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The Volunteer Review

AND MILITARY AND NAVAL GAZETTE.

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VOL. VI.

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CORRESPONDENCE.

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

To the Editor of the VOLUNTEER REVIEW.

DEAR SIR:—Some three years ago I ventured to lay before your readers, illustrated by some quotations from Colonel Hamley, and (I think) other writers, a few remarks on the limits which, I dimly conceived, might be found to exist, to the effect on charging cavalry of "armes de précision."

Such authorities as I cited had written before the general adoption of breech-loaders, and, indeed no crucial test had as yet come under the notice of military observers.

Following, therefore, by the uncertain lights then available, deductions which yet bore a stamp of probability, the conclusions at which it was possible to arrive were still only speculative. But, even from an infantry point of view, they were such as to lead to a higher estimate of the efficacy of cavalry charges, than appears to be borne out by recent observations of no less weight than reliability.

It would seem that I have not been alone in this opinion, as will appear in the course of the following quotation from the *Canadian Monthly*, which is so interesting, and so direct to the point, that I feel assured of your permission to make such of your readers acquainted with it, as may not yet have met with it.

It is from an article from the pen of Lt. Col. G. T. Denison jr., on "the cavalry charges at Sedan. The autumn manoeuvres and the moral they convey." It is needless to say that Col. Denison is always more than readable when treating of the specialty in military organization on which his views are as sound as they are in many points original, and the extracts I make are not only instances of his tact in the selection of illustrations of his views, but evidence of the extensive means of information at his command, and one of great interest to infantry officers.

"An article (says Col. Denison,) in the *aturday Review* of 7th Oct. last, on "the

tactical lessons of the Autumn Campaign" is a good illustration of the theories held on this question of cavalry charges," it says:—

"We have learned that cavalry of every description is as necessary a component of an army as it ever was, but that it must be handled & organized in a new fashion. At present our cavalry leaders are but mere apprentices, and the glorious arm at their disposal was in the recent campaign rather an incumbrance to the army than otherwise. In the intervals between the battles, the light cavalry very imperfectly performed their duty as purveyors of intelligence, and on the day of battle, the chief object of every one appeared to be to get our squadrons out of the way, both of harm and of the other branches of the service. It is very evident that masses of cavalry will for the future be only used exceptionally, and that they must be kept in reserve until the decisive moment.

"By a sudden swoop on the flank, however, or even a direct attack, where from the nature of the ground, the enemy's fire cannot take effect until within 200 yards' distance, great things are still to be effected. In the concluding battle of our sham campaign we had a proof of this. A body of cavalry suddenly appeared on the brow of a hill, and dashed at the skirmishers of the 42nd Highlanders, who, startled at the apparition, hastily proceeded to form rallying squares, the dragoons were, however, upon them before they could complete the movement, and had the contest been a real one, would have sabred them to a man. The Highlanders have been blamed for forming squares. They ought, it is said, to have remained steady, and have trusted to the effect of their fire. Setting aside, however, the moral effect of the sudden appearance of a body of horsemen, charging down at full speed, the Highlanders could not, at the outside have fired more than twice, and that hurriedly, and, under any circumstances they would have been annihilated."

"The above is the most common theory on this subject. We will now quote an account of the French cavalry charges at Sedan, from a letter received by the writer of this article from a distinguished officer

who was with the Prussian army during the earlier battles of the war. This officer, who has himself seen much service, says."

"The question of cavalry charging infantry with breech-loaders is, I think, conclusively settled by this campaign. Whenever it has been tried—by the 8th and 9th French cuirassiers at Woerth, by the 7th Prussian cuirassiers at Vionville, on the 16th August, or by the two French Light Cavalry brigades on their extreme left at Sedan—the result has been the same—a fearful loss of life with no result whatever.

General Sheridan was an attentive eye witness of the four charges made by the French Light Cavalry at Sedan, and gave me a most minute account of them. I examined the ground most carefully only thirty hours after, while the dead men and horses all lay there, so that I formed a correct idea of it as if I had seen it. The first charge delivered by the 1st French Hussars, was made under the most favorable circumstances possible. They were very well handled. As the Prussian infantry skirmishers, in advance of the main body, came over the hill behind which they had been waiting, they were led round under cover of the brow till they got completely in rear of, and on the right flank of the skirmishers. They thus got within one hundred yards of them before they were seen, and then charged most gallantly, sweeping down the whole line. But, even under these advantageous circumstances, the charge had no result worth speaking of. The Germans ran into knots and opened fire; a very few who ran to the rear, say 25 or 30 were cut down, on the other hand the fire of these clumps and rallying squares completely destroyed the Hussars. The two rear squadrons wisely swerved off and regained the shelter of the hill. Those who went down the line were all killed, wounded, or driven down the Prussian side of the slope into a village, and there captured. It did not delay the advance of the Prussian infantry five minutes. The succeeding charges made by the 1st, 3rd and 4th regiments of Chasseurs d'Afrique and the 6th Chasseurs, came to nothing, though they were most gallantly and perseveringly made. The Prussians simply wait-

ed for them in line till they got to one hundred and fifty yards, and then just mowed them down with volleys. They were shot down before they could get within 50 yards. It was a useless, purposeless slaughter. It had, practically no result whatever. The hill-side was literally covered with their dead, and the bodies of their little grey Arab horses. These two brigades of 5 regiments must have lost quite 350 killed, besides their wounded and prisoners. There can be no greater calumny than to say they did not charge home. General Sheridan assured me they behaved most nobly, coming up again and again at the signal to charge. They were sheltered from fire till the last moment, were carefully handled, and skillfully and bravely led. The ground they charged over was not more than 400 yards, yet the result was virtually their destruction as a military body, without any effect whatever."

"I took great pains to ascertain the facts. A friend of mine, whom I had known in Africa ten years before, was a major commanding two squadrons of one of these regiments. He showed me the roll of his two squadrons, with each man's name marked off. The result was fifty eight men of all ranks left effective, out of two hundred and sixteen that went into action. The whole time they were under musketry fire must have been under a quarter of an hour. So much for charging against breech loaders."

"A comparison between the circumstances of the charge on the skirmishers of the 42nd Highlanders and this charge on the Prussian skirmishers will show the parallel in the two cases to have been almost complete. They form a good illustration of the difference between theory and practice."

Col. Denison then proceeds to sum up against heavy cavalry, and brings forward several arguments in favor of mounted rifles.

But the lesson is most important to infantry officers, and brings into marked prominence the old axiom that a foot soldier should be a match for a mounted trooper. This is embodied in the 26th section of Company drill in words which should be deeply engraved on the mind of every rifleman and linesman.—"It should be impressed upon the men that, on open ground, a skirmisher has nothing to fear from a single trooper; and that, on broken ground the advantage is altogether on his side, provided that he remains calm and collected. Also, that the smallest square or circle is secure from cavalry so long as the men are cool, and fire only at the proper moment by order of their commander."

The special application of the above precepts to a surprise by cavalry, under the excellent regulation which imposes a strong responsibility on section commanders, would appear to be contained in a subsequent paragraph of the same section, (F. E. 1870 page 100) "should there be no cover within reach, they may at once form rallying

squares by half companies or sections," or should the surprise be very sudden, or the extended sections cover too much ground, resort might advantageously be had to the command "Form Groups," i. e., of two files. It is perhaps not important to say—let officers and non-commissioned officers bear it well in mind, when they take the field this year

I have, &c.

G. W. G.

"FREE TRADE AND PROTECTION."

We have been so much edified during the last two years with singular emanations from the press of the Lower Province, that it has become a habit of mind with people of some mental ballast to doubt whether some Quebec editors and contributors would not be more fitly placed in a lunatic asylum rather than in an editor's chair.

So accustomed, indeed, have we become to the scintillations of these geniuses, that although it may mildly surprise many to be told that there is such a newspaper in existence as the *Quebec Budget*, it will not be a matter of very intense astonishment to find it holding forth in the following strain.

"We have a militia system which will yearly increase, which, besides causing additional expenses, will bring about a scarcity of workers. Labor will not be had here in a few years, hence if we do not take care, for the creation of an army, even a small one, coupled with the desertion of the soil by the people, will bring about a state of affairs, and that too very shortly, which will make things hopeless for us if we do not take care. This is no idle fear, unless we adopt a trade policy, which will operate exclusively in the interests of our producers, we may not hope for a very large in coming of people to our country. In the world there is no country better situated for trade than this one, and yet, owing to the want of knowledge of our people, we do but an insignificant trade after all. What might we not be if our trade was so shielded that instead of bringing into Canada the foreign products we could attract to our shores the foreign producer."

Now this would be harmless enough as an exposition of the unwisdom of an obscure sheet, but it has been copied into the *Toronto Telegraph*, and is just the sort of test to catch the eye of the frantic economist, and instigate him to a fresh howl with, as he may think, a new idea for its base. Of course the *Telegraph* merely quotes with reference to the question of a trade policy, but no opportunity should be lost of reminding Militia officers that they should be vigilant whenever opportunity serves to impress upon all who are within reach of their influence, the broad and indisputable facts which govern the relations of Militia expenditure to the revenue.

The art of condensing into a few apparently candid lines a mass of misrepresentation of facts and insinuation of evil, appears to be pre-eminently the forte of a class of journalists who are generally unscrupulous in proportion to their obscurity.

The passage quoted above is a brilliant example of this style. Let us, for a moment, consider the real facts.

In the first place the Militia system will not increase at present beyond such augmentation as is required by the absorption of new provinces into the Dominion. It will not probably exceed 45,000, or at most 50,000 men, when allowance is made for Manitoba and British Columbia. And of course when we embrace a new province we gain population and revenue which bear their share of the burthen. Not perhaps, light as it is, strictly proportionate at first, because the quota required for duty is greater of a small than of a larger population, but is necessarily lessened as population increases.

As it at present stands on a minute fraction over one per cent of the population of Canada is invited to volunteer for military service. To speak therefore of a system which entails sixteen days drill of one per cent of a flourishing and rapidly growing people, as an absorption of labor, is an absurdity. And, as Canada is fast approaching the solution of the problem "armed nation versus standing army," there are, it is to be hoped, no grounds for apprehension as to the creation of a large permanent force.

These, are, it may be said, but trite propositions, yet we think they are of a nature which cannot be kept too prominently before the public during the present year, by those who desire to see justice done to the magnificent matériel of the Canadian army, and whose duty it is to insist, on all occasions, on its being regarded in its true light.—*Communicated.*

NOTES AND QUERIES

BY G. W. G.

