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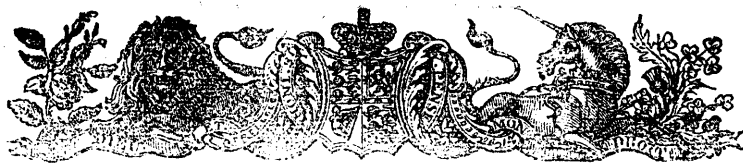
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The Volunteer Review

AND MILITARY AND NAVAL GAZETTE.

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

VOL. IX.

OTTAWA, (CANADA,) TUESDAY, OCTOBER 19, 1875.

No. 42.

The Volunteer Review

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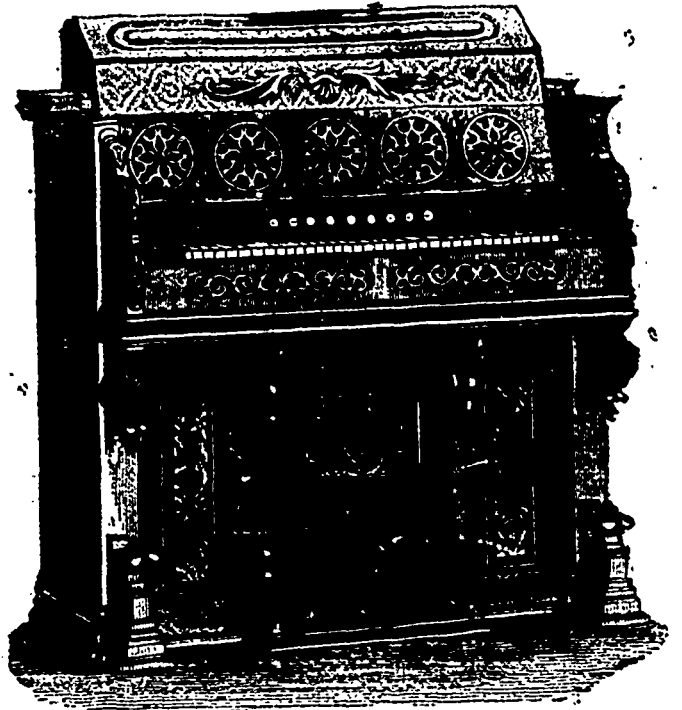
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VOL. IX

OTTAWA, (CANADA,) TUESDAY, OCTOBER 19, 1875.

No. 42.

NEWS OF THE WEEK.

Hon. Mr. Huntington was, on Saturday afternoon 9th inst., sworn in by the Administrator of the Government, Postmaster General, in room of Hon. Mr. Fournier, who has taken a seat on the Bench of the Supreme Court.

Hon. A. Mackenzie, Premier, addressed a meeting of his constituents at Sarnia on Monday the 11th inst., explaining the policy of the Government since its occupancy of office.

On Monday Evening, the 9th inst., the Governor General's Foot Guards mustered in full force at the drill shed and after inspection they marched through some of the principal streets of the city. It was understood that General O'Grady Haly would have inspected them, but other engagements prevented his doing so.

The Manitoba Standard reports that the engineers of the Canada Pacific Railway are busy boring at Point Douglas, in order to ascertain the fitness or unfitness of that point for a railway crossing.

A terrific storm of wind and rain raged in Nova Scotia on Saturday and Sunday 10th and 11th. Several buildings were blown down, and great damage was done to shipping, but no lives are reported to be lost.

On Tuesday last the Cobourg Garrison Battery having completed the drill for 1875, was inspected by Col. Irwin. The ranks were full and the Battery made a good appearance. Forty rounds of shot and shell were fired, and the practice was very good.

The 6th Battalion (Montreal) were inspected on the evening of the 14th by Major General O'Grady Haly, who happened to be in the city, in the absence of Lieut.-Col. Fletcher, who missed the train on his way from the Eastern Townships.

We regret to learn of the death at Prescott, on the 14th inst., of Dr. Wm. J. Scott, father of the Hon. R. W. Scott, Secretary of State, at the advanced age of 86 years. He served as a Surgeon in the army through the Peninsular campaign, and came to Canada with his regiment. He was for a number of years Registrar for the County of Grenville, and he was very highly esteemed by those who knew him.

At London on Tuesday the 12th inst., Lieut. Col. Macpherson paid the veterans of 1812-15, resident in the County of Middlesex, the gratuity granted by the Government. Some twenty nine old soldiers, whose ages ranged from seventy eight to ninety two, received their checks for \$20. Most of these men were present in some of the battles fought in 1812-15, and some of them hold medals. Five Indian warriors who had taken part in the war also received

their checks. Their ages ranged from seventy-eight to eighty-six years. They have all seen active service and hold the medals granted by George III. After the business of paying the veterans was over they were invited to a banquet provided by the Town Council and enjoyed themselves thoroughly.

The 100th Prince of Wales Royal Canadian Regiment, now stationed at Kilkenny, Ireland, is expected to be ordered on service to the East Indies shortly.

Letters have been received here from Captain Allen Young, and one officer of the Pandora, dated Disco Aug. 6th, and Way Gart Straits, Aug. 9th, the voyage was pleasant. They had some collisions with icebergs, but the vessel was not injured. The crew was working well. In Ircgite Bay they saw the steamer Fox.

Latest advices from Calcutta state that Lieutenant Gen. Sir Frederick P. Haines, commander of the troops at Madras, will succeed Lord Napier, of Magdala, as commander-in-chief.

It is reported that Germany will demand this year an addition of six million marks to the military estimate.

The Morning Post, reports that Holland has sent five men-of-war to the Caribbean Sea, to watch the movements of the Venezuelan.

Italy will appoint a committee of Italians, resident in America, to act at the Centennial Exhibition at Philadelphia. The Pope will send two mosaics, representing the Madonna, by Raphael, and St. Agnes, by Gentili.

About noon on Tuesday, the 12th, a high wind blew down the unfinished agricultural hall on the centennial grounds at Philadelphia. The building was about one third completed, and was entirely of wood. Eight labourers were injured—five seriously; one is since reported dead.

An Admiralty minute appears exonerating Admiral Sir W. Parson commanding the fleet, and Captain Hickey of the Iron Duke, from responsibility for the sinking of the iron clad Vanguard.

The latest advices from Hong Kong state that a hostile feeling is manifested in the North of China against foreigners. All the British men of war at Osaka, Japan, have been ordered to Chinese waters, and the squadron at Yokohama has received orders to sail for the same destination.

The British and French Governments are in communication in regard to the most advisable steps to be taken relative to the Turkish debt.

The Prince of Wales sailed for India on the 13th he was accompanied by the Princess Alexandra as far as Calais.

Latest advices from Shanghai state that the authorities at Peking have not yet complied with the demands of Great Britain, and that the prospects of a peaceful solution of the question of dispute between the two Powers are by no means flattering.

The World of the 14th says that Gladstone has assured his family that he will never resume the Liberal leadership.

The English steamer Biscay, belonging to the port of Newcastle, has stranded off Jutland, while on a voyage from Cronstadt to Bromorhaven. Eleven persons were drowned. The Biscay was an iron steamer, built in 1872, and was owned in London.

The Kaiserhof (hotel), in this city, has been totally destroyed by fire. It was the finest structure of the kind in Germany. The loss is estimated at \$1,000,000.

General Saballs will be summoned to appear before a Carlist Court Martial for his failure.

The Spanish note in reply to the Vatican is conciliatory, but dignified in character, the ministers declaring that they are willing to make every possible concession, but, at the same time that they are bound by every sense of duty and honour, to maintain the clause of the Constitution establishing religious toleration.

A Strasburg paper states that the sword given up by Napoleon III. to King William was handed over by Prince Bismark in March, 1871, to General Castellanau, who went to Berlin for that purpose under an assumed name.

A telegram from Athens says:—The British Legation has informed the Greek Government that his Royal Highness the Prince of Wales will leave Italy tomorrow (the 16th of October), and will visit Athens on his way to India. The Government has appointed a commission to make all preparations for suitably receiving the Prince. It is composed of the Prefect, the Mayors of Athens and the Piræus, the Prefect of Police, and the chief engineer of the municipality.

Mr. W. H. Gladstone, M. P. for Whitby, son of the late Premier, was married on the 30th ult., to the Hon. Gertrude Stuart, youngest daughter of Lord Blantyre.

London, 15th.—There were heavy gales around the coast of Great Britain yesterday. The Telegraph has already announced the wreck of several coasters and loss of a number of lives.

London, 15th.—The Daily News special from Vienna, says Russia is preparing an expedition against Bokhara, out of revenge for the assistance rendered by the latter to the Khokand insurgents.

The Prince of Wales has sailed from Brindisi, on his Indian tour.

The State of the French Army.

(Condensed from *Blackwoods, Edinburgh Magazine* for August.)

If there be just now a curiosity in Europe, it is to know exactly what France is doing in order to rebuild her strength. No full description of it exists in print; it is by personal inquiry alone that the elements of the tale can be scraped together. The following details have been collected by that means, from several sources: they are, of course, most incomplete; but, so far as they extend, they are correct. Their publication cannot possibly do harm to France, for the Prussian staff office knows all about them, and a vast deal more besides.

The subject is divisible into many sections; but in order to adopt the simplest plan, it is grouped here into three heads only—Direction, Organization, and Matériel.

The faculty of "direction" is so notable a quality of the French—they are such admirable conductors of great industrial undertakings—they succeed so remarkable in "administration" in nearly all its forms—that a similar capacity might, presumptively, be looked for in the ruling of their army. Their civil government, their railways, their manufactories, their steamships, are ordered with such skill that their military management might, not unreasonably, be expected to exhibit a somewhat analogous ability, and to attain a somewhat parallel success. The methods employed are virtually identical in the two cases, but the same national characteristics which have enabled the French to become so prosperous and so rich have largely aided to disintegrate their material strength; and their fighting power has been enfeebled by the very spirit of official prejudice, of bureaucratic excellencies, of hierarchical despotism, which has contributed to make the fortune of their railway companies.

The unsatisfactory situation of the French army is not, however, a consequence of over admiration only. Routine and red tapism have, it is true, a terrible deal to answer for, but they are not the sole cause of actual deficiencies. The temperament of the race has also helped to generate them; *insouciance*, self confidence, and *chauvinism* have had a share—and not a small one—in producing the break down.

THE MAIN CAUSE OF WEAKNESS.

But here lies the main cause of the weakness of the French army; it has no supreme head; it is governed by no vigorous and independent mind; it is directed by no strong initiating genius, by no will capable of beating down the special obstacles of the position. It has long been, and continues still to be, the property of the "bureaux."

The spirit of the officers is far superior, as a whole, to that of the Ministry which presides over them. The majority of the officers have known the humiliation of defeat, and have keenly felt that they must work to wipe it out; a good many of them have struggled, with infinitely more good will than their chiefs, against the crushing pressure of usage and tradition, and have taken seriously to study, regardless of the rooted prejudice which has so long existed amongst the generals against "cossacks" as reading officers are called. The number of new books which they are producing is really wonderful; and that those books are bought and read is proved by the fact that Dumaine, the army publisher, is selling now about twelve times as many volumes as he could get rid of before the war. And many of the writers have attained real excellence. The names of some

of them—of Fay, of Samuel, of Lewal, for instance—have become almost as authoritative on military questions as those of the best known authors in the German and English army.

But they are not all of this progressive class. A large number of them have to contend against a difficulty which follows them through life, and renders it impossible for them to keep pace with the new necessities, which the scientific character of modern war is now imposing on all soldiers—they want early education. The officers who have passed through the military school at St. Cyr are of course well trained for their labor, and they constitute about two thirds of the entire number; but by far the greater portion of the other third are unfit to begin to learn at thirty, the age at which, in ordinary cases, they are promoted from the ranks. To this considerable section of French officers the higher branches of military instruction are inaccessible; as corporals and sergeants they were excellent, but they are altogether unprepared for the intellectual efforts which now attach to military command, and for the new obligations and responsibilities which it creates. And this element of inferiority has largely grown since 1870, from the following cause: A quantity of former non-commissioned officers who had left the army, presented themselves for service as soon as the war broke out, and, in the dearth of qualified officers, were appointed lieutenants, captains, and some of them even majors, in the new regiments which were got together in the departments. To recompense their patriotic zeal, the commission for the revision of grades confirmed the greater part of them as officers after the peace, though generally in lower ranks than they had been temporarily called upon to occupy. The result is that, according to calculations which seem to be admitted everywhere as correct, about one sixth of the present officers of our country have acquired their commissions in this way. There are amongst them some intelligent and clever men; but there is no denying that the great mass of this particular group are ignorant of everything which constitutes an ordinary education; they all can read and write, but there stops the knowledge of a good many of them. It is computed that twenty years must pass before the army will get quite rid of this heavy stock of incapacity.

