of the railway, is to be abandoned by the Dominion Government and placed in the hands of the Manitoba Legislature.

The tender for the construction of the Georgian Bay Branch has been awarded to Senator Foster, President of the Canada Central Railway. He receives a subsidy of $10 000 and $20 000 per mile. The contract to be completed before the 1st January, 1877.

The Canada Central extension from Renfrew, to connect with the eastern terminus of the Georgian Bay Branch, receives a subsidy of $12,000 per mile. The line will extended from Renfrew up through Douglass leaving Pembroke out in the cold.

The Town Council of Pembroke purpose to grant $75,000 to the Canada Central Railway Company for the completion of that line to Pembroke.

Arnold, the desperate robber who recently escaped from Hamilton gaol, has been recaptured at Harrisburg $200 was offered by the Government of his re arrest.

It is reported that the Mayor elect of Montreal is technically disqualified, so that Mr. Beaudry, who only polled 600 votes, is entitled to be chief magistrate.

The United States House of Representatives last night passed a resolution to the effect that it is unadvisable for the *status quo* in Arkansas to be disturbed by the action of any department of the Federal Government.

The schooner *Sea Queen* from Halifax for Mahone Bay, went ashore on Coves Rock at the mouth of the harbor on Wednesday morning. It is expected that the vessel and cargo can be saved.

The annual competition for the tankard presented by the Canadian branch of the Royal Caledonian Curling Club for competition by all clubs of the Dominion, took place on the 26th inst, at Montreal between two rinks of Ottawa and Quebec curlers, they having made the highest scores of all rinks in the preliminary contests. The match commenced at eleven a.m., at the "Thistle" Club Rink, and was concluded by four p.m., the Ottawa men gaining the victory by one point. The match was pronounced by keen curlers as one of the closest contests, exhibiting the finest play seen in that city for years.

The Agricultural and Arts Association of Ontario have asked the Government to give $200,000 to the Philadelphia Exhibition, so that Canada may be well and suitably represented.

It is generally considered that the salary proposed to be given to Col Powell, the new Adjutant General, is too small.

The new buildings for the Provincial Exhibition, Ottawa, are to cost $17,000.

In view of proposed changes in the law relating to divorces in Canada, Archbishop Taschereau has issued a pastoral calling the attention of the people of his diocese to the rules of the church as to the indissolubility of marriage.

The tornado in Pettis County, Missouri, seems to be an affair worthy of note. A freight train, it is stated, was lifted from the track, and several of the cars were hurled a distance of a hundred yards. One man was killed, another fatally and several others seriously injured.

The Cheyenne tribe, 1,600 strong, have surrendered to the United States authorities They have two white women among them.

The Kansas Legislature is asked to appropriate $200,000 to the relief of the suffering poor of the State

The remains of Sir Charles Lyell, the distinguished geologist, were interred on Saturday in Westminster Abbey. They lie next to those of Ben Johnson.

A despatch from Calcutta says, it is rumored that orders have been received from the English Government to hold all regiments in India ready for active service.

The Queen has received, through the Earl of Carnarvon, the war club of King Thakombau, which was in former times the symbol of sovereignty in the Fiji Islands, and which has now been presented to Her Majesty by the King in token of his dutiful allegiance.

The international rifle match between the Irish and American riflemen has been fixed to come off at Dublin, on the 29th of June next. The Irish riflemen have appointed a Committee which is arranging a grand banquet for the American team on their arrival here.

The North German *Gazette* says, the French Government has ordered the purchase of 10,000 cavalry horses in Germany. The *Gazette* hopes that the German authorities will take steps to prevent such purchases.

An address has been issued by the Emperor prohibiting the exportation of horses.

John Mitchell was renominated for Parliament on the 4th in Tipperary, Mr. Moore, a Conservative, will contest the seat. The election will be he held on the 11th inst. Mr. Mitchel's health is worse.

The Italian Government Surveyors' have made a report declaring Garabaldi's plan for the improvement of the Tiber practicable.

It is stated that Earl Derby, has accepted from Spain, as indemnity for the "Virginius" outrage on British subjects, £500 sterling, for each white and £300, for each black murdered.

A design is on foot to establish an Industrial Missionary Settlement on the borders of Lake Nyassa, to be called Livingstonia, after the great African traveller. The prospects of the undertaking are believed to be promising, and of the £10,000 required to carry it on one half has already been subscribed in Scotland alone.

During the three hundred and fifty years that the Palace of the Tuileries has been a royal dwelling, no French sovereign has died within its walls, and ever since 1588 every French sovereign who has made the Tuileries his abode has been compelled, at some time or other, to quit the shelter of its roof.

The Princess Salm has set a new fashion in Paris, that of having an evening dress quite covered with feathers.

Report of Admiral D. D. Porter.

(*Continued from page* 100.)

WASHINGTON, D. C., Nov. 6, 1874.

GUNS.

We have three classes of guns in our Navy which had no superiors of their kind in any country, viz., the fifteen inch, the eleven inch, and the nine inch.

These are, in fact, peculiar to the United States Navy, and at the commencement of our civil war they were the best guns afloat. Since that time, owing to the immense improvements in plating ironclads, it has been found necessary to construct heavy rifled ordnance for the purpose of perforating the iron.

Against wooden ships our cast iron guns are sufficiently effective at the ordinary ranges where a ship can be struck at sea; but there should be a proportion in ships' batteries of heavy rifled cannon, which we have not on hand, and of which at present there seems no likelihood of our obtaining a supply.

Many attempts have been made to convert our cast iron guns into rifles, and the Parrot rifled gun cast during the late war was expected to accomplish great results. The Parrot gun, however, proved a failure, and on several occasions caused more destruction, by bursting, to the crews of our own vessels than they did to the enemy.

Late experiments with the fifteen inch gun prove that it will not stand the test of rifling. Whatever may be the cause of this failure, or whatever the prospect of remedying the evil, confidence in rifled cast iron guns has been destroyed, and it would not do to introduce them into the Navy until more satisfactory results are obtained.

It is my present opinion that cast iron guns are not fit for rifling, and that all cast iron rifled guns are liable to burst at the fiftieth fire.

We have trifled for years over an important matter that might have been decided in a few months, and all that is now left us to do is to work, and either procure from abroad the requisite number of large rifled guns, or else establish a Government foundry where we can construct them to our own satisfaction.

By reason of this proposed change in our ships' batteries, it is not desired to dispense with fifteen, eleven, and nine inch smooth bores, but to have a proportion of rifled guns of heavy calibre mixed with them, so that our vessels will not be forced to go into action with only smooth bores against long range guns which the former cannot reach.

To establish our own foundry would require a considerable outlay, but there is no other way of producing heavy rifled guns in the United States; for private individuals would not undertake to build guns for the Government, unless they were paid for the plant as well as the guns, and it is altogether likely that we should have better ordnance built by Government than by contract.

What we require for immediate service is:

1st. A class of steel breech loading guns superior to the seven hundred pounder thirty five ton rifled gun. These are, need only be, for the monitors, which should each have one smooth bore and one rifled gun. 2d. Guns superior to the four hundred pounder eighteen ton gun, for our sea going ships, and rifled guns in our wooden vessels, equivalent to the seven hundred and fifty pounder twelve ton guns for our smaller vessels, as pivot guns, which would be equivalent to nine, ten, and twelve inch rifles.

"Taking the penetrating powers of the shot from these guns, on leaving the muzzle, into consideration, I find that the twenty five ton gun is about three and a half, the eighteen ton gun more than three, the nine ton gun nearly twice, and the six and a half ton gun one and a half times as powerful as our heaviest sixty eight pounder, while at long ranges, say one thousand yards, it is greater still."

The twenty five ton gun rises to more than seven and a half times, the eighteen ton gun to seven times, etc.

This comparison is made merely to give a general idea of the advantage rifled guns will possess in any future contest at sea.

Similar comparisons hold good with regard to other rifled guns. The total energy of the heaviest rifled cannon increases even more rapidly than the penetrating power per inch of circumference.

This maintenance at long ranges of the penetrating power of rifled projectiles is well understood and appreciated by every nation except ourselves; but if we combine the system of guns in use abroad with our own smooth bore cannon, we shall have batteries on board our ships with which no fault could be found.

In reading over some reports of experiments "on the penetration of armor plates by steel shot," I find it asserted that the American fifteen inch gun, charged with fifty pounds of powder and throwing a spherical steel shot of four hundred and eighty four pounds, would fail to penetrate the Lord Warden's side (7½ inches iron and 30 inches teak) at any range, while the nine inch twelve ton gun, with a forty three pound charge, would send its two hundred and fifty pound shot through her at a range of one thousand yards. It is also stated that the fifteen inch gun would not penetrate the Warrior (4½ inches iron and 18 inches teak backing) beyond a distance of five hundred yards, while the English seven inch six and a half ton gun, weighing about one third as much as the fifteen inch gun, would do the same with a charge of twenty two pounds of powder and one hundred and fifteen pound shot, and the twelve ton gun would penetrate up to two thousand yards.

These facts are well understood by naval officers.

It was previous to the year 1869 that the Lord Warden and the Warrior were cited as above by way of comparison; but since that time great advances have been made in guns and armor, and in Captain Simpson's late report we find a thirty five ton twelve inch, wrought iron muzzle loading rifle gun firing a shot of seven hundred pounds, with one hundred and ten pounds powder, perforating a fourteen inch plate backed by eighteen inches of timber and one and a quarter inches iron skin, at five hundred yards; passing through twelve inches of solid iron, eighteen inches backing, and one and one half inches iron skin up to seventeen hundred yards; up to two thousand yards, passing through eleven inches of iron, twelve of wood, one and a quarter inches iron skin, etc.; at thirty one hundred yards, passing through ten inches iron, eighteen inches backing, and one and a quarter inches iron skin.

The twenty five ton eleven inch muzzle loading wrought iron gun, with a shot of five hundred and thirty pounds and eighty five pounds of powder perforates fourteen inches iron, eighteen inches backing, and one and a quarter inches iron skin up to five hundred yards; goes through twelve inches iron, eighteen inches backing, and one and a half inches iron skin, at six hundred yards; goes through eleven inches iron twelve inches backing, and one and a quarter inches iron skin, at thirteen hundred yards; and through ten inches iron, eighteen inches backing, and one and quarter inches iron skin, at nineteen hundred yards.

The ten inch wrought iron muzzle loading gun of eighteen tons, with four hundred pound shot and seventy pounds powder, perforates within a fraction of fourteen inches iron, backed by eighteeen inches teak and one and a quarter inches iron skin at five hundred yards; goes through twelve inches iron, eighteen inches backing and one and one half inches iron skin at the same distance; perforates eleven inches iron, twelve inches teak, and one and a quarter inches iron skin, at six hundred yards.

The nine inch wrought iron muzzle loading gun of twelve tons, with fifty pounds poweder and two hundred and fifty pound shot, perforates eleven inches iron, twelve inches wood backing, and one and a quarter inches iron skin, at six hundred yards, with seventy pounds powder and four hundred pound shot; goes through ten inches iron, eighteen inches backing, and one and a quarter inches iron skin, at one thousand yards.

The eight inch wrought iron muzzle loading gun of nine tons, with thirty five pounds powder and one hundred and elghity pound shot, goes through seven inches iron, twelve inches backing, and one and a half inches iron skin, at four hundred yards.

Thus it appear that any of the above guns, with the exception of the last mentioned, could destroy one of our eleven inch turrets outside of nine hundred yards.