The Brigade Camp system is beginning to render very absurd the dead level of rank prescribed by the Militia Act. May we not hope to see as one of the amendments we look for during the coming session, one which will authorize the rank of major general to the commander of the Dominion army, and, at least, that of Colonel to the Deputy Adjutant General of Districts?

The advertisement of Mr. McEachren Military Tailor, of Toronto, is noticeable in a new form in the last issue of the *VOLUNTEER REVIEW*. We venture to think that very many members of the Force will join us in wishing him every success. It is doubtful if the very various and sometimes sudden requirements of officers could anywhere, in Canada, at least in Ontario, be so readily satisfied as by Mr. McEachren. The outfit of a large number of the officers of the first Red River Expedition under very urgent pressure as to time was a good proof of his business capacity, and that of his establishment, and, all circumstances considered, reflected credit on both.

TACTICS.

(Continued from page 27.)

When company columns stand the test of two campaigns, and are still thought most highly of by, we may presume, the best judges, it behoves us to devote more than passing attention to the formation. Led by zealous officers, they ran away with victory in 1866.

The battalion commander was at the head of a kind of brigade, composed of four weak fractions; his duty was to remain well in rear, and if he issued any orders after the general object had been explained, it could only be done (when the action commenced) through his adjutant, or any other messenger. No trumpet sound would avail—each fraction sent out its own skirmishers, and to have halted any one company would have caused a gap in the line. The commander, then, had to be an almost tacit witness of the battle. He might from a commanding position give warning of danger unperceived by the fighting line, and he might apply to the second for assistance, but he held no power of giving that assistance, and struggles are quick, sharp, and decisive nowadays. Suppose that the commandant does ask for assistance, and a second battalion advances to the fighting line; he can do no more than join one of his companies, for the Prussian rule is that any force launched against the enemy must be "used" up, and this rule explains how the regiments became so hopelessly entangled.

Commandants of battalions took care to issue from this false position during the breathing time between 1866 and 1870, and note—the fault was remedied by peace manoeuvres. In 1870 we shall find, also, that artillery played an important part; but study of the modified tactical forms introduced, together with a comparison with our own forms, must be the subject of a fresh chapter.

Our last reflection on the campaign of 1866 shall have reference to the shortcoming in every branch of the Prussian combatant army, infantry excepted. Here was a long-meditated, admirably-schemed campaign; the first of a series destined to raise and consolidate an empire of capacity and determination sufficient to rule paramount in Europe; and yet we find infantry alone, of her offensive weapons, equal to the emergency. A great statesman and a great strategist undertook to place the King of Prussia on a pinnacle of grandeur. How seldom is it that one country produces two men of such superb ability in one century! and how thoroughly nature seems to have been exhausted by the effort! Other nations, indeed, have suffered from the talent lavished on the German race.

Count Von Moltke witnessed some service in Turkey (1828 and 1829), and is an instance of a heaven-born general. He has been educated in the School of Theory, and it would be a bold act to assert that a greater strategist never lived. Still this great man falls short of perfection, owing to his never having served as a regimental field officer. For detail he is ever obliged to fall back on officers who have gone regularly through the mill; and a merciful Providence ordained that no special interposition should be made in favour of the chiefs of all the different branches of the German service. They err like mortals.

This very fact may be a source of strength—who knows? Von Moltke is "facile princeps" of his army. The same might have been said of Wellington, of Napoleon, of Lee, &c.

The novelty of breech loading fire was sufficient to demoralize the enemy in campaign No. 1, and the weakness of artillery and cavalry proved the mediocrity of their commanders, enervated by prolonged inaction. It also proved that the eye of the commander-in-chief had overlooked their deficiencies; and thus it must always be after a prolonged peace, without some active minds, backed up with sufficient authority, shake the comatose out of their comfortable bed and routine.

One would have been, indeed, surprised if the same disparity of talent had been exhibited by the three arms in campaign No. 2. Nor was such a contingency within the bounds of possibility under such a chief as Von Moltke. We shall find that artillery and cavalry made their effort in 1870—infantry still marches in the van. One may safely prophesy that campaign No. 3, whenever it may arrive, will witness a still further improvement in field artillery, and a complete revolution in the tactics of cavalry. The martial instinct of the German race is fully roused, and, with Von Moltke as their chief, little short of perfection can arrest their progress.

The unqualified success of Prussia in 1866, and its political result—viz: the formation of a German confederacy—sufficed jealousy, if not anxiety, in the most military nation of Europe. France could look with pride on her military history, and the mere notion of a rival was intolerable to the French army and its chief, the Emperor. Those who foresaw that a struggle for the pride of place was inevitable between the Gallic army and the Teutonic race, predicted a fight of giants, nor was expectancy long deferred. In 1870 the French army was considered, at home and abroad, as powerful as its system of organization enabled it to become. Therefore, calculating on disunion amongst the German States, together with the unpreparedness naturally attending incomplete military reform, the French Emperor drew his sword.

The readiness with which anticipated allies of France espoused the cause of Prussia, or declared their neutrality, together with the tardy departure of Napoleon towards the scene of action, ought, doubtless to have made men's minds waver; but history must needs assert that sympathy amongst spectators leaned in a marked degree, at the outset, towards Germany as the weakest and most inoffensive of the two belligerents.

The Prussians had been victorious in 1866, thanks to their breech loading needle gun! Had they not now to face a superior weapon—the Chassepot? Had not French soldiers, man for man, always proved themselves superior to Germans? Had not the Frenchmen naturally a martial soul? The German citizen hosts might be transformed from peaceful civilians to valiant soldiers, but years must first elapse. Thus argued in the world, and thus it happened that, with few exceptions, its inhabitants calculated on a temporary, if not a permanent, triumph for France. And this, more pardonably, was the confident expectation of one of the two principals. At the end of a short campaign the Rhine was to have formed a French boundary, and a treaty to this effect was to be signed incontinently at Berlin.

The sceptical and cautious—for there existed some both in court and camp—could make no head against insatiable greed for conquest.

There existed a French soldier of high rank who placed his doubts prominently on record; but General Trochu and his writ-

ings were little thought of in July, 1870. Previous shortcomings of "Intendance" were forgotten, and the theoretical disadvantages of *corp d'élite* were forgotten when fantastically attired Zouaves excited public admiration by gesticulation in front of Parisian wineshops.

To the eye there was much to admire in the French army. Its infantry had a world wide fame. The School of Musketry at Vicennes was a model; and the drill of the Chasseur and Tirailleur regiments seemed peculiarly adapted to modern requirement. In camps of instruction the art of manoeuvre as laid down in an official four-volume book was fully mastered, and the most critical could have taken little or no exception to the business-like training of the combatant element. As in England, however, the equally important non-combatant service was not subjected to a practical test during peace-time. And the sequel will exhibit this culpable omission as a primary cause of national calamity.

During peace manoeuvres the French showed an inclination to modify their normal battle formation in columns, and develop musketry fire by deployment. It does not appear, however, that this sound theoretical teaching was acted on in the presence of the enemy. The French tactical formation was invariably a swarm of skirmishers, followed by massive columns in line, and a massed reserve; the field artillery remained throughout an action in the neighbourhood of the division or brigade to which it belonged, and therefore was distributed along the general line; whilst the cavalry approached as nearly to the scene of strife as the nature of the country and the fire of the enemy would allow. Cavalry was also used to a great extent as an escort for horse artillery, albeit a feeling that cavalry, of the three arms, was the most vulnerable, and therefore the least serviceable, seemed to have gained ground since 1859, and the horse soldier played the part of an indispensable encumbrance.

(To be continued.)

A new gunpowder gauge was employed during the siege of Paris, with the object of ascertaining the maximum of pressure in the new piece of seven, by J. le Commandant de Reffye. The process is based on the investigation of M. Treca on the flow of solids. A bronze cylinder pierced with a round hole was screwed into the chamber of the gun. In a recess made in this drilled hole was placed a thick disc of lead, and above this was screwed a small steel plug, in which a hole of small diameter was drilled. The pressure of gas from the explosion caused the disc of lead to flow through this opening in the steel plug, and the flow extended more or less according to the intensity of the pressure. By this means it was ascertained that in certain heavy guns, the interior initial pressure sometimes exceeded 4,000 atmospheres. In the piece of seven, thanks to the employment of compressed powder, the pressure did not exceed 1,800 atmospheres.

The helmet which is to replace the French kepi, is described as being a mixture of steel and brass, and in shape something of the old Roman model. A brim running all round is to protect the wearer from rain and sword cuts; the front is ornamented with a sun, and in time of peace a cock is to form the spike. The private will have brass, the regimental officers silver, and the general officers gold cocks. The helmet is to weigh three pounds, and is first to be tried on the Army round Paris.

NAPOLEON ON THE SITUATION IN FRANCE.

The following is reported to be a declaration made by the ex-Emperor Napoleon to a high personage in the course of an intimate conversation:—I cannot think of a restoration at present; men's minds are still too much irritated, and the truth as to the causes of the war and the disasters resulting from it are not yet known. France is in the hands of M. Thiers, who does not possess sufficient strength for his position, and who, perhaps, does not desire to establish a definitive state of things. The country is once more entrusted to parliamentarism, which is leading it to ruin and abasement. The Assembly should have proclaimed the Count de Chambord at Bordeaux; had it done so, France would now have alliances which would facilitate the recovery of her greatness. Foreign powers will never treat seriously with a nation represented by deputies who are so disunited as those composing the present Chamber. Orleanism is not possible at the present moment. It is a hybrid system which leans upon liberalism but which rejects universal suffrage, the true basis of the other. Independently of Radicalism and the Empire, there remains but one chance of safety for France, and that is the Duke d'Aumale. He has the strength necessary to raise the country again by the re-establishment of the system of 1852. He is a man of intelligence, well informed, and capable of a great resolution. As for myself, if the Duke wishes to play the part which circumstances and his patriotism point out to him, I will support him, and engage myself to write publicly to my friends not to throw any embarrassments in his way. Will the Prince himself be willing? I believe not; for he is encompassed by friends incapable of advising him or of sustaining him in a great resolve. But remember well what I am about to say to you: If, in six months, the Duke d'Aumale is not President of the Republic, and he should not establish the *regime* of 1852, France will come in search of me, and—will find me.

FALL GRAIN IN MANITOBA.