There is, however, fortunately, a majority of instructed and enlightened men, and it is to them that the army will, in all probability, owe its regeneration. They are full of energy and hope, and sentiment of duty, and are bent on winning back the ancient fame of the French arms. They wisely recognize that, in these days, that result can only be attained by new principles of action, supported by hard work, and they have begun already to set to those around them an example of what a modern officer should be. This very merit, however, produces a new difficulty. For the anxious zeal of these modern soldiers, their longing for progress and reform, in no way correspond with the obstinate obstructive and unresponsive routine of the Ministry of War. The result is, that bitterness and disappointment are slowly growing in their hearts; that a good many of the best men are beginning to feel themselves ill used; and even, which is serious, that something very much like antagonism is vaguely looming in their breast between the earnest innovators who are eager to do everything, and the stolid Ministry which will allow them to do nothing. An example may usefully be given of the sort of difficulties which are arising from this opposition.

Discouragement is a plant which grows fast, and whose fruit ripens quickly: routine is a bad manure for a crop of progress; and as the system of direction now followed in the French army is substantially the same as that which existed before the war, and which was manifestly the main cause of the disasters of France, nobody can pretend that any good result can be obtained by perpetuating it. That direction must be radically changed if France is ever to become really strong again.

DEFECTS OF ORGANIZATION.

With a direction such as has been just described, it will surprise no one to be told that organization is defective too; it could not, indeed be otherwise. But the responsibility of its actual insufficiencies does not rest exclusively with the Ministry: the Chamber has some share of it to bear; it exercised at prodigious length its right of examining and modifying the new projects of arrangement; it spent months and years in discussion and debate upon them; it successively adopted three organic military laws, but it was omitted, thus far, all legislation on those to grave points—the Staff Corps and the Intendance. These latter questions were certainly as urgent as all the rest; for nothing came out more clearly from the late war than that both staff and commissariat had utterly broken down; but they remain untouched. The measures actually voted are as follows: The universal Service Law, the Army Organization Bill, and the "loi des cadres," which has lately been the pretext of so much real or fictitious emotion in Germany.

The first of these enactments, the "loi sur le recrutement," dates from July 27, 1872. By it the principle of obligatory service was adopted and made applicable to every citizen between the ages of twenty and forty; the first nine years being passed in the active army and its reserve, and the eleven remaining years in the newly constituted territorial army and its reserve. But as the annual number of new conscripts was by this plan so considerable, that all of them could not be enrolled without creating far too large an army for a peace footing, it was decided that each year's conscripts should be divided into two parts (according to the conscription numbers); that one only of those parts should be called up to the colors for effective service, and that the other part should merely be enrolled for a period varying from six to twelve months, and then should be permanently sent away *en congé*. Furthermore, the expedient of "one-year volunteers" was adopted. Three years have passed since these arrangements became law, but, to this day, the reserve of the active army has not been really constituted, while the territorial army and its reserve have not even been framed on paper; its officers are not selected, and not one single soldier who belongs to it knows the number of his regiment. In reality the new law—which was to change everything, and to convert the whole nation into an army—has produced, thus far, but two new facts, the incorporation for six months of the second portion of the contingent (which, previously, was liberated altogether) and the "one-year volunteers." The object of this latter institution was to enable young men who were studying for liberal professions to escape the risk of falling into the first portion of the contingent, and of being thereby tied to active service for five years, by permitting them, under certain conditions, to pass only twelve months in the army, though continuing, of course, to form part of it in the reserve. The principal of these condi-

tions were that they should each pay 1,500 francs to the State, and pass a very elementary examination; in other words, the old system of exemption for money, which was declared to be an abomination, and to be suppressed for ever, was revived under a new though disguised form. The commissioners who were appointed to examine the candidates for the *volontariat* were most generous and easy going, and, during the first year of the application of the new law, more than 12,000 young gentlemen were admitted. The result, of course, was, that the plan immediately became unpopular, as being a manifest favor to the rich, and was bitterly attacked, but with no result thus far. And this was not the only consequence of the invention of the *volontariat d'un an*. Under the old organization non-commissioned officers and soldiers received a considerable money premium if they re-engaged themselves at the expiration of their service. By that means two results were attained; military traditions were kept up in the regiments by the presence of old soldiers, and a supply of thoroughly experienced non-commissioned officers was assured. By the new law the premium of re-engagement is abolished, old sergeants no longer find any advantage in remaining in a service which pays them less than they can earn in civil employments, so, directly their time is out, they leave their regiments and go home. Five sixths of the *sous-officers* of the French army belonged, until last month, to the conscripts of the year 1870, whose time of service expires in August, but who, from economy or some other unavowed reason, were set free in June. We know that very few of them offered to recommence their service, for a report presented to the Chamber by General de Cissey states that not quite 3,500 outgoing *sous-officers* now renew their engagements each year; consequently, at this moment, a vast majority of the non-commissioned officers have to be selected afresh; and this happens every summer, on the liberation of the contingent of each year, the regiments being of course disordered each time by such changes. The Assembly, seeing this, has endeavoured to induce men to stay on by offering them certain civil appointments if they remain in active service for twelve years in all; but the prospect of earning £20 a year as road members or country postmen does not seem to tempt them to spend an extra seven years in uniform. Here it is that the consequences of the *volontariat d'un an* are felt; the conscripts of the educated classes would be precisely the men of whom good *sous-officers* could be made, for they would learn their business quickly, and introduce a tone of feeling which would be serviceable to the army as a whole. But, as it is, the greater part of these young gentlemen seek only to get through their twelve unpleasant months as fast as possible, so as to return to their careers in life. For these various reasons the law on the recruiting of the army is both unsatisfactory and insufficient; it most imperfectly attains, as yet, its pretended end of really making every Frenchman a serviceable soldier.

The law of military organization, on the contrary, appears to be a well imagined, practical arrangement, against which very little could be said if only it were carried into execution. It introduced into France the German system of *corps d'armée* permanently established in fixed districts, each corps being complete in itself with cavalry, artillery, engineers, non-combatant services and stores. Many years must of course pass before a thorough result is attained, for in

several districts the organization is barely commenced. The question of barracks, for instance, though £3,200,000 have been voted for the purpose, is still undecided, and in several towns the troops are camped or billeted. But the plan itself is very good; and although it does not seem likely to enable France to attain the prodigiously rapid mobilizations of which Germany is capable, it is a vast improvement on the previous utter want of regular cohesion between the elements of the army. There is, however, thus far, one weak point in this second law; the active regiments of each *corps d'armée* are composed, indifferently, of men from all parts of France, while the reserves of each corps consist of all the liberated soldiers whose homes are in the district of that corps. This mixed arrangement was adopted partly in order to avoid the political inconveniences which might not impossibly have resulted from filling up entire active regiments with men of the same origin and sympathies, and also, partly, because if a particular regiment happened to be cut to pieces, it would be deplorable that the entire loss should press on one department only. These reasons are sensible and considerate; but the effect of the arrangement is that the "reservists" know nothing of the regiment to which they would be called up if wanted. The law prescribes, it is true, that the reserves of the active army shall be brought in and drilled each year with the very object of enabling the outsiders to fall into their places and make the acquaintances of their comrades; but not one single annual training has come off as yet; the men of the reserve continue to know nothing of their regiment, and feel toward it no tie. Until this is changed, it will constitute a first difficulty in the way of speedy concentration.

A second difficulty, in comparison with Germany, is that the character and temperament of the French do not seem likely to adapt themselves with facility to the special exigencies of mobilization. Both the national tendency and the national teaching are different in Germany and France. The German soldier is almost a machine; his obedience is silent; his discipline is passive; he has no hesitations; he possesses subordination and submission as natural gifts. The Frenchman on the contrary, has opinions and ideas of his own which no discipline can entirely drive out; of course he is obedient, because he would be shot if he were not so; but his obedience is not inert; it is an act of reason, and is accompanied by a quantity of mental reservations and considerations which never enter into a German's head. And the Germans have one more superiority, in the event of mobilization, in the fact that their regimental companies, on a peace footing, usually include about 120 men, so that to reach the war complement of 250 they need only be doubled; while the French companies, as will presently be shown, do not average more than 75 men, and have consequently to be trebled, so rendering the process of mobilization proportionably more difficult and slow. For these various reasons, and taking also into account the insufficiency of non-commissioned officers, it is probably that a mobilization of the French army would be a long and tedious proceeding, full of hitch and disorder. Two companies have, several times and in different places, been put through the form of mobilization, their reserves have been convoked for the purpose. The results have been most singular. The armament and equipment were effected with reasonable rapidity; for the 500 men were paraded, under arms, in uniform, in an

average of five hours from their muster at the depot. But, after that, three days were needed in each case for writing down the details and the numbers of the equipments in the regimental books! This prodigious fact, incredible as it may appear, is strictly true; but, for obvious reasons, the regiments, the dates and places, are not named. It would be difficult to discover a more astounding example of the crushing consequences of *bureaucratic* and routine; and though it has directly no relation to the organization law, yet it shows good laws may be paralyzed in application by an obstinate "direction."

THE "LOI DES CADRES."

The "loi des cadres" is the last of the series; it was discussed with much vehemence in the Chamber, for two systems were in presence. The supporters of one of them insisted on the maintenance of the old regimental formation of three battalions of six companies each; while the patrons of the other advocated the German system of four companies per battalion, not counting the depot companies in either case. After much excited debating a hybrid plan was usually adopted: it was decided that the battalion should consist of four companies instead of six, but that, as a compensation for the reduction, each regiment should have four battalions instead of three. It was pretended that an addition of 160 battalions would be obtained in this way, and that, as in war time each battalion would contain 1,000 men, 160,000 extra men would thus be made available. The opponents of the scheme do not find it difficult to demolish this singular arithmetic; they show, with reason, that as the tactical unit is the company, not the battalion, it is utter nonsense to pretend that four battalions of four companies each, with two depot companies for the regiment, can be made to hold as many men as three battalions of six companies each, with three depot companies. By the new arrangement there are eighteen companies, while by the old one there were twenty one. It follows, therefore, that the vaunted addition of 160 battalions means, in reality, the suppression of 480 companies; so that, taking a company on a war footing at 250 men, there is a loss of 120,000 men instead of a gain of 160,000. Each regiment loses three companies by the new device—that is to say, 750 men; nine of its officers have consequently been put on half pay; the army is reduced, the officers are discontented. It really was not worth while to make so great a fuss in Germany about such a broken winded law as this; the Germans ought rather to have rubbed their hands with delight at the bungling of their neighbors.

These calculations apply of course to the nominal strength on a war footing; the real present effective of the French army is a very different matter. The budget of 1875 puts the total of the army at 425,000 men, and tells us that the infantry regiments are composed of 1,800 men each; but there are abundant proofs that these figures are fictitious and imaginary. The officers declare that their regiments are mere skeletons; and the truth of that description is evident to every one who looks on at parades or drills, for, on those occasions, one usually sees companies of forty men. It may, however, be said that a portion of the men are recruits, who do their work by themselves in squads, and that, consequently, the public aspect of the companies is no test of their true force. But when a great annual review takes place in Paris, when it is notorious that orders have been sent to all com-

manding officers to bring up every man that can carry a gun, when small detachments are called in from distances of 40 miles in order to swell the total, then, at all events, the number present may be taken as approximately representing the full regimental strength. All this occurred on the 13th of June at Lonchamp, when the army of Paris Versailles was reviewed by Maréchal McMahon; and no one will pretend that, on that occasion, when every available man was called into requisition in order to improve the show, the companies exceeded 60 men. Allowing for the sick, the absent, and the guards left at barracks, this would represent a maximum total of about 75 men per company, and at that rate the 18 companies of each regiment would make up not 1,800 men, but 1,350. If this be the situation of the regiments in and around Paris, which every body knows are kept up to a higher strength than any others, it may fairly be presumed that the general average of the whole army does not exceed 1,200 men per regiment of infantry, and that the same proportion is applicable to other arms. Of course this calculation does not pretend to be critically correct; but information collected with much care from many channels confirms it generally, and justifies the opinion which results from it, that this summer the total number of soldiers round the colors has been one third less than the figure indicated in the budget, and that it has not, consequently, exceeded 285,000 men, altogether. Of these at least one eight, or 35,000 men, are *non valeurs*—that is to say, employed in non combatant services, or sick. The number of fighting men in France and Algeria is thus reduced to 230,000. At this particular moment it is cut down still more, in consequence of the departure of the class of 1870, which formed one fifth of the entire army.