There are three guns now proposed to be constructed by Mr. Krupp, one of fourteen inches diameter of bore and fifty seven and a half tons weight, one of fifteen and seven tenths inches diameter of bore and eighty two tons weight, and one of eighteen inches diamoter and one hundred and twenty four tons weight. What such guns will do against iron turrets, as at present constructed, it is easy to foresee.

So rapid is the march of improvement in ordnance, that every year finds us more helpless, and under the circumstances it would be as unjust to expect our Navy to succeed against such odds as it would be to count on victory for our Army provided with smooth bore artillery and old fashioned muskets, against rifled field pieces and Remington breech loaders.

The American people are very exacting, and apt to show a good deal of feeling against those who sustain defeat, as I frequently noticed during the late civil war, without fully informing themselves of the disadvantages under which their combatants were labouring. The pupular chagrin would be great, indeed, if we had our ships driven from the ocean in a war, and our ports hermetically sealed by a blockading force.

Under such circumstances our Navy would have great cause of complaint at being sent on a forlorn hope with guns and vessels built in or before 1860, to compete with guns and vessels built since 1870.

The Navy would not be to blame in such a case if it met with defeat, but it could very properly complain of not being supplied with means to gain victories and protect our coast and harbors.

To show the importance foreign powres attach to rifled cannon, I annex a list of guns now on hand in the British navy alone. I select these as belonging to the most pro-

minent naval power, all the others being armed in a similar manner.

BRITISH NAVY.

Return showing number of serviceable rifled guns Dec 31, 1873.

13-inch	2	To al number ser viceable rifled guns	2,698
12 inch—			
38 tons	4	Number of g ns supplied for iron clad ships	
35 tons	13	12-inch—	
25 tons	15	35-tons	8
	32	25-inch	7
11-inch	42	10-inch	50
10-inch	270	9-inch	157
9-inch	565	8-inch	98
8 inch	133	7-inch	212
7-inch—		Under manufacture for iron-clad ships:	
7 tons	139	12-inch, 38 tons	4
6½ tons	536	11-inch	5
90 cwt	16		
	691		
Breech-screw	881		
Breech-screw	76		
	957		

TORPEDOES.

Since my last report I find that the subject of torpedo warfare is attracting the greatest attention all over Europe, and much attention is paid to the sea torpedo,or torpedo vessels for accompanying a fleet or attacking outside a harbor.

The Germans are building twenty eight sea torpedo vessels, each one hundred and fifty feet in length between perpendiculars which have been commenced since we undertook the construction of two. Experiments are also going on with the "fish torpedo" which has been greatly improved during the past year, and is now being adopted by most European governments.

We have paid no attention to this device and in so doing I think we have made a mistake, as the "fish torpedo" seems to possess much merit, and would, no doubt, if properly managed, produce disastrous results to an enemy in a fleet fight. One or two accidents created a want of confidence for a time in the "fish torpedo," but these mishaps arose from mechanical difficulties which can easily be removed.

It is well for us to avail ourselves of all the improvements in warfare that are devised, for under different circumstances all may prove effective. The "fish," towing, Ericason's, and Lay's torpedoes, all have good points, and their inventors should be encouraged.

All these devices could be combined in a torpedo vessel carrying outriggers, and an opportunity might occur where each could be operated with advantage.

A torpedo vessel should be ready to use the different inventions as circumstances might require, and should never be confined to one particular method. The fish torpedo and those of Ericsson and Lay, will require to be projected from a toepedo vessel, or from land close to passing ships.

The Lay torpedo has been tested and approved. This invention, being charged with acids, would be more available if operated from shore in combination with batteries, especially if attacking a ship some distance off. It could also be used from a monitor built vessel whose decks are close te the water.

The device is ingenious, and could, no doubt, be much improved, if Government would give the necessary encouragement.

I have examined the Ericsaon torpedo, and think well of it, although I only know of the success of the experiments through officers who witnessed them.

This torpedo is simple and easily operated by means of compressed air and a steam air pump, without danger to those engaged in working it. At close quarters it could be used with great effect. from any vessel, say at a distance of 100 feet, which is about as far as any torpedo could be advantageously employed from a ship at sea.

For a first experiment I think the Ericsson torpedo a great success. Whatever difficulties exist are merely mechanical and easily remedied, and the inventor should receive every encouragement from the Government, for these machines are too expensive for a private individual to construct unless he has assurances that the Government will liberally reward his ingenuity.

Both the Ericsson and Lay torpedoes are very valuable additions to the present means of torpedo warfare.

I still adhere to the opinion that torpedo vessels without riggers will prove the most efficient means of destroying ships.

It was so during our late war, when those badly constructed and slow moving "Davids" caused consternation to vessels on blockade duty, and destroyed some of our finest ships.

No other kind of torpedo vessel can break up a blockade or accompany a fleet outside, and I hope to demonstrate practically in a short time that the only outrigger torpedo vessel that we have will be the most formidable afloat. It can be made serviceable under all circumstances.

While I attach great importance to the torpedo as a means of offence and defence I am yet afriad that we will run into the error of supposing ships of war can be driven from the ocean by means of it alone. Some imaginative people think that ships and guns will avail nothing hereafter, but the torpedo will do all the work, while others, who have not paid much attention to the matter, consider the torpedo of little practical utility. Both these conclusions are erroneous.

The torpedo, after all, is but an adjunct, and there are certain times only when it would have advantage over great guns, as a Remington rifle or a Colt's revolver would, under certain circumstances, be preferable to cannon in a fort.

The torpedo, although an important addition to other means of warfare, will not do away with anything that has preceded it. Ships will only be built stronger and faster and guns heavier, while improvement will continue to be made in the torpedo and ingenious devices introduced to avoid it.

Our legislators must not delude themselves with the idea that the invention of the torpedo is going to decrease the expenses of the Navy. On the contrary, it calls for an increase to the extent that the torpedo may be required, and also for a corresponding increase in ships, heavy guns, and rams.

A people with an entensive coast, great commerce, and a habit of talking war, cannot avoid responsibility of supplying their Navy with all the new inventions for conducting hostilities. They will find them all needed sooner or later.

Torpedo experiments as we conduct them, are inexpensive,and I doubt if a dozen members of Congress have noticed the appropriation, the amount is so small; and I believe the Naval Committee were very favorably impressed with the torpedo establishment and the experiments conducted in their presence.

I think it would benefit the Navy if the results of the experiments at Newport were published immediately after they took place and distributed to the Service, for I think that our officers, with the exception of those stationed at the school, knows less about what is going on than do those of foreign navies.

We are not so much in advance as the rest of the world that we need keep these torpedo matters secret, and there is always a way of getting at the truth if an outside side person desires to obtain information. We often obtain books and plans from Europe which the originators thought perfectly secure in their own hands; and the same thing happens with regard to our own "secrets." A wiser plan would be to supply our officers with all results, impressing upon them the importance of not divulging such matters.

I am not quite sure, however, but that the wisest plan would be for belligerent nations to interchange their information in regard to destructive inventions. This would tend in a great measure to maintain the peace of the world, as I have always noticed two men, both armed to the teeth, when together are apt to be particularly civil to each other.

At this moment torpedo experiments on a large scale are being conducted abroad, and I think it would be wise to keep several intelligent officers in Europe for the purpose of witnessing these performances. Foreign governments find it advisable to keep naval officers attached to their legations in the United States, where experiments are conducted on a much smaller scale.

A COMPARISON WITH FOREIGN NAVIES.

While we have been satisfied with our iron vessels built during the civil war, many of which proved worthless, the following is the result of the enterprise of foreign nations, who seem to vie with each other in the race of building iron clads and casting heavy guns.

England has built and is building, since the introduction of iron clads, fifty five vessels, of 322,858 tons, iron clads, armorplated ships, and iron plated gun boats. France has built forty four iron cased vessels of all kinds, or 188,375 tons; Russia, twenty four iron plated vessels, or 67,000 tons; Italy, twenty two, or 75,101 tons; Austria, nine, or 36,119 tons; Turkey, four, or 16,884 tons; Spain, eleven, or 42,000 tons; Sweden five, or 5,100 tons; Denmark, six, or 10,836 tons; Holland, five, or —— —— tons; Germany, eleven, or 63,776 tons; one hundred and ninety six iron clads, all told,to say nothing of Chili and Peru, which have a larger force of these vessels than the combined forces of all the foreign nations on their coasts.

The nation that seems to be advancing most rapidly in naval power is the German Empire; which, from having a very small force of vessels in 1869, has now a very respectable one, and in a few years will possess an iron clad navy only inferior in size to those of England, France, and Russia.

This example of Germany show how soon a navy can be built up with energy and determination, and the fact of her devoting so much attention to this matter will ultimately give her great weight in the councils of Europe, enabling her to carry out a policy in conflict with some of our best cherished ideas.

Germany has pursued a very sensible course for a power weak in naval resources.

She has commenced at once to build twenty eight light and comparatively inexpensive torpedo vessels while getting in order and increasing her fleet of iron clads. Thus far she has made no mistake in the construction of iron clads, and I receive from Brazil a report of a beautiful steam sloop, carrying the German flag, and a great improvement on modern vessels of war. Her battery is a model.

With her eleven iron clads and twenty eigh torpedo vessels, the German navy would be a match for an equal number of

iron clads of twice the size without torpedo boats.

When Germany emerged from the late war with France she was not a naval power; but finding the necessity of becoming one to protect her coast and commerce, she took immedia e measures to increase her naval resources.

Germany has now appropriated $72,000,000 for the purpose of building up a navy, so that in 1884 she will have about twenty six iron clads and rams of the heaviest tonnage sixty swift clipper steamers, averaging 1,500 tons with heavy batteries; and thirty sea going torpedo vessels; leaving $15,000,000 for docks and improvements in navy yards and arsenals.

This is independent of the annual appropriations, and shows how indispensable it is considered by a nation advancing in power and increasing in commerce to maintain a large force of war vessels.

In the aggregate, $72,000,000 seems a large sum; but when apportioned to the several years in which it is intended to complete the work, it appears like only a moderate expenditure.

We could afford it just as well as Germany and we need an increase in our Navy more than any European power.

Six millions a year properly expended would in ten years put us in condition to resist encroachments, and to maintain our rights in any parts of the world.

England has built but one torpedo vessel, but the English, with their vast workshops, could turn out torpedo boats faster than we could steam launches. They are by no means indifferent to the importance of the sea torpedo, and we must not form an unfavorable impression of torpedo vesse s because England has not done more in that direction.

The British have a number of quick working iron gun boats for harbor defence, that could soon be converted into torpedo vessels.

We cannot afford to look idly on while all other nations are adding so rapidly to their naval resources. Every step they take leaves us so much more inferior to them, and we must finally lose th t naval prestige of which we are justly proud, and abandon all claim to equality on an element quite as natural to our own people as to any sea going nation.

While I am an advocate for the practice of naval tactics in large vessels, yet I think it would be better to commence with steam launches at the Naval Academy, where not only the evolutions of fleets should be taught, but also the b st system of attacking in torpedo vessels and rams, to exhibit the confusi n and difficulties incident to a battle. The text book in use at the Academy is well adapted for giving a general idea of the management of a fleet out of battle, but to manage an iron clad fleet during an engagement a different system of tactics will be required.

In whatever manner a line of battle may be formed, it will be found that the ships will have to be arranged in groups of three, that is, three vessels forming a triangle and preserving that order as nearly as possible throughout a battle. Vessels in groups of three can support each other and preserve order better than by any other arrangement.

