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The Volunteer Review

AND MILITARY AND NAVAL GAZETTE.

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

VOL. VI. OTTAWA, (CANADA,) MONDAY, SEPTEMBER 2, 1872. No. 36.

NEWS OF THE WEEK.

The business before the Geneva Court of Arbitration has been definitely closed. It is understood the whole matter is now in the hands of accountants, and that the award of the arbitrators will be given as soon as statements are prepared on which they can decide.

After more than ten days rioting order has been restored in Belfast. The damage to property is said to exceed £300,000 sterling, the loss of life has not been accurately ascertained, and all this is the outcome of *liberal institutions*. Another outbreak of a similar description is anticipated in Drogheda. The mob mob of towns and cities in Great Britain and Ireland, under the regime of Mr. Gladstone and the Whig radicals, have assumed more importance and been more troublesome than the whole of the other classes of the community. The end must inevitably be awful bloodshed in some of these civic rows, except the advanced Liberals are powerful enough to let the *gutter swipes* rule the three Kingdoms.

His Royal Highness the Prince of Wales has been received at Trouville by M. Thiers, with great courtesy.

The reorganization of the British army proceeds slowly. Candidates for commissions by selection are numerous, and the competitive examinations bid fair to resmble those of their great prototypes of the Celestial Empire.

A steady and progressive reorganization of the French army has also been going on its main feature being the isolation of the soldier from politics, while Cardwell's scheme bids fair to introduce that undescribble element into the British service.

Meanwhile the French nation appears to be content and are prospering. The furious mob of Paris which had always been a reproach and a danger to Monarchy, Republic, and Empire, seems to have been effectually cowed and paralyzed by the severe lessons given the Communists, and if M. Thiers could devise any means by which the scum o' the population which centres in Paris, could be effectually removed from that city France would have made the first step towards regeneration.

Roving bands of Carlists still disturb the peace of Spain, the election of members for the Cortes show a large proportion as supporters of the present dynasty. It has been rumoured that the ragamuffin cut-throats, calling themselves insurgents in Cuba, has had the consummate impudence to send a so-called Colonel to England to negotiate a loan of £20,000,000 sterling for the purpose of buoing the island from Spain. This is either a Yankee report or dodge in order to place the murdering scoundrels in a better position before Europe, and to make British capitalists, the *cats paws* to take the Cuban chestnut out of the fire for the Yankee monkeys.

The intended meeting of the Emperors (Germany, Russia and Austria,) at Berlin, comes off to-day, the Conference is fraught with great events, whether to make a second Poland of France or disunite Germany. Heretofore Russia and the Papal See have been been the main instruments of dissension, and their interference in its affairs gave rise to the famous distich.

"The Pope, the devil and the Russ,
Again in Germany are loose."

One of the most noted events of the day is the trial of the nefarious tool of the *Erie ring*, Judge Barnard at New York. He has has been simply removed from office for malfeasance. The whole proceedings are a burlesque, on justice, on law or order, and shows conclusively the utter failure of the corrupt system of Republican Government when the outlaws of society are the governing power.

Beyond the usual talk of election matters, and the formation of a new *cheese ring* at Chicago, United States affairs affords nothing of interest.

An outsider would have thought the disgraceful failure of the *wheat ring* would be sufficient for one year at least, but politics, and commerce are mere games of chance in the model Republic where the greatest scoundral and most unscrupulous cheat is sure to win.

The elections for the House of Commons have not yet been concluded, the Ministry so far have a large majority, although they have met some stunning reverses, notably that of the Minister of Militia in Montreal City. It is a subject of consideration whether the elective Franchise has not been unduly extended in Canada, such results as this would lead to the conclusion that it was from the fact that a Statesman whose whole life has been spent in the service of the country, who has written his name in characters of gold on the pages of her history and that of the Empire is displaced by an unknown though respectable gentleman on a question of the lowest and meanest local importance.

We care nothing for local politics but must speak when the interests of the country are about to suffer through their means, and it is an imfamous shame to have one of the foremost if not the foremost Statesman of the Empire defeated in his own city by a knot of selfish conspirators.

There is one thing, however, the local selfishness for which Montreal has always been remarkable will suffer from the act; meantime it is to be hoped that the country will not lose the services of Sir G. E. Cartier.

Indications of a plentiful harvest and continued prosperity marks the course of Canadian affairs.

Sir Hugh Allan has entered into a contract to establish a communication by steamboat between Newfoundland and Canada. Prince Edward's Island appears to be ready to join the confederation, and as only those two colonies are outside it in North America, their connexion would render the Dominion of Canada complete from the Atlantic to the Pacific.

In Manitoba and the NorthWest generally great activity appears to prevail, the prospects for harvest are unusually good, prosperity and development follow each other in rapid succession. The Indian troubles are tided over for the present and will probably be finally settled before next autumn.

The Hon. Colonel Gray has left Ottawa to assume his duties as Chief Justice of British Columbia, and he will be a most valuable acquisition to that colony.

THE AGINCOURT AND THE STUDDED SHOT QUESTION.

From the Broad Arrow 10th August.

Those of our contemporaries who thought it worth their while to notice that we were mistaken about the indenity of a gun on a recent occasion, have not been equally keen to observe the record in the *Western Daily Mercury* of the accident to the 12½ ton gun of the *Agincourt, whilst slowly firing empty shells* at a target with but little elevation. The shell was not observed to break up, and it was only next morning when cleaning the gun that the fracture—which extends through the steel tube to the coils, for a length of 24 inches—was discovered. On the *Agincourt's* return to Devonport, the disabled gun was forwarded to the Royal Arsenal, where it is to be cut in two transversely and rebuilt. Seven slow discharges from a gun nearly horizontal should give a very slight strain, and if the destruction had been caused by the direct action of the powder, it would have taken place in the chamber or inner end of the bore, and not as the *Pall Mall Gazette* would say, in the "chase." It is evident also from this accident that forbidding the use of time fuzes and even of bursting charges, would not prevent the destruction of our heavy guns. The only royal road to safety is to forbid their being fired at all.

We have said so much on the subject which has been answered by argument, and never can be answered by ridicule, that if it were not for the vast importance of the questions at issue we should be disposed to let the matter rest. We feel it a duty absolutely binding on us, however, as often as new facts tending to establish our position present themselves, to point out their bearing, and this is the more necessary since, as we had occasion to notice last week the Surveyor General of Ordnance is in danger of being misinformed on points of vital importance. We therefore reiterate all the statements we have hitherto made as to the cause of these accidents, and also as to the extent and importance of the damage they have caused. If Sir Henry Storks will pay the Royal United Service Institution a visit, he will be able to judge for himself as to the cause of the accumulation of gases in the powder chamber which caused the crusher gauges to vary their register from twenty-seven to sixty six tons, when firing only 120lbs. of mild pebble powder. He will find there a hardened gun metal stud on which a 700lb. projectile was supported and rotated, which is mis shapen into the form of a wedge, by over riding its grooves about one inch, and which is sheared at an angle corresponding to that of the increasing spiral of the rifling. A ring of such wedges (nine in number, we believe) acting simultaneously, must naturally tend to jam the shot and rupture the gun; and on the other hand, in the case of common shell, by reacting on the projectile, at least assisting in causing that alteration of form which consists in the compression of their walls into the shape approximately, of a dumb-bell.

Artillerists are well aware of this fact, and the permanent set thus given to the shell amounts, in some instances according to the official work on *Ammunition*, (Part II), to ·35 inch diameter in the case of nine-inch shell. This amount of compression would withdraw the studs from the grooves ·175 inch, and as the grooves are only ·2 inch deep, and each stud has a windage of ·05 inch, it follows that the remaining grip of the rifling cannot exceed ·02 inch, and that there would be no grip at all in some of the grooves when the centre of the projectile does not exactly correspond with the centre of the bore. On account of the evil consequences resulting from this compression of the walls of the shell, experiments have been made to strengthen the 10 inch shell internally, the effect of which was to reduce its capacity from 20¼ to 17¼ lbs. of powder. The last quarterly extract of the proceedings of the departments of the Director General of Artillery states, "The result of the trial made on the 10th July 1871, of the six 10-inch strengthened common shell. . . . Five shells have been recovered; they are all slightly reduced in diameter, and *marked in one place at the base with the rifling of the gun.*"

"Five more shells further strengthened" were demanded and fired in Feburary last, four of which were found, on recovery, to have "*groove marks on the base*;" the maximum reduction in diameter was ·13. Need we remark, in passing, that no portion of the shell except the studs can touch the bore at all if the axis of the projectile be steady, and that steadiness of the axis is one essential condition of accuracy of fire and hard hitting

"The superintendent of the Royal Laboratory points out that the 10 inch common shell, of strengthened pattern, fired at Shoeburyness on the 14th November, 1871, have for the first time withstood the discharge without alteration of shape, and in his opinion, *they are the first 10 inch common shell which have yet been fired sufficiently strong* to withstand the battering charge of 60 lbs R. L. G. powder." But the committee seem to have thought that a reduction of 4 lbs, in the bursting charge was rather a high price to pay for immunity for compression of the stud wedges, and weakening by stud holes. They therefore recommended that the 10-inch shell should continue to be made as before. "The Superintendent Royal Laboratory, however in his capacity of manufacturer, wishes to record his opinion that not withstanding the evidence obtained, the 10 inch common shell as at present designed, is not calculated to withstand, with absolute safety, the battering charges of R. L. G. powder.

It thus appears that all the efforts of Col. Milward and his staff cannot prevent the collapse of the walls of the common shell, partly, if not wholly, owing to the action of the studs, and partly to the pressure of the gases, if any chose to adopt such a theory. But this collapse of the shell must itself facilitate that "oblique movement of the axis of the projectile," to which all hard projectiles having studs are generally liable. When this obliquity is considerable, and an "increasing spiral" provides an increasing resistance near the muzzle, something must give way—either the unlucky shell, or as in the case of the *Agincourt*, which has suggested these remarks, the gun itself. Common sense and experience show that the only safety for our magnificent built artillery lies in abolishing the unmechanical system of studded shot, and this must certainly be the result of the inquiry which we still believe the facts we have recorded imperatively demand.

THE DISABLED GUNS OF THE HERCULES.