The fact that the men who are paid for in the budget are not all present round the colors is of course illegal; but it is a fact, and it is explained, as has been mentioned in a previous article, by the conflicting necessities of showing nominally a strong effective and of simultaneously providing large unvoted sums of money for pressing needs. To mention one single case—it is a matter of public notoriety, first, that the wooden huts put up three years ago to camp the troops round Paris cost more than double the amount which was voted for them in the budget; and, secondly, that no supplementary credit has ever been taken for them. How then was the surplus paid? The answer is very simple: a certain number of thousand men were sent home *en congé*, and the money saved on their pay and rations was appropriated to settle the account. The same process has been applied to other items, on the largest scale; and, irregular as that process is, from the point of view of strict parliamentary control and exact audit, there is no doubt at all that, as the Government dares not tell the plain truth to France and let it know that the same money cannot pay for two things at once, it is practical and wise to pay privately for the more urgent of the two. It would, however, be honest to leave off pretending that the Republic is more virtuous than the Empire, for we see here that on this point there is not much to choose between them.

THE NEW ARTILLERY.

Matériel constitutes the third element of the subject, and it follows naturally on the heels of *virements*; for it is precisely to pay for the *matériel* that the *virements* have been

effected. *Matériel* includes, however, so many things that no attempt can be made here to give a list of them; we limit ourselves, therefore, to the most important of them—cannon, rifles, horses, and fortifications. The late war had scarcely commenced before it was recognized that the French artillery could not hold its own against the Prussian fire; the fact became quite evident in the very first engagement which occurred. Directly peace was made, three Commissions were appointed in order to study the question; experiments on new types of guns were undertaken at Calais, Tarbes, and Bourges; and the breech loading 14-pounder proposed by Colonel de Rellvo was adopted. (It should be mentioned that neither this indication, nor any of the other similar indications which follow in lbs. are absolutely exact; the French kilogrammes are taken here for facility of description, as representing 2lb. English, whereas, in fact, they represent 2½lb. each. The real weights of the projectiles are consequently one tenth greater in each case.) To that date the French field guns had been either 8 or 24 pounders. The Rellvo gun had been manufactured and employed in Paris during the siege; certain defects had been found in it; but as 1,800 guns of that pattern had been already produced, it was considered, after all, that it was more practical to make some alterations in them in order to cure their more serious faults, and to adopt them, for the moment, as the regulation model, in order not to throw away the money which had been spent upon them. The temporary character of this decision was distinctly indicated in the official report which was then made by the commission: it is said,—“The 14lb. cannon is, in reality, only a first step towards breechloading; but it exists, and that reason obliges us to adopt it—with the distinct reservation, however, that it is only to be considered as provisional arm.” Soon after this decision was arrived at it was recognized that the 14 pounder was too heavy for ordinary field service; it was lighter, of course, than old 24 pounder, but it did not replace the suppressed 8 pounder. Thereupon Major Pothier, who had been working with Colonel de Rellvo, proposed an 8-pounder of his invention which had been used on the Plateau d'Avron during the siege of Paris. This gun was tried at Trouville, before M. Thiers, who was then President and an historian, was particularly desirous to be regarded as a scientific artilleryist as well. It was adopted, as a second step towards breech loading; but the Committee of Artillery was not content, and insisted that it should be converted into a 10-pounder. Major Pothier objected strongly to this change, urging that a shell of 10lb. was not appreciably more effective than one of 8lb.—that six horses would be needed if the gun were enlarged, while four would suffice for it as it was, and that less ammunition could be carried in the caissons if the larger size were adopted. But the committee were quite decided; the construction of the Pothier 10 pounder was begun at Tarbes, and was carried on simultaneously with that of the Rellvo 14 pounder. And then experiments went on again, though, this time, they were kept quite secret. It oozed out, however, that steel guns were at last beginning to be tested (the Rellvo and Pothier cannon are in bronze); and the truth of this report was proved at the review of the 13th June, for a few steel guns appeared then in the batteries for the first time. It is said, indeed, that a steel gun is now definitely adopted instead of the two other models; that it will be given out, as made, to the ac-

tive army; and that the bronze pieces will be handed over to the territorial army, the same projectiles being employed by both. It may be added that the reorganisation of the artillery is advancing very slowly. By the “loi des cadres” there are to be 33 regiments of gunners, composed of 13 batteries each; but, thus far, there are only 6 or 7 batteries in each regiment. The whole of this story of artillery is not edifying; it shows want of unity of purpose, of decision, of steadiness of action, which does not promise much for future progress.

The new rifle adopted for the French army (the fusil Gras) is almost exactly similar to the Mauser; it is considered, in France, to be as good as the latter, but to be somewhat inferior to the Martini Henry. The manufacture of it began last year, and is progressing at a rate of about 2,500 a day; so that to supply the whole 3,200,000 muskets which according to the report presented to the Chamber by M. Riant, are considered necessary, about four years (in all) will be required. Thus far, the cadets of St Cyr and the 30th battalion of Chasseurs are the only troops which are provided with the new weapon.

Of horses there is a grievous dearth; and as it is taken for granted that they could not be obtained, by ordinary means, in sufficient numbers for a war, the government, two years ago, got the chamber to vote a “conscription des chevaux,” by which all the horses in France are required to be registered, and are rendered liable for military service, in the event of the mobilization of the army. If taken, they are to be paid for at prices fixed beforehand for each category of animal.

THE QUESTION OF FORTIFICATIONS.

The question of fortifications is perhaps the most generally interesting of all the branches of *matériel*, and in this case it has the special merit of offering scarcely any grounds for criticism, for competent and independent judges, of many nationalities, unite in saying that it has been intelligently and most practically resolved. Until the last war, French military engineers persisted in maintaining the theories of Vauban, and the scheme of intrenched camps; advocated by Montalembert, was somewhat contemptuously thrust aside. But the Germans took French fortresses so easily, that a violent reaction of opinion arose, and it seems now to be decided that, henceforth, only two types of fortified defences shall be created—intrenched camps, and what are called “forts d'arrêt,” placed according to the lie of the country at strategic points, and at intersections of roads and railways. At first it was intended to submit the new projects of fortification for the approval of the Chamber, and, as regards Paris, a complete plan was brought in by the Minister of War. But, after this plan had been partially discussed, it was suddenly remembered that it would be particularly foolish to tell the whole world, officially, what was going to be done; so the debate was stopped, and the works have been carried on in silence since. This is contrary to the law which prescribes that the sovereign power alone can modify, suppress, or create fortifications in France; but the prudence, and indeed the necessity, of not discussing schemes of such a nature before all Europe, fully justifies the illegality which is being committed. As everybody recognises that fact, not one word has been said about it. There can, however, be no objection to our sketching a rudimentary outline of the general system of defensive works which is now being carried into execution, for, as has been already said, Prussia

knows vastly more about it than can possibly be said here. It is, roughly, as follows:

Four direct lines of railway lead to Paris from the eastern frontier. 1. By Mulhouse, Belfort, Chaumont, and Troyes; 2. By Strasburg, Nancy, and Toul; 3. By Metz and Verdun; 4. By Thionville and Mézières. The first of these lines is commanded by the fortress of Belfort, and cannot therefore be followed by an invading army; the second is covered by the guns of Toul; the Metz-Verdun line passes beneath the fire of Verdun; while the fourth line is guarded by the cannon of Montmédy and Mézières. So long, therefore, as these various fortresses remain in the hands of the French, no hostile force can use the railways which pass within their range. This being so, it was natural that the first measure adopted should have been to largely strengthen Belfort, Toul, and Verdun, so as to bar the straight paths to Paris; and that intrenched camps should be simultaneously established at Belfort, Langres, Vesoul, and Besançon, so as to close the route to the south and centre, and to thereby cover Dijon and Lyons. According to this theory, an invading army would have to take or turn the fortresses in front, and would be stopped by the Luxembourg frontier on the right, and by the fortified camps on the left. A fifth camp in the neighborhood of Soissons will provide the means of attempting a flank attack on the invader, if, after leaving sufficient force for blocking Toul or Verdun, he marched on towards Paris. It is, however, round Paris itself that the greatest mass of accumulated obstacles is to be prepared; some twenty forts and camps are being constructed in a circle, at an average distance of about twelve miles from the capital, so as to attain the double end of protecting the city from bombardment, and of rendering the ring too large to allow of an investment. The entire plan is well imagined, and the critics seem to unanimously approve it; the one objection urged against it is, that it proposes to do but little for Mézières and Montmédy, for the reason that they lie too close to the Belgian frontier for an enemy to risk a failure in attacking them. This argument is thought insufficient, especially when it is remembered that the battle of Sedan was fought precisely between these two fortresses. The details of design are of course kept as secret as possible, and no advantage could arise from alluding to them; but it may be said that, as a whole, the plan creates a new eastern frontier guard very nearly as strong as that which was lost four years ago. Originally it was thought that seven years would be required to carry it to thorough completion; but the works have been pressed on with unexpected vigor, and it seems now quite possible that they will be entirely terminated in 1878.

OLD FAULTS UNCHANGED.

There finishes the tale—so far, at least, as we propose to tell it here. It is very unsatisfactory. It shows up the old faults of France, unchanged, perhaps unchangeable; and it introduces into her history a totally new defect which nobody was prepared to find in her—a strange inaptness for fitting herself to a novel situation. Of all the consequences of the war this is amongst the gravest, and it is, certainly, the most unexpected. That France should be conquered was foreseen; that she should have taken her beating with the astonished rage of a spoiled child who is whipped at last, after years of kisses, cake, and indulgence, is not surprising; that she should have paid off her money losses with almost contemptuous

ease, appears quite natural—now that she has done it; but that she should muddle, dawdle, waver, and bungle over the reorganization and reconstitution of her army, is certainly astonishing. Some few elements of the work are being well done; the plan of fortified defence is excellent; the system of complete *corps d'armée* in each district is wise and practical; the new rifle is a good one; but nearly all the rest is weak and disappointing. Four years have passed, and no solution is yet adopted for the Intendance and the Staff; the new regimental basis of 18 companies diminishes the army; the reserves have no existence. The great question of artillery has been dealt with amidst hesitations, indecisions, and frequent changes the suppression of the premium of re-engagement is driving out the *sous-officers*; the *volontariat d'un an* is a delusion and a fault; the new *matériel* is being partly paid for by forbidden *virements* of account; and as for superior direction of the whole, it is a compound of old prejudices, habit, and antiquated regulations, mixed up with irresolution, doubt, and vacillation. It is in the insufficiencies and the defects of that direction that the great danger lies, and it seems to be a general opinion amongst well informed people that there is not the slightest reasonable probability of a change in it. The evidence, indeed, points straight the other way, and indicates that the directing hand is resolutely incapable of dealing firmly with all the difficulties of the case. Here is one more final example in support of this.

Two years ago the Minister of War arrived at the impression that the troops were not getting enough practical instruction, and ordered by a circular to all generals of brigade, that thenceforth the regiments under their orders were to be taken out every Monday for exercise in the country in the various operations of campaigning, and that a detailed report of the operations executed was to be sent to him in every case. One general, who commanded a brigade at Satory, took out his troops for a long walk, smoked several cigars himself, made no pretence whatever of attempting the slightest work of any kind, marched home again, and then called in his colonels, and, with their aid and that of his *officier d'ordonnance*, drew up, in much detail, a report describing the operations which he had not performed. This naturally got known in the brigade; the officers became furious, and one of them communicated the story to a military newspaper, which published it at full length. It must not, however, be imagined that the general was brought before a court martial, or that any sort of punishment was inflicted on him; on the contrary, so far as is known, the indignation of the Ministry was directed, not against the general, but against the officer who had dared to let the public into the secret of what had happened. This is not the sort of guidance which is likely to lift up the tone of the army, or to render it strong and earnest.

ABSOLUTE NEED OF REORGANIZATION.