A correspondent of the *Manitobian* writes:—As you have always taken a deep interest in agricultural matters, I would state that several pieces of fall grain have been put down by Canadian farmers. I have made it my business to ascertain the feelings of these men with regard to the issue, and they assure me that it is an erroneous idea to suppose that this hardy cereal will not thrive in this country. As for myself, I am thoroughly convinced that of all grain the fall wheat is the best adapted to this soil. In Ontario this crop is very hazardous on account of the snow melting off, leaving the grain uncovered, to perish for want of heat. Now in this country it is quite the reverse, for the grain is covered all winter with a warm coating of snow, thereby preserving it intact from the severities of frost. The close of next harvest will, I hope, unfold to the farming community of this Province a wonderful change with regard to wheat raising and crops in general.

EARTHQUAKE IN QUEBEC.—A slight shock of an earthquake was felt in Quebec on the 11th inst. The shock lasted about thirty seconds. No injury was done any of the buildings within the city, the waters of the St. Lawrence seeming to be the most troubled, the ice bridge across to Point L. vi having been somewhat damaged and broken.

We are happy to learn that Lieut. Colonel Jackson, A.D.A.G., is likely to be confirmed in rank as successor to Colonel Atcherly who has gone home to the old country. Mr. Jackson has been for many years in the service in Canada, is thoroughly posted in military tactics, has had a large experience in the volunteer system of the country. He has proved himself a most energetic and efficient officer, and we do not think a better promotion could be made.—*Carleton Place Herald*.

NEWS OF THE WEEK.

The health of H. R. II, the Prince of Wales continues to improve, it is expected he will shortly be able to leave Sandringham. The King of Denmark has congratulated Her Majesty on his recovery. The Duke of Edinburgh is to take the command of the new ironclad ship the *Sultan*.

Our readers will remember that the VOLUNTEER REVIEW showed that to be the case on the visit of the Grand Duke to Ottawa, and it was no doubt for accurately investigating our resources and power that such a visit was made. While Canada remains a component part of the British Empire she will effectually neutralize any attempt of the United States to interfere with British policy. Sir John Pakington in a lecture declared the failure of the Gladstone administration to uphold the honor of England and their policy had disastrously failed in Ireland.

The Telegraph construction and Maintenance Company have completed the contract with Messrs Bischoffsheim for laying the new Atlantic cable to New York direct.

In France matters are very unsettled, the Orleans Princess the Duc d'Aumale and Prince de Joinville have taken their seats as deputies in the Assembly; a commission of the latter body have agreed to report in favour of a bill providing that all offenders of the Press shall be tried before a jury. The Military have been ordered to put down any disturbances by force.

The treaty for the cession of the Dutch possessions on the Guinea Coast meets with much opposition in Holland, it has been ratified by the Upper House but it is thought it would be rejected by the Lower House of the States General.

It is stated that the Baron Von Affenberg, the Consul General of Russia at Bucharest, will be the successor of Catacazy as Russian Minister at Washington.

The President of the United States has been promising the Cape Cod Fishermen's deputation protection, the inference to be drawn is that the Fishery and other clauses of the Washington Treaty, in which Canada is interested, will not be entertained by Congress. It is not at all likely they will be accepted by the people of the Dominion, who are not inclined to find fault with the President's actions.

The Dominion Board of Trade has met in Ottawa on the 17th, and closed its sittings on the 20th after a session marked by the great amount of business transacted.

The Press of the United States are discussing the annexation of Cuba and Mexico, in this evil course they are abetted by some English Journalists, in both countries Yankee politicians have made all government impossible and if they succeed in annexation they will have to set the iron heel of a military despotism on the unlucky inhabitants. The United States troops attacked a half-breed camp thirty miles within British Territory last fall, the homes and property of these people were destroyed.

The Legislature of Manitoba was opened on the 17th, His Grace Archbishop Tache arrived at St. Boniface on the same day and was addressed by the college students in seven different languages. There has been discoveries of the richest gold placers in the world on the Peace River in our Saskatchewan territories.

It is held by a writer in the United States *Army and Navy Journal* that the war ship of the future must, as a matter of necessity, be a Torpedo vessel, that the building of immense iron-clad vessels will be stopped before the experience of the past enable the naval architect to correct the faults of construction, and that no class of vessel except one of superior speed that will keep clear of those scourges of the sea can by any possibility be safe.

Apart from the consideration that the Torpedo itself is by no means perfect that it is subject to strange freaks, and at times utterly beyond control, there can be no doubt that the circumstances attending their use under these present state of development are not of a character to cause particular care for the safety of any iron-clad whose crew possessed ordinary skill as gunners.

In order to use those Torpedoes the conditions are that the vessel from which they are to be launched should succeed in passing closely a-head or astern of her opponents, during which operation she would be liable to be cut into match wood or blown out of the water by the powerful Naval Artillery in use, and even if she did succeed it is not at all certain that the machine would explode at the proper time. In fact it appears that the Torpedo vessel would stand in the same relation to the iron-clad that the fire ship occupied to the sailing ships of wood at the beginning of the eighteenth century. An adversary to be avoided in the days of unwieldy tubs, but of no account whatever and perfectly useless when met by coolness and skill.

In harbor defence it will play a more respectable part, no officer will willingly risk his vessel where they may be used without first having a hunt for the concealed enemy, and once found they may be destroyed or removed, and to be of any use they must be supported by powerful batteries inshore or floating batteries in shallow water.

To us the war ship of the future will be a lightly armoured vessel carrying a heavy

gun, with a crew not exceeding one hundred officers and men, and of such a construction as would enable her to use sails or steam, presenting at the same time the smallest possible mark, with the least draft of water, the heavy armoured vessel being for coast defence

CORRESPONDENCE.

FROM MONTREAL.

BY OUR OWN CORRESPONDENT.

A complete reorganization is required in the case of drill instruction. It is quite time that the farce of allowing officers to draw the pay and allowances of such, when they are totally unfit, be put a stop to, and a good drill inspector for each district would soon weed out the numerous incapables. These are officers who draw pay as instructors, who are incapable of passing even an ordinary examination, to say nothing of the military school the bare mention of which frightens them, and there are many who have again and again presented themselves before the board for examination and been plucked; nice drill instructors truly and there are many of them; "form fours" and "as you were" are about the extreme benefit of the military instruction. The consequence is that many companies when on parade, are completely lost and have not the slightest conception of battalion movements. There are however many good and efficient officers who act as drill instructors, but these have various difficulties to contend with in the performing of their duties. If it is only by coaxing, and expending the men can be got together, how can you expect the instructor, one of their own officers to exact in peremptory manner the discipline and attention necessary. No, the men will get huffed, will absent themselves from drill, and invent all manner of excuses to account for their non-attendance &c. All this could be obviated by appointing, as instructors, those who are in no way connected with the regiment, and there are many such who can readily be obtained: appointing a drill inspector to every district; for Montreal and vicinity, I should suggest that strict disciplinarian Major Labranche, a fearless and solid man, and one who knows his profession. This he could undertake in connection with his duties at the Military school—we would then soon see a very different state of affairs.

During the period of instruction of various regiments, the Brigade Majors should stir around a little more, their frequent presence stimulates the men, and cause officers to read up more and post themselves. These gentlemen are apt to depend too much upon the annual inspections, a mere routine and formality which one easily acquires after a little practice; then the annual pay of the men should depend upon the number of days each has attended,

The French papers recently alluded to the fact that the country Battalions are provided

with very poor accoutrements. This is undoubtedly the case in many instances, the uniform has more influence than is generally thought, upon the imagination of the soldier, and serves not a little to inspire him with confidence. In this respect the worth of our volunteers is badly appreciated and it would seem that they deserve a more becoming uniform. It appears that some time ago, it was understood that some 500 men the flower of the French Canadian population—were ready to form a select Battalion were it permitted for them to have a Zouave uniform of some kind.

This is a very delicate way of saying that the French people have a national preference for another style of uniform, than that which men of British origin are so proud to wear,—and no man with the feelings of a man but must feel the force of the remark. Any one who knows how determinedly the Highland soldier clings to the picturesque and soldierly, if not over modest garb of tradition, must see that the feeling it involved must be equally strong among our French fellow-citizens. It is therefore to be hoped that if difficulties have been in the past thrown in the way of their assuming what uniform they like—which I do not however suppose to have been the case,—that every attraction which a uniform can suggest may hereafter be held out to French youths to induce them to do their duty by their country.

A typographical error occurs in printing my last letter. I am made to state that the characters of many of the applicants for the paymastership of No. 5 Military District were *impeachable*, it is hardly necessary to state that it should have been *unimpeachable*.

Capt. Stango's essay on Practical Artillery, just concluded in your last, contains a variety of valuable information, and is extremely interesting, and should be well read and carefully studied.

Many parties apply to me from time to time for odd numbers, asking me where a single copy could be bought now and again. I should suggest the view of the many in inquiries of such nature that you send a few copies each to some news dealer here.

Several of your readers may be glad to hear that I have very recently heard from Col. Osborne Smith in Manitoba and that he is well.

B.

NO. II—MILITARY SCHOOLS.

To the Editor of the VOLUNTEER REVIEW.

SIR:—The "maximum of efficiency with the minimum of expense" is the principle which seems to have actuated Sir George Cartier and his able coadjutor Col. Ross in working out our present Militia system. All orders and regulations are based upon it; and no discretionary power is given to subordinate officers recognizing a violation of this principle.

It is exceedingly creditable to the 8th Military District to know that but few, any, have been rejected, who have applied for certificates either at a Military School examination, or at a Brigade Camp before a company, yet who will say, that many to whom these certificates were given were not totally unworthy! A system however good, may be so corrupted as to be rendered nugatory in its operations. The French and Germans are illustrations. Under the latter, a stern and rigid discipline is exacted and carried out to minute points which seldom break down under the stress of actual warfare. If then, it be a part of our system, that certificates shall first be obtained before receiving a commission in the service of the Dominion, how important is it that those officers—on whose knowledge and skill is based the whole superstructure—should know something of their duty; Again, is it not the duty of officers in command, on the score of *economy*, that certificates should be withheld from all not fully qualified as per regulations established. The great objection to a Military School as conducted in N. B. is the opening of its doors in a single locality of the province to those whose services afterwards may or may not be available in the defence of the country, no discrimination seems to be used in the selection of candidates—a desire rather exhibited to *make up* a number and keep the doors open. The same amount of money in the education of those men who have already identified themselves with the service, and who may not choose to go either to Fredericton or St. John, would in my humble opinion be a far more precious expenditure, nothing in our experience gave such an impetus to our militia organization, as the very thorough training received from the drill instructors sent out by Her Majesty's Government at the time of the Trent affair. The various halls and school houses were opened for drill, and a military spirit diffused throughout the whole country, which the Fenian excitement kindled into a flame of devotion; the most intelligent young men in the several company districts arose *naturally* to the surface in command; and a tolerably well drilled army was presented as the first of these men's exertions.