Admiral Sir Henry Codrington, K. C. B. Commander-in-Chief, president at a meeting of the United Service Institution of Plymouth on Thursday evening last week, when Commander William Dawson, R. N. read a paper on the 400lb shell, which disabled three out of eight 18 ton guns on board the *Hercules*, explaining in detail from official publications and artillery authorities the mechanical action of the French short bearing non centreing stud rifling, and tracing its injuries found upon the guns and recovered projectiles in the course of ordinary training practice. After showing how the system involved a multiplication of grooves in the bore, and a less twist than the manufacturer, should like to give any gun, bad rotation, a weak shell of small powder capacity, a diminished striking force and a higher trajectory, with increased strains upon both guns and projectile, the lecturer explained by the aid of diagrams and full sized models now "the oblique movement of the axis of the projectile" and the increasing spiral were connected with the occasional breaking up or bursting of both Palliser shell, which have no fuzes, and of common shell, which have time fuzes, at a particular point in the gun. He then went on to say. "In common with every other naval officer I have during my service afloat witnessed the movement of heavy guns daily, the exercise of heavy guns weekly, and the firing of heavy guns at least once a quarter. During those eighteen years I witnessed the firing of many thousand smooth bores and of about four thousand rifled projectiles; yet I never knew an instance of a gun being injured or marked by its projectiles or otherwise than in the vent. But since the introduction of French rifling, a regular "rate-book" has to be kept of every discharge from each gun, and inspectors of ordnance are appointed to register the injuries inflicted by every fifty heavy projectiles. Almost every damage so registered may be traced to the non-centering of the French rifled projectile, and to its consequent oblique movement. These accidents have led to permanent reductions in the powder charges as in the 35 ton gun; in the length and weight of the projectile as in the 25 and 35 ton guns, or in the bursting charge as in the 18, 25, and 35 ton guns, to limitation of the number and frequency of the discharge as in all guns of over 12½ tons weight or to forbidding the use of common shells with time fuzes as in all guns over 6½ tons; and in general to a great dimunition in the striking force, and in the effective work done by every French rifled gun, and of the endurance, under quick, continuous discharges, of the heavier ordnance. In the face of such everyday facts, of what avail is it to say that the French rifling does not cause any heavy guns to burst explosively "on service" when no such guns have ever been employed "on service"; or that the French rifling answers very well for present purposes, when the present purposes of training men in profound peace are not what our magnificent guns are built for, but to endure the stern realities of a maratime war; or that so many technically said to be in "the service" but which are never loaded with anything stronger than oil and tow or white lead and tallow, remain undamaged; and that the cemetry of suicides at the naval arsenal is filled with French rifled guns fired at Shoeburyness and at Woolwich, which, in official language, are said not to have been in the Service, these being the only guns which are subject to frequent discharges. All this may be quite true, without effecting the question that the premature bursts of the 400 lb. shell of the *Hercules* and at Shoeburyness, which disabled their respective 18 ton guns, are only links in a whole chain of faults traceable to "the disposition to admit" of the

advantage of an increasing over a uniform spiral, which necessitate the concentration of rotating effort upon a single weakening ring of studs. So long as we admit the fantastical hypothesis of an increasing spiral, of which the "practical importance has not been decided by practical experiment," the "Woolwich or service system," must, in the words of Admiral A. Cooper Key, C. B., F. R. S., when director of naval ordnance, "retain the disadvantages of a grooved gun and studded projectiles." And so long as "hard projectiles having studs" are employed, whether with an increasing or with a uniform spiral, "there will generally be a slightly oblique movement of the axis of the projectile," and with it a loss of power by its misapplication within the gun. Moreover, as witnessed in the *Glatton's* trial on the breaking up of the projectile through the weakening stud holes, and in the brassy grooves cut into the armor by the studs, there must also be a loss of perforating force due to these weakening agencies, irrespective of the power lost within the gun. The whole of these evils would be obviated by the employment of long bearing centering iron ribs, cast upon and with a projectile, strengthening its walls and requiring fewer, shallower and narrower grooves in the gun. A system which in the 7 inch gun competition of 1863, —5 gave higher velocities, lower trajectories, heavier muzzle blows, and, above all, greater endurance, both to the gun and the projectile. All this was attained at much less cost, and with much greater simplicity. With the *Devastation* class of ships, each costing some £400,000, limited to the employment of four guns, the first of which was disabled by its own French rifling at the 68th discharge from a cool chamber, the question cannot be said to have reached "finality." The point must be reopened and that soon. It behooves, then, the United Services to study the difficulties of the case; neither discouraged by the lazy cry of "finality" on the one hand, nor by the angry inuendos of partizans on the other. The struggle lies between economy, strength, simplicity, long rifle bearings, and perfect centering on the other side; and expense, frailty, mixed metals, short rifle-bearings, and non centering on the other. Let us honestly endeavor to discover experimentally which system will give the most work with our well built guns. From all the official records I have studied I have no hesitation in affirming that the existing experience is in favor of the simple, inexpensive, and strong long bearing, and against the expensive complicated, short-bearing. But let an open inquiry be publicly instituted as to the past experience, and let a fair trial be made, and as a ruined officer, whose professional character is the only possession left to him, I have no hesitation in staking my reputation that the country and the country's service will gain immensely by the victory, which, I feel assured: common sense will thus gain over obstructive partisanship. —*Broad Arrow.*

EGYPT AND ABYSSINIA.

The *Daily Telegraph* has published the following telegram from a correspondent at Suez, dated August 3:—

"News has reached this place from Massowah that an expedition of 2,000 Egyptian soldiers, with Remington rifles, mitrailleurs, and cannon, on July 1 seized the Abyssinian provinces of Bogos, Hulhal, Bejuk, and Mana, by order of the Viceroy, in accordance with the solicitations of the Government at Constantinople. The Swiss Munzinger Bey, Governor of Massowah, has command of the expedition, which has been conducted with great secrecy. It is stated that the conquest of Abyssinia can be completed in three weeks by the Egyptian troops in Bogos. The Emperor Kassai marches on Addoé with 10,000 men, and it is rumoured that he demands the surrender of the Egyptians and their cannon. It is thought however that Kassai can do nothing, as he has no adequate arms, and it is feared that all Abyssinia will fall, and Munzinger be named king. The pretext of the movement is the necessity of taking charge of the route between Massowah, on the Red Sea, and Bogos, along which civil war and highway robbery have made travelling impossible. The Abyssinian Queen, Mestiata, it is stated, asked the Viceroy's protection against Christains, upon which the king of Shoo, being greatly enraged, made her prisoner, and she is now in his hands. The Egyptian troops will next attack Magdala, and to effect the capture of this stronghold three thousand more men are expected from Suez. Several European adventurers have joined the force in order to share the spoil. The whole scheme, in fact is contrived to secure to Egypt and a number of adventurers the profit and plunder before Europe becomes fully aware of what is going on, or can take steps to interfere. Bogos pays tribute to Abyssinia, and its neutrality is, I understand, guaranteed by Great Britain."

SEA-GOING IRONCLADS.

In the current number of *Colburn's United Service Magazine* is an able article on mastless sea going iron clads. Glancing at the reasons for anticipating that the mastless type will prove successful at sea, the writer observes:—"After the *Devastation* has been tried probably in the autumn of this year, the question will be set at rest; but there need, we think, be little fear of anything but a satisfactory result. From the estimates of her initial stability or 'metacentric height,' and its comparison with the corresponding values in very steady ships like the *Monarch* and *Hercules*, it appears practically certain that she will also prove a remarkably steady gun platform, enabling her guns to be fought with accuracy, even in heavy weather. No comparison can be made between this type and the American monitors, although it has been much the fashion to argue that the supposed steadiness and good behaviour at sea of the *Miantonomoh* and *Monadnock* that the *Thunderer*, *Devastation* would also behave well. Nor should it be lost sight of that while American monitors have made ocean voyages, they have done so under convoy, and with their turrets so caulked up and blockaded to keep the water out that it would have been impossible for them to have fought even if the necessity had arisen. In short the American type is essentially fitted for fighting in smooth water, when the lowness of their decks and the nearness to the water of their guns is not objectionable, but rather advantageous. On the contrary our breast work ships are essentially fitted for sea service, and for fighting in the heaviest weather; their guns being carried high above the water, and their turrets always remaining in working order ready for immediate action. It appears most desirable that our armored fleet should include both mastless and rigged ironclads, the one kind being complimentary to the other, and the development of each requiring continuous and skillful application on the part of our designers so long as it shall be considered desirable to continue the use of armour plating on war ships. The recommendation of the Committee on Designs as to the discontinuance of the construction of first rate rigged ironclads appears unwise in view of the policy followed by other naval powers, and the necessity for efficiently protecting our world wide commerce, and our numerous transmarine possessions. Their scheme for local centres of naval power from which mastless ships could operate had been shown to be impracticable without great changes and vast expenditure besides being doubtful as a question of policy. Under present conditions to take their advice would be to throw their protection of our commerce mainly upon small ironclads and unarmored cruisers, and this does seem most undesirable."—*Broad Arrow.*

The Magdenburg *Gazette* says that the contemplated changes in the German army are to be hastened, so as to be carried out by next spring at the latest. After that date the German infantry will be armed either with the converted rifle, which is about equal to the Chassepot, or the Werder rifle, which is far inferior to it. By that time the conversion of the 400,000 chassepots captured during the campaign 1870-71 will, it is thus expected, also be completed, and the number of guns attached to the German artillery will again be greater than that of the French guns, as 32 new batteries will be formed.

The largest iron steamships ever built in America have just been ordered to be built at the Deleware River iron shipbuilding works of Messrs John Roach & Co., by the great Pacific Mail Steamship Company, being two ships each four hundred feet long and five thousand tons burthen. These vessels are to be placed on the mail line from San Francisco to China and Japan, under the new contract authorized by the last session of Congress, providing for a semi-monthly mail service instead of a monthly one.

The project of a railway for the transportation of ships across the Isthmus of Honduras, between Puerto Caballos on the Atlantic and the Bay of Fonseca on the Pacific side, is now urged in earnert, and a prospectus for "The Honduras Ten Per Cent. Government Ship Railway Road" has appeared in the London papers. The plan is to raise vessels from one ocean by hydraulic lifts and then transport them on a track across the Isthmus, after which it would be an easy matter to launch them into the water of the other ocean. The proposed railway track is to be twenty five feet wide, with twelve rails. A ship weighing with its cargo, two thousand tons, would be supported on two hundred and forty wheels, by which the weight would be so distributed that the pressure on each rail would not be excessive. The projectors of the company have figured out enormous profits for the enterprise, which they estimate can be carried through for the moderate sum of $75,000,000. For the use of this money they are willing to pay 10 per cent per annum.

THE HUESTIS GUN.

Mr. John Huestis, late light house keeper at Sea Cow Head, P. E. I., is at present in the city, and has with him the model of a mitrailleuse recently invented by himself The model is rather of the unpolished kind but it is sufficiently neat to demonstrate quite clearly the principle of the machine, which seems to be one entirely practicable. The model is about a foot long, six inches wide and perhaps seven inches high, though in practical use the proportionate height may be considerably reduced.

