

where liquids were thus projected from guns, the effects were chiefly exerted at right angles to the line of fire, the liquid flashing into an instantaneous sheet or curtain of flame. M. Barret remarks that these experiments demonstrate conclusively how gross were the exaggerations indulged in by some of the leading papers during the late war in asserting, not once, but repeatedly, that several French strongholds, notably Strasburg, were fired upon by the Germans with shells filled with petroleum, and that the example was subsequently followed in Paris by the troops of the Commune."

The above is from *Broad Arrow* of 31st July, and is pretty conclusive proof that shot and shell are not likely to be superseded by any yet known agents, as destructive projectiles in warfare.

That mythic weapon known as Greek fire, could never have attained the dignity of an effective projectile.

CORRESPONDENCE.

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

ST. JOHN, N.B., Sept. 8, 1875.

To the Editor of the VOLUNTEER REVIEW.

Sir,—Can you inform me why it is that the rank of Ensign is still used in the Canadian Infantry Militia; as that title has been obsolete some time in the British Army, and the term of sub-Lieutenant used instead?

And also, is the new scarlet patrol jacket to be adopted by Canadian Infantry Officers instead of the blue one now in use. As in the Black Book it says the Canadian uniform is to be similar to that worn in Her Majesty's regular army?

There being no Canadian dress regulations published, Officers have very often to trust to their own judgment as to what is correct uniform.

Yours truly,
"MILITEM."

The substitution of the rank of sub-Lieutenant for that of Ensign is under consideration.

We are not aware of any imperial regulation authorizing scarlet patrol jackets to be worn by Officers of Infantry. The proper patrol jacket is one made from blue cloth.

It is understood that dress regulations for the Militia are under consideration with a view to publication.—ED. VOL. REV.

ST. JOHN, N.B., Sept. 13, 1875.

To the Editor of the VOLUNTEER REVIEW.

DEAR SIR,—I wish through your valuable paper to call your attention, and that of the authorities, to the disadvantage the different volunteer corps in this city are laboring under, on account of there being no military school from which to draw officers as vacancies occur.

There has not been a school held here since the winter of 1870-71, during which

time Fredericton has had the honor of supplying it with cadets for six months in each year; and when it is remembered that most of these have been collegians and school boys who only enter for the sake of the money attached to the certificate I think it will be acknowledged St. John has cause to grumble.

As regards accommodation, no city is better adapted for holding the school than St. John; the barracks being now empty and several first class instructors residing in the city. There are several young men in St. John and vicinity who wish to obtain commissions in the Active Militia, but do not care to do so with provisional rank.

Hoping this letter may have the desired effect, and that the school may be established here this winter.

I am Sir, yours truly,
PASSED CADET.

Gun Making in America.

THE RIFLE THAT WAS MADE BY MR. A. H. LYMAN OF NEW YORK.

In 1862 the writer saw a block of solid wrought iron four and one-half inches thick, cut out of an armor plate of the frigate Roanoke, pierced through and through with a steel projectile one half inch diameter by six or seven inches long. This projectile was fired from a rifle invented by A. H. Lyman, a well known inventor of this city, and was exhibited as a specimen of what his principle could accomplish; that principle was simply to explode successive charges behind the projectile as it passed through the barrel, so that the accumulated force of the explosions was imparted to the shot in one final effort before it left the muzzle. A cannon twelve feet long by two and one-quarter inches bore was made upon this plan and rifled one turn in twenty-four inches. It was intended to pierce the walls of iron clads, and was taken somewhere out upon Long Island and fired on a long range of beach. Rumor has it that a horseman galloped ten miles before he found this long missile, so great was the range and power of flight of the sash weight like shot.

Astonishing as are these results, which, in the first instance cited, are matters of fact, they are not more so than the extraordinary perfection in the manufacture and use of the American rifle attained in these later days. If one is a skilled mathematician he may be able to use the rifle curved like a boomerang, which the Irishman employed to shoot around corners, but for most modern purposes an absolutely straight bore is preferable. Skill in the use of a gun depends upon the confidence of the marksman that the shot will go where he aims it under all circumstances, and as this is a first requisite, it is easy to see that absolute perfection of workmanship is indispensable. This has been attained. Recently we visited a prominent rifle maker and examined the guns which have been so successful, both at Creedmoor and in the international contest at Dollymount, and it is difficult to see wherein they could be improved.

The American target rifle or "Creedmoor," as it is called by the makers, designed for very long ranges, is certainly an admirable weapon. The barrel is made of decarbonized steel, forged in a solid bar and afterwards bored to suit requirements. Decarbonized

steel varies from ordinary steel in its nature by being peculiarly soft and tough, and without the quality of hardening in water. It cannot be hardened by ordinary methods. It is fine in grain, close in texture, and, when of good quality, absolutely seamless. It can be hammered out cold, like copper, without splitting; doubled over on itself, subjected to the severest tests without failing. The other metallic parts of the gun are made of Sweden iron, case-hardened. The principle upon which the guns are made is thoroughly American, as are also the tools by which the principal is practised. One general model having been adopted as in all respects satisfactory by the makers, fac-similes (templates) of each part are made, and gauges adopted which cover all parts of every piece, so that each one made is a counterpart of the other. Machine tools are then adapted to produce these parts, and on being set in motion turn out hammers, triggers, guards, breech-blocks what you will infinitely. All of these separate details are examined at every stage of the process to see if they agree with the models, and are then delivered to the workmen in charge of departments. The skill of an individual in charge of any machine has nothing to do with the process; the result is certain, whether he be an expert in machinery or not, he must, of course, know what he is doing in attending his work, but give the machine iron, as a loom is given yarn, and it will accomplish the end marked out for it. It is only by such means that it is possible to produce rifles of almost impeachable accuracy at anything like a popular price. A weapon so made can be obtained for \$30; certainly very moderate when its durability and reliability are considered. The weight of a long-range rifle is regulated by the association at ten pounds and the amount of trigger pull at various points to suit the person using it; it varies from three to ten pounds. The phrase "trigger pull" means the actual weight or force required to explode the charge; in sporting guns it is much less than in military, the latter being purposely set hard so that in the excitement of battle the soldier will be compelled to consider what he is doing in fingering the trigger, and not explode the piece prematurely. The barrel is thirty-two inches long and forty-four calibre, and is fitted with peep rear sight with Vernier scale, by which means a register may be kept of the elevation required for a given distance under varying circumstances; it has further a wind gauge, with interchangeable globe and split-bar front sight. No telescope sights are permitted. It has also a spirit level attached at right angles to the bore and just under the front sight. The object of this, which may appear inexplicable to the reader, is that it serves to indicate when the barrel is held absolutely on the target; it might appear to be so by the sights only, but at such immense distances as 3,000 feet and upward, any twisting of the barrel, so that the stock is turned sidewise, would give a great deviation from the bull's-eye.

The elevation of the barrel necessary for long ranges is obtained by the rear sliding sight. Of course experts know this; but all are not experts, and some fancy, doubtless, that the marksman holds his rifle point black on the object aimed at; but this is wide of the fact. At one thousand yards the casual observer, seeing a rifleman shoot for the first time, would fancy the shot would go far over the mark, so great is the angle at which the barrel is pointed. As a matter of fact the projectile begins to fall so soon as it leaves the muzzle; and it is easy to see that long before it had gone two thousand feet it