The Paris correspondent of the London *Times* writes on Aug. 18:

During the last fortnight I have had opportunities of conversing with many officers and others well versed in military matters. I have carefully read the Army newspapers, and I have come to the conclusion that one and all think the writer in *Blackwood* was perfectly justified in his remarks. On one point every one is agreed—namely, that the reorganization of the Army has been attempted solely as a means of defence, and not of offence. In most cases every one,

from the highest to the lowest, is well aware of the position in which their country has been placed by the events of 1870. They know that France is so enfeebled that any idea of turning the tables on their victors must be put off to a far distant future. At the same time there are several Generals of the old schools who would fain attribute the victories of the war less to superior strategy than to good luck. Nothing will convince them to the contrary. Unhappily, moreover, their position gives them a certain weight with younger officers, and they must to a certain degree bear the responsibility of the difficulties which have been thrown in the way of Army reform. During the debates in the Assembly the Minister for War opposed the propositions of the Committee of Forty five, appointed to examine the matter. He refused to listen to the committee, and of course the laws were rather forced on him than freely accepted. Beaten on the Cadres bill, he was nevertheless intrusted with the duty of putting it in to force. Consequently, it would be absurd to suppose that General De Cissey has any great liking for the task which has been imposed on him. It has often been said that the French are peculiarly apt to accommodate themselves to circumstances, and therefore the example set by the administration of the War Office has, of course, been followed in other quarters. Hence, Generals who objected to Army reform have not scrupled to follow their leader. Without method or guide, or even precise orders, they command each one after his own fashion. Some treat the regulations of June 12 as a dead letter, and the troops manœuvre according to the fancy of the commanders of the Corps d'Armée, notably those under the orders of Generals Ducrot, Bataille, Clinchant, and Chanzy. Even simple Lieutenant Colonels and Majors have contributed their quota to changing the regulations for manœuvring troops, so that the subaltern officers are naturally completely at sea as to the right or wrong manner of proceeding. This is surely a strange way of helping to organize the Army, but in truth there are many Generals who, though brave men, are in the art of war mere Captains. The French army reforms should begin from the head, for the War Office and its staff are much too conservative in their ideas, and until a change is brought about no reforms will be possible. Yet individually the officers and men are working as they never worked before. The Colonels pay the greatest attention to their regiments, and the progress made, more especially in the Artillery, is very great. But disunited good will cannot do everything. These opinions are those of Frenchmen who feel that were Germany once more to cross the frontier France would be all but defenceless; of Frenchmen who dread the return of the days of Marshal Niel and Lebœuf; of Frenchmen who are serving in that Army which individually each does his best to reform, but whose efforts are checked by administrative negligence and want of co operation.

LUNCH.—The officers of the 39th Battalion entertained Lt. Col. McPherson, Major Villiers and Paymaster Alger, and a number of gentlemen at lunch, at the Norfolk House, on their visit to Simcoe, on Friday last. Lt. Col. Mabeo occupied the chair, and Adjutant Heath, the vice-chair. Capts. Green; Yerks, Price, Matheson and Coombs were present, and a very pleasant hour was spent. —Simcoe British Canadian

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The Volunteer Review,
AND
MILITARY AND NAVAL GAZETTE

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

OTTAWA, TUESDAY, OCTOBER 19, 1875.

TO CORRESPONDENTS—Letters addressed to either the Editor or Publisher, as well as Communications intended for publication, must, invariably, be *pre-paid*. Correspondents will also bear in mind that one end of the envelope should be left open, and at 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.

LIEUT. J. B. VINTER, of Victoria, and Captain H. V. EDMONDS of New Westminster, are our authorized Agents for British Columbia.

The following articles on a series of experiments at Dartmoor has been copied from *Broad Arrow* of 7th, 14th, and 23th August, they will be of interest to our artillery readers—especially from the new feature of the *water shell*. One of the most noticeable features of those experiments consist in the ease with which precision is obtained at distances of three and four thousand yards against *fronts* which at that distance must have presented a less tangible mark than an ordinary 8x6 target to musketry fire at 500 yards.

It is evident that artillery need not fear infantry, and can safely be trusted without escort to do their own work in action. In fact this precision of fire and extent of range has completely revolutionised major tactics, and the marshalling of a force in presence of an enemy much depend in a great measure upon what positions the artillery will be able to take up. The great object of handling troops in line will be to cover the artillery, and not as hitherto to keep down the fire of that arm in opposition:

"The camp, as we stated last week, is in Okehampton Park, on the very borders of Dartmoor. In the front is Dartmoor, the back ground being three fine tors, distant about three miles. These are Row Tor, Mill Tor, and Yes Tor. Yes Tor is the crowning summit of the district, 2057ft. above the sea level.

At the foot of the hill, a mile off, lies Okehampton, surrounded by gently-sloping and wooded hills. The camp is delightfully situated, commanding a pretty and varied view. The air is neither too hot nor too cold, although at times a little moist.

The camp is intersected by a field road running north and south. On the eastern side are the E Battery E Brigade Royal Horse Artillery, while on the western side are the C Battery 25th Brigade Royal Artillery. To the east side of the E Battery is quartered a half battery—some sixty men—of Garrison Artillery from Plymouth, who are here to render assistance in placing the targets and in similar duty, the whole being under the command of Lieutenant Colonel Tod Brown, C.B., R.H.A. The E Battery, under the command of Colonel Holtberton, numbers 135 officers and men, with 112 horses; and their equipment is six 9-pounder M.L.R. guns of 6cwt., burning 1lb. 12oz. of powder. The C Battery, commanded by Major Borrodale, numbers ninety-one men and fifty-nine horses, with six 16-pounder M.L.R. guns of 12cwt., firing 3lb of powder. Both men and horses are in excellent condition, the latter, which are mostly of Irish extraction, being well worthy of the pride both officers and men take in them. There are four excellent watering places.

The programme of practice for Friday was as follows:

1. A single row of 6ft targets were placed at three positions.
 2. The batteries were to be brought into action at a trot on suitable ground, and at distances determined by the committee and marked.
 3. They would fire shrapnel shell with percussion fuses, two rounds per gun at each distance, each gun to receive six rounds of ammunition from the magazine before leaving camp.
 4. The officer commanding the battery to use his own judgment as to distance, and to fire at such a rate as he may consider consistent with every precaution to insure accuracy. The time of firing the first round after coming into action and the time of firing the whole number of rounds at each distance will be recorded.
 5. Each gun, before firing, to record the estimated range and the elevation given, and, after firing, the effect as judged from the battery.
 6. One battery to practice in the morning, the other in the afternoon, and no communication between them to be allowed.
 7. The range party were to note the effect, as observed by them, and to record the hits on the targets when each battery has ceased firing.
- Precautions have, of course, been taken to insure public safety. Printed notices are posted about the town, and a flagstaff forty feet high has been set up on Yes Tor, on which a danger flag will be hoisted during the time of firing."

On the 13th, 16th, 17th, and 18th the experiments were conducted as follows:

"The weather is still troubling the experimentalists on Dartmoor. On Friday the mist partly cleared away, and the C Battery 25th Brigade, with their 16-pounder muzzle loaders, fired up the valley between the Tors and Blackdown, directed against a single

row of targets representing a company of infantry at unknown distances. Shrapnel percussion fuse-shell were used, and of these three rounds per gun were served out. Two trial shots for range were allowed, and the subsequent practice was very good. The range was fixed at 2000 yards, and not a shell was fired that would not have either taken effect upon infantry, or checked their march. Every shot struck on or near the target, the central section of which was carried away. At the same time as the range firing was going on an experimental gun carriage was tested. One result of Thursday's practice was that on even moderate inclines 16-pounders were given to dangerous recoils. Two of the guns ran down the hill with the recoil, although the slope was not very great, and one of them came into collision with a wall, against which its carriage was smashed. On Friday a carriage fitted with a brake between the shoulder of the axle-tree and the wheel was tried, and was found to work very satisfactorily, the recoil being greatly checked. After the field battery had finished its work the Royal Horse Artillery came out with their 9-pounder muzzle-loaders. The practice with the light guns was capital, a number of hits being made, although throughout the practice the smoke hung in front of the guns, resulting in great delay, and causing the pointing of the guns to be uncertain, the cloudy state of the sky and the heavy fog which hung around rendering practice almost impossible.

On Monday the experiments were of a very interesting and instructive character, against dummy targets, representing an attack by infantry in the new experimental order of formation. The batteries were each supplied with 72 rounds of shell, of which 36 were Shrapnel, 18 ordinary common shell, and 18 common shell filled with water and gun cotton. The trial of water and gun cotton was decidedly experimental, and the shells require gentle handling, as they are rather sensitive. Practice began at 11.30 a.m. and the committee gave the range as 1,500 yards. As the supply of each kind of projectile was expended, firing ceased, in order that the effect of the projectile or nature of the fuse upon an advancing column might be noted. It was found that the common shell filled with gun cotton was much superior to that charged with ordinary powder, as it broke with greater force into a larger number of pieces, and made a greater number of hits. The Shrapnel with time fuses, bursting 40 feet in front of the column, told with terrible effect, the hits being so numerous that they could scarcely be recorded—a single dummy, in some instances, getting twelve hits. The practice was continued until so late an hour that the result could hardly be ascertained. The practice was good throughout.

On Tuesday night the ground had in many places become too spongy to hold the tent pegs, and several tents collapsed and fell on those beneath them.

There was no practice, but the committee tested ranges with Nolan's range finder, and great preparations for further trials have been going on. Through rain and mud the gunners of the 10th Brigade have been busily engaged in transporting targets and dummies away up the valley in readiness for tomorrow's practice, which will be the same as yesterday, only at extended ranges—2000 yards. One of the chief objects of yesterday's practice—and presumably will be of tomorrow's also—was to decide in some measure the great controversy among artillerymen as to which kind of fuse—time or

percussion—fitted to Shrapnel shell would result in causing most havoc against troops in the open.

On Wednesday, in site of the elements, Major Nicholson, with Major Noble and some other members of the committee, left the camp for the hill country about noon for the purpose of prospecting for new ranges, but before very long they were obliged to return. The practice on Wednesday was a repetition of that of Monday, at a longer range, namely, 2000 yards. The formation was an attacking line of one company rank entire; at 250 paces a supporting line one company with open files in line; and at 350 paces from supports the main line two companies in company quarter column at double interval. The order of the day was for each battery to fire eighteen rounds of common shell (powder) percussion fuse; eighteen rounds Abel's water-shell, percussion fuse; eighteen rounds Boxer-Shrapnel shell, time fuse; and eighteen rounds Boxer Shrapnel shell, percussion fuse. And here I should mention that although not specifically so stated in my previous letter, Boxer Shrapnel shells only have been used in these experiments. The C Battery 25th Brigade, R.A., with four 16-pounder guns, were the first into action, which they did at about 10.30 a.m. The following is a tabulated statement of the results of their seventy-two rounds against the dummies at 2000 yard range:

No. of Rds.	Projectile.	Hits.			Total Hits
		Row No.1.	Row No.2.	Row No.3.	
15	Common shell, powder, percussion fuse	9	0	0	9
15	Abel's water shell, percussion fuse....	8	0	0	8
18	Boxer-Shrapnel shell, time fuse.....	37	0	0	37
18	Iditto, percussion fuse	11	0	0	11
72					65

These hits represent men only, and not the number of wounds caused by bullets or splinters. Some of the dummies get riddled, and this not from the same round, the damage being done by several out of the eighteen rounds. It therefore follows that if the gaps in the ranks were filled up as soon as made, as they would be in actual warfare, two, three, or even four men more would probably be sacrificed, and the total number of hits considerably augmented. After the C Battery had moved off, the E Battery E Brigade R.A. came on to the ground with their six 16-pounder guns, and soon opened fire. The results of their practice with seventy-two rounds at 2000 yards is here tabulated:

No. of Rds.	Projectile.	Hits.			Total Hits
		Row No.1.	Row No.2.	Row No.3.	
15	Common shell, powder, percussion fuse	4	0	0	4
15	Abel's water shell, percussion fuse....	11	2	0	13
15	Boxer-Shrapnel shell, time fuse.....	33	0	0	33
18	Iditto, percussion fuse	18	3	0	21
72					71

The practice was excellent on the part of the batteries, and considering the deceptive appearance of the ground from the firing point the shells were all well planted. It will be remembered that the dummies are on the crest of a hill which slopes down towards the firing point, but there is a ledge of table land running in front of the targets. Part of this land, too, is bog, into which the shells often plunge, the burst the having little if any effect upon the targets. The range party pronounced the practice to be decidedly good. The operations were concluded about 3 p.m. Major Nicholson, with his range-finding party, has been out to-day laying the ranges for future practices in

a valley somewhat to the eastward of that in which the present practice is being carried out. Thursday was an off-day, and was occupied in placing the dummies for Friday's practice, which will consist in firing at compact masses of troops.