A circular band or lead beneath the machine represents the traveller on which it is intended to be worked in changing the gun to any point horizontally Over this is a board of the full length and width of the model which represents the main platform, and above it, distant some two and a half inches, is a frame of the same size in which the movements or machinery of the gun, with the barrels, are placed. The end of the frame furthest from the barrels in raised and lowered by means of a screw which of course elevates or depresses the guns. In the middle of the frame is a cylinder with axis lying transversely or at right angles with the sides the frame. On she frame, with the rear ends against the face of the cylinder and lying in a radical direction from it, are two barrels through which the balls are intended to be discharged, and on the opposite side of the cylinder are two shorter cylinders, into which the cartridges are deposited from a box immediately above them. The large cylinder forms the breech or chambers of the gun, the chambers being bored into it on both sides, at regular distances from each other on its circumference. A needle is arranged communicating with the chambers from the side. The gun is worked by a lever which may be operated from above, at the end or below the frame, and by simple mechanism two movements of the lever—one backwards and one forward—forces cartriges into two of the chambers from the supply box or small cylinder, and brings the hammer on the needles on each of the cylinders, exploding the charges in the chambers which are opposite the barrels. As the cylinder is revolved by the lever another movement underneath forces the remains of the exploded cartridges from the chambers and the firing may go on until the barrels are heated. The only part of the machine which moves directly from the lever is the large cylinder, which by means of cogs, pins and springs ingeniously and simply arranged works all the other movements, which are not in any way complicated or likely to be easily put out of order.

Mr. Huestis is one of these men who are inventors by nature and he appears to be able to comprehend an idea as soon as it is presented. In the solitude of Sea Cow Head, surrounded by the waste of waters on one hand and dark beetling cliffs on the other he realized the inefficiency of present means of human destruction on the battle field and set about supplying what was wanted. He read the papers, meantime, and became convinced that if Prince Edward Island entered into Confederation he and other citizens would be benefitted. Thus, he dilated to those who came in his way on the number of men his gun would kill in a minute and the glorious future of the Island as a portion of the Dominion. He began to be looked on as a man to be watched Then came the railway question in the Island and though he did not live within miles of the proposed route, he favored the scheme. He had caused the Government of the Island to use Kerosene instead of whale oil in their lighthouses, had invented a self-feeder, so that he need not be broken of his rest at night in trimming his lights and progressing still in the path of genius he invented a contrivance by which when he walked at day-light he had but to pull a string and out went the lights in the lantern hundreds of feet away. The men who opposed Confederation and the Railway in Prince Edward Island marked Mr. Huestis, as a dangerous man, and one of there first acts on coming into power was to turn him from the light-house. If he had been of the non-progressive stupid class who would vote as he was directed or paid to vote, he would yet have been receiving his £50 a year as light keeper of Sea Cow Head, but as he wasn't he now has leisure to make a tour through a few places in the Dominian and placing his machine before the public.—*St. John. Telegraph.*

THE GREAT SWISS SHOOTING FESTIVAL

This national meeting commenced at Zurich on Sunday 14th inst., and closed on Sunday, the 21st inst. The following is from the special correspondent of the *Daily News*, who, we understand, to be Mr. Lock, author of the *Volunteer's Friend*. As we mentioned in our last, only four British Volunteers have put in an appearance at Zurich, and our countrymen expressed great dissatisfaction with the arrangements made to receive them:—

For the accommodation of the marksmen there are 140 targets placed about one foot apart. Large figures denote the target at which you have to fire, and the distance is 1000 feet. The Swiss marksman fires out of a covered house, and before him he has a ledge on which he can place his shooting requisites. He fires at a black circular bull's-eye about two feet in diameter, but no hit counts unless he strikes the center of this black, which is called a carton. If he gets a carton, the firer has a ticket presented to him, and the carton is sent over to the committee-room to be measured. The quality of the cartons vary from one to six thousand points. When it is considered that in measurement that testing machine will be thrown out two points by the insertion of a single hair, it will be seen that the most central shot can only be got by the axis of the bullet striking the central pin. No man is allowed to take a prize unless he has made ten cartons, and then he takes a ten-franc piece specially struck for the occasion. In the event of his number of cartons reaching 100 he takes 100 francs and a cup value for the same amount is addition.

There were something like a thousand prizes for the Swiss marksmen, some of them of great value. They are exhibited in a pagada, and are surrounded by an influx of visitors, who come from all parts of Switzerland. Indeed the wives, sweethearts brothers, and sisters of the Swiss riflemen appear to take an unusually keen interest in the shooting, and again and again visit the pagoda to examine the gold watches and silver cups their relatives are so keenly contending for. In the immense pavilion erected for the accommodation of the marksmen and their friends, a long table is set apart for each canton. England is not forgotten, but the table, for want of its legitimate occupants, is besieged by a medley crowd of Swiss dames, who strew the contents of their baskets—saveloys, black puddings, and strange-looking rolls—over the table. The four Englishmen were very courteously entertained at dinner by the Committee. They are somewhat disappointed at not having special long-range targets set apart for them.

July 17.—The marksmen appear to make quite a profession of shooting. But very few wear uniforms—the common dress was a holland blouse and green baize apron, in which were capacious pockets. One marksman apeared unusually business like. He had arranged his cartridge before him on a table; beside him was a boy with a carton registry book. He scored seven consecutive cartons, a feat unsurpassed at Wimbledon. It must be remembered that the Swiss distance is 333 and one-third yards from the shoulder; then the diameter of the carton is four inches, whilst at Wimbledon we have an eight-inch square. At Zurich the best shot obtains the best prize, but at Wimbledon it sometimes happens that he dose not. It often occurs at Wimbledon that a man who gets one of his bull's-eyes in the corner of the black square gets £20, while another man who makes a centre one-eighth of an inch to the right or left of the bull's-eye gets but £3, although it is certain that the shot which only counted three is nearer the centre of the target than the shot which counts four. There are 133 *Bonnes Cibles* (pool targets), but only seven targets are allotted for special prizes. In the Swiss competition a marksman who can spend the most money and is at the same time a good shot stands the best chance, for he can fire any number of shots at any of these *Bonnes Cibles* on payment of 30 centimes (3d) each shot. When he has registered five numbers (cartons) he wins a five franc piece specially struck for the meeting, and during the whole meeting he may secure a five francs piece for every five cartons he may register. When his number of cartons have reached one hundred he is declared the winner of the silver cup value 100 francs, and this is given in addition to the five francs for each five cartons. Three out of the four Englishmen have left Zurich dissatisfied, and Mr. Lock is the only Englishman present. Before the three left, Mr Lock explained to the Committee the unfavourable nature of the conditions under which the British Volunteers were asked to compete, and compared his 577 bore Snider to the ·45 bore used by the Swiss. The Committee replied that the rules under which their society was constituted prevented them altering their arrangements to suit the British Volunteers; nor were they enabled to use their funds to provide special prizes for the latter. The members of the Committee refused to be convinced that the English Volunteers fired under any disadvantage, and Mr Lock's rifle was handed in to the armoury to be tested, numbered and registered. Having been adorned with the society's ribbon, it was handed back to him with the hint that the rifle had passed muster, and that he might shoot. A goodly number of Swiss marksmen assembled to watch the English shoot with the Westley-Richard but the exceedingly coarse military foresight prevented their making even a decent appearance. The Swiss refused to acknowledge any disadvantage as compared with their fine sighted weapons, and appeared to thoroughly enjoy the joke. Not so the English Volunteers who appeared to be much distressed at their misfortune. The journals express their opinion that the English have not been well treated by the Swiss. It is right that the English public should know that the English Vounteers are here, in response to an invitation by M. Hauser and Dr. Ryf. the president and secretary, who signed the invitation on behalf of the Organizing Committee. To make sure, previous to undertaking so long a journey, one of the English Volunteers wrote to Dr. Ryf for information, and in reply

Dr. Ryf told him he had no money to send for entries, thereby inferring that special prizes would be provided.

One of the committee informed me that the present gathering of the marksmen and their friends exceeds in number that of any former year. Arrangements have been made to dine 6000 people, but the contractors have to dine 6000 at 12 o'clock, 6000 at 2 o'clock, and so on. As the marksmen secure the necessary number of cartons, they apply for their prize money and their cups, and having expended something in champagne, they depart, to make room for fresh arrivals.

These shooting festivals date many years previous to our first Wimledon meeting in 1860. As far back as 1849 the Swiss could boast of a good shooting society, which attained its present state of prosperity only by real hard work. It has been a strong pull and along pull, but they have been well rewarded for the pains they have taken.

The quality of the shooting this season exceeds that of any former year. In the small carton of four inches in diameter, there are 300 degrees of merit. The man that can strike the centre so truly as to count no degree is the best. No one has done this at present, but the shooting is so good that the committee have decided to give no prizes for those who hit more than three degrees from the centre, or within a circle of two inches. I saw one elderly marksman make six cartons out of his seven single shots at each target.

The strain upon the refreshment department is very great and yet they are equal to the occasion. Ten thousand dinner tickets were one day pruchased before noon. For 2f. 80c. (2s 2½d in our money) the dinner gets a bottle of wine and four or five courses promptly served. Long before twelve (the dinner hour) a bottle of wine each, a loaf, napkin, &., are laid ready for 6000. At twelve the artillery fire, and instantaneously the rattle of musketry ceases. The head-waiter, in blue cap, blows his horn' and some hundreds of waiters rush off to the kitchens and immediately return bearing huge dishes of sourcrout, a very digestive dish to commence with. Another horn is blown, and away they scamper to find ready waiting them new potatoes and boiled beef in unlimited quantities. Then follow pork, tongue, polonies, salad, and pastry. Dinner is finished in three quarters of an hour, and they are ready for the next 6000. The English placard still figures prominently on the building, but the question is often put, "Where are the English?" Several American officers with their wives have essayed to occupy the English seats but not liking their too evidently conspicuous position and the not overpleasant remarks which have been made, have quickly migrated to another table.

I was not a little astonished to find a lady amongst the competitors. I ascertained her name to be Ma'am Keller, of Gallen. This is her 2nd year's campaign. She gets the balance remarkable well and receives the recoil of the rifle upon her arm. I saw her register three cartoons in succession, which, with a 5 inch bull's eye at 330 yards, would equal if not surpass, the best of our English shots. Every man is a soldier in Switzerland. What if the Swiss women are fired by the example set them by this lady?

They use the Martini and all kinds of rifles here. The Martins is in good repute and, I heard of no missfires. The national arm is a fine piece of mechanism. It is a repeater and I am told will fire fourteen rounds. The cartridges used are small metal cartridges with a very firm base.

A MILITARY RAILWAY CORPS.