The practical lessons now taught at Brigade Camps on the interior economy of a regiment coupled with the instructions obtained under a judicious system at company Head Quarters, and competitive annual examinations before the Adjutant General or Board of officers would be laying in this province, a far more solid foundation for an effective force than has yet been found as resulting from Military schools.

Yours truly,

X]

CORRECTIONS IN PREVIOUS LETTER.—For profection—read projectors, for pro avis et focus—read aris.

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The Volunteer Review,
 AND
 MILITARY AND NAVAL GAZETTE.

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

OTTAWA, MONDAY, JANUARY 22, 1872.

There are two classes of lines in field fortifications, continuous lines and lines with intervals—a broken line—the first present no openings through which an enemy could penetrate, the latter are formed by detached and partly enclosed works supporting each other throughout. The knowledge and skill of the military engineer is most severely tested in adapting the mode of defence to the topography of the site, and its greatest practical development is attained when a series of works, such for instance, as the celebrated lines of Torres Vedras, renders inoperative all the advantage of superior numbers and great strategical skill. A thorough knowledge of the topography of the area of operations is therefore a primary requisite in the decision as to what particular class of works will be best adapted to develop the capabilities of the site for defensive purposes, and hence the necessity for having military engineers personally acquainted, professionally and locally, with every square foot of the area of operations.

In the first class of lines the simplest arrangement is that known as the *Redan line*, it consists of a series of *Redans*, connected by curtains—the angles at the salient being 60 degrees—in fact a series of equilateral triangles with a distance of 100 yards between the apex of each curtain and the

bases by a straight line with an opening therein to allow entrance or exit covered by a small advanced redan—the curtains are the best defended portions of these works, the salients are weak, the ditches undefended and they can afford no protection to the faces, and the farther apart the redans are placed the more fatally will the defects be felt.

The *Tenaille line* has been devised to remedy the defects of the redan line—the curtains are broken forward so as to form small and large redans alternately, the sides of which are perpendicular to the faces of each redan, by this means the salients are protected by a cross fire, the ditches of the large redans partially flanked, fewer assailable points presented in a given front and the retired parts afford good positions for artillery. The rules governing the construction of these works are that "the faces of the large redan should not exceed 160 yards their salient angles 60 deg., the faces of the small redans should not be greater than 40 yards", and those combinations will give the following limits for the length of the capitals of the larger redans and their distances apart.

When the salient angles are 60 degrees the length of the capitals will be about 138 yards, and the distance between them 228 yards.

When the angle of the salient of the small redan is 60 degrees, the capitals of the large redan will be 80 yards, and their distance apart 316 yards. In the first case there will be a greater number of assailable points on a given front, but the re-enterings will be stronger, in the second the reverse will be the case.

The system is defective in presenting long faces to enfilade fire and in taking up a great depth of ground which restricts its application to particular localities. A modification of this system is attempted by the dispositions of the curtain into a series of advanced and re-entering angles of 90 degrees each, a series of short faces terminating in *Picet Cap* salients, the faces of the *cremaillere* flanking salients and crossing their fires in front of the centre from which they are ranged which is covered with a small redan, the line presents no inapt resemblance to the teeth of a saw of which one portion are set towards the handle and the other towards the point. It has the same defect as the *Tenaille*, presents too many points to attack and too many sections without fire.

To remedy these objections the *bastioned line* previously described is recommended. It is laid out by placing the salients 250 yards apart and making the perpendicular of the front one sixth for a simple bastion line, but there is another arrangement known as the *bastioned line with double flanks*. The salients should be 400 to 500 yards apart, the perpendicular of the front one-third, but the faces one-fifth, on the perpendicular one-eighth is set off as the

salient of a Bastion in the centre of a curtain, whose faces are the same length and whose lines of direction are the lines of defence through the salients of the bastion, the angles being 110 degrees, the faces of the bastion being determined by a line drawn from the capitals to one third distance on the perpendicular, it also determines the length of the flank of the centre bastion, by this means the fire from the flanks of the bastion in the centre of the curtain, flanking the faces of the advanced bastions leaves no section without a flanking fire.

Those works as described are best adapted to a front of limited extent where the flanks rest upon natural obstructions, such as unfordable water courses, impassable marshes or ravines that prevent the lines being turned.

Continuous lines are not suited to an active defence, from the great distribution of the troops over a long distance, the resistance at points will be weak, if one point is carried the rest of the line is taken in flank, and if a sortie is attempted the troops must file through narrow outlets and present a feeble front during that operation. For irregular troops they are the best means of defence, owing to the confidence they inspire, and they serve to prevent sudden raids as well as guard against surprise.

A series of detached works may be either *lunette* or square redoubts, the salients should be about 250 yards apart the angles 90 degrees, the faces about sixty yards in length and the flanks forty yards, arranged to sweep the ground in front of the salients of collateral works. In rear of the first line and opposite to the intervals redans are placed to flank the faces, about 200 yards in rear of the lunettes with epaulements in rear of them to cover squadrons of cavalry to act on the flanks of the enemy.

General Roginat, chief of the French Engineers in his *considérations sur l'art de la guerre* proposes a modification of the bastioned line with double flanks which partakes both of that effective mode and of the lines with intervals.

Points 250 yards apart are taken for salients of the lunettes, their faces and flanks are placed in defensive relations, between them, a redan, with a *pan coupé* is placed to flank the faces without interrupting the fire of the flanks, a straight curtain is carried from the redan and leaves an interval of ten yards between it and the flanks of the lunettes for sorties.

This description of work can be readily and quickly constructed, the lunettes receive the minimum of profit, the redans are simple epaulements to cover cannon fired in barbette, and the curtain consist of a trench with the earth thrown in front to form a parapet which is so arranged that the defenders may march in order over it.

The advantages claimed are—the short time required to form the work, the lunettes form the first line of battle the

batteries by being placed in the redans compels the enemies artillery to withdraw their fire from the lunettes, the infantry can sally from the curtains at any moment by march over them, supported by light artillery and cavalry issuing from the intervals.

If the flanks of the position are not strong or secured by natural obstacles a square redoubt with a heavy battery between them and the next lunette will effectually prevent them being turned.

OUR neighbours of the United States are anxious to improve the organization of their Staff, with a view "to insure the highest degree of knowledge amongst the military men." The *Army and Navy Journal* of 6th January contains an admirable article on Staff Schools, in which it is pointed out that military academies like that at West Point only in reality supply the primary education for company service or the entering grades, and says:—"Such schools are the mere stepping stones after a proper period of practical training with troops to other and higher schools for ripe minds, one of those officers schools, as we have said, is that for artillery and engineers where the highest possible range of instruction in those two scientific branches of the profession of arms is given. And the training of these two services together is upon the soundest military principle. For now and henceforward artillery must supremely affect or control the operations of the engineer; the whole problem of fortress construction and defence must, after all, turn upon capacity to resist artillery, and to furnish the largest space and the greatest command for the employment of artillery. Seacoast ordnance and their carriages deeply concern the engineer; and torpedoes, which are technically ordnance contrivances—as much as the mortar or rocket—have come to be important auxiliaries in harbor defence, and already in our service are assigned to our engineers for development. The defence and attack upon Charleston harbor illustrates how essential to each other and how closely allied these two branches of the service have become, as well as how important it is that the commanders in such enterprises should be highly trained, should be equally versed in artillery and the science of the military engineer."

The whole case under consideration is comprised in this extract and it points out what is wanted in the Canadian army, which has now arrived at that crisis in the progress of organization which demands a carefully trained Staff. We have a number of brigades of garrison artillery which are nothing but infantry in disguise. There is no chance of having the officers trained to any knowledge of their profession, and such an arm of the service as the Engineer Corps has not yet been dreamt of. For some years to come no facilities will exist for training the rank and file of such a corps, but there is nothing to prevent the organization of its officers; and

attached to the staff of each Military District they would not only be a valuable addition but one absolutely necessary for the proper administration of its affairs. No necessity exists for organizing a corps of artificers, dressing them in a peculiar uniform, and dubbing them Engineers; the men required to perform the duties of the rank and file of such corps can be found in every battalion and are already proficient in the use of the axe, pick and spade. Engineer officers are required for the purpose of collecting such topographical knowledge as our war office ought to but does not possess, for the purpose of assisting local staff officers and for the variety of uses to which such a corps can be put. The Royal Engineer Corps was apart and distinct from the Sappers and Miners when England had an army, and the efficiency of our corresponding organization will be greatest when they are not merely regimental officers commanding so many rank and file, but scientific officers furnishing the eyes and brains of an army. The old Quartermaster General's Department, adapted to our circumstances, would give the Canadian army what is required in every particular, and the scientific corps should be allowed the facilities of a good college for the purpose of attaining the highest professional knowledge. We quite agree with the *Army and Navy Journal* that the Staff itself is the best school for teaching practical knowledge to Staff officers and that it should be extensively used for that purpose, while artillery and engineer officers should be compelled to acquire the theory as well as practice of their professional duties.

THE *Broad Arrow* of 23rd Dec. last has a rattling article on "The Gun of the future," in which, after some little badinage in a quiet way, the writer holds to the idea that it should retain the cognomen of "Gatling," about which he says there is in the very name of Gatling a harsh guttural sympathetic sound very peculiarly appropriate to the snarling report produced by its intermittent discharge.

It appears that the British Government had constructed at Sir W. Armstrong's work thirty-six pieces of this formidable artillery with many and considerable improvements, amongst the most effective of which are "a thin steel screen designed to be affixed to the frame work of both gun and limber for the protection of the party working the piece as well as the drum of the charging cylinder which is placed above the breech in an otherwise exposed position." That the gunners should require protection in working a piece whose effective range is not above that of ordinary rifle fire (600 yards), is perfectly conceivable, but it argues small inventive powers on the part of this Yankee invention to find that they have not been able to remove the position of the "drum of the charging cylinder," and that it is exposed to the effects of even a six-pounder.

The thin steel screen of the Gatling is designed to be affixed to the framework of the carriage and limber, but a steel mantelette on wheels has been invented, which it is implied by the *Broad Arrow* will be the more effective screen.