In the general results of the practice on Thursday and Friday last as per returns posted by the committee, are as follows:—

EXPERIMENTS, AUGUST 5					
Gun.	Through.	Lodged.	Struck.	Direct Hits or Shell.	Total Hits
16-pdr	12	1	0	3	22
9-pdr	21	13	10	8	59
16-pdr	7	3	4	5	19
9-pdr	11	20	9	3	43
16-pdr	68	31	5	—	107
9-pdr	—	—	—	5	5
EXPERIMENTS, AUGUST 6.					
16-pdr	61	17	13	3	121
9-pdr	—	—	—	1	1

The experiments on the 20th elicits the following notice from our contemporary:

The practice of Friday set at rest the idea that field artillery was ineffective at ranges of 2500 and 3000 yards. The programme was framed with the view of ascertaining the effect of various projectiles against the most recent formations in which infantry will attack. The firing was to be deliberate, and at the known ranges of 3000 yards and 2500 yards. The batteries were each to take out to the firing points 36 rounds common shell, powder, percussion fuse; 36 rounds common shell, water, percussion fuse; 36 rounds Boxer Shrapnel shell, time fuse; 36 rounds Boxer Shrapnel shell, percussion fuse.

The targets consisted of wooden dummies arranged to represent a main supporting line consisting of a half-battalion (400) men in company quarter column at double interval. They had spaces of two paces between the ranks, six paces between companies, and double interval between files the formation presenting a front of 50ft. and a depth of 26ft. The C Battery, 25th Brigade, R.A., came first into action about 10.30 a.m., the order being that the ammunition should be divided between the two ranges—that is, 18 rounds of each class of projectile were to be fired at each range. By some mistake, however, the battery got off 24 rounds of common shell before the error could be corrected. This somewhat astonished the range party, who, with General Willmot had taken up their quarters a short distance from the summit of Yes Tor, and who, after the 18th round, dropped their banner-rolls, and were about to move to the targets to inspect them. The results of this practice is summarised in the following tabulated statement:

No. of Rds.	Projectile.	No. of men hit per Compy.				Total Hits.
		No.1.	No.2.	No.3.	No.4.	
21	Common powder, shell, percussion	10	13	9	11	46
18	Abel's water shell, percussion.....	7	17	15	43	82
15	Boxer-Shrapnel shell, time.....	32	22	33	22	169
18	Boxer-Shrapnel shell, percussion	20	23	26	15	84
78						321

After the C Battery had completed the series, the E Battery E Brigade Royal Horse Artillery came into action, and the work they did was as follows:

Range, 3000 yards; E battery, six 9-pounder guns:

No. of Rds.	Projectiles.	No. of men hit per Compy.				Total Hits
		No.1.	No.2.	No.3.	No.4.	
15	Common powder shell percussion	3	6	2	4	15
18	Abel's water shell, percussion.....	8	9	18	12	47
18	Boxer-Shrapnel shell, time.....	18	23	24	7	72
18	Boxer-Shrapnel shell, percussion	4	9	7	2	22
72						158

in the 16 pounder practice there was a premature burst with a water shell, and although the Boxer-Shrapnel percussion shells fell rather short, they gave very good results. In the 9-pounder practice with common percussion shells several went over and several fell short, there being only one shell really well planted in the square. On the other hand, with the watershell, six splendid hits were made; while with the time fuse the practice was decidedly good. In comparing the results of the two batteries to day, it should not be forgotten that the C Battery 25th Brigade had an advantage of six extra rounds with the common percussion shell, nor should the fact ever be lost sight of that a larger projectile means an increased number of both bullets and splinters.

The experiments were continued on Monday. The new ground was chosen, and the line of fire was up the valley, from the bottom of Belstone Tor. The target consisted of a row of dummy skirmishers a hundred strong, with a pace between each file. The supports were two hundred yards in the rear, with two paces between the files, and the reserves three hundred yards in the rear of supports, drawn up in three companies, six paces between the companies, and two paces between the files. The practice was carried on by the Royal Horse Artillery with 9-pounders. The Battery was supplied with 144 rounds of ammunition, but owing to the depth of the column, and the rough nature of the ground, delay was caused in taking the results at each change of position, and consequently only twenty-four rounds of Shrapnel shell with percussion fuses, and seventy-two rounds of shell with gun cotton bursters were fired. The chief object of to-day's practice was to test the ability of a battery to judge the range with Nolan's range-finder, and to ascertain how many rounds could be fired in the least possible time, time being taken for pointing the guns with accuracy. The battery changed position eight times, the ranges extending from 1680 yards to 3200 yards. The practice as viewed from the battery seemed very good. Firing did not cease until nearly six p.m.

Further experiments on 20th August gave the following results as reported in our contemporary of 28th:

“These experiments were resumed yesterday week, the weather proving exceptionally fine. The heat was very great, and created a mirage which somewhat interfered with the shooting at the long ranges of 3500 and 4000 yards. The practice was made as against cavalry, the targets presenting a front 108ft long and 9ft high, and being arranged in four division or squadrons, consisting of two ranks each. They were placed on a continuation of the slope of Yes Tor, towards the south west, having to their rear a deep ravine, through which rise Sourton Tors. The C-25th Battery came into action about eleven o'clock with their six 16-pounder guns at 4000 yards range. The range having previously been found by Nolan's range-finder, a salvo of six guns was fired simultaneously, there being no necessity for wasting a shot in trying the range. Abel's water-shells were first used and the first discharge showed that the range had been correctly obtained. The succeeding twelve rounds of water-shell made their mark well upon the targets, the destruction being remarkable considering the range. After the twelve rounds of water shell had been fired, a salvo of Boxer-Shrapnel percussion shells was discharged. Of these, one shell penetrated the first rank of the first squadron; one the third; one fell 38yds. short,

but with good results, and one fell 80yds. to the rear. In firing the subsequent twelve rounds of Boxer-Shrapnel their destructive effect was fully shown, especially upon two targets which were nearly destroyed.

The Royal Horse Artillery Battery, with their six 9-pounder guns, came into action about two o'clock at an ascertained range of 3500 yds. their tangent scale being sighted only up to that distance. With their salvo of water-shell they did no execution, the targets remaining untouched. With their twelve rounds of water shell the first squadron was well hit, three of the targets being riddled with fragments of shell. The rear of the second and the front rank of the third squadron were hit, the fourth squadron suffering similarly. The salvo of Boxer-Shrapnel percussion shells made its mark only on the front rank of the first squadron. With the twelve rounds of shrapnel, five targets were hit in the first squadron, and the third squadron was lit throughout the line the second and fourth squadrons remaining unharmed.

Colonel Fisher, R.A., Commandant of the School of Gunnery at Shoeburyness, was present during experiments, having been instructed to watch the effect of shell practice at long ranges.

The series of experiments, last Saturday introduced a new feature into the practice, artillery fire being directed against artillery material, which consisted of a 16 pounder field gun and its detachment in action in the open. The detachment was represented by eight dummies, and two six-foot square targets did duty for the limber and horses. A live cartridge was placed in each of the extra boxes, so that the general condition might as nearly as possible represent that of action. The gun was placed at the foot of Mill Tor, at a distance of about a mile from the camp. The C, 25th Battery, with four 16-pounder guns came into action about eleven a.m., at a known range of about 1500 yards. Each gun was supplied with two rounds of Boxer shrapnel percussion shell; two rounds of common (powder) shell, two rounds of common (water) shell, and two rounds of Boxer Shrapnel shell with time fuse. The targets were examined after each round, the Boxer-Shrapnel percussion and common powder shell did not effect much damage. The Abel water-shell proved itself to be the most destructive for although the Shrapnel time-fuse exceeds it in the number of hits, the damage done to the gun was comparatively trifling and insufficient to prevent it going into action. Of thirty-three hits on the gun credited to the Shrapnel time shell, five were on the off-wheel, nine on the gun itself, seventeen on the rear wheel, and two bolt-heads were sheared off. One bullet pierced a spoke of the off wheel, but did not shatter it sufficiently to do it a serious injury. All the men in the detachment, however, were severely hit, as well as the targets representing the limber and horses. Of the eight rounds of Shrapnel time the first six were short (two taking effect); the seventh and eighth, however, were excellently placed. The practice with the water shell was very accurate, the first shell fired bursting on a dummy, and destroying nearly the whole detachment, besides riddling the rear targets. Of the other seven shells, three were over (one blind), and four were well placed. Of the six dummies hit one was utterly demolished and four others so shattered that they had to be replaced by fresh one dummy only being made serviceable for the next round by propping up. Of the thirty-six hits credited to the water-shell two were large holes through the first target, four were hits, fourteen were

holes through the second target, four were lodges and twelve were hits.

On Monday, the practice commenced by the field-battery firing with 16-pounders against a gun and carriage, with a dummy detachment in a gun-pit, between five and six feet deep, including a breastwork. The object was to ascertain the effect of rifled field artillery against artillery material protected by a shelter pit and breastwork. The range was 2000 yards, and the projectiles consisted of 24 rounds of Shrapnel, 12 with time-fuse and 12 with percussion fuses, 24 water-shell, and 24 common shell. The results were very good; for with the exception of a few shells falling to the right, the whole went straight to the mark. One water-shell striking the axle-tree bed, smashed it to pieces, and another, striking the muzzle, carried away, whilst all the detachment were either smashed up or disabled.

Two guns were afterwards placed in the open with dummies—one to represent a detachment with a muzzle-loader, the other a detachment with a breech-loader; 19 yards interval between the guns, and range and projectiles the same as before. The firing was again satisfactory. Dummies were seen flying in the air, and all of the detachment were disabled.

The Royal Horse Artillery, with 9-pounders, opened fire at ranges of 1400 yards and 1900 yards, with 48 rounds of shell, 12 each of time-fuse Shrapnel, 12 of percussion Shrapnel, 12 of common shell, and 12 of water-shell. The enemy consisted of a company of infantry 100 strong, in two ranks, kneeling in close order, as represented in page 351 of the "Field Exercise (Pocket Edition) for 1874" in a shelter trench forty paces in length. The object was to ascertain the effect of artillery fire upon skirmishers protected by a hasty trench. The practice was again good, not less than 40 odd hits being obtained in the first six rounds, and the result was considered so good that the battery was limbered up the valley to witness the effect of their own practice, and rather a rough ride it proved for the battery went over boulders and through bogs for upwards of a mile, taking every thing at a trot. The battery returned to camp at six p. m.

CORRESPONDENCE.

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

(FROM OUR OWN CORRESPONDENT)

The Sherbrooke Camp, E. Townships, P.Q.

The Camp of Instruction which was formed on the 20th ultimo, under the command of Colonel John Fletcher, C.M.G., Deputy Adjutant General 5th Military District, P.Q., was broken up on the 2nd inst. On Wednesday the 17th September, an inspection was made of the whole force by the D. A. General, comprising the Provisional Regiment V. Hussars of four troops (told off as squadrons) consisting of the Cookshire, Sherbrooke, Stanstead, and Compton troops, commanded respectively by Captains French, Reed, Wood, and Stimson; Commanding Officer of the Regiment, Major Taylor, with Lieut. Colonel Lovelace as superintendent of drill and instruction.

The 53rd Regiment, Lieut. Colonel Ibbotson

commanding; The 54th Regiment, Lieut. Colonel Lord Aylmer commanding; The 55th Regiment, Lieut. Colonel Cook commanding. After the inspection a sham fight took place, in which the Cavalry and Infantry went through the evolutions attendant on the same in a very creditable manner, though the men, comparatively speaking, had but little opportunity for efficient drill on account of the wet weather that lasted with but few exceptions during the whole encampment. The skirmishing of the Cavalry dismounted, with their chargers linked, was exceedingly well performed, and the docility of the horses in remaining perfectly quiet, under a rattling fire from their riders' carbines at a distance of some 50 yards in front of them was particularly noticeable. The well nourished fire from the Snider Rifles of the Infantry was excellent, and so steadily kept up without intermission, that no enemy could long have held their own before it.