THE *Globe* comments on the commission in Mr. Cardwell's scheme of army reorganization of any provision for the necessity which the condition of modern warfare impose of entering on a campaign with a completely organised military railway service attached in due proportions to each army corps in the field, and suggests that the approaching Autumn Manœuvres will afford a timely opportunity of supplying this need. Such a system, says our contemporary, as we aim at seeing in the British army for the management and working of railways in time of war may be found in a more or less advanced state of development in nearly all Continental States having pretensions to rank as military Powers. Prussia, as usual, takes the lead with an organization that has stood the test of the Danish, Austrian, and French wars. There is good reason to believe that the Russian Government has been too wise to linger far in the wake of her great neighbour and probable antagonist, and her military chiefs look forward hopefully to the ultimate result of their labours to prefect a system whose importance in aid of their veiled schemes for the aggrandisement or defence of the Empire they have so carefully appreciated.

An effective military railway corps might either be affiliated to an existing department of the army, or constituted on a separate and original basis. Probably in practice it would be found most convenient to raise distinct companies for railway duty, attached for administrative purposes in time of peace to the Corps of Royal Engineers. There is a widespread idea among civilians that the operations of an army in the field are greatly facilitated by the introduction of railways. Granted a good system and superior forces, this no doubt, may be conceded to a certain extent, but where an enormous amount of material and numbers of men are being pushed on to the front mistakes have a tendency to multiply, themselves indefinitely, and in their results entail disasters which could never have happened under the old system of route-marching. It is worthy of note that France, which has recently suffered so much from bad railway administration in time of war, was nevertheless the first Power to demonstrate the strategical importance of railway by the rapidity with which her armies were concentrated on the plains of Italy in 1859. As an early and brilliant example of the tactical value of a railway may be cited the action fought at Montebello between the allies and the Australian corps under Stadion. The latter attacked with great spirit, and carried the villages of Casteggio and Montebello. The allies, however, continually receiving reinforcements by successive trains from Voghera, which disembarked their living freights almost on the field of battle, were enabled to assume the offensive and defeat Stadion with heavy loss.

The following is cited as an instance of good railway administration.—"On the 11th of June, 1866, the manager of the Upper Silesian railway received the following telegram:—'An Army corps to be moved upon Bierg—strict secresy enjoined. On the 13th three trains from Berlin, on the 14th three trains from Berlin, three trains from Potsdam, dating from 15th three trains daily from Guben, Sommerfeld, and Sorau. Supply Depôt, Breslau.' The first train reached Brieg on the 13th in the evening. The Germans reckon their trains by axles as a unit and each train consisted of 100 axles, inclusive of engine, and was 500 feet long. The assembly of the whole corps was complete on the 22nd. The proportions of transport to men, horses, and material were as follows. In 85 trains were carried 1154 officers, 35,523 men, 9334 horses, 115 two wheeled carriages including guns, and 824 four wheeled carriages. The Prussian army of the Elbe comprised in all 8½ army corps. An Austrian authority, Major Costa de Serda, assigns half an hour as the time requisite for the embarkation of a battalion, three quarters of an hour for a squadron, and one hour and a half for a battery, supposing that all is prepared beforehand.

"During the late war in France the want of a properly constituted railways was felt incontinuous and multiplied disaster, and exemplified in the most complete manner of the necessity of preparing in peace the machinery of war. There was from the commencement miscalculation of the time at which the train should leave. Stations well adapted for infantry were assigned for the embarkation of cavalry and artillery—hence delay and utter confusion. The transport and supply services were continually quarrelling with the artillery for the use of waggons. At one time, on the Lyons and Mediterranean Railway, there was an accumulation of 7500 waggons loaded with various stores without locomotive power to take them to the point where armies were perishing for want of supplies. It may be hoped that reasonable forethought, instead of terrible misfortune, will rouse the official mind to the absolute necessity of forming in this country a special railway corps, capable of any necessary expansion in war time. Possibly the germ of this much needed service may lurk unheeded in the corps of engineers and railway volunteers. The names therein enrolled are worthy of all respect, but a corps composed of all field officers, is an intelligence without a body. Notwithstanding their military title, none of these gentlemen are practical soldiers. What we require is a corps of railway artificers instructed in the operations of war as applicable to their special department and commanded by officers who are thorough soldiers as well as good railway engineers. Such an organization is easy enough so perfect can be if the authorities awakened to the expediency of setting about the work. The rank and file must consist of railway artificers, plate layers, engine drivers, guards, stokers, signalmen, &c in such proportions as experience may dictate. The officers should in our opinion, be selected from the Corps o Royal Engineers and undergo a course of special instruction in the military management utilisation, and destruction of railways. These gentlemen might, in emergency, be assisted by volunteers from the corps of railway engineers, just as the men under their orders might be swelled in numbers by railway servants from the different railways, attracted by the high pay the superior education and acquirements of such men must of right command. We believe we have said enough to prove the need for forming a railway pioneer corps, and finally we reiterate our opinion that its basis must be essentially military.—*Broad Arrow.*

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The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

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

OTTAWA, MONDAY, SEPTEMBER 2, 1872.

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

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

EVERY question connected with the development of Modern Artillery must possess peculiar interest to the student of the principles and practice of modern warfare.

An article from the *Broad Arrow* of the 10th inst., entitled "The *Agincourt* and the studded shot question," disposes of the Woolwich system of rifling and centring the projectile, shewing its mischievous results practically as well as the mechanical impossibility involved.

It would appear however that the accident to the 12½ ton gun of the *Agincourt* proves much more than our contemporary contemplated. It affords room for reflection that no mechanical appliance if confined to metallic surfaces will ever enable the great desideratum of centring a projectile in a *muzzle loader* to be attained.

Our contemporary's article which is copied in another column is quite clear and conclusive on the cause of the mischief, and the same objection that applies to the studded projectile will equally well apply to the strengthened shell or the grooved shot.

It is quite evident that the *over riding* of the *grooves* or *lands* occurs when the *inertia* of the shot is first overcome, and for this reason—no matter how accurately fitted to the gun the projectile may be, it must have in *muzzle loaders* a certain amount of windage to enable it to be rammed home, and the weightier the projectile the greater must this allowance be.

Now the first effort of the expanding gas is not exerted gradually, but as it were with a jerk, the shot is resting on the lower surface of the bore and is jerked violently upwards; if ever so little out of the exact line of the grooves or if the effort is not applied fairly to the axis of the shot it is quite certain to be thrown out, and what follows is well illustrated by the recent failures.

In the old smooth bore system with the spherical shot, this effort of the first energy of gunpowder was notorious, in fact the projectile left the gun by a series of rebounds, and after a certain number of rounds it was rendered unserviceable being bulged towards the middle of the chase where the first blow after the *inertia* was overcome was inflicted and *dropped* at the muzzle.

It may fairly be asked whether it is possible to ram home a 700 lb. shot that it shall accurately fit the bore of the gun without windage, for till that problem is solved and it can only be by the substitution of a softer metal than iron, failures like those recorded are sure to occur with rifled artillery.

As artillery is only the expansion of the principle on which the *small* arm rifle is constructed and worked the conditions governing the application are precisely the same; taking the old Enfield muzzle loading rifle its projectile was a conical bolt with a wooden sabot fitting the bore tightly and requiring a force at least equal to a pressure of 25 lbs to ram it home; at the end resting on the powder was a wooden plug.

The mechanical action of the ignited charge was to force the plug into the bullet and completely fill the groove of the bore, as the plug moved first the stroke given when the *inertia* was overcome was expended in driving the plug into the soft metal and the increasing force compelled the projectile to move with a tolerably equal motion; yet notwithstanding all this the grooves would become leaded, thus shewing that from some cause or other the bullet had over ridden the lands and got stripped—the revolution round its own axis—or the spin, as it called, was just as much a necessity for the leaden bullet of an ounce weight as for the cast-iron shot of 600 lbs.

From the facts detailed it will be seen that the mechanical conditions governing effective small arms were nearly perfect and the risk of failure have been very much lessend since the introduction of the breech loader.

Therefore it would appear that these two modes of solving the very difficult problem presented by the failure of the "Woolwich Infant" and the 18 and 12½ ton guns of the *Hercules* and *Agincourt;* the first is to find an expanding sabot as in the old muzzle loading Enfield; the second to adopt the breech-loading system throughout.

In case it has been decided that the muzzle loading cannon is a better and more effective weapon, more easily manipulated, and less liable to damage than the breech-loader (qualities by no means proved), then a similar system to the correspondent small arm will be found to work more effectually than any system of studs, bars, or grooves.

If on the contrary the breech-loading system is the best (and it was abandoned not from any mechanical defect which could not be remedied, but because the Artillery Committee would not look beyond leaden coated projectiles and their faults were manifest before Sir W. ARMSTRONG ever applied them to his system); in that case it will be easy to find material quite as applicable and far less dangerous than any metal for shots.

The old cast iron smooth bore 32 pounders were good for about 1000 rounds, and probably for many more, as some of them have been known to fire 250 rounds in one action. The costly modern weapon is a failure before it has completed 100 rounds in leisurely experiments.

The first threw a spherial cast-iron shot with fair allowance for windage, made to fit easily; for in most cases, especially at sea, there was small room for the exercise of mechanical or manual powers to ram it home and the life of the gun was literally pounded out by its own shot, yet it did good work.

In the latter the highest and most subtle scientific research and a mechanical skill well nigh marvellous in its accuracy, has been employed to create a monster weapon and projectile, both of which have proved monsterous failures, like the celebrated Kilkenny cats destroying each other and making quick work of it.

THE *protean* character of the English Premier the Right Hon. W. E. GLADSTONE, *the people's William* as his Whig-Radical friends fondly call him, has always been well understood; like DRYDEN'S description of BUCKINGHAM—

"A man so various that he seemed to be
Not one but all mankind epitome
Who in the course of one revolving moon
Was statesman, chemist, fiddler, and buffoon,"

According to *Broad Arrow* of 27th July he has appeared in a new character, and as he is a good imitation of BUCKINGHAM barring the licentiousness, so, according to our contemporary, he makes a passible GUY FAWKES barring the courage.

It is evident the people of England owe Messrs. GLADSTONE and LOWE a deep debt of gratitude for the manifest care taken of their interests—especially such of the mercantile class as have anything to sell—the experience of ordinary political life does not exhibit a Premier and Chancellor of the Exchequr in the light of scientists in artillery and munitions of war. Why was not JOHN BRIGHT present to witness the experiment?

Happy England! where practical science is like BUTLER's description of puritan inspiration:—

> "A liberal art that needs no pains
> Of study, industry, or brains."

The *post was shattered* and the glazing only cost £100. Cheap wasn't it?