When a fleet is enveloped in smoke great uncertainty in regard to signals must exist, and, as I have said before, "at the commencement of a battal the responsibility of the admiral ends, and that of the command ing officer of ships commences." A long line of battle would soon be disarranged, but it would be possible to keep three vessels together in a triangular form where they could attack in concert and defend each orther with certainty. I invite attention to this subject, and trust it may be introduced into the study of naval tactics now taught to young officers. There are several matters which I have mentioned in former reports, and to which I again beg leave to draw your attention.

1st. The apprentice system, which is necessary, if only to educate a set of good petty officers for the Navy. It seems rather inconsistent to provide such an excellent school for educating officers while doing nothing for the seamen. In a few years more all the old stand bys, the petty officers, will have disappeared from the Navy, and it is a question as to who will fill their places. We require at least 1,000 boys in addition to the seamen, ordinary seamen, and landsmen now shipped for service, though 2 000 would be better. These, educated and drilled on the plan I submitted to you in a former report, would, in the course of ten years, furnish petty officers, seamen, and ordinary seamen for the entire Navy.

On a late occasion, when it was necessary to fit our ships with despatch, we had to enlist many inferior men, and the ships sailing in great haste, without time to properly drill their crews, were very inefficient as vessels of war. I received letters from the several commanding officers at the time, and did not envy them the responsibilities they had incurred. The entire expense of 1,000 boys would be, for pay, $120,000; rations, $105,000; total, $225,000 per year; or, by reducing the number of ordinary seamen 700, we could maintain 1,500 boys at the rate of $161,000 per annum. At the end of four years one half these boys should be able to do thoroughly the duty of ordinary seamen and after that time would add 750 ordinary seamen yearly to the Navy. In twelve years the Navy would be manned entirely by American seamen.

2d. A more perfect method of ventilating ships is required. Imagine a crew of 250 men shut up at night on the berth deck of a ship in the tropics, inhaling the foul air from the vessel and the fetid atmosphere of each other's breath. No wonder ships' crews contract epidemics which often decimate them. I have examined a plan of ventilation devised by Assistant Engineer G. W. Baird, of which I highly approve, and I cannot do better than inclose his statement herewith.

3d. The introduction of steam capstans into all ships of the Navy.

4th. Steam cutters to be built with more buoyancy and more flare to the bow. Those we have at present are wet in a sea way and unsafe.

5th Uniformity in boats' sails. This was at one time established, but at present the subject does not receive that attention which it merits. The plans furnished in 1869 were good and serviceable, and should be adhered to.

We have gone back to the use of the old lug sail for boats, an unsightly and unserviceable arrangement; and commanding officers, unable to make it useful, rig their boats pretty much according to their own fancy.

The Alarm and the Intrepid.—On the 28th ultimo I went on board the torpedo vessel Alarm to witness the working of the "Flower Steering Propeller," with which she is fitted. For this purpose the vessel proceeded down New York Harbor to within a short distance of Sandy Hook. The trial was not for the purpose of testing the vessel's speed; the engines were not quite in condition, and as I had given only twenty four hours' notice of my intention to make the trip, the engineer in charge did not think it advisable to work the engines up to full power. The trial was in every respect gratifying, and the performance of the vessel exceeded my expectations. The working or manœuvering capacity of the Alarm is extraordinary, and I doubt if any vessel afloat can equal her in that respect. She worked up to eight knots, carrying only fifty pounds of steam, throttled off and all the furnace doors wide open. When running at full power, the vessel is calculated to carry ninety pounds of steam, the boilers having been tested at one hundred and twenty pounds hydraulic pressure. With fifty pounds of steam she made forty eight revolutions; with seventy five pounds she would make about seventy five revolutions. The Catalpa, a fas tug of 196 tuns, making fifty turns, only kept way with the Alarm, showing that there was very little difference in the power of the two propelling forces, the Alarm being 311 tons.

The model of this torpedo vessel seems perfect, as she did not break the water on any part of the hull, or show anything more than a slight ripple astern, while running eight knots. While going at a speed of about seven knots the wheel was reversed and in thirty one seconds the vessel was moving in the opposite direction (astern) with nearly the same steam and speed, and working as well as when going ahead. While going about seven knots and making forty five turns the wheel was put at right angles, to the keel, when the vessel made a complete turn on her centre in about 3 min. 30 sec: and she would turn even quicker than this with more revolut ions. I noticed that an increase of about five turns above forty five made a great difference in the speed of the Alarm, and without doubt when carrying all steam and making the full number of turns of which she is capable she will run over ten knots (or 11.5 miles) an hour.

The condition of the engines, however, was such that the engineer did not deem it safe to run them with power on that occasion. The journals heated considerably and there was a good deal of thumping of machinery, but all this will disappear when the engines are run for a short time. I think the contractor has furnished the Alarm with a good pair of engines; the work appears to be well done throughout. On the whole I am pleased with the vessel, and am satisfied she will fulfill what is expected of her. She carries her fifteen inch gun well, and could have been fitted to carry a twenty inch gun, provided she did not have to encounter a heavy sea: this is remarkable in so small a vessel.

I also examined the Intrepid, and found her a good, strong vessel, having made considerable speed with full steam power. She is rather heavy for a torpedo vessel, not working so handily as is desirable for that purpose, and not being fitted with outrigger torpedoes, but she is an admirable ram, and with her weight and momentum when under way would sink any vessel with which she came in contact without injury to herself. She is well adapted to harbor defence, and, perhaps, would do more damage to an enemy than a torpedo vessel, the ram ranking higher than the torpedo in naval warfare. The Intrepid could easily be arranged to carry a fifteen inch gun by taking out her mast and placing her pilot house a little differently; in which event she would be a formidable vessel for harbor defence. In fact, for harbor and coast defence, I think

both the above mentioned vessels will prove valuable additions to the Navy.

RECEIVING SHIPS.

All the receiving ships have been examined and found to be in the following condition: New Hampshire, Captain Quackenbush, at Norfolk, Va. Very clean; regulations carried out; exercises of recruits at the guns; rigging too bad for exercises aloft; crew 80, including band; marines, 27; recruits on board. 1; fire quarters, good; bottom, sound; upper works, rotten. Sabine, at Portsmouth, N. H., Commander Irwin. Very clean; hull, good; upper works, rotten; regulations carried out; no recruits; has exercises when recruits are on board. Fire quarters, good; crew, 47; marines, 25. Ohio, at Boston Captain Badger. Clean and in good order; bottom sound; all upper works rotten; decks very bad. No exercise aloft on account of state of rigging and spars. Regulations observed. Another ship should be provided Crew, 73; marines, 23; fire quarters, good.

Vermont, at New York, Captain Low. Clean and in good order; regulations observed. Ship not rigged. Hull tolerably sound. Fire arrangements good, except at low water they can use only four streams instead of five, which can be remedid by another connection with the supply pipe on board. As the ship grounds at low water, the forcepump is useless at that time. Has no fire extinguisher. Crew, 100; marines, 57; recruits, 125.

Potomac, at Philadelphia, Commander Pendergrast. Clean and in good order; regulations observed; rigging complete; exercise only at the mizzen topsail. Fire quarters good; bottom sound; upper works decayed Has exercise of guns and small arms. Crew, 28; marines, 24; recuits, 160. Ordered to be transferred to New York.

Relief, at Washington, Lieutenant Farenholt. Clean, good order; housed over; no exercise. Recruits, 8; crew, 22. Arrangements for fire good. Arrangements for health and comfort of recruits excellent on board all the receiving ships.

All vessels going to sea have been carefully examined by the inspecting board, and found efficient in every particular.

The people of this country are so deeply immersed in business and politics that they give little attention to the necessities of a Navy; while building up the industries of the country, they forget that these want protection on the high seas as well as on shore.

Our cities abound with policemen for the protection of property, but the high seas can scarcely be said to be policed by American ships of war, and but for the navies of foreign powers, the ocean would swarm with pirates.

Our citizens abroad are frequently obliged to go to the French or English admirals for protection, and in the Pacific Ocean our missionaries, who are doing much good in civilizing the savage islanders, have to depend almost entirely on foreign navies, as we have not ships to send among them.

Those familiar with the subject will admit that our Navy, small as it is has performed its legitimate duties faithfully in the past, and that at present its officers are doing their best to keep up with the advance in professional knowledge.

From the foundation of our Navy, its officers have not only done their duty in war, but have in times of peace added largely to the grographical knowledge of the world, opened up commerce with the remotest countries, and by careful surveys made clear to our merchant vessels the pathway across the ocean.

Compare their explorations with those of the most enterprising navigators of former times, and our officers will not suffer by the comparison. Many of the old voyagers left but meagre accounts of their discoveries, while our explorations have always been conducted in such a manner as to benefit the whole human race.

Whatever romance may attach to the early navigtors, they were in truth bold adventurers, pushing their frail barks into stormy seas, and in many cases leaving scarce a clue to the points they visited.

Our officers, with the hardihood of their predecessors, possess a knowledge of geodesy that has enabled them to determine with exactitude the position of every coast and hidden dangers and our charts are now in use by all the commercial nations.

Every body remembers the expedition unde command of Lieutenant Wilkes, which visited all parts of the world, and made charts of every place it visited.

The expedition performed an amount of labor almost herculean, of which our merchant ships are reaping the benefit at this day.

Commodore Perry, at the head of a naval squadron, opened to the world the commerce of Japan, which had been lost to it for centuries. The benefit of his action is seen by the increase of our commerce in that quarter of the globe, and by the multiplication of American mail steamships to China and Japan, which will finally be an assistance to us, though a small one, in time of war.

Our Navy has been active in the exploration of the Arctic and Antarctic Oceans, and the vast waters of the Pacific, and in proportion to its size, has done more towards extending a knowledge of the physical geography of the land and sea than that of any nation.

It is now, as it always has been, engaged in useful astronomical labors, and in long and dangerous voyages, and every portion of our country is interested in its maintenance.

When the small outlay for the support of the Navy is considered, it is unwise economy to withhold what is required to enable its officers to maintain the honor of the flag and be ready to defend at all times our coast and harbors against the depredations of an enemy.

Respectfully submitted,

DAVID D. PORTER, Admiral.

The Hon. Secretary of the Navy.

We are glad to learn, on good authority, that the stem of the American wild rice, *Zizania aquatica*, is now coming extensively into use as a material for paper pulp, yielding, as it does, fully as much of the raw material as the *esparto*, and being comparatively free from silicates. The paper made from this substance is quite as strong and as flexible as that from rags, while it is easily bleached, economical in respect to chemicals, pure in colour, and remakably free from specks and blemishes. It is estimated that 100,000 tons can easily be obtained annually from the shores of the Canadian lakes alone, and we expect that a new industry of great importance will be speedily developed in the Dominion. An English company has, we understand, been formed for providing the capital necessary to carrying on this enterprise on a large scale, and we hartily wish it success. There need be no doubt of success provided the company sets to work to cut and export grass and make honest paper, instead of framing dishonest reports, stealing other people's money, and doing nothing else.—*Canadian News*, 28th Jan.