In the evening a complimentary dinner was given by the officers of the Brigade to Colonel Fletcher. The chair was occupied by Lieut. Colonel Lord Aylmer, and Captain Wood Secretary, read several letters of apology from invited guests who were unable to attend. The Mess-room was decorated in a most tasteful manner with branches of the Canadian maple in all their glorious autumn tinted leaves that mixed with the dark green foliage and scarlet berries of the mountain ash, produced an effect not to be surpassed in any regal hall. The dinner was got up in Mr. Wright Chamberlain's best style, and was much enjoyed notwithstanding the pelt ing rain that found its way through the crevices of the roof of the roughly put-together mess-house compelling the convives to keep on their forage caps and overcoats. After the customary toasts to H. M. the Queen, &c., &c., the Chairman proposed the health of Colonel Fletcher, the D. A. General of the District, which it is needless to say was drunk with enthusiasm and with all the honors. The gallant Colonel in reply testified his appreciation of the services of the officers and men, and the good conduct of the Brigade in general. He paid honor to the Honorable Matthew Aylmer, Brigade Major, a well deserved compliment for the satisfactory discharge and supervision of the staff duties, and spoke in high terms of Lieut. Colonel Lovelace, the late Commanding Officer of the Cavalry at the Granby and Brockville Camps, and then acting as superintendent of drill and instruction in the Sherbrooke Camp. He considered it a good omen for the safety of the Dominion that the frontier force of the 5th District displayed such a genuine military spirit—for this District was the key of Canada from the South, and if ever lost, Canada would be placed in great trouble and difficulty. Amongst the leading toasts of the evening "The House of Commons and the Provincial Legislature were responded to by Messrs. Aylmer, M.P., and Watts, M.P." "The Press," (represented by the Editor of the Sherbrooke News) was ably responded to by that gentleman in a most eloquent and stirring strain that did not fail to elicit much well merited applause. Songs and a few more speeches followed, and the reunion did not close till a little before midnight.

Mr. Wright Chamberlain has won golden opinions from the officers of the Brigade as caterer on the mess, and for his obliging disposition on every occasion during his connection with the Sherbrooke Camp. It may be mentioned that the encampment was on Mr. Chamberlain's grounds, a more beautiful situation for the purpose could scarcely have been selected. A board of officers of which Colonel Fletcher was Presi-

dent and Major the Hon. M. Aylmer and Lieut Colonel Lovelace members, assembled at both the Granby and Sherbrooke Camps for the purpose of examining officers for 1st and 2nd class Certificates, all the members of the Board have been in H. M. Service.

The appearance of the *Provisional Regiment of Frontier V. Cavalry*, under the command of that active and efficient young officer Major Taylor, has much improved since last year, Captains commanding troops insisting on men joining, furnishing themselves with long regulation riding boots as in the regular Cavalry. It is fully expected that this well disciplined and finely mounted corps, consisting of able young farmers of the Eastern Townships will shortly be gazetted as a Frontier Regiment; in that case Major Taylor will obtain his well earned promotion of Lieut. Colonel, and Captain Wood of the Stenhouse Troop his majority.

Surgeons Werthington and Austin of the Medical Staff were unremitting in attending to their duty, the supply of rations and forage (with some occasional exceptions to the latter) were good.

The acting Sergeant Major of the Cavalry, Maguire, late on the riding establishment of H. M., 13 Hussars, contributed much by his services to the regiment in Camp, to keep up the discipline of the Corps. This N. C. Officer is to be appointed it is said to the Military College at Kingston very shortly as Riding master of the Establishment.

Major Aymerauld, Com. the Granby Field Battery and District Paymaster of the 5th Military District, previous to the breaking up of the Battery after the 16 days drill, was the recipient of an address accompanied by the presentation of a handsome watch and chain from the officers, N. C. officers and men of the corps in which he is very much esteemed. Thanks are due to the Editor of the *Montreal Herald* the *Gazette* the *Witness* the *Star* the *Volunteer Review*, and the *Sherbrooke News*, for the gratuitous forwarding of packages of their respective journals daily for distribution in the Sherbrooke Camp. B. S.

DOMINION OF CANADA.



MILITIA GENERAL ORDERS.

HEAD QUARTERS.

Ottawa, 15th October, 1875.

GENERAL ORDERS (27).

No. 1.

ACTIVE MILITIA.

Schools of Gunnery, Kingston and Quebec, Transport Expenses

Deputy Adjutants General of Military Districts will not, in future, grant Requisitions for Transport to men proceeding to join "A" or "B" Battery, Schools of Gunnery at Kingston and Quebec. Men so pro-

ceeding will themselves advance their transport expenses, the actual cost of which will be reimbursed them by the Government after they have joined the School.

SCHOOLS OF MILITARY INSTRUCTION.

The Schools of Military Instruction at Fredericton, N.B., and Halifax, N.S., will be re opened on First of December next, for six months.

No. 2.

PROVINCE OF ONTARIO

Ottawa Brigade of Garrison Artillery.

No. 3 Battery, Gloucester.

The resignation of Captain Bartholomew Seymour Tobin is hereby accepted.

PROVINCE OF QUEBEC.

65th Battalion or "Mount Royal Rifles."

No. 1 Company, Montreal.

To be Captain:

Paul J. Valmiere Bourdon, Esquire, M.S., vice Delisle, resigned.

To be Lieutenant:

Eusebe Lapierre, Gentleman, M.S., vice Delisle, promoted.

To be Ensign:

Jean Baptiste Pouté, Gentleman, M.S., vice Ste. Marie, resigned.

Three Rivers Provisional Battalion of Infantry.

No. 2 Company, Rivière du Loup, en haut.

To be Lieutenant:

Olivier Laféche, Gentleman, M.S., vice Pichette, promoted.

The resignation of Ensign Adolphe Babin is hereby accepted.

CONFIRMATION OF RANK.

Lieutenant Colonel Calvin L. Hall, V. B., 2nd Battalion, from 14th September, 1875.

Lieutenant John K. Bartlett, V. B., No 4 Company, 79th Battalion, from 14th September 1875.

Lieutenant Dorland P. Ryther, V.B., No 6 Company, 53rd Battalion, from 28th Sept., 1875.

Lieutenant Thomas J. Wyatt, No 1 Company, 58th Battalion from 28th September, 1875.

Ensign James Artis, V. B. No. 8 Company, 79th Battalion, from 14th September, 1875.

Ensign Donald Beaton, V. B., No 3 Company, 58th Battalion, from 28th September, 1875.

Ensign William Embury, V. B., No 5 Company 53rd Battalion, from 28th September, 1875

PROVINCE OF NOVA SCOTIA.

2nd "Halifax" Brigade of Garrison Artillery.

No. 2 Battery, Dartmouth.

To be 2nd Lieutenant provisionally:

Trumpet Major Henry Pinceo Clay, Vice Smith, retired.

PROVINCE OF PRINCE EDWARD ISLAND.

King's County Provisional Battalion of Infantry.

To be Paymaster:

Edward Vickerson, Esquire, vice Michael Gregory whose appointment is hereby cancelled, he having been erroneously nominated.

To be Surgeon:

James W. Fraser, Esquire, vice E. M. Muttart whose appointment is hereby cancelled, he having been erroneously nominated.

No. 3.

CERTIFICATES GRANTED.

BOARDS OF EXAMINERS,

PROVINCE OF QUEBEC.

FIRST CLASS CERTIFICATES.

Lieutenant Colonel Calvin L. Hall, Commanding 52nd Battalion.

Captain Christopher Armstrong, No. 2 Company, 53rd Battalion.

Captain James D. Romage, No. 5 Company, 58th Battalion.

Captain Malcolm McAuley, No 9 Company, 58th Battalion.

Captain James Mairs, No. 5 Company, 54th Battalion.

Captain Marshall Relfo, No. 6 Company, 53rd Battalion.

Captain Wm. Alex. Morehouse, No. 1 Company, 53rd Battalion.

Lieutenant Charles S. Dow, No. 4 Company, 52nd Battalion.

Lieutenant Donald N. McLeod, No 9 Company, 58th Battalion.

Lieutenant Tabor McKenney, No. 1 Company 60th Battalion.

Lieutenant Donald McLeod, No. 1 Company, 54th Battalion.

Lieutenant Edward Lothrop, No. 4 Company, 58th Battalion.

SECOND CLASS CERTIFICATES.

Lieutenant John K. Bartlett, No. 4 Company, 79th Battalion.

Lieutenant Dorland P. Ryther, No. 6 Company, 53rd Battalion.

Lieutenant Thomas J. Wyatt, No. 1 Company, 58th Battalion.

Ensign James Artis, No. 8 Company, 79th Batt.

Ensign Donald Benton, No. 3 Company, 58th Batt.

Ensign Wm. Embury, No. 5 Company, 53rd Batt.

By Command,

WALKER POWELL, Colonel, Adjutant General of Militia Canada.

ALONE.

[Orpheus C. Kerr, (R. H. Newell) is well known as an extravagant humorist, but the following from his volume of serious, entitled "Palace, Beautiful and Other Poems," exhibits another side of his mind.]

Three stalwart sons old Sweyn the Saxon, had,
Brave, hardy lads for battle on the chase;
And though, like peasant, barbarously clad
Each wore the nameless in his face;
One o'er another rose their heads in tiers,
Steps for their father's honorable years.

One night in Autumn sat they round the fire,
In the round cabin bountiful of Home;
Mild was the rev'rance due from child to sire,
Bold in the manhood of mast'ry come;
Working their tasks o'er huntsman's forest gear
Loos'ning the bow and sharpening the spear.

Lost in his thoughts old Sweyn, the Saxon stood
Leaning in silence 'gainst the chimney stone;
Staring unconscious at the blazing wood,
Steeped in the mood of mind he oft had known
As an old tree, whose stoutest branches shake,
Scarce from their sign of life will take.

Athol, the bearded, with his bow and done,
Alfred, the nimble, laid his spear aside,
Edrie, the fairest, tiring of his fun,
Left the old hunt to slumber on his hide;
Yet was their sire like one whose features seem
Shaded by sleep, and all their light a dream.

Bold in the favor of the eldest born,
Athol, for both his younger brothers, spoke;
"Father, the fox is prowling in the corn,
And hear the night owl hooting from the oak
Let us to couch." But Sweyn had raised his head
And thus unwitting what has passed he said:

"See from my breast I draw this chain of gold;
Fair in the firelight royally it shone,—
"This for his honor that shall best unfold
Who of all the creatures, is most Alone;
Take him from palace, monastery or cot,
Loving, unloved, forgetting, or forgot."

Then Athol spoke, with thoughtful tone and look
"He is the loneliest—most Alone of all
Who, in a skiff to the midseas forsook,
Finds not an echo, even to his call;
If echo lived not all, alone were he;
But there's no echo on the solemn sea!"

And Alfred next:—"But Icneller, brother, far
The wretch that flies a just avenging rod,
To him all scenes are waste, a foe the star,
All earth he's lost, yet knows no heav'n, no
God;
Most lonely he, making man his foe,
Unto man's Maker darest not to go!"

Thus spoke the lads, with wit beyond their years
And yet the old man held his beard and sigh'd
As one who gains the form his wishing wears,
But misses still a something most denied;
Upon his youngest eager looks he turned,
And Edrie's cheek with grace ingenuous
burned

"I think my father," and his tone was low,
"That lonelier yet and most Alone is he,
Scarce taught, tho' crowds are landing where to
go
And one face missing, can no other see;
Though all the Norman's court round him
moves
He is alone apart from Her he loves."

A hush fell on them. Then with loving air
And all the touching romance of the Old,
The hoary father kiss'd young Edrie's hair,
And o'er his shoulders threw the chain of gold;
Then fell upon his darling's neck and cried:
"I have been lonely since thy mother died!"

We publish below an article from the United States Army and Navy Journal of 11th Sept., on "Breechloaders" in which the comparative merits of Sporting rifles are ably discussed and much valuable information given on the subject. But our contemporary seems to forget that military considerations as well as physical and practical obstacles restrict military rifles to a range of five to six hundred yards, and therefore the English practice is in this case the correct one.

The article will afford our readers an insight into what the ideas of experts amongst our neighbours are, and it would be well for those who have time and the means at their disposal to investigate the subject of the

value of long range for musketry practice in a military point of view.

It is quite clear that the main principle in this case is practicability, and all efforts should be made to attain the greatest possible perfection under the conditions as to range of human vision—mechanical appliances can be had sufficiently perfect to follow that to its ultimate limits—beyond that they are useless as far as small arms are concerned.

BREECHLOADERS.