"Those who, like ourselves, were anywhere within half a mile radius of Downing Street on Thursday, must have been alarmed by the roar of a sudden explosion, and a shock which brought to our vivid remembrance the catastrophe in the days of Fenian ascendancy in Clerkenwell. The noise came from the direction of the saluting-ground in St James's Park; but there were no guns there, and if there had been, no piece of ordnance that we know of could have been capable of making such a sound, unless it had been rent in pieces by a more than usually recalcitrant specimen of a studded projectile. Our first impression was that the Treasury or the Houses of Parliament had been blown into the air; but, having pressing business to attend to which prevented our making immediate inquiries, it was not until the mystery was solved by a statement in the *Echo*—a very proper organ for such a report—that our anxiety as to the safety of "My Lords" was relieved, and the truth made manifest. We have heard rumours before of Mr. Gladstone's Popish tendencies, and it now appears that he has been experimenting in the character of a nineteenth century Guy Faux, having had a large post put up in the garden adjoining his official residence, in which several holes were bored and filled with gun cotton, the explosion of which by means of electricity caused the deafening roar that alarmed the neighbourhood, and shook the glass out of the Government windows in a shower of dangerous fragments. There is something in this experiment so akin to what recently occurred at Sheerness, when the authorities were handling a torpedo which turned upon them like a snake that ungratefully stings its benefactor, that we are at a loss what to think. Who would have supposed the members of the Government had so soon recovered from their alarm, and were again playing with these dangerous combustibles? or if such a thought could have entered into some wild imagination, who would have dreamt that the Treasury garden had been selected for the site of the experiment? We are not surprised that Mr. Lowe and Mr. Gladstone should have appeared at the garden gate, white and agitated, as if uncertain for the moment whether they should not find the sky blackened with the falling fragments of the ruin they had wrought. However, all's well that ends well. There is a good job for the Government glazier; and the frightened sentries, though nearly blown off their legs, have happily recovered their "five wits." Mr. Gladstone had better reserve his next experiment with gunpowder for the 5th of November."

THE following portion of a speech in the British House of Commons on the 19th July, is taken from the *Broad Arrow*—its value with reference to the all important question of Artillery is sufficiently apparent.

It would appear that the cost of throwing a 600lb. shot would be seven pounds sterling, and the machinery for the same £3,483 stlg. Twenty thirty-two pounder guns of cast iron on the old system with gun and all complete would cost £1,600; one round each would cost say five pounds, each gun would be safe to fire at least five hundred shot; on the whole £2,500 sterling worth of ammunition, the "Woolwich Infant" is totally disabled after firing £560 worth at her eightieth round.

The lesson for the political economist is the value the country has secured by adopting the monster. To the practical man whether a gun throwing a 600 lb. bullet cannot be manufactured of cast iron as cheaply or nearly so as twenty 32-pounders, and sustain the effect of discharging the same weight of metal, or about 500 rounds without breaking down.

THE WOOLWICH INFANT.—*Lord Elcho*, speaking on a subsequent vote, submitted that it was evident the gun of the future would be heavier than the 25-ton gun tried against the Glatton, and asked a series of questions with reference to the 35-ton Woolwich Infant. In the first place he wished to know how many such guns had been made, how many had stood the trial, with what charge the trials were made, and the number of rounds fired at the trials as compared with trials of 35-ton guns previously; whether the system of rifling was approved; and lastly the cost of a 35-ton gun. *Sir H. Storks* said he was unable to answer all these question offhand, but would do his best. The only 35-ton gun yet completed was the Woolwich Infant, which was designed for the naval service. It had fired in all 73 rounds, with charges varying from 75 lb. to 130 lb. After the 68th round, a slight crack was found in one of the grooves. Five more rounds, however, were fired, and the result was satisfactory, for it was found the crack did not extend. The result was a conclusive proof of the great strength of the system of construction. Some changes might be made in that system with a view to obtain further develpment of power, but enough had been done to show that this 35 ton naval gun was the most powerful in the world. The system of rifling adopted was what was called the Woolwich system. He had received no report with respect to injuries done to the rifling. The cost of the gun was—for wrought iron £2200; carriage, £220; platform, without gear, £318; 100 rounds of ammunition, £700; the full cost was £3590. *Lord Elcho* believed the system of construction on the whole to be good, but the question was, whether the system of rifling would stand the wear and tear to which it would be subjected. Now, he knew that intelligent mechanics had grave doubts on this point. Though only one of these guns had been tested in the test house, two had been fired, the second having only fired two shots. With regard to the first, he wished to know with what charge of powder the gun was loaded after the discovery that it was cracked. What number of battering charges was it supposed to be able to stand? Were the further trials with the battering charges or with the reduced charges? According to his information the gun had split in nine out of a total of ten grooves in the A or inner steel tube, and it had failed when fired with the first full battering charge. The condition of the manufacture of these guns was that the normal charge should be 115 lb. of powder and a 700 lb. projectile; and supposing his information to be correct, the gun had not fulfilled the conditions which had been thus laid down. He spoke in no spirit of cavilling, but from a wish to save public money and get the best gun for the public service. He hoped, therefore, that the War Office would institute a full inquiry into this matter, and not be guided solely by what might be said by the parents of this adopted child. It had no right to be called the Woolwich system of rifling. It was really a French system, known among experts as "Nobody's child."

THE following description of what may truly be called the original from which all modern breech loading weapons have been taken is from the United States *Army and Navy Journal* of 24th August. It is accompanied by an engraving shewing a well made musket of the *old flint* lock style very neatly got up differing very little in outward appearance from the Enfield Rifle of the present day, and although it is a veritable *breech loader* on the design of which very little improvement has been effected during the present age of mechanical wonders, it carries a ramrod apparently for use in case of failure in the mechanism and as a cleaning rod.

A slight sketch of the career of the talented inventor and his reckless fate, as far as his connection with North America is concerned, will be found in the fourth volume of the VOLUNTEER REVIEW under the heading of "The Revolt of the British American Colonies."

With the talent for blundering so peculiarly displayed by all the British Generals charged with restoring order in the Colonies, Sir H. CLINTON the Commander-in-Chief had decided on an expedition to South Carolina in the close of the year 1779, the wise object to be attained being nothing less than the conquest of the Middle and Northern Colonies through the Southern.

After the capture of Charleston which placed South Carolina in the power of the British, Sir H. CLINTON left Lord CORNWALLIS in command and returned to New York.

The plan of campaign as unfolded by that officer was an over land march through North Carolina, and to this end he divided an orignally small force into numerous detachments who occupied small posts or moved about between given points on the frontiers of North Carolina.

Those detachments were frequently composed of Provincial troops (loyalists) who had enlisted on the British side, and loyal militia raised in the occupied districts. At the head of those bodies the most dashing and dis-

tinguished junior officers of the British army were placed; such as TARLETON, SIMCOE, and FERGUSON, the corps being generally known by the name of the leaders as TARLETON'S light horse SIMCOE'S rangers or FERGUSON'S rangers the latter were detached as corps of observation whose duty it was to hold the country between the Wateree and Saluda Rivers.

On the 16th of August, 1780, Earl CORNWALLIS with a force not exceeding 1500 regular soldiers, completely defeated, dispersed, or captured General GATES'S army of 6000 well equipped soldiers, capturing all his artillery, camp equipage, baggage and colors, and driving the relics before him in such utter confussion that one hundred men could not be rallied twenty miles from the battle field, at Rugeley's Mills, three miles north of Camden; and on the 18th, TARLATAN defeated SUMPTER at Catawba ford, capturing all his arms and artillery.

The country was effectually cleared, and *the march to the sea* open if the men had been there to take advantage of the opportunity. The inefficiency of the British commissariat department was the cause of all the subsequent disasters, as it became necessary to occupy a much greater extent of country than the force warranted.

It having been decided to establish a garrison at Charlottetown, Major FERGUSON and his command was detached considerably in advance; he reached Gilberttown at the foot of the Blue Ridge at the same time the British main body occupied Charlottetown.

Almost simultaneously an attack was made on the British post of Augusta by a partisan named CLARK, but he was defeated with a loss of over 150 men, and in fear of his retreat being cut off he retreated towards the head waters of the Congaree.

Intelligence was at once sent to FERGUSSON with orders to intercept him, but he had already advanced beyond all reach of support and was in a critical position. CLARK'S retreat had cut off his communications.

A report had spread that a valuable deposit of presents for the Creek and Cherokee Indians were at Augusta, and the border ruffians of the period had assembled in the neighborhood of Gilberttown to aid CLARK or plunder him as might be, they heard of his defeat and were about to disperse, but Cols. CLEVELAND, SHELBY, and others arriving with some hastily collected battalions of militia, bringing their whole force up to 3000 men, they were persuaded to attack FERGUSON'S detachment which did not exceed 300 men. The latter apprised of his danger commenced a rapid retreat; first despatching messengers to Lord CORNWALLIS apprising him of his danger, but they were intercepted by CLARK and the pursuit urged with double vigor. Finding however that he could not be overtaken they detached 1500 mounted men who came up with him on the 9th of October, 1780, at King's mountain, surprised his detachment, and after a brief engagement Major FERGUSON was killed, the greater part of his soldiers surrendered on quarter, but the ruffians hanged ten of the leading loyalists in cold blood.

Emboldened by this success they attacked Polk's mill near Charlottetown, but were defeated with severe loss, and immediately disbanded with as great celerity as they came together.

"An exceedingly rare volume, published in London 1789, and entitled "An Essay on Shooting, in a chapter upon rifle-barrels thus refers to an invention for loading at the breech, which, though tried first in London, was first used in America:

"By far the most ingenions way of charging rifled pieces, however, is by means of an ingenious contrivance which now generally goes under the name of Ferguson's rifle-barrel, from its having been employed by Major Ferguson's corps of riflemen during the last American war. In these pieces there is an opening on the upper part of the barrel, and close to the breech, which is large enough to admit the ball. This opening is filled by a rising screw, which passes up from the lower side of the barrel, and has its threads cut with so little obliquity that when screwed up close a half turn sinks the top of it down to a level with the lower side of the calibre. The ball being put in the opening above runs forward a little way, the powder is then poured in so as to fill up the remainder of the cavity, and a half round brings the screw up again, cuts off any superfluous powder, and closes up the opening through which the ball and powder were put. The chamber where the charge is lodged is without rifles, and somewhat wider than the rest of the bore, so as to admit a ball that will not pass out of the barrel without taking on the figure of the rifles, and acquiring the rotatory motion when discharged. The only advantage of this contrivance is the ease and expedition with which the piece can be charged, and which are even much greater than in a plain barrel."

The cut, illustrative of this first breech-loading small arm used in America, is reduced from photographs of the rifle used by the inventor himself, and presented to a favorite loyalist officer, Frederick de Peyster. This piece still in the best condition, is in possession of General J. Watts de Peyster, of this (New York) city. From a communication, prepared by the latter gentleman for Norton's forthcoming work upon "American Small Arms," we quote the following paragraphs:

"One of the most distinguished officers of the British army, Patrick Ferguson, Junior Major of the Seventy-first regiment, Highlanders, Second Battalion, was not only most distinguished for his military abilities and his skill as a marksman but for his prescience as an inventor. He was particularly charged with the duty of organizing the Loyalists, and Lord Cornwallis seems to have placed the most exalted and implicit confidence in his special as well as general capacity.