LORD ST. LEONARDS.—In 1829 he was appointed Solicitor General to the Duke of Wellington's Administration, and on the accession of Sir Robert Peel to office in 1834, Sir Edward Sugden was appointed Lord Chancellor of Ireland. It was an unpopular appointment, and this not merely because an English lawyer had been placed on the Irish woolsack (they were used to that in Ireland then), but because Sir Edward Sugden had been a Tory of Tories, and an opponent of Catholic Emancipation, as well as of Parliamentary Reform. There were rumors, too, of his haughtiness of manner and testiness temper, which did not favourably predispose the Irish Bar towards their Lord Chancellor, and it was at one time thought probable that by means of the press Ireland would be made by no means pleasant to him as a place of sojourn. But it came to pass that O'Connell, who then ruled all Ireland, the Executive hardly excepted, with a breath or a word, gave instructions to the newspapers not to attack the Chancellor, and to the Bar to give him a fair chance. As regards the Bar, Sir Edward Sugden soon intimated pretty plainly that he was surprised and delighted with the great learning ability, and power of argumentation of its leader, and he even took occasion specially to express his high opinion of the capacity of O'Connell as a legal dialectician. As the Bar could not but acknowledge directly and indirectly the great qualifications of Sir Edward for his judicial functions, it happened that mutual respect brought about amicable relations, and altogether life in Ireland did not prove so disagreeable to the English born Chancellor. In his demeanor as Lord Chancellor there was a good deal that was remarkable in Lord St. Leonards. He usually sat erect, with his countenance immovably composed, and he rearly broke silence, though now and again he would let drop in a sarcastic tone some such inquiry to an adventurous counsel as, "Do you mean to say that that is law?" He seldom, if ever, took notes; and, as a rule, he delivered unwritten judgments.

Sergeant Ballantine has gone to Bombay to defend the Guicawar, with a fee of 5,000 guineas, and refreshers which, the solicitors say, may amount to 5,000 guineas more. It is reported, probably incorrectly, that the brief was first offered to Mr. Hawkins, Q. C., but that he could not go under £30,000. This is a new branch of practice for the English Bar, and may prove a very profitable one. The value of the civil cases tried in India Courts is often enormous, the litigants scarcely care what they pay, and they are impressed almost to absurdity by a reputation for success. Their tendency is to heap all business on a few men, and as they become acquainted with English reputations, we may here of princely fees offered for services less lengthy and less troublesome than the defence of the Tichborne Claimant. It is a drawback that the heaviest business in Calcutta is done during the hottest weather, but a man can stand a good deal of parboiling at 100 guineas an hour; and a great Zemindar accoused, say, of forgery, or an opium speculator fighting for his month's gains, would pay a great deal more than that.

CONTENTS OF No. 9, VOL. IX.

The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE

"Untried, I grant it, our swords we draw,
To guard Right's Monarch, fence the Law."

OTTAWA, TUESDAY, MARCH 9, 1875.

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 edge of the envelope should be left open, and that 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.

Lieut.-Col. R. V. Moody, of Victoria, and Captain H. V. Edmonds, of New Westminster, are our authorized Agents for British Columbia.

In another page will be found the Report of a lecture on the Defence of Canada delivered before the Ottawa Literary and Scientific Society, on the evening of 11th Feb., by Colonel Fletcher, Scots Fusilier Guards, Military Secretary to His Excellency the Governor General, and widely known as the author of the best history, in a military and literary sense, of the late conflict in the United States. In characterizing this lecture as an able and exhaustive exposition of an interesting military subject of the greatest possible importance to the people of Canada, we would be barely doing the gallant officer who has gone to the trouble of giving the country the benefit of his great experience simjustice, but we regard it as an eminent and sagacious State paper or memoir, pointing out emphatically what is lacking in the development of our military organization. While pursuing the object he has had in view Colonel Fletcher has been careful in a legal aspect not to travel out of the record; but it is necessary that our people should understand distinctly the considerations which demand the time and money expended in military preparation, as well as the full conditions embraced in the obligation socially and morally imposed thereby.

The gallant lecturer has crystalized, so to speak, this portion of the subject by describing "military expenditure as insurance"—this is true commercially—but it has a much more extended meaning in a purely agricultural community as Canada is, it means the right to the soil, the right to the produce thereof, the right to the elective franchise, the right to chose the form of government best adapted to the social condition of the people, the right to tax themselves for their own needs, and, lastly, the right to their lives.

The absolute conditions of social life in Canada demands that every man should be a soldier, *i.e*, liable to serve in case of necessity, and therefore a large proportion of the military force of the country must be "Resting on a Paper Army"—that is—it cannot be withdrawn from industrial pursuits to devote any continuous time to acquiring the necessary mechanical knowledge of the soldier's profession; but an enlightened development of our present organization would give the *Reserve* force sufficient rudimentary knowledge to make it available for garrison duty and efficient in repeling invasion or the *raids* growing out of it.

We quite agree with Colonel Fletcher that the "Staff" is a most important consideration; unhappily our development of military organization has given us the merest skeleton outline of such an important adjunct, and indeed only provides a *General Staff* for our Deputy Adjutant Generals, and Brigade Majors would become in case of war Generals of Division and Brigade without a staff corps of any description, not even as much as would supply aide-de-camps enough for service. A Quartermaster General's Department has yet to be organized with an Engineer corps and a Commissariat, and as the transport should be regimental there would be no need amongst an army of farmers fighting on their own soil to organize elaborate Train corps.

History repeats itself—more especially in reference to warlike operations. The objective points in Canada have not been altered since Great Britain attempted its conquest in A.D. 1755-63 from the British Provinces now the United States, and effected it, not by the fall of Quebec, but by the capture of Frontenac (now Kingston). The lines of invasion are the Valley of Lake Champlain, the Valley of the Mohawk, and possibly if the command of the lakes were lost, the Frontier along the Niagara River to Lake Erie. Arnold's advance by the Kennebec in 1776 was not possible, if opposed then, would be wholly impossible now; that by Chicago and the Lakes would be too hazardous inasmuch as St. Louis on the Mississippi is only 180 miles from Chicago, and the river is navigable for the heaviest armed and armored gun boats to that point. There is, moreover, another consideration which would entirely neutralize any movement in that direction. The mouth of French River is opposite the Straits of Mackanaw and distant by only 500 miles of open navigation through Lakes Huron and Michigan from Chicago, it is the termination of the Ottawa navigation reaching from below Montreal on the St. Lawrence and forming the proper second line of defence for Canada, having a basin of over 750 square miles in area far more impregnable than ever Sebastopol could be made, within fifty miles of Lake Huron. There is another element in the defence of Montreal which has been overlooked by all parties, and it is that which could be afforded by what has been ridiculed as an absurd crochet—the Caughnawaga Canal. Locate it *above* the Beauharnois and carry it to the Richelieu above St. John's, probably also above *Isle aux Noix* which was no unimportant military point in its day, and the defence of Montreal is reduced to a very simple problem. As the gallant lecturer says the whole problem of defence depends on the command of the sea board and the lakes, the flanks of the system pointed out could not be turned, and assault in front would be out of the question. The discussion of this interesting military subject of invasion is the best possible means next to due preparation to prevent its future realization, as it tends to show the impossibility of realizing any advantage from such a measure as long as our people maintain their allegiance to the British Crown. Because while faithfully exhibiting our strength and weakness we are able to measure the value of our neighbor's power to overcome the one or take advantage of the other; and notwithstanding our exposed as well as weakly guarded frontier of over 2,000 miles in length, our neighbors are even worse off. They have the same exposure of Lacustrine front and sea board, vulnerable wherever there is a river, and they are many to within one hundred and fifty miles of that frontier. In the case of war then the strategy by which Canada should be defended is obvious. Vigorous assault on the enemy's seaboard and as vigorous on her Lacustrine frontier. While it is absolutely necessary to provide for unforeseen contingencies in this respect, it is best that the Canadian people should know that they would be engaged in a hopeless contest. History happily furnishes sufficient illustration of what we have written in 1812—a sudden declaration of war found Canada with 2,000 regular soldiers and not a militiaman enrolled in the face of 25 000 man splendidly equipped within a few marches of her frontier. After three campaigns aided by what diversion the British Navy and a small army corps without any knowledge of the requisite strategy could give the improvised

militia, not only defeated the invaders but conquered and held all the State of Michigan and the whole territory northward from Prairie de Chien on the Mississippi. Sixty years after the close of this brilliant episode in British military history,—the Canadian House of Commons voted $50,000 during its present session to provide pensions for the survivors, a course alike honorable and generous as well as calculated to encourage the development of a military spirit amongst the people.

We quite agree with Colonel FLETCHER in the very interesting and practical details he gives relative to the disposition of the defensive force; but on one point we think there is no cause for alarm, and that is the improvisation of gun boats out of Lake Craft, for this reason, lake steamboats are as a general rule mere pontoons on which a superstructure, such as no sane man would think of taking into action in any case raised thereon; they are always lightly built and incapable of carrying half inch plates. Our neighbors canals will not not allow them to send any vessels to the Lakes drawing more than five feet of water, our canals on the contrary, will allow gun boats drawing eight feet six inches to ascend to Lake Huron, and it is by vessels of this class armed with heavy guns the contest must be carried on here. It could be very easily understood what the value of such vessels as the *Speedy* would be carrying a twelve-ton gun—she would sweep everthing on the Lakes before her and there is no town thereon she could not lay under contribution, still it would be necessary to adopt the course recommended by the gallant lecturer and be prepared for all contingencies.

There appears to be just now a revival of interest on those matters and it is decidedly for the public benefit that attention should be paid to the suggestions of such talented and experienced officers as Colonel FLETCHER.

Our readers will find in another page the conclusion of Admiral PORTER'S Report on the State of the United States Navy copied from *Broad Arrow* of 6th February. The paragraphs on guns, torpedoes, and equipment generally are well worthy serious attention and the whole document is an exhaustive essay on a most important National subject.

The following table of the number killed and wounded in fifty-six actions during the late war between France and Germany is taken from De Chenu's book on the relative losses of the two armies and is worth preserving as it shows with what tenacity the French struggled, and the difference between defeat and victory. As far as loss was concerned they have left the Germans little to boast of.

Date.	Killed & Wounded.	French. Soldiers.	Ger'an Sold'rs
1870.			
2 Aug.	Saarbrucken	80	84
4 "	Weissenburg	2092	1528
6 "	Worth	17099	10527
6 "	Spicheren	4078	4868
14 "	Borny	3608	4993
16 "	Gravelotte	10059	14820
18 "	St. Privat	12275	20587
30 "	Beaumont	4800	3522
1 Sept.	Noisseville	5542	2890
1 "	Sedan	14000	9860
19 "	Chatillon	469	597
30 "	Chevilly und l'Hay	1988	491
7 Oct.	Lalonchamps	1257	1583
10 "	Artenay	?	233
11 "	Orleans	?	803
13 "	Ragneux	116	384
18 "	Chateaudun	290	111
21 "	La Fourchere	518	473
22 "	Voray	195	131
28 "	Bourget	?	508
30 "			
30 "	Dijon	503	208
9 Nov.	Coulmiers	923	1223
19 "	Chatillon	89	155
24 "	Ladon	223	255
27 "	Villers-Bretonneux	2152	1231
28 "	Beaune la Rolande	1366	873
30 "	Villiers	2083	2471
30 "	St. Loup	498	419
1 Dec.	Villepion	1072	919
2 "	Champigny	6030	3551
2 "	Ivigny	4342	4119
3 "	Artenay	870	709
4 "	Orleans	1100	1003
7 "	Moung	142	377
8 "	Beaugency	2000	2450
9 "	Beaugency	559	681
10 "	Beaugency	400	374
18 "	Nuits	?	944
21 "	Bourget	654	583
23 "	Pont-Noyelles	2046	864
27 "	Vendome	200	142
31 "	Vendome	260	166
1871.			
2 Jan.	Bapaume	100	108
3 "	Bapaume	1612	762
6 "	Nogent	237	164
6 "	Vendome	627	510
7 "	Ve dome	186	59
9 "	Villersexel	627	424
9 "	Connere	878	338
10 "	Ohange	1370	585
11 "	Le Mans	2200	1302
12 "	Le Mans	559	338
13 "	Arcey	200	253
14 "	Hericourt	1100	1542
19 "	Buzenval	2100	736
19 "	St. Quentin	4000	2588
		120,942	112,306

We would call our readers attention to the following paragraphs from the London *Canadian News* of the 2 th January. We have to add that a large supply of Canadian newspapers are kept on file.