When the muzzle loader, as a military weapon, had been entirely superseded by the more rapid rifle charged at the breech, it still remained the prejudice, fashion or opinion in England, that for long range work the breechloader was deficient in accuracy. Up to 600 yards, in the Queen's Prize match, the old Snider was used; but in the latter stages, at 800 and 1,000 yards, the muzzle-loading Whitworth or Metford has from the first supplanted it. The new weapon of England, the Martini-Henry rifle, is expected to change all this, being represented as accurate up to 800 yards; but there seems to be a good deal of trouble with this famous gun, on account of its tremendous recoil, and the battle over its adoption has hardly yet terminated. The only real and substantial triumph gained by modern breechloaders, when put in competition with muzzle loaders, was that gained at Dollymount by the Sharps and Remington Creedmoor rifles shooting against one of the very best muzzle loaders to be found in the British Islands. Up to the opening of Creedmoor, or very shortly before it, no serious attempt had been made by manufacturers of breechloading firearms to produce a weapon able to hold its own for accuracy at 1,000 yards. Thitherto the rifles made had been coarse, clumsy military pieces, or hunting rifles, only differing from the military class by having less stock and no bayonet stud. While many were nominally sighted up to 800 yards, the divisions on the hausse were for the most part theoretical, and the cartridges themselves did not contain enough powder to carry the bullet beyond four hundred yards or sometimes six, with any accuracy. Good enough at shore range, at half a mile they were useless, and yet all this was soon to be changed by the adoption of a simple improvement. The substitution of the Berdan Brass Central Fire Cartridge, with its solid head, movable primer and faculty of reloading for the old copper rim fire concern was the real starting point of modern practical breechloading firearms on the road to success, and that success has been so great as to compel all the world to follow it. From the Berdan Brass Central Fire Shell sprang the Sharps and Remington Creedmoor rifles, and the victory of Dollymount.

Theoretically speaking, there is no reason why rifle loading at the breech should not be just as accurate as one loading at the muzzle. Practically, we find that after 500 or 600 yards the accuracy of the military breechloaders falls off, and it is only with Sharps and Remington Creedmoors that one may hope for constant success beyond that distance, against a muzzle-loader. One reason of this is that the military cartridges only carry a charge adequate to five hundred yards. The other reason has been lately investigated, and reveals itself to be more serious than is generally supposed, being nothing less than carelessness of manufacture, and especially want of correspond-

ence between the chamber of the gun and the cartridge therein inserted.

The theory of the brass central fire cartridge is well known and simple. It is that brass, being a strong and somewhat elastic metal, will stand the shock of a heavy charge, and that its head will serve as a perfect gas check. A properly made brass shell is supposed to stand any amount of reloading, and to be always safe from bursting and leak-fire. The experience of Creedmoor has, however, taught many there that these assumptions are not always safe. Cartridges are sometimes found to stick, when being extracted, showing that the limit of elasticity of the brass has been passed, and that the metal has yielded to the strain, as copper used to in the days of rim fire. Occasionally, in fact not very infrequently, a cartridge leaks fire backward, and the accidents to faces and eyes from this cause have produced in many minds a prejudice against the class of rifles represented by the Remington and Whitney, inasmuch as those guns afford no protection against a mischance of this kind. In the Sharps, Ward Burton, Peabody, and guns of the bolt or lever class, there is not so much danger from a leak-fire, as it goes upwards and not backwards, and this advantage has weighed heavily with many in adopting a rifle for personal use. A series of late experiments made by an expert in the cartridge business, and very kindly furnished to us for the benefit of the rifle shooting public, assign a very reasonable cause for most of these accidents, and suggest a very simple remedy.

When the first Berdan cartridges were made in this country for the Russian rifles of 42 cal., a very careful series of experiments was made by general Gorloff, resulting in the present well-known long bottlenecked cartridge, the model of all our long range cartridges. It was then decided, by experiment, that the extreme limit of variation between the size of the brass cartridge and that of the chamber that contained it, should be .003 of an inch. The exceeding of that limit produced an undue strain of the brass, and always terminated in a rupture sooner or later. The uneven qualities of different lots of brass have of course some influence on the strength of a cartridge, but the general rule was found to hold good that a chamber which did not exceed the diameter of the cartridge by more than .003 of an inch would hold the cartridge and preserve it from rupture. With the Berdan cartridges used in Russia under these restrictions, the very best results have been obtained for uniformity of fire, and misses, leaks and ruptures are alike unknown, while the only trouble ever experienced has been in an occasional bad piece of brass, against which no precaution has yet proved totally reliable.

The next army gun that was used with a central fire brass bottle-necked cartridge was the Spanish Remington calibre .433 or 11 millimeters, and this gun was followed by the Peabody and the Whitney, of the same calibre, using the same cartridges. Here the real trouble began, for no gun that we are acquainted with has given so much trouble as this same 43 cal. gun so called. The original cartridge for this gun measured .517 at the head, .459 at the mouth, and the limit of size of chamber should have been, on the principles settled by the Gorloff experiments, from .518 to .520 at the head, .460 to .462 at the mouth. Instead of this, actual measurement reveals the following discrepancies in three different guns, taken at random, and averaged from numerous experiments:

	Head of Chamber,	Mouth of Chamber.
Remington, 43 cal.	525	463
Peabody . . . 43 cal.	536	464
Whitney . . . 43 cal.	531	465

It will be seen that the original weapon, the Spanish Remington, exceeds the limit of safety least of any, while the Peabody passes it by .016, the Whitney by, 010. The variation in cartridges by different makers is by no means so great. That made by the Remingtons for their Spanish model measures .519 at the head to .459 at the mouth. A second, made in Cuba for the same gun by Spanish workmen, measures .520 head and .457 mouth. The Winchester cartridge of the same calibre measured .520 head, .458 mouth. The Spanish government, anxious to have a gun that would take any variety of cartridge, and a cartridge fit to go into any gun fixed the official limits of variation as follows: Gun chamber—head .5295 to .5370, mouth .465 to 4760; cartridge limits, head .517 to .526, mouth .456 to .466. Within these limits there is of course much room for uncertainty, and that uncertainty it was that first produced the large chambers of modern military guns, made to take a variety of cartridges. The trouble with all this is that they are too large, for while the cartridge keeps uniform the gun chamber varies. A cartridge may go in very nicely, and yet stick in coming out. In nine cases out of ten the trouble is caused by a large chamber that did not support the walls of the cartridge. In consequence, the latter, either swelled or burst. The remedy for this state of things is very simple. It is for the members of the gun trade to secure some sort of uniformity in sizes of chambers by mutual agreement, and especially of conformity to the size of the cartridge. The latest experiments show that for fine target rifles carefully kept, the difference between chamber and cartridge can be reduced to .001 of an inch without danger of sticking, while for military rifles .003 is a safe allowance not to be exceeded.

In order to bring American breechloaders to their full perfection, all that they need is a common standard of calibre and chamber, no matter what that may be. It is the business of the cartridge factories to conform to that, and make their cartridge fit the guns; but at present, so great is the variety of chamber and bore in guns of avowdly the same calibre, that the very best results cannot be obtained. For instance, a measurement of several barrels of the very highest grade of target rifle, the Sharps and Remington Creedmoor, the other day gave the following differences: Remington Creedmoor, 44 cal., five barrels measured .447, .449, .448, .447, .447, respectively; Sharps Creedmoor, 44 cal., measured .442. The latter gun varies the least, and the manufacturers have lately come to an understanding that their sporting rifles of 44 cal. shall in future measure exactly .440 and their Creedmoors .441.

We understand that in future the Sharps, Remington and Peabody 44 cal. rifles will be provided with chambers of uniform size by mutual agreement, and the agreement bids fair to improve future shooting in a great degree. It will certainly secure one thing—greater uniformity of result, as it stands to reason that a perfectly fitting cartridge will centre its bullet truly, when one several sizes too small will engage its missile in the rifling at an angle which, however small in the bore of the gun, may make all the difference between a bull-eye's and an outer or miss at 1000 yards.

The following interesting paragraphs on Torpedo experiments are from *Broad Arrow* and the *United States Army and Navy Journal*:

"The Torpedo Committee at Portsmouth have been prosecuting two distinct series of experiments since the night attack was made upon the *Monarch* at Spithead; the object being to ascertain the best means of detecting the approach of boats in the dark, either for the purpose of exploding torpedoes against a ship at another or of detaching sunken mines from their connections with the shore, as well as to discover the colour which is less likely to be detected in the night. The thing is to adopt means for discovering the enemy at a distance from the ship or the mines. Parachutes and rockets have been tried with considerable success, and the lime light has been tested; but the greatest success has attended the use of the electric light as a torpedo detector. Several interesting experiments have been made with Wilde's electro magnetic induction machines, fitted with an apparatus for projecting the beam of intense light produced upon a distant object, or for searching the sea in any direction on the look out for enemies. On Wednesday, the 2nd ult., a trial was made of Messrs. Siemen's electric light by the Torpedo Committee at Fort Monckton, near Gosport. A boat belonging to the *Excellent* gunnery-ship, attempted to approach the line of torpedoes in Stokes Bay for the purpose of cutting the cables connecting them with the batteries on shore, but was discovered on every occasion long before it could reach the mines, and the illumination produced was of so brilliant a character that a person could read by it more than a couple of miles distant. The experiments are said to have been very successful. In the meantime it has been found colours which are the most difficult to discern during the day are readily discerned under the electric light. The French grey of the *Glatton* can easily be seen, and white is only a little more difficult to discover. The best colour for concealment is black, and yet the smoke of the steam launches when illuminated by the beam seems solid and to stand out boldly. When boats can thus readily be picked out, nothing could protect them from the guns of a ship or battery. But the whole question of colour is a highly interesting one, and can here only be incidentally alluded to.

"Sir: Some of your readers may be interested in a brief account of the torpedo experiments at this station to day and yesterday many of which were of an interesting character. The experiments were conducted before Secretary Robeson and a large party of distinguished persons, among whom were Senators Cragin, Anthony, and Burnside; Representatives Frost, Eames, and Banks; Admiral Porter; Rear-Admirals Case and Rogers; Commodore Jeffers, Chief of the Bureau of Ordnance, etc, etc.

The first day (September 2) was devoted to the station proper, and the experiments performed served to show the capabilities of the station and the kind of work and instruction carried on there. The chemical and electrical laboratories, fuse room and work shops were open to the inspection of the visitors. For the convenience both of the operators and the spectators, a stand had been erected on the grass plot adjoining Captain Breese's quarters, to which were led the necessary electric wires, and from this point, all the experiments in the inner

harbour were directed. From the elevated position of the stand, the spectators had a good view of the explosions, with an opportunity to see the methods of conducting the operations.

The experiments began with a subaqueous salute (if this expression may be used), in honor of the Secretary, under the direction of Commander Manly. This consisted of nineteen small ground torpedoes, fired automatically at six seconds intervals, by means of an ingenious electric apparatus, contrived by Prof. Farmer.

Next, the method of using the two sizes of dynamo-electric machines issued to the Service, was shown by lieutenant Merrell. With the Clor boat machine, a 25 pound ground torpedo was fired, and with the A or ship machine, a 100 pounder.

After this, the Lay torpedo at the station was operated by Lieutenant Bradford, who directed its movements from the stand. The torpedo was started from the wharf in front of the office building, and manoeuvred in various directions for a short time. It was then sent against a target about 600 yards distant. On striking the target, a small charge carried upon a rod attached to the bow of the torpedo, was exploded. After the explosion, the torpedo made a complete circle, returning again to its starting point having accomplished all that could be desired.

Immediately after, the Ericsson torpedo was exhibited by Mr. Lassos, Mr. Ericsson's agent. It was operated from the steamer *Nina* on which was placed the necessary apparatus for working it. On starting, it took at once the depth for which it was set (10 feet), which it preserved during its run. The Torpedo worked well, being under the control of the operator, who changed its course at pleasure.

Next came the firing of six ground torpedoes by Lieutenant Maynard. These torpedoes were planted in a group in front of the stand and connected, in independent circuits, to a key board arranged to show the method of testing and firing any number of torpedoes, in line or grouped. By this arrangement, the torpedoes could be fired singly or in such numbers or groups as desired.

Some interesting electrical experiments were next brought forward. The first was simultaneous firing of 918 fuzes by a powerful current generated by a large Farmer dynamo-electric machine, driven by the engine in the machine shop. At the same time was shown in action, an ingenious electric engine designed by Lieutenant Moore, for driving a moveable torpedo. This engine promises to be of much use. A chronograph designed by Prof. Farmer was exhibited. This instrument is new, and has not been sufficiently tested, but is believed to possess many advantages over any now in use. A Siemen's Position Indicator had been placed upon the parapet above the stand, with its base line along the east shore of the island, so that the working of this ingenious instrument could be readily seen.

Meantime, the U. S. steamer *Nina* had left her wharf and steamed down the harbor with a 100 pounder spar torpedo on her starboard quarter. This was exploded in front of the stand, when the vessel was at full speed. Following her, came the steam launch which fired a 75 pound torpedo from a spar rigged out from her bow. The *Nina* having turned, came back by the stand, towing a Harvey torpedo on her port side, exploding it in contact with a floating target.