"Ferguson was authorized to arm and drill his troops according to his own ideas; and if tradition and circumstantial evidence are to be relied on, it was his purpose to place in their hands a *breech-loading rifle* with a variety of improvements, considered of recent date. Some of these rifles were used in the battle of King's Mountain, 7th October, 1780, the turning point of the war at the South—as Oriskany, another rifleman's fight, 6th August, 1777, had been at the North,—a battle in which he was defeated and slain, and that blew all his hopeful plans into air.

"Although a breech-loader not of American invention, it has become American from the fact that it made its first appearance as a weapon of war on the battlefields of America, and is the first instance of a breech-loading rifle ever having been used on this continent or any other.

"The first allusion to this fire-arm is in the *Annual Register* of 1776, June 1, page 148. In the second part of the same volume, pages 131, 132, etc., its distinguishing feature (132 (2) par. 3) is referred to in an article entitled the 'Effects of rifling gun barrels" which also contains the first recommendation of oblong bullets as superior to round ones, not carried into effect until within a very few years. For further information the curious reader is referred to Emmerson's "Miscellaneous Treatises," published in the same year, 1776.

"The drawings of Ferguson's invention as applied to a breech-loading rifle, likewise of his other inventions for breech-loading cannon, (1) 'Turn-cock,' (2) 'Cross-slider,' are to be found in volume No. 1,139 of English Patents for 1776, the text of which is on the lower shelf of alcove 132 in the Astor Library.

"On the first of June, 1776, he made some experiments at Woolwich before Lord Viscount Townsend, Lord Amherst, General Harvey, Deragliers, and several other officers with the rifle-gun on a new construction, which astonished all beholders. The like had never before been done with any small arms. Notwitstanding a heavy rain and the high wind, he fired, during the space of four or five minutes, at the rate of four shots per minute, at a target 200 yards distance. He next fired six shots in one minute, and also fired (while advancing at the rate of four miles an hour) four times in a minute. He then poured a bottle of water into the pan and barrel of the piece when loaded, so as to wet every grain of the powder, and in less than half a minute he fired six shots with it as well as ever without extracting the ball. Lastly, he hit the bull's eye lying on his back on the ground, incredible as it may seem to many, considering the variations of the wind and the wetness of the weather. He only missed the target three times during the whole course of experiments. A patent was afterwards granted him for all his improvements. It passed the great seal on the fourth of December following (1776)."

Our space does not permit us to reproduce General de Peyster's full description of this patent, and his generous defence of Ferguson's military record from the aspersions which have been perhaps unjustly cast upon it. Mr. Irving, in his "Life of Washington," gives the Loyalist soldier and organizer credit, not only for remarkable ability, but even chivalric humanity—instancing his act of sparing the life of a patriot officer upon whom he had drawn a sure bead—who afterwards turned out be Washington himself, as a proof of the latter quality. Doubtless the intense partizan spirit of the Caroline patriots inspired very much of animosity, demonstrated towards the British leader's memory

and perpetuated in Kennedy's fine Revolutionary novel, "Horseshoe Robinson."

The De Peyster relic is, as we have promised, not only in the best state of preservation, but altogether a good-looking piece even for the present day. An engraved trade mark proves it to have been made by Egg, we suppose the originator of the present well-known English gun-shop. Its calibre—as we write from cursory observation—is about ·44, and its grooves which have the ordinary turn, are ten in number. The following comparative details we quote from General de Peyster's description:

"The length of the piece itself is 50 inches (of a U. S. rifle, 48¾ inches); weight 7½ lbs. (of a U. S. rifle (1850) 9½lbs.) The bayonet is 25 inches in length (a U S. musket bayonet blade being 16 inches) and 1½ inches wide, and what is commonly called a sword blade bayonet; flat, lithe, yet strong—of fine temper, and capable of receiving a razor edge, and when unfixed, as serviceable as the best balanced cut find thrust sword. The sight at the breech is so arranged that by elevating it is equally adapted to ranges ranging from one hundred to five hundred yards."

The foregoing description of the Ferguson breech loader is valuable, not merely as a contribution to history. It is evidently that the inventor, or his attorney, whichever wrote that the "two great desiderata in gunnery" are expedition, safety and facility in loading, combined with the greatest certainty in execution, know something about guns. The feature of rifling, introduced in Gemany about the middle of the 16th century, was not to be credited to Ferguson, but he may probably claim the merit of originating a breech system that was practicable. Crude and comparatively primitive as are its acting parts, it is obviously superior to any muzzle loader, and notably to a Brown Bess and her descendants.

The advance which has been made in America in the interval of nearly one hundred years since the South Carolina Loyalist were equipped with the first breech loader, is best illustrated by the success of the Remington system, not only in the country of its origin but all over the world. The accompanying cut, representng the Remington military rifle, is not inappropriate, though Major Ferguson's conception seems to have entertained an improvement available for hunting as well as for all military use.

The superiority in breech mechanism, as demonstrated in the present system over that of the last century, is especially evident in the scientific relation and composition of the parts therein, Ferguson, not contemplating the use of a metallic shell, gave no thought to the retention of gas, and simply concerned himself with such a construction as would do away with any recourse to the muzzle and a ram rod in loading. While in his piece even a larger gas escape is possible than in the contemporary flint lock muzzle-loader, in the Remington system not only is so small an emission resultant from a defective cartridge as hardly to smirch white paper exposed to it, but the ordinary, or extraordinary emission is entirely shut off from the interior action and working parts. This feature, it should be observed, is singular to the Remington, and on this account that system is especially cited as the culmination of arms construction after a century of improvement. In the Martini-Henri, the service arm adopted by England, the unavoidable admission of the fouling element to the interior of the system, has been the conspicuous defect of that gun, which indeed it possesses in common with all systems using the under lever action, as well as with every bolt gun yet produced—the needle gun and chassepot conspicuously. The reports of official trials and such *precis*, as are thus far attainable of the recent Franco Prussian war, fully endorse this statement, and it is owing particularly to this esssential fault that the principal European States are considering the adoption of new systems for their armies.

In the production of his breech loader, Ferguson was not obliged to study the effect of recoil upon his system, which as a second result of its free escape of the force of the discharge in the shape of gas, had hardly the "kicking" propensities of the contemporary muzzle loader. The metallic cartridge has, however effected what Ferguson's provision did not entertain—the almost total restriction of gas to the chamber of the piece but as a counter poise to this advantage, in the relative shooting powers of an arm, demands of the inventor something more than mechanical ability in construction—even such a scientific relation of parts as will absorb the shock of recoil in such a manner as to exempt the action from occasional or eventual disability. To illustrate: In the Remington system, cited as the present perfection of small arms construction, it has been found utterly impossible to explode in the gun, though filled from chamber to muzzle, a charge heavy enough to effect a recoil sufficient to disable the action. Not only do experiments at Liege and before official boards invariably sustain this claim, but the trial of over half a million arms in the hands of soldiers is a further and perhaps more substantial demonstration. Regarding other approved systems, the facts of experiment and active service are widely different. In the bolt system the necessity of a shoulder setting into a slot on one or the other side of the frame, to secure the bolt at the time of discharge, renders permanent disability by the consequent oblique action of the recoil shock, which bends the bolt and bursts the side of the frame, a dangerous incident at any time to be looked for. In the various systems having an under lever action, not only is clogging an eventful result of the escape of gas into the working parts, but the relation of the swinging breech block to the mouth of the chamber and its own pivot is such that the bolt is insecurely locked at the firing position, but the recoil shock, diverted from its proper plane, not unfrequently forces the block either upward or downward (generally the former) and by bending the lever or firing pin, renders the arm unserviceable. In the design of the Remington, the parts of the system are not only of extraordinary size and material strength, but so plated in relation to each other that any shock, however severe, is taken up by the whole, and without damage to a single part. Experiment has shown that the solid frame itself would stretch before the action should suffer from the most violent possible recoil.

In our advertising columns to-day will be found the business card of Messrs CLARKE & CORNWALL, as general agents at St. St. John, New Brunswick. Mr. CORNWALL, on the first starting of the VOLUNTEER REVIEW, was its travelling agent and to his indefatigable labors it soon succeeded in getting a large and extended circulation in Ontario and Quebec, but more especially in the former province to which Mr. CORNWALL'S labours were chiefly confined. After he gave up the agency of the REVIEW, he became travelling agent for the *Craftsman*, and latterly for the Montreal *Gazette*, the Publishers of both speaking in the highest terms of praise as to his faithfulness and regret at parting with him. And in the words of our Montreal contemporary, the *Gazette*,—"Few have achieved a more deserved business popularity throughout Canada than Mr. CORNWALL, and for ourselves we sever relations which have lasted for seven years, with the greatest regret. Scrupulously honest and exact in all his transactions, and associated now with a gentleman of well established business abilities, we are sure the new firm will certainly deserve a marked success."

REVIEWS.

We have to acknowledge the receipt of the *Science of Health* for September, it is a number well worth perusal.

Also the *Phrenological Journal* for September, which contains a very interesting memoir of the late Dictator or President Tyrant or despot of Mexico Juarez, with a portrait.

Midsummer heats are often severe, even in the Northern cities of the United States. But let us not complain when we remember that in Thibet, in Central Asia, the intense heat often reached 150° in the daytime, while at night it is really cold. In Senegal, Africa, on the Island of Gaudaloupe, in the West Indies, and in the Great Desert of Sahara, the temperature often rises to 130°. The plagues and pestilences of Persia are engendered by an atmosphere heated to 125°, while in Calcutta and in Central America the mercury reaches 120°, Some of the interior valleys of California have a maximum temperature of 110°, and in some parts of Utah Territory 105° in the midsummer heat The extreme summer heat in Montreal is often 103°—as high as that of the deserts of Arabia. The summer limit in New York State is 102°; the scale goes downward till we come to bleak Nova Zembia, where in those midsummer days, the mercury does not rise above 34°.

THE THREE BELLS.

The following poem by Whittier which will appear in the *Atlantic* for September refers to the well known rescue of the crew of the San Francisco, with United States troops on board, bound for California, in December 1853, and from sinking in mid ocean, by Captain Leighton of the English ship Three Bells. Unable to take them out in the night and storm he stood by them until morning, shouting to them from time to time through his trumpet "Never fear, hold on, I'll stand by you."

THE THREE BELLS.

Beneath the low hung night cloud.
That raked her splintering mast
That good ship settled slowly,
The cruel leak gained fast!

Over the awful ocean
Her signal guns pealed out,
Dear God! was that thy answer,
From the horror round about?

A voice came down the wild wind,
"Ho! ship ahoy!" its cry;
"Our stout Three Bells of Glasgow
Shall stand till daylight by!"

Hour after hour crept slowly,
Yet on the heaving swells
Tossed up and down the ship-lights
The lights of the Three Bells?