"We are glad to learn that the following intimation, which for the sake of Canadians we continue to make week by week, has been of great practical use to many. The numerous entries in the visitors' book abundantly prove the excellency of the arrangements made by the Agent General, as well as the cordial acknowledgments of those who have accepted his welcome to make the Canadian office their house of call. We have authority to state that whilst the accommodation here offered to Canadians was specially designed for them, all gentlemen, from what British colony soever, who may be passing through London, or are temporarily residing here, may make free use of this commodious and comfortable place of resort. The following is the intimation in question:

"All gentlemen from Canada who may be staying in London, or passing through it, should understand that a room has been specially fitted up for their convenience in the Canada Government offices, King-street, Westminster. They may have their letters addressed to them there, and make such temporary use of the library—which is supplied with directories, the Canadian papers, and the London daily journals, which are duly filed—as could only be enjoyed at a well regulated club. No fees are charged it is enough that the person desirous of such accommodation as is here provided be a Canadian to ensure a cordial reception. A visitors' book is kept for names and addresses, and friends from the Dominion may thus always be able to trace or communicate with each other when they come to the old country to visit the metropolis."

REVIEWS.

We have received from the Leonard Scott Publishing Company, 41, Barclay Street, New York, the *Westminster Review*, for January, also *Blackwood* for February. The following are the contents of the *Westminster Review*:—

1. John Stuart Mill's Three Essays on Religion.
2. Railway Regulation and Railway Practice.
3. The Bible and Strong Drink.
4. Rocks Ahead; or, the Warnings of Cassandra.
5. Artistotle.
6. Charity, Pauperism, and Self Help.
7. The First Metallurgists.
8. Life: English Dwellings.
   Contemporary Literature.

Mr. Mill's posthumous work, "Nature, The utility of Religion, and Theism," is the subject of the first article. Those who have not acces to the work itself will find here a summary of the author's opinions on natural perfection, the evidences of design in creation, the immortality of the soul, and the claims of revelation; and the essays are welcomed for their "comprehensive and intelligible restatement of old problems," and for their "courageous originality."

"The Bible and Strong Drink" is a short article showing the probable effect of the passage of a bill to prevent the sale, manufacture, purchase, or importation of intoxicating liquors in England, and also that the use of wine is *not only permitted, but enjoined* in both Testaments.

"Rocks Ahead; or, the Warnings of Cassandra," is the review of a recent work by Mr. Greg, "which is remarkable alike for the gloomy views it depicts and the great ability with which it is written." It portrays the difficulties likely to arise from the parliamentary rulers of the country becoming more and more, members in some sort, of the aristocracy.

"Aristotle," the work which occupied the last six years of Mr Grote's life, has just been given to the public, and is the subject of this essay. The object of this work as well as those on Plato and the companions of Socrates, which preceded it, is to "know the speculative activity of the Greeks, by a critical examination of the works of their thinkers." It begins with a sketch of the life of Aristotle, an account of his works, of which there are two distinct lists, and an analysis of a few of them. This analytical part of the work was terminated abruptly by the author's death, and is therefore very incomplete. The present article is devoted pricipally to his treatment of the treatises known as the Organon.

"Charity, Pauperism, and Self-Help," suggests a modification of the English Poor Laws, and sets forth the plan for a Freedly Relief Society.

"The Firs Metallurgists" is an anthropological article. It mentions the traces left by prehistoric man in the shape of tumuli, etc., which we find in all parts of the world,

and the gradual advance in civilization proclaimed by their contents. It is probable that the Turanians, who were dwellers in caves, were the first discovers of metals, and the appearance of the Serpent Symbol in all places where metal implements are found is interestingly commented on. The supposed case of the "warrior chieftain, armed with spear and arrows of flint, and a great stone hammer, attracted by a glittering yellow lump lying in some hollow of a cave into which, perhaps, he has pursued some deadly serpent," is ingenious, but we cannot help thinking that his thought, "Surely this stone, so curiously malleable," etc., sounds unlike the utterance of an untutored savage.

The contents of *Blackwood* are as follows:—

I. "Giannetto."
II. "The Payment of the Five Milliards."
III. "The Story of Valentine; and his Brother."
IV. "The Abode of Snow."
V. "Alice Lorraine.', Part XI.
VI. "Politics at Home and Abroad."

Two of the continued stories are concluded in this number—"Giannetto," which was commenced last month, which ends rather suddenly, and with less mystery than the first part led us to expect; and "Valentine; and his Brother," which has seemed like a series of water color pictures, fresh and pretty, but lacking the decided character of Mrs. Oliphant's former works.

The paper on the "Abode of Snow" gives a description of the "Shigri; or, Glacier Valley," a fearful place to travel over. A very interesting comparison is drawn between this region and the Swiss Alps, and the wonderful peformances of the Spiti ponies are described. The travellers seems to have a mania for collecting savage dogs, and it is to be feared that he will be looked upon as a nuisance when he arrives among his friends if he indulges it much more.

We wish to call particular attention to the article on "The Payment of the Five Milliards." It is a condensed account of the report of M. Léon Say, with explanations that render it perfectly intelligible to English readers; and those who do not understand how France managed the payment of £200,000,000 in two years and three months, will find the whole matter placed clearly before them.

"Politics at Home and Abroad." "Politics at Home" are so quiet that there is very little to be said about them, but "Abroad" it is quite different. And England, looking out on the cares and troubles of her neighbors, congratulates herself on the calm and prosperous condition of her own affairs.

"Alice Lorraine" is not very happy just now. We hope the new-comer will help to straighten out her affairs.

We have received from the Household Publishing Company, 41, Park Row, New York, the *Illustrated Household Magazine* for March. It is a very fine number indeed. The Pilgrims; or, the adventures of the Gad Club is continued, a humorous and interesting story; Under the Mistletoe, just the thing for young lovers; Julia Louise; or, the sad effects of Fortune Telling should be a warning to those anxious to know what awaits them in the future; The Man of '95, by Solitaire, is continued, and increases in interest as the story progresses. The other articles are equally good—so also is the Poetry.

CORRESPONDENCE.

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

To the Editor of the VOLUNTEER REVIEW.

SIR—I think the "Wimbledon team" for 1875 has been chosen injudiciously,—you are aware that the Marksmen in Ontario and Nova Scotia, in the test for Wimbledon, fired lying down at the two hundred yard range, while New Brunswick had to stand. How then are they to be chosen fairly under those circumstances? Ontario commanding New Brunswick to stand at a range that she (Ontario) lies down at. Do you (Mr. Editor) call this equal rights? Is there not partiality shown somewhere? Or do the Ontario Marksmen fear equal rights? I say, if New Brunswick had the chance that has been accorded to the other Provinces, the team would have been made up of superior stuff. And am also proud to say that New Brunswick stands first on the team, notwithstanding her disadvantage. I was told not long since that Quebec fired under the old regulation. How are they to be chosen? Trusting (Mr. Editor) that you will find room for these few lines, I shall sign myself,

GARIBALDI.

Fredericton, March 1st, 1875.

Halifax, N. S., March, 1875.

To the Editor of the VOLUNTEER REVIEW.

DEAR SIR,—Although the use of the Field Exercise 1874, has not yet been authorized by our military authorities, I suppose the order for its adoption, will not be long making its appearance. In looking over this last edition, one is struck with the few improvements made in squad and company drill. Many alterations are made in Battalion drill, and particularly in column movements and formation of column and square from line. As I do not wish to trespass on your space, will you kindly allow me at present to mention one movement which the compilers have not seen fit to improve upon. I allude to a Battalion in line forming column on a central company, in which the companies in fours, pass left arm to left arm. This movement has always been perplexing to the markers taking up covering and distance for their companies, and might have been improved in a very simple manner, by the companies of the Half Battalion to which the named company belongs forming immediately in rear of the company. For instance suppose a Battalion of six companies in line is ordered to form column in No. 3. Why may not Nos. 2 and 1 form in rear of No 3. and Nos. 4. 5. and 6 in rear of all. Or if the formation is on No. 4, then Nos. 5 and 6 in rear of No. 4. and Nos 3. 2 and 1, rear of all This in my humble opinion would be much more simple, and not tend to confuse the markers, as they now have to take time to consider what No. their companies will be in the new formation; and by my method no more time will be occupied in the completion of it. There are some other column formations which have been altered although not for the better, but of which I defer making any remarks until some future time, my object being to provoke discussion among our military friends as to the merits or demerits of the present Field Exercise of 1874.

Yours truly, QUO FAS.

DEATHS IN THE BRITISH ARMY.—The deaths of the following officers were officially reported at the War Office in the course of the last month:—Major General M. S. H. Lind, major unattached; Colonels Thomas Walter Milward, C. B., Lieut. Colonel Royal Artillery Aide de Camp to the Queen; James Watson, Lieut. Colonel, retired full pay, 14th Regt.; Lieut. Col. Hay Foster, Major 95th Regt.; Major Archibald H. Roberts, Royal (Madras) Artillery; John Sweeny, Capt. Coast Brigade Royal Artillery, and Edmund Ward, 107th Regiment; Captains John Fisker Halket, 4th Dragoon Guards; Algernon E. S. Preston, 14th Hussars; Albert S. B. Van de Weyer, Grenadier Guards; Robert Burns, 16th Regiment; and Conroy Fabie, 20th Regiment; Lieutenants Robert T. Bruce and Emile W. Selby, Royal Artillery; Frederick S. K. Lushington, 64th Regiment, Edward H. B. O. Geran, 80th Regiment, and Daniel Tighe Bunbury, half-pay, Grenadier Guards; Sub-Lieutenants Thomas H. Shettle, 13th Regiments, and Martin M. Hill, 14th Regt.; Ensign John Stuart Ridge, half pay, 6th West Indian Regiment; Quartermasters J. Payne (captain), half pay, Grenadier Guards, and Edward Joyce (captain), half pay, 63rd Regiment; Assistant Controller Wm. Tyler Stuart; Surgeon-Major John Duff, M. D.; Surgeon R. J. Cole, M D., half-pay, 1st West India Regiment; and Assistant Surgeon M. Kenny, M. D., half pay, Royal Artillery.

Major-General Warre, C. B, (we are apprised by the *Belfast News'* letter) has left Belfast, after lengthened service in command of the Northern District. We regret very much (says our contemporary) the departure of the gallant general from this command, as he had taken such a deep interest in all that concerns the peace and good order of the town. Having been here during, and some time before, the riots in 1872, he was very well acquainted with various parts of the town and also of the people, and the consequence was that he was able to render valuable service in support of the local authorities, having been invested with the commission of the peace for the borough. In that capacity, when called on by the magistrates he greatly assisted them. He held a high position in his own profession as a gallant soldier. His aide-de-camp, Captain Clarke, was an efficient officer, and was much respected. We (*Broad Arrow*) have already notified that Major General Elrington succeeds Major-General Warre in command.