"Two men only are required to load, lay and fire the piece, and its rapidity of fire need only be measured by the armoury required." If a pass defile or space is to be swept by fire, the only trouble with the "Gatling" is to ascertain the range, the gun once laid can be fired any number of times. Its closing recommendation are of considerable importance to us, although we shall hardly thank the *Broad Arrow* for the very intelligent allusion to our "local forces."

"From 200 to 400 shots a-minute can be discharged continuously—that is, allowing inappreciable loss of time in replacing an empty by a charged feeding drum; and as the cartridge-shells are manufactured out of strong sheet metal, and are extracted as fast as they are fired by an automatic device they can be primed afresh by a third man, who follows the gun into action for this purpose. Nor is the use of the Gatling confined to land purposes; for, instead of the small but heavy howitzer hitherto available, a Gatling gun weighing 125 lbs. only, can be employed effectively in boat service up shallow rivers or creeks, and in ships of war they can be mounted aloft to sweep the deck of boarders when a forlorn hope of the kind is resorted to.

"Such economical and easily worked guns will be acceptable in places like Australia, New Zealand, and the Dominion, where a movement is on foot to raise local forces; and although Mr. Rylands and his clique may prefer to do without these machines at home, we imagine that the majority of our readers will heartily approve the prudence of Government in providing us with another 'necessary evil.'"

OUR neighbors south of the line of 45 degrees are in danger of getting into a muss, as they would term it, with Spain, this latter is by no means a contemptible Naval power; has always maintained its character for producing plucky sailors, and would be a tough enemy to handle. The following article from the United States *Army and Navy Journal*, illustrates the position of both parties as to preparedness, and it is evident the writer must have looked at the approaching conflict with something like dismay.

The uncertain character of our relations with Spain suspends for the time, and we may hope altogether, the work of demoralizing our Navy by unwise reduction in *personnel* as well as in material, our entire list of commodores being the last sacrifice which it is proposed to make to the Congressional demand for reduced expenses. Our Navy-yards, or some of them at all events, are once more occupied preparing our naval vessels for service. At League Island, Commodore George F. Emmons has received orders to put five of the iron clads in preparation for service with the utmost despatch. The monitors *Canonicus*, *Ajax*, *Saugus*, *Wyandotte*, and *Manhattan* are accordingly being overhauled and placed in commission. These are monitors mounting each two 15-inch guns, and require but little work to put them in good condition. The *Mahopac*, at Washington, and the *Dictator*, at New York, monitors of the same class, are being put in readiness for service, as

well as the two turreted monitor *Miantonomoh* (4). The *Powhatan*, second rate (17); a side wheel steamer, and the *Richmond*, second rate (22), a screw steamer are also undergoing repairs at Philadelphia. The *Powhatan* has just been taken out of the Dry Dock. The *Frolic* is also being put in order at the Washington Navy yard to serve with the *Powhatan* as tender to the iron-clads. The *Worcester*, second rate (16), and the *Wyoming*, fourth rate (6), are immediately available for service. The *Minnesota*, first rate (45); the *Iroquois*, fourth rate (6); the *Canadagua*, third rate (10); and the *Hartford*, second rate (18), can be got ready under pressure in a few weeks. The *Canadagua* has already been put under commission, and the Mediterranean is announced as her destination. The *Iroquois* is having her boilers repaired; her screw is being transferred to the *Canadagua*. The *Congress* has sailed under sealed orders to the West Indies, probably to bring out the *Hornet*. She is under the command of Captain Henry R. Davenport. In case of difficulty with the Spaniards we shall have to depend upon our superiority of personnel, and upon this, fortunately, we can count with absolute confidence. Our Navy makes a poor enough show in all other respects, even in the Navy Register, and the showing there is most deceptive. Of the twelve first rates not more than one-half are available; of the second rates only one-third and fourth rates, fifteen or sixteen; and of the nineteen fifth-rates, not one-half. The list of iron-clads will have to be cyphered down one-third to allow for the unfinished vessels and the still four unfortunates which were unable to keep their heads above water when launched. It is well that the real condition of our Navy should be understood, though we need not fear but that our strength is sufficient to disappoint the impudent boasts of the Spanish organ, *El Cronista*, which thrives upon our toleration. The Spanish Navy it tells us, outnumbers ours three times in available vessels, and it adds: "Three frigates, with three other wooden, and eight or ten smaller ones, would blockade effectually Boston, New York, and Philadelphia, and there being no marine strength here sufficient to raise such a blockade, it would be easy to see what would be the immediate consequence, and at the same time how the country had been brought to such extremity by the folly of the journalists. And of two corsairs, with three of our ordinary war ships, should begin to scour the American coasts of the Atlantic, burning down towns and seizing upon everything floating an American flag, we are inclined to think that the humbugging idea of getting ready in eight or twelve months (as soon as anything could be done), would not prevent the immediate catastrophe that would follow, nor the ulterior consequences, gloomy as they would be, which this country would experience for many years."

El Cronista will have something to learn in case of war. In naval war especially pluck and audacity is half the battle. At the same time neither Congress nor the country has any right to hold our Navy responsible for the possible results of its parsimony. Our Navy Gazette announces the names of officers ordered to the *Canonius* and *Mahopac*.

That the United States have long looked with covetous eyes on the Island of Cuba, and would willingly play the part of Ahab to that Naboli's vineyard is notoriously beyond question, that she has endeavoured to make the half civilised planters the Jezebels of

her policy is beyond doubt, but a natural repugnance to commit so outrageous an act officially without full consciousness of how it would be looked on by the rest of the civilised world has held her back from taking possession. The tone of the *Spaniards* of the English Press headed by the *Times* has been most encouraging, and under those auspices it is probable the present activity to protect a notorious pirate, supplying blood-thirsty revolutionists and filibusters with the means of making war on a friendly power has been inaugurated and it is probable the United States looks to the Whig radicals for material aid in the event of a contest being wantonly and unnecessarily provoked, or, at least, that they should as far as in their power paralyze Spanish action. Such a policy would be worthy of Gladstone and the Manchester School, but not in accordance with our interests which must be considered not only in this but in every other question arising out of those complications. We have, to a very considerable extent made our own history, our total independence of our neighbors must be preserved politically and commercially, and we can see nothing in this greed and craving for territory not theirs, but the fate Polyphemus reserved for Ulyses, to be the last devoured, as the final termination, but as we happen to have very decided opinions on this point we shall take care to make them both felt and respected.

THE DOMINION BOARD OF TRADE commenced its sitting in the Railway Committee room of the Parliament buildings, in this city, on Wednesday, the 17th inst.: the following delegates being present on the occasion:—

QUEBEC BOARD OF TRADE.—P. Garneau, Henry Fry, A. Joseph.

OTTAWA.—Hon. Jas. Skead, Hon. M. Cameron, Edward McGillivray, G. H. Perry.

HAMILTON.—Wm. McGivern, James Watson.

LONDON.—Thomas Thompson, Thomas Chaucer.

SARINIA.—H. F. Howell, James King.

MONTREAL.—Hon. John Young, Hugh McLennan, Thos. Rimmer, John Ogilvie, J. R. Thibaudreau.

MONTREAL CORN EXCHANGE.—M. P. Ryan, Gilbert Scott, James McDougall, Jas. Aikin L. E. Morin.

ST. JOHN, N.—F. G. Marchand, E. R. Smith.

ST. HYACINTHE.—G. Chevals, H. J. Doherty, C. Langelier,

BRANTFORD.—A. Watts, W. J. Imlich.

STRATFORD.—J. R. Jarvis.

PETROLIA.—E. D. Kirby, John McMillin.

TORONTO.—W. H. Howland, John Morrison, Robt. Spratt, Robt. Wikes.

The meeting was opened by Hon. John Young, who congratulated the Board on the beneficial results of their former meetings, and hoped that the good feelings and harmony that had hitherto existed amongst

them would continue, and they might reasonably expect that their deliberations would have a beneficial effect on the commerce of the country. He introduced Mr. Hassard, a delegate from Buffalo, who was offered a seat at the Board and all the privileges of a member.

The Annual Report was then read, and Mr. Joseph moved its adoption.

Hon. James Skead raised an objection against its adoption as he took exception to a resolution it contained, adopted by the National Board of Trade of the United States, at St. Louis, which read as follows:—

"Uniform laws to be passed by both countries for the imposition of duties on imports and for internal taxation. The sums collected from these sources to be placed in a common treasury and to be divided between the two Governments by *per capita* or some other equally fair rates."

Hon. John Young explained that this was not a part of the report of the Executive of the Dominion Board of Trade, but a resolution adopted by the United States Board at St. Louis, and as such it was not adopted by this Board as a part of its policy. After a long discussion the report was adopted under protest from the Ottawa delegates.

Hon. James Skead was then called to the chair to preside over the election of a President and Executive for the ensuing year.

Mr. McGivern, of Hamilton, was appointed President, Mr. Henry Fry, of Quebec Board of Trade, vice-President.

Executive Council—Thos. Rimmer, Montreal; W. H. Howland, Toronto; C. H. Fairweather, St. John; C. P. Smith, London; Hon. Jas. Skead, Ottawa; L. E. Morin, Montreal; John Carruthers, Kingston; Jas. Watson, Hamilton.

A vast amount of business has been transacted, and the general tone of the discussions on the numerous important subjects are distinguished by a breadth of view worthy the founders of the commercial greatness of the Dominion.

Sectionalism would occasionally break out, but it has its redeeming qualities, and great improvement in the ideas on which our great National policy ought to be carried out is apparent. We cannot help thinking, however, that a mistake was made in dealing with the "Canal policy of the Dominion." As the enlargement of the St. Lawrence and Welland Canals constituted the axis on which it was forced to revolve, while in point of fact their reconstruction was one of the conditions of confederation; and, as such, a duty which the Government was obliged to discharge without any pressure whatever.

It is very evident that those canals by no means constitute the true "Canal Policy of the Dominion," they have failed in every essential particular in either creating or inducing a trade, and one of them at least is a mere convenience for the use of the people of the United States who dangle the *lures*

fatus of the profits to be derived from the Western trade before the eyes of the Montreal produce brokers as an inducement to have them enlarged while their own coasting and fiscal regulation confine that trade within their own borders and their own vessels.

In order, however, to be able to command the lakes and cover our own frontier in case of hostilities it is advisable that they should be enlarged so that vessels of the Cyclops and Hydra class could pass through them, these conditions prescribe a length of locks of 250 feet, width 50 feet, depth of water on sill 12 feet, the dimensions of the Cyclops being 225, length of beam 45 feet, her sea draft 15 feet, but she could be lightened to draw 11 feet, the Hydra is the same length but only 35 feet beam both as computed by admeasurements to be 2,107 tons each.