And ship to ship made signals,
Man answered back to man,
While oft to cheer and hearten,
The Three Bells nearer ran;

And the captain from her taffrail
Sent down this hopeful cry,
"Take heart, hold on" he shouted,
"The Three Bells shall stand by."

All night across the waters
The tossing lights shone clear!
All night from reeling taffrail
The Three Bells sent her cheer.

And when the dreary watches
Of storm and darkness passed,
Just as the wreck lurched under,
All souls were saved at last.

Sail on, Three Bells, forever,
In grateful memory sail!
Ring on, Three Bells of rescue,
Above the wave and gale!

As thine, in night's rude tempest,
I hear the Master's cry,
And tossing through the darkness,
The lights of God draw nigh.

THE CANADIAN ARMY.

(*From the Saturday Review.*)

Rather more than a year ago we gave an account of the military organization of Canada, and of the efforts she was making to render herself indepenent of any permanent assistance from the mother country. Since we last wrote on the subject, the Dominion has been thrown almost entirely on its own resources, for the whole of the regular forces, save a small portion constituting the garrison of Halifax, has now been withdrawn from the colony. The result is by no means that Canada is defenceless. To use the words of the Adjutant General of Militia in writing of Quebec and Kingston—"The British flag that floats over those strongholds is as vigilantly guarded, and the morning gun as regularly fired, by the Dominion Militia Artillery Corps, who have replaced the regular troops at those stations for garrison duty. The Canadians have only seen in the departure of the Imperial troops an argument for increased exertion, and for developing and perfecting their arrangements for defence. The official report of the militia for the military year 1871-2 shows that marked progress has been made both as regards numbers and efficiency. At the last enrolment in 1869, the enrolled reserve militia, comprising every man liable to military service, numbered 656,066 men. In 1871 it had increased to 694,008. There is, it is true, a slight falling off in the paper strength of the active militia which at the close of 1870 was 44,510, while on December, 31st, 1871, it was 43,174. We fancy, however, that this decrease is more nominal than real, and that many of the 1,345 men who make up the difference existed only on paper. It is certain that in 1871 the training was far more sytematic and extensive than it had been previously. Out of the total number borne on the rolls of the Active Militia at the close of the military year 1871-72, 34,414 officers and men underwent the annual training, of whom 22,544, with 1,996 horses, were assembled at brigade or division camps of exercise for sixteen days' continuous drill, and were paid and supplied as on actual service; 5,210 officers and men, with 319 horses, were assembled in camps for eight days' training, being paid and supplied under ordinary regulations; while 8,760 officers and men peformed the annual drill at corps headquarters, or, in case of many garrison batteries, at certain forts where they were put through a short course of gun drill and practice. Hitherto these latter have been chiefly trained as infantry, but in 1871 the services of competent ex-officers and non-commissioned officers of the Royal Artillery having been obtained, the garrison batteries have been trained to the use of their proper arms, and have fired the regulation allowance of shot and shell. The field batteries have also received due gunnery instruction. A great step in advance has been taken by the establishment of two schools of artillery under the command of specially trained officers of the Royal Artillery. These schools have not only been employed for purposes of instruction, but also as permanent garrison batteries to guard certain forts hitherto occupied by the Imperial troops. * * * * *

The Engineers are few in number, and have scarcely received any instruction in their special duties. It is proposed, however, that in future instruction shall be given at the gunnery schools. * * *

The proportion of cavalry is as small as that of Engineers, there being only one regiment, five squadrons, and nine independent troops—giving a total of 1,571 officers and men—in the whole Dominion. The increase of this arm and its organization in district regiments is suggested. It is also urged that, as is recommended in the case of artillery, the training should be extended to thirty two days, and that the horses should be enrolled. That the cavalry is however, very efficient, even under the present conditions, may be gathered from the fact that the New Brunswick regiment marched from its headquarters into camp in two days, each troop accomplishing on an average eighty miles, including the distance between troop and regimental headquarters. The infantry consists of 636 companies in 76 batt's, and several independent companies. The great defect in this branch of the service consists in the weakness of the companies, which number rather under 56 men each on an average, and in the fact that there are many independent companies, and that battalions are consequently too small, many battalions at the annual training only turning out about 250 or 260 strong. The men are, however, fairly drilled, well armed, clothed and equipped, and remarkable for their discipline. In the course of a few years this arm cannot fail to be at all events highly efficient as regards officers, for the schools of instruction, of which there are four turned out in 1871, 315 candidates for commissions. Of these 42 obtained first-class, and 273 second-class certificates.

But the Canadian military authorities are by no means content with imparting merely theoretical instruction. For all over the country troops were assembled in camps and practised in field manœuvres. It is to the credit of the officers commanding that these manœuvres were carried on in such a manner as to prove that the changed condions of modern war, and the modifications in tactics consequently rendered necessary, are as fully recognized in Canada as in the most advanced school in this country. Nor were the Canadian Militia altogether without experience in earnest campaigning. In the beginning of October 1871 the distant Province of Manitoba was disturbed by a Fenian invasion, and the Government consequently determined to send a reinforcement of 275 officers and men to strengthen the small force occupying Fort Garry. On the 12th October, the Adjutant General received the order, a force was promptly raised, and on the 15th of the following month the expedition reached its destination, having thus accomplished at an unfavourable season of the year, in less than one month a journey for which the previous expedition had required three months.

The great difficulty which the Canadian Government has to face is that of volunteering. It seems that this method of keeping corps complete is nearly worn out, many captains finding it necessary, to the great detriment of discipline, personally to entreat men to join. There is also this great evil, that as long as the voluntary system lasts, it is often necessary to grant commissions to incompetent men solely on social grounds. Besides, the willing men have become somewhat tired of taking on themselves a duty which ought to be shared by all; and though a certain number of re-engagements for a second period do occur, they will, it is expected, soon cease. Such being the case, a strong feeling, shared by the Adjutant General himself, is growing up that the time has arrived for making service in the Active Militia compulsory. The obligation indeed already exists, but the law has not yet been put in force. It is, however, certain that a change in this respect will soon take place, and when it does, the military position of Canada will be strong indeed. Even without reckoning British Columbia, where the reserve Militia system is only now being introduced, the Dominion numbers nearly 700,000 men between the ages of 18 and 60 liable to military service. In the course of six years a large proportion of these will have passed through the Active Militia—already indeed many have done so—and will be thus fairly trained soldiers. Even as it is, 30,000 men, thoroughly fit to take the field, could be asembled at any point on the frontier within four or five days, and these would have in support a reserve of about 670,000 men, of whom 13,000 men would belong to the Active Militia. Nor have the authorities contented themselves with a mere vague enactment that every man between the ages of 18 and 60 is liable to serve when called upon to do so; but the whole of the reserve militia is enrolled by districts, and there is a permanent recruiting staff of officers whose sole duty is to forward the number of men required. Indeed in this particular the Canadians seem to have borrowed from the Germans. It might be as well were we to take a hint from our colony. There is at present in England a strong but, we believe, daily diminishing objection to universal liability to military service. That it will be necessary ere long to have recourse to it we can scarcely doubt. Until, however, we learn, with or without the lesson imparted by a Jena or a Sedan, what is the only sound principle of national

defence, it surely could inflict but a slight burden on the population were we to adopt at all events the principle of universal enrolment by districts. This would be a step in the right direction, and would tend to prepare men's minds for one still further in advance. We attach no great importance to the common assertion that the great nation would not stand such a burden as would be imposed by universal liability to military service. In Canada we see a large English population not only accepting the principle but on the point of carrying it into effect, and what Englishmen can submit to in Canada cannot be too much to expect from Englishmen in England. Otherwise we should have to confess with shame that the patriotism with which in words we boast has in practice died out amongst us, that luxury and a high state of civilization have killed us, and that the only true Englishmen are to be found on the banks of the St. Lawrence.

The *Northern Journal* appears to be frequently in want of information respecting the developments of law and social order in the United States, and as it has in a late issue compared Montreal with New York greatly to the disadvantage of the former, the city of its sojourn and choice, we give the following list by way of enlightening the organ of the *pure democracy* on the interesting subject of crime in New York, at least, perhaps, it would tell us how many murderers were in the Montreal gaol on 19th July last, or whether one fourth of the number could be found in all the gaols of the Dominion?

NINETEEN MURDERERS IN THE NEW YORK TOMBS.—On the 19th ult., there were nineteen persons confined in the Tombs prison at New York charged with murder, and only two of them have undergone a trial, one under sentence of death in fact he has been twice sentenced. This is James Foster of Carnock notoriety, who was committed on May 4, 1871, for the murder of E. A. Putman. He was sentenced on May 20 to be executed on July 14; a stay of proceedings obtained; re sentenced Feb. 21, 1872, to be executed March 22; another stay of proceedings, and the case now awaits the decision of the Court of Appeals.

Joseph Galvin committed Dec. 5, 1871, for the murder of Roger Betts. No action has been taken in this case.

Edward S. Stokes committed Jan. 9, 1872, for the murder of James Fisk, jr.

James R. Carroll, committed March 9, 1872, for the murder of Thomas Perry.

Frederick Haggi, committed April 8, 1872, for the murder by poison, of Frederick J. Siegfried.

Patrick Clifford, committed May 13, 1872 for the murder of Mary A. Gallagher.

James Larkin, committed May 25 1872, for the murder of John Murphy.

John Connors, John Clancy, and Martin Connors, committed June 12, 1872, for the murder of William Morrissy.

Reiza Attella, committed June 16, 1872, for the murder of Daniel Donohue.

William Dunnigan, committed June 19, 1872 for the murder of Augustus Brown.

August Wood, committed June 14. 1872 for the murder of George Wood.

James Reilly, committed June 19, 1872, for the murder of David Doran.

Willam Gordon, commited June 27, 1872 for the murder of Margaret Cobb.

Margaret Elliott committed July 10, 1872, for the murder of her daughter, Mary Elliott, while not in her right mind The prisoner has not yet been subjected to a medical examination, but she will doubtless be sent to the lunatic asylum, Blackwell's Island.

OUR EXPORT TRADE.

The export trade of the Dominion for the year ending 30th June, 1871, amounted to the large sum of $74.173,618. Commencing with Ontario, we find the principal item to be from the forest, the exports of which were valued at $6,107,773. Of this sum planks and boards were alone valued at $4.966.229. Of animals and their produce the amount was $5,786,552, the principal items of which are:

Horned Cattle	$1.923.207
Horses	650.451
Wool	651,355
Sheep	634.036
Butter	486.909
Bacon and Hams	418.218
Eggs	259,766
Cheese	233.328
Pork	129,077

Next in importance comes agricultural products, which amounted to $4,978,668, of this amount barley and rye alone amounted to $3,210,710. Wheat came next, figuring at $778,333; then oats, $353 660; then malt, $132,810; then flax, $102,977—other products being below these amounts.