In consequence of the last encyclical of the Pope, the Government has introduced into the Prussian Chamber of Deputies a bill withdrawing the State endowments from the Catholic clergy, and providing for their restoration only to those bishops who will bind themselves by a formal document to obey the law.

Difficulties in the formation of a new cabinet have arisen. The Left will not consent to a representative of the moderate Right entering. If the negotiations fail, President MacMahon will form a ministry without further consultation with parties in the Assembly.

Col. the Hon. C. H. Lindsay and Generals McMurdo and Lysonson on the Volunteer Force.

At the recent distribution of prizes to the St. George's Rifles, the Volunteers and their friends were addressed by Colonel Lindsay, Generals McMurdo and Lysons, in the following terms:—

Colonel Lindsay, in referring to the efficiency of his regiment, and the over regulation of the Volunteers, expressed his conviction that the proficiency test as a rule, was far more stringent than is necessary for a body of officers constituted as Volunteer officers must be in times of peace, and who have other important obligations imposed upon them; and although it is remarkable how creditably the officers and sergeants have answered to the demand that was, and still is, made upon them it has had the effect of driving a vast number, and many of our best officers, out of the Service before their time, whose proficiency has been rendered useless to their regiment almost as soon as it was obtained. The fact is that too much stress has been put upon the Volunteer proficiency—too hard a bargain has been struck—and all for what? As a set off against the capitation grant which should never have been regarded as a *quid pro quo* for such gratuitous services rendered, but simply and solely as a necessary and vital subsidy towards the maintenance of a service which has proved itself indispensable to the nation. "Now this leads me," said the gallant colonel, "to a question of no little importance, as it bears upon facts which have proved so valuable to the nation. The question is, what have been and still are our engagements? and what has been the effect of our fulfilling them as we have done? The answer is obvious—viz., that our engagements were to collect, to train and to form ourselves into a disciplined body of armed men, for the purpose of defending the country against foreign invasion. And what has been the undeniable effect? It has saved the country from compulsory military service, or in other words from conscription, which would have been inevitable if the Volunteers had not sprung up when they did, or had dwindled away to nothing after five years. If such had been the case—which God forbid it ever should—the army must have been increasing at a tremendous cost, for all Europe was, and still is, arming to the teeth. The men must have been got some how or other, and the ballot for the Militia must have been enforced, none of which would have been palatable to Englishmen. We have staved off that scrape, and we are able to stave it for many a long day provided the nation makes it worth its while to encourage us. But it must bear in mind that we have been at it for sixteen years, and are at this moment, without any national acknowledgment for the position which we assumed in 1859. We have no advantages or privileges as Volunteers, no exemptions of any description, in return for the sacrifice of time and money that has been cheerfully made during that period. I merely state this as a fact, and leave it. We are, I may say, an institution of greater importance to the political and commercial interests of the country than people seem to give us credit for; we have sources which do not seem to be sufficiently considered, and which might be turned to valuable account with a little arrangement, and be highly beneficial to the interests of the army. To explain what I mean—If any one would take the trouble to cast his eyes over the Volunteer department of the 'Army List,' he would observe that there is scarcely a district in any of the ninety-four counties of Great Britain that does not possess a proportion of Volunteer corps, each of which has its own headquarters, its own sergeant-instructor, and its own rifle-ground—all of which are available at all times for the purpose of training the men who are enrolled. He would also find that there are no less than 1209 of these little Volunteer centres, if I may so call them, which are at work two or three times a week drilling the men who are able and inclined to attend, and where there is ample room for double—aye, treble—the number who are able to put in an appearance at each successive drill, and that many young men who are not enrolled would gladly fall in, if asked, for their own amusement, and gather in the rudiments of drill, and thereby imbibe a taste for soldiering. It appears to me that golden opportunities are lost, which might easily be embraced through the instrumentality of these numerous channels for military instruction in all parts of the country, and without costing it a farthing. I say by a such a co-operation on the part of the authorities two great objects would be gained—for it would not only be acceptable to the Volunteers, who would gain more rapid instruction, owing to the increased number of men at drill, but it would be agreeable to their friends and neighbors who are not Volunteers, but who, even if they were Militiamen, would fall in for drill for their own amusement, and gain instruction. In this way the Volunteer Service would not only be a valuable auxiliary to the army in time of invasion, but also in time of peace. I think there has been another rather important feature in the existence of the Volunteer Service, and that is evidenced by the valuable opportunities which have been afforded to officers of high rank in the army of commanding and manœuvring for larger bodies of men than they could otherwise have had at their disposal in time of peace and at home. I think these are fair subjects for consideration, and worthy the attention of the nation at this particular period of the Volunteer history of England."

Gen. McMurdo, who distributed the prizes, made the following preliminary statement:—"Concerning the formation of the Service I wish to make a few remarks. Some may be able to go back with me to the time when the country was startled at the publication of a letter from the late Duke of Wellington to Sir John Burgoyne, in which the defenceless state of the country was laid bare before the whole world, and which was followed by a pamphlet from Sir Charles Napier. Thus we had the two greatest soldiers of the day, the one relating with dismay the openness of his country to foreign aggression, and the other (Sir Charles Napier) declaring that no Frenchman should kick him for cleaning his boots at home. Panic upon panic followed these announcements, and shook the commercial status of the country to its centre, and it was thus the Service was formed. Its purposes I think have been fulfilled, inasmuch as it has made the country stronger—far stronger than it was ever before: the efficiency of the army has been increased, and the armament is in a better state than it ever was; in fine the whole country has been imbued with a military spirit, and the Parliament has been brought to see that the officers of the army must be educated so as not to be outrun by those of the Volunteer Service. It was only the other day, that a military paper, criticising me, stated that I had sacrificed my principles to the cheers of a popular assembly. Had my opinions been less known, I might have suffered by this; but they were expressed by me fifteen years ago, and were my inheritance from Sir Charles Napier. Concerning the need for the Service, has it diminished or not? Your colonel has referred to the armaments of Europe, which not only Germany has prepared, but also her neighboring States. It was only the day before yesterday that I saw in the *Times* that the service in Russia was obligatory, and in to-day's *Times* this is followed up by an announcement that barracks and prisons are to be erected for the demands of this obligatory service which exacts the attention of commercial men at drill on certain days. Our Volunteer force has, by its efficiency, satisfied the country; and if ever—which God forbid!—we get into trouble with Russia, our army, though perfect, is so small that almost the whole must be sent to India, and, consequently, the Volunteers must form a main part of the reserve."

General Lysons, at the request of Colonel Lindsay, addressed the company. He said that it gave him great pleasure to be present on these occasions, and to note the zeal taken for the efficiency of the men. He had been associated with the movement since its earliest days, when there had been few men to be found even amongst it best friends who would have volunteered to have prophesied that the movement would have lasted twelve years. Sixteen years had passed, and the force was as vigorous as ever; many members had left it, but others had come up to fill their places. It was a very wholesome state of things, for it infuses a military spirit throughout the country. It was to be desired, because every man who had left their ranks carried with him a knowledge of drill, and thus a kind of gigantic reserve was formed. There must now be half a million of men who had served in the Volunteer force, and they might well imagine that extraordinary number of men, drilled, and as good shots as were to be found, with as good hearts as ever beat. Who could deny the value of such a force?

Recent explorations show that the great Australian trees exceed in height, though not in circumference, the giants of California, some of the Australian trees must be regarded as very respectable in girth as well as in height, the hollow trunk of one of them being large enough to permit three horsemen to enter and turn without dismounting, while they led a fourth horse. A fallen tree in the recesses of Dandenog, Victoria; was measured not long since and found to be 420 feet long; another on the Black Spur, ten miles from Healsville, measured 480 feet. The highest trees on the Sierra Nevada, Cal., yet discovered, reach only 450 feet, the average size being from 300 to 400 feet in height, and from 24 to 34 feet in diameter.

REMITTANCES Received on Subscriptions to THE VOLUNTEER REVIEW up to Saturday the 6th inst.:—

Colistown, O.—Lieut. C. Coole, to April, 1874		$3.00
Iroquois, O.—Capt. Alex. McDonell,	May '75	2.00
Kingston, O.—Officers Mess, A Battery, to	'76	2.00
Melbourne, Q.—Paym'r L. Thomas, to	April,	2.00
North Douro, O.—Sergt. F. Macnaghten,	"	2.00
Newcastle, N.B.—Capt. R. R. Call, to Jan.	'75	2.00
St. John, N.B.—Lt.-Col. S. K. Foster,	" '76	4.00
Sacket's Harbor, N.Y.—1st Lt. C. Chase,	" '76	2.00
Yaakleek Hill, O.—Sgt. P. T. Saucier,	May '75	4.00
Rond Eau, O.—Capt. C. D. Rowe, to	June '75	2.00
Wilton, O.—Capt. & Adjt. G. McLean,	Jan. '75	6.50

SONNETS FOR THE PEOPLE.

Lament instead, condemn, despise, deride—
God knows there's room for all such sentiments,
And reason; but there's work to do beside,
The need of which grows hourly more intense,
Our parlor-shrugs, and sneers, and bitter jests
Are vile with sinning if they mean but these;
No lazy words in drawing-rooms are tests
Of love of country! Prayer upon its knees
Grows into folly if it kneel too long,
Or fall asleep while kneeling! Would to God
That men who talk so much, deploring wrong
Would mingle work with words as true men should!—
For mortal sin strikes deeper than all speech,
But not too deep for God and *man* to reach.

And man! My countrymen, consider well
That where a fair integrity has been,
Cometh dishonesty contemptible
Swayeth the nation and is boldly seen
Of all men. Gracious God of love, make haste,
Our vineyard needs Thee! Here's no purple wine
Pressed into life, that smells of the divine—
The vines (though in the sunblaze gone to waste.
Weakness and guilt, like serpents from the ground
Uplift themselves, and coil and shine around
Our tree of life, and none is found to crush
Their poisonous head and save God's sacred fruit!
A reckless nation tramples under foot
God's gifts as glorious as the angels use,

CORA AITKEN.

THE DEFENCE OF CANADA.

A LECTURE DELIVERED AT THE LITERARY AND SCIENTIFIC INSTITUTE OTTAWA, BY

COLONEL FLETCHER,

SCOTS FUSILIER GUARDS,

Military Sec'y to His Excellency the Governor Gen'l

In bringing under your notice the subject of the defence of Canada, I hope I may be allowed to deprecate any idea of suggesting that the matter requires consideration, other than that which is due to the state of military preparation incumbent upon all nations in the present, past, and, unless the millennium arrives, in the future ages of the world. The very fact that money is voted for the maintenance of defences, shows that in the opinion of the majority of the nation such defences are necessary, and looking from our neighbors point of view, it must be a healthy sign that the protection of our own country is a matter of consideration rather than aggressive tactics against those who live beyond our frontier.