The true Canal Policy will be to construct the Sault Ste Mary, Ottawa and Beloit Canals which would give an open navigation for vessels of 1,000 tons from Lake Superior to St. John, N.B. between which port and Chicago on Lake Michigan the distance would by this route be reduced to 1,385 miles, while via New York and the coast it is 2,393 miles.

This would give Canada access to all the great lakes, open up a vast territory hitherto undeveloped, and make invasion impossible; in fact it would fulfil all the conditions of opening a new market to our staple trade in lumber, creating a traffic in cereals, and a large manufacturing industry, as well as a second and unapproachable line of defence.

In the interests of Canada it is very greatly to be regretted that the opportunity was lost through one of those fits of selfish sectionalism to bring this policy as a fundamental one under the notice of Government.

The discussion of our trade relations with the United States brought out a project for a Zollverein proposed by the National Board of Trade for that country, and also the astounding fact that for the five years succeeding the abrogation of the Reciprocity Treaty the commerce of Canada had increased in value 93 per cent., as a matter of course this precluded the idea altogether of anxiety on our part for close commercial relations. The Railway policy of the Board was, on the whole, sufficiently liberal.

ARMY reorganization in Great Britain is a tentative process of the most complicated description. Mr. Cardwell, in whose hands the Whig radicals have concentrated the powers held by the Crown, the Secretary at War and the Commander-in-Chief, under the old regime is a man totally unequal to the task of administration given to nepotism, and anxious to retain power his advisers are generally those parasites of the service whose position have been caused by their political affinities, and not by any practical knowledge of the duties of their profession. The utter failure of control, a

system devised by his satellite Sir H. Storks as the *ne plus ultra* of perfection, compels him to attempt a reorganization, thereof and this is to be effected in the following fashion:—

“The *Advertiser* mentions an *on dit* that Mr. Cardwell has ordered a Committee to revise the late Army Control Warrant, and says:—‘If true we are glad to acknowledge his candour in admitting the necessity of a change in opposition to the well known views of his colleague, Sir Henry Storks. We have reason to believe, however, that the fatally attending all the official acts of the present Government has not deserted it on the present occasion, and that he has delegated the necessary powers to the War-office clerks, who are now preparing, *in secret*, a revised warrant. We have no desire to underrate the abilities of the gentlemen so employed, although their fitness for this duty may be reasonably questioned, but we must condemn the principle of excluding departmental officers from a voice in a question so closely allied to their interests, and also the fact of withholding the contemplated changes until officially promulgated, for, if known, they would, doubtless, be so freely discussed that many valuable opinions might be gained. These cannot be now afforded, and the germ of further trouble is thus sown. We fear that the mystery by which the Committee’s actions are enshrouded forebodes no good results to the service, and that army reform will still remain a phantom during the term of office of the present Government.’”

It is rumoured that the Royal Warrant lately issued is to be subjected to a similar revising process, and the War office clerks will decide the future of the British army. It is certainly placing the service in a most humiliating position.

The events of the year 1870-71 are of a character to make the most thorough opponent of war from convictions of its inutility and for conscience sake pause to consider the means whereby such a fearful calamity should be avoided in the future, and to seriously consider whether those proposed by the disciples of the Peace Congress, are after all the most feasible or practicable for the end proposed.

Experience has proved the utter inutility of education, reason, or religion to control the masses of the people or even their rulers against the prompting of ambition or the cravings of National egotism.

In the Franco-Prussian contest both nations claimed to be the most highly educated, and the latter especially the most profound thinking as well as religious on the continent of Europe. Yet deliberately set a trap for the other in the pursuit of a cold-blooded and calculating ambition, and, in the light of the nineteenth century, struck down its opponent with merciless rage.

Education or religion has, therefore, little to do with influencing man’s actions in such a case, while the lesson taught is this, peace will not be assured by missionary enterprise but it is quite possible it may be secured by a thorough preparation for war.

Under this aspect of the case it behoves the people to take the initiative in preparing such defences as the circumstances of their condition may require, and in developing the commercial resources of the country provide the means whereby that desirable end may be effected.

As a general rule despotisms are better prepared to profit by the lessons of precedent than popular administrations, and as a proof the *Broad Arrow* gives us the following as “the Military use of the *Russian Railways*.”

“An article on the Russian railways, in the *Neues Wiener Tagblatt*, has the following remarks from the military point of view:—In laying her railways, Russia has paid more attention to strategic circumstances than to agricultural or commercial interests. The line which connects the Black Sea with the North Sea and the Gulf of Finland was laid along the frontier, and branches extend from it to the neighbouring States which might be taken advantage of in case of a war. This is by no means a faulty arrangement, though from the strategic point of view it would have been much more effectual to make the various lines proceed to the frontier from a common centre, and thus enable the Russian armies to be supported by the fortresses. The badness of the roads in Russia makes it quite impossible that large masses of troops and war materiel should be thrown with the necessary rapidity from one point to another; and even though it is generally admitted that with the present railway communication any body of troops stationed in Russia could by forced marches reach a railway station within ten days, and thence proceed to the frontier within four days more, yet the western countries are so advantageously situated in this respect that, so far as strategical operations are concerned, Russia is still far behind them. The railways which are now open for traffic in Russia are of a total length of 1,338 miles (in Austro-Hungary there are 1,275 miles of railway), and their only points of contact with Russia are at Szezkova and Podvolocyska.”

The cry about sacrificing “commercial and agricultural interests,” need not frighten less any one, a few miles of railway more or would make that all right, and in granting charters for future works of this description the part they are destined to play in the defence of the country should be well and carefully considered, and theoretical commercial advantages should be sacrificed to the vital consideration of the safety of the country.

- REMITTANCES Received on Subscription to THE VOLUNTEER REVIEW up to Saturday, the 20th Inst:—
- AYLWIN.—Capt. J. C. Chamberlain, \$2.00.
 - BROCKVILLE.—Major McKechnie, G. T. R., \$1.50.
 - BRANTFORD.—(Per Agent.)—Capt. E. Hardman, \$2.00; Capt. Curtis, \$2.00.
 - KAMOURASKA.—Adj. Isalo Dessaint, \$2.
 - METCALF.—Capt. Ira Morgan, \$4.00.
 - ST. MARYS.—(Per Agent.)—C. Shullon, \$2.50.
 - WATFORD.—Ens. W. G. Willoughby, \$2.00.

Dr. Blake, president of the California Academy of Science, considers that the most remarkable feature of the waters in the Yellowstone geysers, is the enormous amount of ammoniacal salts which they contain.

MARCHING OUT.

ON THE DEPARTURE OF THE LAST BRITISH TROOPS FROM QUEBEC.

At evening the flag of the Brave was unfurled
On the Citadel famous in story,
And the war-drum whose note runs with day
round the world,
Beat its heart-stirring summons to glory.

But the flag in the sunset seemed sadly to wave,
And the drum's martial tone spoke of sorrow;
And we mournfully breathed our farewell to the
Brave,
For we knew they must part on the morrow;

Knew the dawn must behold the last gathering,
The march
That a bond of a century would sever,
And hear the last echoes, as under the arch
The column would tramp forth for ever.

Long we gazed on the bark as it flew from the
shore,
And fast on our hearts the thoughts crowded,
Of the light of the Past that would guide us no
more,
Of the Future in darkness shrouded.

Are ye borne to the north, to the south, to the
east,
To realms where fresh laurels are growing,
Where new medals are gleaming for victory's
breast,
Where empire's bright tide is yet flowing?

Or seek ye in sadness, yet proudly, a land
The sun of whose power is declining,
Like Quebec's granite wall round her weakness
to stand
Against rivals their armies combining?

In advance or retreat, be your lot what it may,
Duty's wreath still be yours the world over;
May the spirit of Wolfe on the dread battle day
O'er the ranks of his soldiers still hover!

Whom now shall the land ye have shielded so well
From the near-lying foe find to guard her,
When the red line no more is drawn out on the
hill,
When the gateway has lost its last warder?

Perchance in your fortress the foeman may stand
And trounce in his triumph your story;
But he never shall silence the rock and the strand
And the river that speak of your glory.

YORK.

THE SWISS MILITARY SYSTEM.

(Continued from page 36.)

I have thought it necessary to dwell at some length upon this curious complication of the Swiss military system, viz: the division of authority between the Cantons and Confederation—the latter making the law, the former administering it—because every practical question connected with the subject before us seems to me to hinge upon this point, and yet almost always overlooked by those who look only to the federal statute-book for the Swiss military system.

Thus the federal law fixes the military age as beginning for each Swiss with the beginning of that year in which he shall become 20, and ending with the end of that year in which he has become 44. During these periods he belongs theoretically to each of the three classes in succession, viz., the *elite*, the reserve, and the landwehr. The duration of his service in either or any of these classes is practically left to State legislation, provided only that he does not enter the first class younger than the twentieth year, nor the second or reserve class later than the thirty-fourth year of his age. As for the landwehr, there was until recently no regulations at all; it simply consisted of all the men who had completed their active service in the two other classes. Now, provided the canton kept its quota, viz., 3 per cent of its population in the first, and 1½ per cent in the second class, complete and efficient, it was obviously free to fix the duration of service. One canton might see fit to keep its men the entire 14 years in the first class, another only 4, 6, 8, or 12. Again, it might pass its men already in the twenty-sixth year into the reserve, and in the thirtieth into the landwehr, without the Con-

federation having any right to object, provided always the contingents of the two first classes were maintained at their full complement. In point of fact, the different cantons have largely availed themselves of this latitude, and some have found it more economical to keep the duration of the service up to a maximum, in order to diminish proportionately the number of recruits whom they would annually have to cloth and drill. Thus it will be seen that in some special cases of application the Swiss system of universal liability would be made to somewhat resemble the practice of standing armies.

It is proposed to do away with the cantonal quotas determined by a percentage on the population, and while still reserving to the Cantonal governments very considerable latitude in the appointment of their troops among the three classes, yet to oblige them to equip and drill the whole of their available material. At the same time the landwehr or second reserve class, is to receive an organization analogous to that of the two others. Certain exemptions are, however, made for special branches, as for instance the cavalry, which is to serve seven years in the *elite*, or first class, one year in the reserve; after which liability to service ceases, save in the event of a great national catastrophe. Similarly, the railway and telegraph corps are to serve twelve years in the *elite*, and are then permanently relieved from duty. Field Artillery is only organized in the two first classes; but the men, on entering the second reserve or landwehr, are told off to siege parks and trains.