The products of the Mine were valued at $1,994,289; silver ore footed up to $595,261; pig and scrap iron to $343,816, and mineral or earth oil to $958,657. The exports of Manufactures were light, in all only $313,869. The total exports from Ontario were $23 086,535.

From Quebec the exports were considerably larger, amounting in all to $39,021,786. There too the Forest heads the list, the amount being no less than $12,138,510.

The exports of animals and their produce was $6 319,351. Butter was the heaviest item, being $2,428,679. Cheese came next, $876,519.

Of Agricultural products the total was $4,588,473, of which flour was the heaviest, being $1,454,448. Wheat came next, being $1,243,461. The mines yielded $256,633, of which copper ore came to about one half.

Of Manufactures the exports were larger than in Ontario, footing up to $784,677. Under the heading of Fisheries we find the sum of $678,162.

Nova Scotia shows a marked change in the character of the exports. Their fish head the list. The totals were:—

The Fisheries	$2,852 225
The Forest	1,063.140
The Mine	797,997
Animals and other produce	405,558
Agricultural products	234,489
Manufactures	295,329

Of the Mine exports, copper formed the great bulk, $584,905; gold coming next and figuring for $162,152.

In the returns for New Brunswick we again find the forest coming to the fore. The totals were:—The Forest, $3,042,828; Manufactures $807,465; the Fisheries, $374,379; the Mine $172,551.

This week is an era in the history of Pennsylvania commercial interests, and the first vessel of the American Steamship Company's Philadelphia and Liverpool line was launched on Thursday, in the Kensington river, and witnessed by a vast crowd of people full of hopeful interest in the new enterprise of their city. The river was loaded with congratulatory craft full of spectators, and at the appointed hour the monster ship, 350 feet long and named the Pennsylvania, moved from her high and dry position amid greater cheering than even a Presidential candidate could elicit. She had hardly moved her own length when the tallow on the ways which had melted by the extreme heat, stopped her, but the tugs soon took her off without further marring the beauty of the launch. She has been built in accordance with English Lloyd's Register. Her draught will not exceed twenty feet and six inches in fresh water, and she possesses accommodation for seventy six passengers in the saloon and 854 steerage passengers, besides 5,141 bales of cotton and everything necessary to her working and the convenience of those on board. The average contract speed is eleven and a half knots an hour. The construction so far as possible is American.

STOPPING THE INTEREST.

Daniel Webster once dined with an old Boston merchant, and when they came to the wine, a dusty old bottle was carefully decanted by Peter and passed to the host. Taking the bottle, he poured out Mr. Webster's glass and handed it to him. Then pouring out another for himself, he held it to the light and said:—

"How do you like it, Mr. Webster?"

"I think it a fine specimen of old port."

"Now you can't guess what that cost me?" said the host.

"Surely not," said Mr. Webster. "I only know that it is excellent."

"Well, now, I can tell you, for I made a careful estimate the other day. When I add the interest to the first price, I find that it cost me the sum of just one dollar and twenty cents per glass!"

"Good gracious! you don't say so," said Mr. Webster; and then, draining his glass, he hastily presented it again, with the remark:—

"Fill up again, as quick as you can, for I want to stop that confounded interest."

RIFLE MATCHES.

N.B. PROVINCIAL RIFLE ASSOCIATION.

The annual matches will take place at the Association Ranges in Sussex on the 3rd of September and following days. There will be eleven matches and the prizes will be the Association Challenge Cup, the Governor General's Cup, three Martini-Henry Rifles and 500 Rounds of Ammunition each, the Association Gold Medal, the Prince of Wales' Cup, presented by the ladies of St. John, the D. A. G's. Silver Cup, the Silver Medal of the National Rifle Association of England, a *Telegraph and Journal* prize, and $700 in Cash prizes.

DESERTION BY WHOLESALE,

General Custer in his paper in the *Galaxy* for August, "My Life on the Plains," tells the following story of an attempt at wholesale desertion:

In a previous chapter reference has been made to the state of dissatisfaction which had made its appearance among the enlisted men. This state of feeling had been principally superinduced by inferior and insufficient rations, a fault for which no one connected with the troops in the field was responsible but which is chargeable to persons far removed from the theatre of our movements, persons connected with the supply departments of the Army. Added to this internal source of disquiet, we were then on the mainline of overland travel to some of our most valuable and lately discovered mining regions. The opportunity to obtain marvellous wages as miners and the prospect of amassing sudden wealth proved a temptation sufficiently strong to make many of the men forget their sworn obligations to their government and their duties as soldiers. Forgetting for the moment that the command to which they belonged was actually engaged in war, and was in a country infested with armed bodies of the enemy and that legal penalty of desertion under such circumstances was death, many of the men formed a combination to desert their colors and escape to the mines.

The first intimation received by any person in authority of the existence of this plot was on the morning fixed for our departure from the Platte. Orders had been issued the previous evening for the command to march at daylight. Upwards of forty men were reported as having deserted during the night. There was no time to send parties in pursuit, or the capture and return of a portion of them might have been effected.

The command marched southward at daylight. At noon, having marched fifteen miles, we halted to rest and graze the horses for one hour. The men believed that the halt was made for the remainder of the day, and here a plan was perfected among the disaffected by which upwards of one-third of the effective strength of the command was to seize their horses and arms during the night and escape to the mountains. Had the conspirators succeeded in putting this plan into execution it would have been difficult to say how serious the consequences might be, or whether enough true men would remain to render the march to Fort Wallace practicable. Fortunately it was decided to continue the march some fifteen miles further before night. The necessary orders were given and everything was being repacked for the march, when attention was called to thirteen soldiers who were then to be seen rapidly leaving camp in the direction from which we had marched. Seven of these were mounted and were moving off at a rapid gallop; the remaining six were dismounted, not having been so fortunate as their fellows in procuring horses. The entire party were still within sound of the bugle, but no order by bugle note or otherwise served to check or diminish their flight. The boldness of this attempt at desertion took every one by surprise. Such an occurrence as enlisted men deserting in broad daylight and under the immediate eyes of their officers had never been heard of. With the exception of the horses of the guard and a few belonging to the officers, all others were still grazing and unsaddled. The officer of the guard was directed to mount his command promptly, and if possible overtake the deserters. At the same time those of the officers whose horses were in readiness, were also directed to join in the pursuit and leave no effort untried to prevent the escape of a single malcontent. In giving each party sent in pursuit instructions, there was no limit fixed to the measures which they were authorized to adopt in executing their orders. This unfortunately, was an emergency which involved the safety of the entire command, and required treatment of the most summary character.

It was found impossible to overtake that portion of the party which was mounted, as it was afterwards learned that they had selected seven of the fleetest horses in the command. Those on foot, when discovering themselves pursued, increased their speed, but a chase of a couple of miles brought the pursuers within hailing distance.

Major Elliott, the senior officer participating in the pursuit, called out to the deserters to halt and surrender. This command was several times repeated, but without effect. Finally, seeing the hopelessness of further flight, the deserters came to bay, and to Major Elliott's renewed demand to throw down their arms and surrender, the ringleader drew up his carbine to fire upon his pursuers. This was the signal for the latter to open fire, which they did successfully, bringing down four of the deserters, although two of them were worse frightened than hurt.

Rejoining the command with their six captive deserters, the pursuing party reported their inability to overtake those on horseback. The march was resumed and continued until near nightfall, by which time we had placed thirty miles between us and our last camp on the Platte. While on the march during the day a trusty sergeant, one who had served as a soldier long and faithfully, imparted the first information which could be relied upon as to the plot which had been formed by the malcontents to desert in a body. The following night had been selected as the time for making the attempt. The best horses and arms in the command were to be seized and taken away. I believe that the summary action adopted during the day would intimidate any who might still be contemplating desertion, and was confident that another days march would place us so far in a hostile and dangerous country that the risk of encountering large war parties of Indians, would of itself serve to deter any but large numbers from attempting to make their way back to the settlements. To bridge the following night in safety was the next problem. While there was undoubtedly a large proportion of the men could be fully relied upon to remain true to their obligations and to render any support to their officers which might be demanded, yet the great difficulty at this time, owing to the sudden development of the plot, was to determine who could be trusted.

The difficulty was solved by placing every officer in the command on guard during the night. The men were assembled as usual for roll-call at tatoo, and then notified that every man must be in his tent at the signal "taps" which would be sounded half an hour later; and that their company officers would walk the company streets during the entire night, and any man appearing outside the limits of his tent between the hours of "taps" and reveille would do so at the risk of being fired upon after being once hailed.

The night passed without disturbance, and daylight found us in the saddle and pursuing our line of march towards Fort Wallace. It is proper to here record the fact that from that date onward desertion from the command during the expedition was never attempted,

THE NORTH-WESTERN BOUNDARY COMMISSION.

The Joint Commission appointed by the Governments of Great Britain, the United States and Canada to define the boundary line between the Dominion and the United States on the 49th parallel, between the Lake of the Woods and the Pacific, will commence work in a few day. Congress last March authorized the Secretary of War to entrust the work, so far as the United States are concerned, to the Engineer Bureau of the Army, instead of placing the survey under civil control. The following officers, under the act in question, have been, detailed for the purpose:—Lieut. Col. Francis U. Farquar, Lieut Col Wm J Twining, Lieutenants James F Gregory and John N Weeden, United States Engineers; Lieutenants F W Green, Fourth Artillery, and C F Palfrey, First Artillery.

The civilians of the United States party are: Archibald Campbell of Washington, United States Commissioner, J. E. Bangs, of Washington, Assistant Astronomer, J. Francis Harding of Washington, Secretary; Prof. John F. Clarke, of Antioch College, Ohio, Astronomer; F. Von Shraeder, of Detroit, Assistant Engineer; and G. W. Hatch M. D., of New York City, Surgeon.

Dr. Hatch and Mr. Harding are both natives of the State of Maine, where they are both well known.

The organization of the Commission consists of two astronomical and two surveying parties. The country along the northern boundary of Minnesota and the adjoining western territories is now well known, and military posts and settlements have been long established there. The four engineers and two artillery officers detailed for the service will all the places of commissioner, chief astronomers and surveyors. There are six assistants to the latter, besides a surgeon and quartermaster. The rest of the expedition consists of six men at $75 per month, twenty-six men at $45 per month, four cooks at $50 per month, twelve teamsters at $45, eight messmen at $45, eighty pack mules, or twelve waggons and fifty six mules. The party is to be supplied with subsistence by the Government at the rate of fifty cents per day.

REMITTANCES Received on Subscription to THE VOLUNTEER REVIEW up to Saturday, the 31st inst:—

RICHMOND, Ont.—Lieut. John Reilly, $2.
KEPPEL.—Francis Wrigley, $1.
LAWRENCEVILLE, Que.—Capt. Wm. D. Lawrence, $2.
RICHMOND, Que.—Capt. E. B. Prendergast, $1.