At no period in the history of Canada were the relations between herself and the United States on a more satisfactory footing than at the present time. At no period have the causes of even possible disagreement been so few, and at no time have the two countries been so strenuously engaged in the peaceful rivalry of developing their great and as yet unrealized resources. Still, with the teachings of history before them, neither nation has dared completely to disarm, and we in Canada might with equal justice resent the care evinced by the majority of the several States of the Union in the maintenance of their Militia, as they might look askance at us for considering the best method of utilizing our comparatively slight resources for our own protection. As long as the States remain united, and ruled by men whose objects are to wage war with nature and bring her under subjection, rather than to extend a territory already almost beyond the control of a central Government, so long will Canada be secure from danger from external foes. But if the central power should show signs of weakness, if sections of men, or even separate States should break off, and, giving way to lawless desires, become turbulent and unruly, then Canada will have need to look to her defences and to take measures for the protection of her hearths and homes. To be prepared for such eventualities is often the best way of preventing their occurrence, and therefore it would be an affectation of sensibility if we refrained from consideration of our own means of protection in the fear lest our friends and neighbors should consider that any reflection were directed against, or doubts entertained of their peaceful intentions.

Canada is so situated that as long as she remains a part and parcel of Great Britain, and so long as Great Britain maintains her maritime superiority, she has no danger to fear from the seaboard, and her land frontier alone requires protection. Here however, lies a difficulty which will need much skill and forethought to meet.

A casual glance at the map of the Dominion is sufficient to show the weak natural features of its frontier. Putting aside British Columbia, which in the event of war must be dealt with separately from the other Provinces, and Manitoba, which also must depend for protection on resources other than those in immediate connection with Ontario and Quebec, I would direct attention to the long frontier extending from Georgian Bay through Lakes Huron, St. Clair, Erie, and Ontario to the River St. Lawrence, and thence inclining southwards to the Bay of Fundy, a distance of upwards of 2,200 miles. If this frontier had at its back a cultivated country of extent proportionate to its length there would be little difficulty in guarding it, but the reverse is the case. Excepting the peninsular of Ontario formed by Lakes Huron, Erie and Ontario, there is little depth of cultivated land, the Dominion being shut in by the vast northern forest, which together with the severity of the climate forces the tide of emigration westward.

The problem to be solved is how with a total* population of about three million five hundred thousand, and with a frontier of 2,200 miles, the country can best be protected. Now, included in the general defence of the country there are two main objects to be looked to, viz: the necessity of keeping open communication with England by the St. Lawrence, and of preventing the Dominion itself from being cut in two. For the first the maintenance of Quebec is obviously necessary; for the second the safety of Montreal and of the narrow strip which extends from Montreal to Kingston, including Ottawa, the capital of the Dominion, must be carefully looked to. For the present I would put aside the Maritime Provinces, as until the Intercolonial Railway is established there can be little communication for defensive purposes between them and the two Provinces of Quebec and Ontario, whilst Halifax "Nova Scotia," St. John's "New Brunswick" and Charlottetown "Prince Edward Island," would depend for protection in a great measure on the British fleet.

The subject therefore under consideration may be subdivided as follows:—The protection of Ontario as far as Kingston. The defence of the county between Kingston and Montreal, including Ottawa. The defence of Montreal the commercial capital. The keeping open of communication between Montreal and Quebec. The defence of Quebec.

Before however proceeding to details, I would allude to one problem difficult of solution in all countries, but especially difficult in Canada, viz:—How can the defence of the country be provided for without too greatly crippling its resources either by the expenditure of money or of labor. Military expenditure is the insurance that a country pays against loss by war, but the amount of insurance must depend on the value of the property, on the risk insured against, and on the means of the insurer. In Canada and the United States the risk, happily, is not great, whereas, owing to a variety of circumstances, such as the scarcity of labor in comparison with the vast works requisite for opening up new countries, and the dread of checking, either by taxation or much more by forced service, the tide of immigration, there is well-grounded opinion that military efforts at all commensurate with those of European nations, are neither desireable or even possible. To ask Canada to build and arm fortifications which, considered purely from a strategical point of view, might be deemed requisite, would consequently be to require more than could reasonably be expected. To keep up a force which military authorities would consider necessary for her protection would also probably be beyond her capabilities, and therefore, whoever deals with the subject of the defence of the country must, to use a homely proverb, cut his coat according to his cloth.

Indirectly in connection with these considerations, I would wish to offer a few cursory observations on a matter which men responsible for the security of the Dominion should consider with care and attention. There is a great danger lest a country should be misled by numerical statistics, and lest it should find when the day of trial arrives that it has been resting on a paper army. There is a danger least it should be deceived by the outside show of a military force when the true requisites of military strength are wanting. The accidents, "so to speak," of an army, sometimes tend to conceal its weakness, in place of adding to its strength by the influence they bring to bear on men's sentiments and feelings. Bright uniforms, stirring music, and even the assemblage of considerable bodies of troops to go through a few showy manœuvres do not prove that the real requisites of an army are present and available. For the military profession, military training is required, and it is better to maintain a small force so educated as that it may serve as a nucleus for a greater, than to have a large force which cannot be moved, and in which those who are to command knew little more than those who are called on to obey. On an alarm of war a considerable army might be rapidly raised in Canada if trained officers and non-commissioned officers were ready at hand, and if plans for its organization had been carefully prepared and were clearly understood; whereas, unaided by such preparation, the troops would be mere mobs of armed men, without knowledge, discipline or cohesion. A chain is weak if one link lacks strength, and an army fails in efficiency if one of its many requisites are wanting. It needs first the nerves, or staff, to put the mass in motion; then the officers and non-commissioned officers with a fair knowledge of their respective duties; then the men, with a supply of arms, clothing, and a sufficiency of ammunition, not to speak of horses for the cavalry and guns, and reserve ammunition for the artillery. Then the transport, commissariat and hospitable arrangements, and last, but not least, the reserves with their due supplies. To take a palpable instance, the military stores may be full of Snider rifles, but unless the supply of ammunition is in proportion, these rifles are

*This does not include P. E. Island, Manitoba or British Columbia.

comparatively useless, as Canada is dependent on England for its breech loading cartridges, Not that all the requirements for even a small force must continually be ready, but the staff must know how they are to be obtained, and how the organization can be most readily effected. Supplies that cannot be procured in the country should be stored in magazines; supplies that can be obtained, in case of need, from the various districts should be catalogued, and at least an approximate estimate made of their quantity. As an instance, guns and ammunition should be kept in magazines, possibly also uniforms, at all events for a proportion of the force; whereas transport, even for artillery ammunition, could be provided from the surrounding neighborhood, and therfore need not be retained in stores. It would be out of place to do more than to allude to this portion of the subject, especially as steps are being taken to procure for Canada a means of educating the officers, and, I trust, the non-commissioned officers of her militia; and it is only to impress on all the importance of his scheme, that these observations have been hazarded.

I will now turn to the geographical features of the country, and in doing so propose rather to offer suggestions for thought and consideration than dogmatically to lay down plans which my knowledge of the subject could only allow me to do most imperfectly.

Supposing that it were possible to hold entire possession of the Lakes, and of the great river which under different names flows through them to the sea, there would be but few places at which the Dominion would be assailable and, as in England, the first and principal line of defence might be the navy. But this supposition is evidently based on false premises. In the first place the treaties with the United States prevent vessels of war from navigating the inland waters; in the second place, the great trading city of Chicago affords means to the United States, commanding as they do the outlet from Lake Michigan, rapidly to extemporize at the commencement of hostilities out of their fleet of merchantmen and steamers, vessels of war, sufficient to command Lake Huron and probably to force an entry into Lake Erie where they would be met by vessels from Buffalo and other large ports. Thus Ontario would be threatened on its northern, western and south-western frontier, and would in great measure depend for its defence on a land force. But this land force would run a risk of being isolated and cut off, unless its left flank were protected and communication maintained with the Province of Quebec, and through that Province with the sea. Therefore, *coute que coute*, the command of Lake Ontario must be secured and maintained Here Canada lies under an advantage, the best harbors being situated on her shores and the greater number of the steamers trading on the Lake being held or manned by Canadians. These harbors would require the protection either of permanent or field fortifications, and above all Kingston would have to be placed beyond the possibility of capture. The next difficulty to be met is the preservation of the communication between Kingston and Montreal by the protection of the Grand Trunk Railway, and of the canals which avoid the several rapids of the St. Lawrence. Here again gun boats are necessary, but the assistance they afford must be supplemented by a considerable military force, and by the erection of earthworks to cover the several locks on the canals, together with block houses similer to those constructed by Sherman, in his advance from Nashville to Atlanta, to protect his line of communication. These would probably be erected on the threat of war, and would suffice to guard the canals and the railway from the enterprise of small bodies of men. In addition to the protection of the frontier line, the defence of Ottawa and of the Rideau canal, together with the Grenville canal on the Ottawa river, must not be neglected. The capture of the Capital of the Dominion would be a serious blow, not only from its moral effects, but also as cutting off the Province of Ontario from the Province of Quebec by preventing communication by the St. Lawrence, the Grand Trunk Railway and the Rideau canal. The fortification and garrison at Kingston would protect the mouth of the Rideau, whilst if a strong garrison were maintained there, and the lake and river held by gunboats, no attempt, except by a very considerable force, could be made on the Capital. But if these conditions were not completely fulfilled, there would be danger less a comparatively small number of troops should be able by a rapid movement against Ottawa, to sever the Province of Ontario from that of Quebec, and from the means of communication with England.

The next object of importance is the protection of Montreal, the commercial capital of the Dominion, and the head of the Ocean Navigation. The desirability of fortifying this city has been often mooted, and plans have been prepared for erecting a line of defensive works at sufficient distance to prevent it from being bombarded. These plans require careful study, and if not carried out, estimates should at least be prepared showing the number of men and the time required to raise field works sufficient to hinder any attempt at capture by *coup de main*. The United States possess easy and rapid communication to the frontier which is only about thirty miles distant from Montreal, and a work of considerable strength at the head of Lake Champlain affords a convenient base of operations for any attacking force. At Montreal, therefore, a considerable garrison would be collected on the threat of hostilities, this force would watch the frontier and protect from partial enterprises the Beauharnois canal, whilst it would be supported by gunboats on the river, which would keep open communication with Quebec and possibly secure the Richilieu canal.

Communication by means of the river being secured, the passes leading through the White Mountains and the forests which border on the frontier of the New England States, would require watching. Positions would be taken up to cover Richmond junction, and for the protection of the Grand Trunk Railway and the approaches to Quebec. The fortifications of this city on the right bank of the St. Lawrence would be completed on the first symptoms of hostilities, and the place rendered strong enough to stand a siege in the event of Montreal falling, and the main force of the enemy being brought against her.

As long as Quebec should hold out Canada would be unconquered; during the summer she would receive the supplies which so powerful an Empire as Great Britain would provide with no sparing hand. During winter the climate and the hardships consequent upon it would in all probability prevent active hostilities from being directed against her.

Such sketched very roughly is an outline of the general principles which appear adapted to the defence of the Provinces of Ontario and Quebec, and is now proposed to consider what steps should be taken to enable the Dominion with as little confusion as possible—if unhappily so unfortunate an occurrence should ever arise—to pass from a state of peace to one of war.