The Swiss Federal Army will thus hereafter be constituted as follows:—

I. Engineer corps, consisting of 9 companies of sappers and miners, three companies of pontoniers, and three of telegraphists for each of the three classes, viz., 29, 9, and 7 companies of each kind respectively.

II The artillery consists of—
128 pound batteries,
36 4-pounder batteries,
4 mountain howitzer batteries,
20 companies of siege and park artillery,
10 companies of park train.

All these equally distributed between the *elite* and the first reserve. The landwehr on the other hand, has only 16 companies of heavy artillery, and 11 of park train.

III. Cavalry, which as already stated above only serves in the first class or *elite* consists of—

22 squadrons of dragoon,
12 companies of guides.

IV. The sharpshooters consist of 10 battalions for each class, or 30 in all three.

V. The infantry has—
57 whole battalions,
8 half battalions,
7 single companies.

for each of the three classes, or a total of 171 whole battalions, 24 half battalions, and 21 single companies.

The respective strength of each of these "tactical units" is as follows:—

In the engineer corps the company of sappers and miners consists of 120 rank and file, the pontoniers of 100, and in the telegraph corps of 88. Each has 8 saddle-horses and 32 draft horses, to which, in case of need, others may be added by local requisition.

In the artillery a full battery of 8 or 4-pounders, consists of 165 rank and file, with 104 horses. A mountain howitzer battery has 128 rank and file, and 56 horses or mules. A company of heavy artillery or "artillery in position" has 120 rank and file with 2 horses. A company of the train

has 120 rank and file, with 191 horses. In each of these cases the number of horses may be increased or supplemented by requisition if necessary.

In the cavalry the full squadron of dragoons consists of 101 rank and file, and 105 horses; the company of guides of 33 rank and file, and 34 horses.

The battalion of sharpshooters, 4 companies, commanded by a major, is composed of 490 rank and file, of whom 436 are riflemen. The battalion staff consists of 4 commissioned officers and 6 non-commissioned officers. Each company has 1 captain, 2 lieutenants, 1 sergeant-major, 13 other non-commissioned officers, 1 bugler, 2 pioneers, and 99 riflemen; 8 horses are allowed to a full battalion.

The battalion of infantry, in six companies of 120, consists of 738 rank and file, of whom 654 bear rifles; 15 horses are allowed to each battalion. The battalion staff is composed of 8 commissioned officers, the highest of the grade of major, and 10 non-commissioned officers. The company organization is substantially the same as for the sharpshooters.

A half-battalion, but which constitutes a "tactical unit," has three companies, together 373 rank and file, with 6 horses.

We are here naturally led to inquire as to the armament of this force, and upon this point the account to be given must in the main, be considered as satisfactory. The Swiss have always aimed at and prided themselves upon giving to their militia a superior weapon. This tendency has, to my thinking, led them, in one instance at least to take a precipitate step which, in the present state of inventive science is questionable progress. I mean the adoption of a repeating rifle. Numerous and conclusive experiments, both in Switzerland and elsewhere, have proved that no repeating or magazine rifle yet known can come up to the best class of single breech-loader, even in rapidity, if the firing is extended over two or three minutes, so that the man must refill his magazine. The repeater, on the other hand is far more fatiguing in the manipulation, and, of course, more liable to get out of order on service. The adoption of the Vetterli repeater, is, however still a theoretical fact, as none have as yet been issued to the troops.

The actual armament of the Swiss troops of the two first categories consists, besides 15,000 Peabody's purchased in America, and 40,000 "Prelat-Burnand" large bores, converted according to the Milbank-Amsler system, of the requisite number of the new small-bores with the same—viz., the Milbank-Amsler breech loading arrangement. This bore, is as nearly as possible ¼ of an inch, therefore about one half of a hundredth of an inch less than the English Martini-Henry. The cartridge is a rim-fire one, of an American pattern, and has 3½ grammes, or rather less than 60 grains of powder with a bullet weighing 22 grammes, or about 330 grains. The powder charge is, however rather than nominally indicated, on account of the excessive quantity of fulminate which the peripheric ignition requires. Proportionately the ballistical conditions of the Swiss small-bore are not so different from the Martini-Henry as would at first sight appear. The ratio of charge of powder to weight of bullet is 4 to 22 in the one, and as 85 to 435 in the other. If therefore the weight of the Henry bullet was decreased by only 18 grains that is 463 instead of 465 the proportions would be identical. The Swiss small-bore has rather a flatter trajectory at short ranges; but this, of course, rapidly alters to the contrary at increased distances.

The Swiss were, I believe, the first to introduce the general use of the small bore in military rifles, and at all events their troops of the two first categories of service have for upwards of two years been thoroughly trained and accustomed to the use of breech-loaders.

A general compliment may likewise, I believe, be paid to the Swiss field artillery, and especially to the light mountain howitzers, which are admirably adapted to the topographical condition of the country. They are 3-pounders, with carriages so disposed that in case of need the several parts can be carried on men's backs.

Annual drill excursions are made with these among the higher Alpine passes, and the ease and readiness with which these pieces are transported, even where the mule is no longer available, would astonish those who are not familiar with the high Alps and its sturdy inhabitants. The 4-pounder batteries are of cast steel, on Broadwell's breech loading principle, the 5-pounders of bronze, on the Prussian wedge block system (Keilverschluss). The Swiss were the first to use iron gun-carriages. Rocket batteries and also field artillery of heavier calibre than here mentioned, have latterly been done away with. As a rule, the men assigned to the artillery take to their work kindly, and learn it with surprising alacrity. The great difficulty in this branch of the service, and still more in the cavalry, lies with the horses. If the training of the men can only be eked out by a superior intelligence or special aptitude on their part, it is obviously quite the reverse with animals whose owners, in their every day avocations use them for utterly different purposes. It is next to impossible, in the short period of annual drill to get the horses used to work together. The train companies are generally manned by coachmen, carters, ostlers, and their class, but even they are not accustomed to the sort of driving required, especially with strange horses. This is one of the grave defects which might become painfully evident in actual campaigning; and even in the mere peace-drill, the accidents and damage arising from this cause are disproportionately numerous. Only a very limited number of horses, and these for the use of the superior officers of the Staff, are permanently kept on hand by the Federal Government. The mass has to be provided by the cantons. The selection, appraisement before and after service, the indemnities to be paid for damage incurred &c., naturally lead to a good deal of jobbery, which is not calculated to raise the efficiency of the mounted services. It is endeavoured to do away with this defect in some degree, by making, as we have seen, the duty of the mounted soldier more continuous in the earlier stages of his liability, and then either wholly or in part, exempting him from the reserve and *Landwehr*.

Some difficulties are also placed by recent enactments to the owner's disposing of a horse which has once been accepted, and substituting a new one. The value of the horses, according to the service for which they are taken, varies largely—from 400 to 1,200 francs, say 15*l.* to 50*l.*, for horses are by no means cheap in Switzerland.

Besides a generally low standard in this respect, it must be added that the state of the gear and accoutrements leave much to be desired, and seldom comes up to the smartness of other countries. The men have scarcely an opportunity of "getting up," the very important points connected with stable duty, which from the nature of the case in peace drills falls mainly upon the non-commissioned instructors appointed by the Federal authorities.

The time apportioned to the drill, both of instruction and repetition, will strike most of my hearers as surprising short and insufficient. It is for the recruits of the engineer and artillery corps respectively 48 days: for the cavalry—dragoons, 55 days and the guides 41 days; for the sharpshooters, 31 days. At repetition drill the engineers and artillery are generally called out for 14 days, and the cavalry every year for 7 days.

In the infantry the recruit is drilled during the first year for 31 days, and each year following for 6 days. The cadres, that is to say, the officers and non-commissioned officers, are called in one or two days earlier than the file. The drill from the first is, so far as circumstances will admit, by tactical units, and for this purpose the Federal military districts correspond to divisions of the Federal Army, the cantonal military districts to brigades, battalions, or, in special cases, half battalions. In all drilling subsequent to the instruction of the mere recruit, the different arms are to act conjointly, and where any of the smaller cantons lack any special arm, such as cavalry or artillery, they are to unite with the neighbouring cantons for the practice of their men, and any additional expense arising therefrom is borne by the Confederation.

Men who, from any cause, have not performed their duty in the first category of age are liable to recruit's drill upon entering on the next following category.

The drill in all its stages is hereafter to be directed by Federal instructors of various grades, corresponding to the importance of the troops collected together.

The prescribed maximum of annual drill is exclusive of such field manoeuvres in a larger scale as the Federal Government may from time to time order, and, in point of fact, executed generally every two years. Care is, of course, taken that the service for this purpose does not, in the long run, fall more heavily upon some one or more cantons than upon others.

The theory of the law assumes a sort of general expropriation for military necessities, of course against suitable indemnification, and, therefore, everything needed for the troops may under certain circumstances, and in a duly prescribed form, be requisitioned.

Slight and apparently insufficient as the trainings is, as compared to standing armies, it must be kept in mind that the Swiss unquestionably possess a special aptitude for military service. In many of the mountain cantons every man is more or less by profession a hunter, and therefore, a marksman. Nearly every village has its shooting range, and cantonal and federal "*Schützen Vereine*," or "Riflemen's Associations," constantly bring together vast gatherings of practised shots to a great holiday and jubilation. Moreover, the policy of assigning each man to the branch of the service for which he is best fitted by civic occupations—the boatman to the pontoniers, the machinist to the engineer corps—greatly facilitates the task of the instructor.

It is in this, and in the peculiar character of the Swiss, and the circumstances of their social life—as I intimated at the outset—that the so-called Swiss system really consists, rather than in the clauses of the Federal legislation, and its application by the cantonal authorities.

The Swiss have as a rule, an excellent primary school education to begin with. From an early age, in some cantons as early as nineteen, he is called on to take an active interest and part in public questions. Some of the smaller forest cantons, as is well known, still preserve the primitive form of

a pure democracy, so that the Legislature, or *Landsgemeine*, consists of every male in the canton. But even some of the large cantons such as Zurich, provide for their citizens an amount of participation in public business which would simply be impossible anywhere else. The most minute questions of cantonal legislation or administration are constantly and habitually submitted to the popular vote. All offices are elective. Revisions of the constitution are frequent, and debated with vehement partizanship. Societies for every conceivable public purpose are more numerous than even in England. If this political activity may justly be considered excessive, it has at least this effect, that even the lowest average capacity, is associated with the public business, that each readily conforms to an obligation which he may be said to have imposed on himself and finally that is thoroughly accustomed to co-operative action. Where all these circumstances do not exist in the same degree, I cannot bring myself to believe that the Swiss military system would give the same results. As it is, the Swiss militia, as a whole, present a body of men of highly creditable efficiency and discipline. Where it is most open to criticism is in the general average of its officers.