The next experiment was the firing of an improvised torpedo (made from an old oil can), by Lieutenant Commander Higginson and Lieutenant Davenport, at the request of the Secretary.

The experiments in the inner harbor were concluded with the firing of three ground torpedoes placed in connection with circuit closers. This was done to illustrate the operation of circuit closer or breakers and to show the use of a Circuit Indicator, designed by Lieutenant Converse, by whom this experiment was conducted. With this important and ingenious apparatus (the Circuit Indicator of Lieutenant Converse) the test circuit is always complete, and any fault in it is at once indicated. When a circuit closer is bumped, the contact is indicated and the firing current automatically switched on the torpedo in connection, all other circuit closers being thrown out temporarily, so that they may not be affected by the explosion. The instrument worked with admirable precision.

The three remaining experiments were performed in the outer harbor. The first of them was the explosion of 65lbs of dynamite against a very heavy raft representing a floating obstruction. The raft was strongly built, but was completely shattered by the explosion, and the fragments were thrown high into the air.

Following this, came the explosion of 100lbs. of liquid nitro-glycerine, 35ft from the surface in 60ft. of water. By this, a very large body of water was thrown out. At considerable depths, the peculiar effect of nitro glycerine is of great value.

The last experiment of the day was the blowing up of an 80 ton schooner, which had been anchored over a torpedo containing 300lbs. of powder and 200 of dynamite. The torpedo was about 12ft. beneath the surface as may be easily imagined. The vessel was completely torn to pieces.

It was a source of gratification to Captain Breese and the officers under his command, that no delay or mishap had occurred during the experiments. It was much to be regretted that Captain Simpson and Commander Mathews are both out of the country. Their presence at such a time at the station which owes so much to their exertions, would have been especially pleasant.

The following day (September 3rd), the U. S. S. *Despatch*, commander Rodgers, the new torpedo boat *Alarm*, lieutenant F. M. Barber, and the *Nina*, Lieut. R. B. Bradford, took part in the experiments. The *Alarm*, on board of which was Admiral Porter, blew up an old schooner with her bow torpedo, exploding also torpedoes from her two side bars against the debris remaining. Later, she fired, simultaneously torpedoes from her three bars, while close aboard the *Despatch*. In addition, she fired her 15 inch gun as well as her Gatling guns. The *Alarm* displayed her peculiar advantages as a torpedo boat by the ready manner in which she can be turned and steered. Her Fowler wheel enables her to turn with extreme quickness. Thus, while enveloped in the smoke from the discharge of her 15 inch gun, her course can be completely changed.

The hulk was well broken up by the *Alarm*, so that the *Nina* did not find much to operate against. However, she exploded a spar torpedo against the largest piece of the wreck left floating.

These explosions were witnessed by the Secretary and his party from the *Despatch*.

It had been intended to have a contest between the *Despatch* and a schooner handled by the lieutenants belonging to the class. The *Despatch* was to tow a Harvey

torpedo, which the schooner would try to avoid. A short time before, in a trial with the *Nina*, the schooner succeeded in evading the torpedo. The *Despatch* being a much faster vessel than the *Nina* would probably be better able to strike the schooner. This plan could not be carried out, since as there was no wind the schooner could not be manoeuvred. A.

A CHANCE FOR ALL.

100,000 GIVEN AWAY.

THE Union Pocket Book Company having secured by cash purchase the entire bankrupt stock of Messrs. H. Morton & Co., consisting of 400,000 PORTMONIES (POCKET BOOKS), of the best manufacture and superb quality, each pocket book being made of Red Morocco Leather; to effect a speedy clearance sale and having in view the old motto of the house,

CERTAIN PROFITS WITH QUICK RETURNS.

The Company have decided on giving each individual purchaser

THE FULL BENEFIT

of this remunerative bargain by

GIVING AWAY ONE HUNDRED THOUSAND DOLLARS.

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2818 MONEY PRIZES.

THE FIRST PRIZE BEING \$20,000 CASH.

" 2d " " 10,000 "

" 3rd " " 5,000 "

and 2818 other money prizes as follows, viz:

25 PRIZES OF \$1000 CASH, EACH.

40 " 500 "

50 " 100 "

100 " 50 "

200 " 20 "

400 " 10 "

2000 " 1 "

The above prizes with the cost of advertising and other incidental expenses,

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two thirds of the profits that accrue on the entire sale, and to enable every one to have an equal share in the profits, with the certainty of receiving treble the value for their small investment and the further opportunity of surely gaining a share in

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and this to be the riskless outlay of \$1 only. THE UNION POCKET BOOK COMPANY will deliver free to any address on receipt of one dollar.

A GENUINE MOROCCO LEATHER POCKET BOOK.

together with a

COUPON TICKET,

entitling and giving the holder a share in the drawing of

2818 CASH PRIZES

of the aggregate value of

ONE HUNDRED THOUSAND DOLLARS CURRENCY.

The Company guarantee to return to each purchaser at least, treble the value for his money.

HOW CAN THIS BE ACCOMPLISHED?

is a question many will doubtless ask themselves and forseeing this we offer the following lucid explanation:

The Trade assignee, anxious to dispose of and realize on the entire stock of the bankrupts in one sale, accepted our offer of \$200,000 cash for the lot; after advertising same for sale for one month, and not receiving a single offer, which in the present depression of business and almost total stagnation of trade is, not to be wondered at; notwithstanding that our offer was one third less than the actual cost of the manufacture of the Pocket Books. The assignee having to at once realize the effects of the bankrupts, in the interests of the creditors he had no alternative but to accept this offer and sell us the lot at our own price, thereby enabling us to

DISTRIBUTE IN PRIZES \$100,000

amongst the purchasers, and at the same time retain a fair marginal profit for ourselves; thus you obtain fully double the value of the amount you forward us and it depends on your luck what amount you gain of the

One Hundred Thousand Dollar Money Prizes

The sale will positively close on

Monday, the 22nd day of November, 1875, and orders for pocket books should therefore be

forwarded us at once—no application by letter after Saturday November 20th can be entertained.

1000 of the Pocket Books are of the patented manufacture, superior in value to the remainder, the retail price of the same being \$3, and these will be forwarded to early purchasers until disposed of.

Therefore those that send immediate orders will reap the advantage of receiving a superior article.

Remittances can be sent us either for one or any number of pocket books by draft, post office orders, or green backs in registered letter by express, etc.

Post Office orders and drafts to be made payable in favor of Frank Stewart (the Company's Manager) Post Office orders to be drawn on General Post Office, Philadelphia, and drafts on the first National Bank.

THE DRAWING OF PRIZES

will take place at the Company's Principal Offices, 530 Locust Street, Philadelphia, in the State of Pennsylvania, on Wednesday, November 24th, 1875, and

THE WINNING NUMBERS

will be advertised in this Journal and the principal Philadelphia and New York newspapers of Saturday November 27th.

THE PRIZES

will be forwarded in drafts, greenbacks, or by post office order per registered letter by Monday's morning mails, November 29th, or if preferred prizes can be sent by express, or in any other manner purchasers may select providing same be signified by them when forwarding orders for pocket books.

REMEMBER THIS IS NO LOTTERY,

but a bona-fide business system founded on a true financial basis which enables the Company to convert into money an otherwise surplus stock, and this to with a good profit to both the purchasers and themselves, effecting a speedy clearance stock which in the present dull times is the great desideratum; in no other way can be successfully attained.

We guarantee each pocket book to be of the best manufacture; of pure morocco leather and intrinsically worth in retail trade at the lowest rate of from \$3 to \$4.

This is an opportunity that should not be let pass by; one and all should embrace this chance; We afford every one an opportunity of realizing a share in \$100,000 at the insignificant outlay of \$1 (one dollar) for which they receive value three fold and those who let this fortuitous chance escape them will have only themselves to blame.

All letters replied to same day as received. We advise intending purchasers to forward orders immediately which will prevent disappointment and receive prompt attention.

Remember, every one that sends ONE DOLLAR before November 20th, 1875, receives

A Morocco Leather Pocket Book

of the value of from \$3 to 4 and a COUPON, giving them a share in the drawing of

\$100,000.

Address all orders, letters, etc.

The Union Pocket Book Company,

South East Corner 6th and Locust Streets, Philadelphia, Penn.

P. S.—Drawing absolute on Wednesday, November 24th. No postponement in the remote contingency of any number of the pocket books remaining unsold a slight reduction not exceeding \$5000 may be made proportionately from the prizes. 41n.42

MAIL CONTRACT.

TENDERS, addressed to the Postmaster General, will be received at Ottawa until Noon, On Friday, 5th Nov'r, 1875,

for the conveyance of Her Majesty's Mails, on a proposed Contract for four years SIX times per week each way, during winter season, between CARILLON and OTTAWA (South shore), from the close of navigation, 1875.

Conveyance to be made in suitable vehicles. The Mails to leave Carillon on arrival of mail from Vaudreuil and reach Ottawa in seventeen hours afterwards.

To leave Ottawa at 7 P.M. and reach Carillon in seventeen hours afterwards. The contract may be terminated or reduced on the opening of the Northern Colonization Railway.

Printed notices containing further information as to conditions of proposed Contract may be seen, and blank forms of Tender may be obtained at the Post Offices of Ottawa, Carillon and all intermediate offices on route.

T. P. FRENCH,

P. O. Inspector.

Post Office Inspector's Office, Ottawa, 4th Oct., 1875.

41-4



MAIL CONTRACT.

TENDERS, addressed to the Postmaster General, will be received at Ottawa until Noon, **On the 5th November next**, for the conveyance of Her Majesty's Mails, on a proposed Contract for four years, SIX times per week each way, during the winter season, between **CAHLON and OTTAWA** (North shore) from the cross of navigation, 1875.

Conveyance to be made in suitable vehicles. The Mails to leave Carleton on arrival of mail from Yardreuil and to reach Ottawa in seventeen hours afterwards.

To leave Ottawa at 7 P.M. and reach Carleton in seventeen hours afterwards.

The proposed contract may be either terminated or reduced on the opening of the North Colonization Railway.

Printed notices containing further information as to the conditions of proposed contract may be seen, and blank forms of Tender may be obtained at the Post Offices of **OTTAWA, East Templeton, Angers, Bassin du Livre, Buckingham, Thore, Bylandville, Nicholville, Poirer aux Chenes, St. Armand, Stonefield, Tashing and Carleton.**

T. P. FR. NCH.

Post Office Inspection Office,
Ottawa, 4th Oct., 1875.

QUARTER BONDS

OF THE

INDUSTRIAL EXHIBITION COMTY.

FIVE DOLLARS EACH,

\$5 00,

Will buy a quarter Bond of The Industrial Exhibition Co. of New York.

Each Quarter Bond participates in Four series of lotteries every year, until it is redeemed.

The following Premiums show what any Bond may receive. A quarter Bond would receive one year of the below named premiums:

JANUARY & JULY. Cash	
1 premium of	\$100,000
1 premium of	10,000
1 premium of	5,000
1 premium of	3,000
1 premium of	1,000
10 premiums of \$70 each	700
10 premiums of 30 each	300
5 premiums of 100 each	500
3 premiums of 50 each	150
20 premiums of 25 each	500
Total	\$150,000
APRIL & OCTOBER. Cash	
1 premium of	\$25,000
1 premium of	10,000
1 premium of	5,000
1 premium of	3,000
3 premiums of \$1,000 each	3,000
10 premiums of 500 each	5,000
10 premiums of 200 each	2,000
3 premiums of 100 each	300
10 premiums of 50 each	500
20 premiums of 25 each	500
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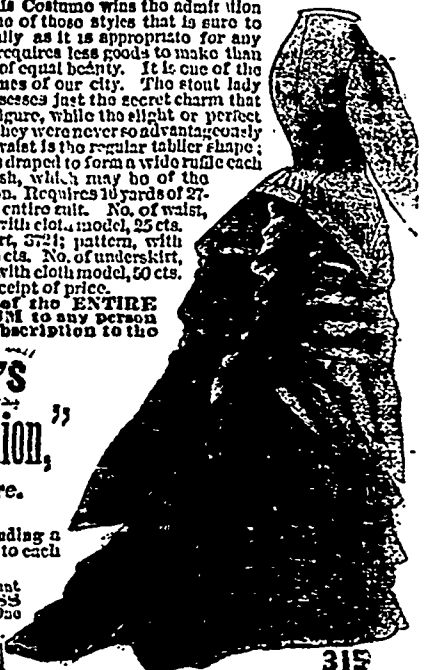
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