In the first place it must be presumed that a sum of money is yearly voted for purposes of defence, *i. e.*, for the maintenance of a militia and of certain fortified places. The expenditure of this money is in the hands of the Minister of Militia assisted by the advice of experienced officers. He has to determine the number of men who are to be yearly trained and the amount of efficiency to which they are to attain. To work this problem correctly is the test of a good administrator, as its solution depends on a careful consideration and a just appreciation of the principles of war. To drill and discipline in peace time, an army at all commensurate with the need of Canada if she were obliged to undertake a serious war, is evidently out of the question. Consequently all that can be attempted is to maintain in a fair state of efficiency a small force which would on the threat of hostilities serve as a nucleus and a training school of one much larger. With this object in view it would in my opinion be better that with a given sum of money the efficiency should be increased even at the expense of a reduction in numbers. A short period of warning must always precede the outbreak of hostilities, and to form an army the employment of a comparatively small number of trained men would be of greater service than the assistance which could be afforded by a larger number who merely possessed the rudiments of military instructions. The next question is the composition of this force, including the proportions which the artillery, engineers and cavalry should bear to the infantry. This should be determined partly by the experience of other nations, especially in recent wars, partly in reference to the character of the country in which the army would be required to act. For instance in the greater portion of Canada there is little ground for the action of cavalry organized similarly to that of European armies, although for mounted infantry there might be considerable scope, and this question of the best method of organizing and arming horsemen requires deep consideration, and a careful study of recent campaigns, especially of those of the great American civil war. It is, I believe, the opinion of General Sheridan, an officer of the highest reputation in the United States army, formed from his personal experience during the civil war in all branches of his profession, checked and supplemented by what he observed during the time he was a spectator from the German side of the war with France, that the teachings of modern campaigns show the desirability of augmenting the mounted infantry, or cavalry armed with good rifles and taught to fight on foot, at the expense the artillery. No doubt there is much that may be urged on the other side, but this instance is given with the view of showing that modern military history together with a just estimate of the probable theatre of war should influence the decision of those whose duty it is to organize an army.

With regard to artillery there can be no question but that guns are of great value, especially as giving confidence to inexperienced and young troops, but on the other hand they impede the march of an army and are difficult to move along the

roads which often form the only means of communication through Canadian forests. This was observed in the earlier campaigns of the American war, and lead ultimately to a considerable diminution in the proportionate number of guns as compared with infantry. For siege trains there would be little need in a Canadian army, as happily there are few fortifications to besiege; but on the other hand there appears to be scope for garrison artillery which may be, and, I believe, is organized with great success in the towns and villages on the Lakes and sea board of the Dominion. A knowledge of gunnery supplemented with but slight and easily acquired instruction in field fortifications and with the assistance of good plans, would enable the population of these towns and villages in great measure to provide on the threat of war for their safety against predatory and unsystematic attacks.

The exigencies of the settler's life and especially the needs of the lumbermen tend to the cultivation of rudimentary, but most useful engineering knowledge, which a little teaching would render available for military purposes, thus improvising a corps of engineers for service in the field.

Of infantry, the mainstay of an army there is little to be said especially applicable to Canada, except that for wood fighting and for working in extended order greater knowledge is required from officers, and higher discipline and more perfect steadiness from the men, than when manœuvring in the open. The officers should be able rapidly to avail themselves of the advantages of ground, and those of junior rank should be capable of acting independently, whilst the men must have confidence in each other, and possess the steadiness and discipline which will lead them to to individual exertion, and to a careful system of husbanding their ammunition.

The proportion of the several arms in each military district having been determined, their relative proportion in peace and war should be approximately fixed, and the best method ascertained of rapidly augmenting the active force on the threat of hostilities. Here experience indicates, and notably the knowledge gained in the American war, digested, and so to speak, codified by General Sherman, in his very able recently published memorandum, that to increase and recruit regiments already existing, is a far more efficient method of augmenting and keeping up an army, than by replacing with new regiments those that may have suffered by active service in the field. He especially instances the value attached to the Wisconsin regiments, which in contradiction to those furnished by other States were supplied by fresh recruits, in place of being replaced by new regiments.

Having thus briefly glanced at the composition of a defensive force, I propose to turn to a most important matter connected with the military organization of the country, viz.:—the duties of the staff, and especially of the officers of the higher grades. Irrespective of their ordinary work of commanding and inspecting the militia, on the Deputy Adjutant Generals and their assistants must devolve the duty of procuring, and systematizing reports on all that would relate to the defensive capabilities of their several districts. The head quarters at Ottawa should be in possession of the most accurate information, in order to compensate by the facility with which plans of defence could be prepared, and organization carried out, for the very imperfect defensive condition of the country. All places that it would be desirable to fortify in case of war, should be designated, and plans of suitable works with estimates as to the amount of labor, and of time necessary for raising them should be ready at hand. Not a block house, or coast battery should be omitted, and in cases where scarcity of earth or other considerations would prevent the construction of earth works, the fact should be noted, in view of the need of more permanent fortifications. These plans and specifications would be carefully examined at headqurrters, where the defence of particular localities should be subordinated to the general plan for the protection of the Dominion. The Deputy Adjutant Generals should also select the best places for the position of troops in the event of an outbreak of hostilities, together with schemes for offensive and defensive operations in the several districts. Accurate rolls of the number of able bodied men, of horses, of carts and waggons, should also be in their possession, together with the quantity of rolling stock on the several railways, their capabilities for transport of cavalry, artillery and infantry, especially in regard to the fitness of the stations, and platforms for entry and departure. All roads, bridges, ferries, and fords should be well examined, the character of the roads, whether metalled or merely country roads shown, the strength of the bridges calculated, and the fords explored. Then again estimates should be made of the amount of provisions which the several districts could furnish, and of the number of men and horses that might be raised for military purposes without destroying hopes of harvest. These are matters about which information could be readily obtained and arranged in peace time to the advantage of the staff officers employed, and to the great economy of time and labor when threats of war might necessitate hurried preparation. They are the details, the mastery of which by the staff is said so greatly to have assisted the German commanders in their invasion of France, and which from being more easily collected, could be even better systematized for defensive than for offensive purposes. Not that information of the power and means of attack on the part of our neighbors should be neglected: in a most friendly and philosophical spirit, their capabilities of aggression, and the weak points in their defensive preparation should be guaged by our staff, so that if need arise and opportunity offer, the theatre of war might be transferred across the frontier, an arrangement which would suit the people of Canada far better than fighting on their own soil.

Such sketched very broadly and without any attempt at detail, appear to be the subjects towards which those who are interested in the military condition of the country might direct their attention. One important consideration has, however, been omitted, viz.:—how would the marine department be able to meet the strain which war would immediately put upon it? As has been shown, the defence of the country depends in great measure on its capability for maintaining command of the water way of the St. Lawrence, at all events as far as the western end of Lake Ontario. Gun boats would therefore have to be quickly improvised, river and lake steamers would have to be altered and adapted to warlike purposes, as was done during the American Civil War. Whichever power could be first on the water would probably secure most important advantages, in fact the defence of Ontario may be said mainly to depend on securing the command of the Lakes, whilst on the safety of the canals and the security of their locks would hinge the possibility of gun boats sent from England being able to reach the waters above the St. Lawrence rapids. Consequently plans should in time of peace be prepared of the best method of converting the fleet of river and lake steamers into vessels of war. Their armament should be ready, and means at hand for coating at least some of them with extemporized armour plates. A Marine force might with great propriety be enrolled in time of peace as a supplement to the Land force, whilst every detail in respect to the inland navigation, and of the class of vessels best suited for the defence of the various rivers, canals, and lakes should be in the hands of the Admiralty in England. To the command of the inland waters was the success of the Northern Armies in the American War in great measure due, especially at its commencement, and this lesson should not be lost on those who have charge of the defence of Canada. How nearly the "Merimac" hastily equipped at Norfolk, annihilated the Northern fleet, and prevented the landing of Maclellan's army in the York Town Peninsular, will be in the remembrance of all who took an interest in that great struggle, and there is little doubt but that a repitition of a similar event might make or mar the most carefully prepared schemes of Canadian defence.

I will now conclude this very imperfect sketch of the subjects which appear to me to be worthy of consideration in reference to the defence of Canada by an attempt at realizing what would probably occur in the event of anticipated hostilities. Suppose, and here again I would urge that my supposition refers to an event which, judging by recent appearances, is as unlikely as the disruption of the States themselves, that our neighbors and ourselves fell out, that intelligence of very disagreeable diplomatic notes had reached Canada, and that we had heard that unprecedented activity prevailed on the one hand at Portsmouth and Chatham, on the other, at New York, Philadelphia, and other naval stations in the United States.

To be Continued.

Sir William Armstrong is making considerable progress with the loading apparatus for the turret ship *Thunderer*, and she will be ready in a very short time to receive her guns. The loading is to be performed by hydraulic power, and the apparatus devised is somewhat similar to that proposed by Mr. Stevens, an American, some years since. The gun is allowed to recoil when fired until it is entirely within the turret, when the muzzle is depressed almost to the level of the deck, the turret is wheeled round to a certain position away from the enemy where the charge is raised to its mouth on a truck, and is rammed home by a piston which comes up through the deck. This movement is rapidly performed, and as the turret returns to its old position the gun is run up ready for firing. The hydraulic pumps are worked by steam direct from the ship's engine, and several ingenious improvements have been introduced.

As the rose tree is composed of the sweetest flowers and the sharpest thorns—as the heavens are sometimes overcast and sometimes fair, alternately tempestous and serene—so is the life of man intermingled with hopes and fears, with joys and sorrows, with pleasure and pains.

The trial trip of the Imperial German ironclad frigate, *Kaiser*, 5,000 tons, and 1,000 horse power, was made on Thursday at the Maplin Sands, in the presence of the commissioners appointed by the German Government to be present and receive the vessel from the contractors. The trials were conducted in strict accordance with the arrangements followed in the English Navy for men-of-war. The mean of six runs over the measured mile, with full power, gave 14·56 knots per hour, and the mean of the runs with half boiler power gave 12·78 knots per hour. The result was considered most satisfactory, being more than half-a-knot in excess of the contract speed promised by Messrs. Samuda Brothers, the builders. The vessel, on reaching Germany, is to be armed with nine of Krupp's steel guns, each twenty-two tons weight, and is one of the most formidable ironclads yet built.

By advices of the 5th ult., we learn that H.M.S. *London*, with a crew of nearly 700 had arrived in Zanzibar after a good passage of thirty one days from Simon's Bay. She carried no less than nineteen boats, and already the Arabs began to be afraid, and talked of living on the mainland. The murderers of Mr. Heale had been traced by Vice Consul Holmwood, who had been on a tour of inspection to the Bewadir, Lamoo, and Mombasah. The inland slave traffic increased in extent and proportion and was an organized business. The *London* was stationed as permanent guard-ship at Zanzibar. Her Majesty's steamships *Nassau*, *Rifleman*, and *Flying Fish* were on the station.

The French Government has been making some important experiments in the breaking up of old cast-iron guns with dynamite. These guns abound in the coast-towns, but the obstacle to their effective removal and disposal has been their weight, and hence they have been broken up as old metal. The experiments were made by the Artillery at Rennes and Brest, when, according to the *Revue d'Artillerie*, the weight of the eight guns and mortars experimented upon amounted to 34,058 kilogrammes, and 35,472 kilogrammes per ton of dynamite were used.

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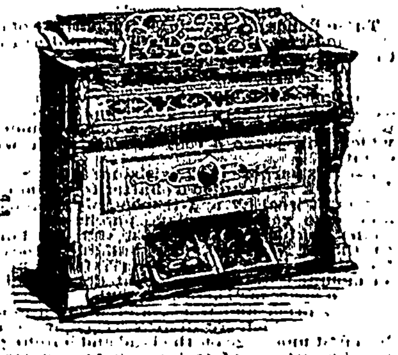

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