I need say little of the Federal Staff, which, in its composition and organization is not essentially different from that of any regular army, and numbers many men of distinguished ability. I may only remark, in passing, that promotion beyond the rank of captain is by selection in contradistinction to seniority. The superior officers of the several departments, the Federal Legislature and also the Cantonal Governments, may present nominees, but the appointment lies in time of peace with the Executive Council of the Confederation, and in time of war with the Commander-in-Chief. The latter is always elected *ad hoc*, and for the duration of a campaign, with but little, if any restriction as to choice, and during his functions enjoys an almost dictatorial authority. When these terminate, he retains merely an honorary rank.

The appointment of the Cantonal officers, that is, the whole mass of the officers of the "tactical units" comprising the Federal forces, is one of the most peculiar features of the system. Formerly, and to a great extent even yet, the cantonal authorities had the widest discretion in this respect. Some degree of uniformity is now sought to be established by the enactments in the new Army Organization Bill. According to these, every commissioned officer must previously have served as a non-commissioned officer, and he must be recommended by the other officers of the "tactical unit."—i. e., battalion, battery or company to which he belongs. The non-commissioned officers are appointed by the commandant of the battalion, after consultation with his officers and non-commissioned officers. The grade is only then definitely conferred, when the nominee has passed successfully through a prescribed course of instruction at the respective Federal schools of his arm. It will impress my hearers as highly characteristic and significant that the acceptance of a grade for which he may be qualified is obligatory upon every man liable to service. Every cantonal Government is required to send to the several federal schools of officers' instruction annually at least as many qualified non-commissioned officers of each arm as may be needed to fill the grades in its contingent for the next ensuing year. Besides the Federal schools for each arm, there are special staff schools for instruction, subdivided into general staff, sanitary, commissariat, veterinary, &c. Annually some few

of these officers are sent abroad at the expense of the Federal Treasury to witness field manoeuvres, visit the military establishments, &c., of other countries, and report thereon. Each officer, moreover, besides his regular routine of service, is held to perform such special duty, as may be assigned to him by the commander of his brigade or division.

I shall doubtless be expected here to make some mention of the cadets—those tiny warriors from nine years old to fifteen, whom most tourists in Switzerland have admired at their mimic drill. They are not, as is often supposed, properly speaking, a part of the Swiss military system, although by the projected reforms they may in time partially become so. As they at present exist, they are simply juvenile Volunteer corps connected with the national schools in some of the larger towns, more or less encouraged by some of the cantonal authorities, but chiefly dependent on the free will of the parents and the private contributions of liberal friends of youth. They are not so numerous as I should wish them to be; they are probably not exceeding 7,000 or 8,000 in all Switzerland, that is barely 3 per cent. of the boys within the school attending age; but precise statistics on this point are wanting. So far as it goes, this school boy play at soldiering is worthy of the highest commendation, and, I know of nothing in the manners and customs of my native land which I would so unhesitatingly recommend for immediate imitation than this. The great public schools of which England is justly proud, appear to me marvellously well adapted for fructifying an idea which had its origin in the Swiss Cantonal Schools, and there to contend against serious and peculiar difficulties, without preventing it from achieving a very fair success. There are, of course, valid objections to be raised against it. Playing with fire arms is proverbially a dangerous game, and if they are entrusted to youngsters of the playful age within 9 and 15, a vast amount of un-safety may safely be reckoned upon. My valued collaborator, Mr. Martini, has directed my attention to the fact that a certain reaction has lately gained ground in Switzerland against the cadet system, that is justified by facts which cannot in fairness be ignored. To mention only one, by way of illustration. A friend of his who was as warm an advocate of the schoolboy "cadet" as I am supposed to be, had his ideas on the subject severely modified latterly by having his eldest son brought home to him shot through the lungs with a ramrod. (Let us hope that breech loading will diminish gun accidents of this as of other descriptions to a minimum.) It has also been found that the boy tired of his cadet drill, and on reaching manhood, took unkindly to a serious duty which had palled on his taste as a boyish play. I am bound to say that Mr. Martini's personal observations are in a canton—the only one I know of—where the cadet instruction was attempted to be made compulsory. I have a strong conviction for my own part, that many things excellent in their way, are "run into the ground" in other countries as well as in Switzerland, by enthusiastic partizans, disregarding the poignant wisdom of Talleyrand's maxim, *Surtout pas trop de zèle*.

In my humble opinion the boy has, in this particular case, been wiser than the man and the Swiss schoolboys have engrafted on the military system of their country a new and original feature, which their fathers are doing their best to spoil.

I am not prepared with any statistics to confirm *a priori* opinion of mine, that the

use of fire arms by boys, under reasonable precautions, will not necessarily cause more numerous accidents than the ordinary athletic exercises of English universities and public schools, not to make any invidious mention of Rugby football. The majority of these have an unfortunate tendency to degenerate into mere sport, and assimilate to "turf practice" and at their best they are apt to take up an undue proportion of the time and energy of a youth whose sole business is to qualify himself for some useful and remunerative civic pursuit. Now there is in the mere mimicry of the soldier's duty something of itself serious, steady, and disciplinarian. Whether considered as a preliminary preparation for military service, or—as I should prefer to consider it on broader grounds—as teaching boys self-respect, as distinguished from the rowdiness which at their age is often mistaken for manliness—subordination without obsequiousness—smartness in the good sense of the word, or what the French call *tenue*—I can imagine nothing better than this plan of boy volunteers, provided always that they are truly Volunteers, and join their company of their own inclination, with consent of their natural guardians, and without compulsion from the State.

The Swiss cadets have a serviceable and inexpensive uniform, which answers capably for a school dress, and it is at its worst more pleasing to the eye than the tall "chimney pot" on the head of a small sized lad in a jacket. The armament is in part supplied by the canton, or by private subscription, and I know of one or two neat artillery companies, and one of pontonniers, who occasionally attempt field manoeuvres with their brethren in arms of adjoining cantons. They officer themselves up to the grade of captain of a company, which is filled by one of their teachers acting as instructor, and as a high sense of honor there is instilled in a boy—not devoid of a grave sense of responsibility as well—who at 13, 14, 15, wears his tiny sword as second or first lieutenant of a company of his school mates. Shooting matches for prizes take place from time to time, and it is difficult to say who enjoys the fun the most, whether the little competitors, swelling with conscious self-importance, or the admiring papas, mammas, sisters, and the grown up folk generally.

It is now proposed to do away with the cadet system in its present and well developed form, by abolishing all grades among boy Volunteers, and making it obligatory on the Cantonal Governments to provide elementary military instruction or drill in the schools, at least within the ages of 13 and 15. Moreover, the boy, after he leaves school at 15, and until at the age of 20 he becomes a federal recruit, is to have at least 15 half days practice drill. With a sincere respect for the logical minds of the leading Swiss Army reformers, with equally sincere admiration for the lucidity with which they propound their views, and giving them credit for the best intentions, I cannot help thinking that they are "riding a willing horse to death." My preference, be it understood, is throughout for the voluntary principle, applied wherever possible, and the largest admixture of it with any scheme of military organization that may be found consistent with efficiency and with the necessities of each country.

I propose now to sum up in a few words the leading facts which characterize the Swiss system, and for this purpose I cannot do better than avail myself of the admirable statistics collected by Mr. Stampfli, whom I have already quoted.

It appears then, that under the present

practice about 10,000 recruits, of the age of 20, are annually drilled, clothed, armed, and organized into tactical units. About 40,000 men, between the ages of 21 and 28, belonging to the *elite* or first ban, are annually mustered, and practised in bodies of greater or less strength, occasionally increased to the size of a division of, say 10,000 of all arms. Some 20,000 more between the ages of 28 and 34, and belonging to the reserve, or second ban, receive annually the same instruction. The last ban or *landwehr*, merely muster one day each year, or two days every alternate year.

The entire available Federal force of the three classes is, in round numbers as follows:—

<i>Auszug</i> , or first ban	80,000 men.
<i>Reserve</i> , or second ban	45,000 "
<i>Landwehr</i> , or arrier ban	75,000 "

Total 200,000 men.

As the present legislation, making the liability to service 25 years, only dates from 1850, the last class, or *landwehr*, will still annually augment until 1875, when the total will have reached approximately 250,000 men.

The special arms comprise about 20 per cent of the total force in the two first bans, and somewhat less in the last. The cavalry is the weakest, numbering only about 3,000 horse. On the other hand, the artillery is comparatively strong, with 45 mounted batteries, and a corresponding number of guns in position and reserve parks.

The sharpshooters number between 9,000 and 10,000 men: of sappers and miners, pioneers and pontonniers, about 1,600.

The time occupied by each man during the whole period of his military service may be reckoned approximately as follows:—

	Days.
From the infantry from	100 to 110
Engineers, artillery sharpshooters	160
Cavalry	170

All non-commissioned officers on an average of about half as many days more, and commissioned officers double that number of days. This gives an average of about 6½ days annually for all grades and arms.

The actual annual outlay is below 400,000*l* which is apportioned as follows:—

The Federal military budget about	£120,000
The different cantons, about	200,000
The men themselves, who in some of the cantons are called upon to pay partially for their equipment, about	30,000

Total, one year in another, about £350,000
Which averages about 3*s.* per man, or 2*s.* 10*d.* per head of the population.

In this outlay are comprised besides, of course, the cost of the higher branches of military administration, the following important items:—

1. The man's pay, 4½ per diem, and a ration of meat and bread.
2. A complete outfit, equipment and arming of each recruit.
3. Ordinary maintenance and replacement of military stores and material.
4. Hire of horses, at 2*s.* 6*d.* per day.

The clothing is estimated at about 5*l.* per man for the infantry soldier, a trifle more for the sharpshooters and otherspecial corps, and rather more than 10*l.* per man for the cavalry.

(To be continued.)

The first Turco-European train over the railroad skirting the Sea of Marmora, entered Stamboul (Constantinople) on the 16th, crossing the old Seraglio grounds.