

CONTENTS OF No. 7, VOL. VI.

POETRY.—	Page.
Three Letters.....	82
EDITORIAL.—	
Field Fortifications.....	78
English Government policy criticised.....	79
Geneva Conference.....	79
The Model Republic.....	80
The Political Horizon.....	80
Gun-boats on the Lakes.....	81
Editorial Paragraphs.....	81
News of the Week.....	76
Reviews.....	81
CORRESPONDENCE.—	
Staff Promotions— <i>Justitia Fida</i> .—By R.....	73
Capt. J. R. Wilkinson.....	73
ANSWERS TO CORRESPONDENTS.—	
Capt. Wilkinson.....	81
SELECTIONS.—	
Mathematics as applied to fruit.....	73
The Rebel Forces in Virginia.....	74
Our Coast Rights.....	74
Ancient Gun Carriages.....	75
The last of the Armstrong Grooving.....	75
The New Gatling.....	75
Another Baby.....	75
Britannia rules the Waves.....	77
Don't Advertise.....	77
Greatness of London.....	77
England not Deserting us.....	77
The Education of the Army &c.....	82
An English Romance.....	84
Diamonds.....	84
Foreign, Military and Naval Items.....	
REMITTANCES.....	81
MILITIA GENERAL ORDERS.....	84

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The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

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

OTTAWA, MONDAY, FEBRUARY 19, 1872.

THE next construction of importance in a field fortification is the powder magazine, the principle rule to be observed with respect to its position is that it should be shot proof, and that the powder should be kept perfectly dry, it may be made in a traverse placed at the foot of a barbette, or if the soil is dry wholly or partly underground.

The magazine should be at least six feet high and about the same internal width, its length must depend on the quantity of ammunition to be stored. It may be constructed of fascines, gabions, coffer work, or logs, or any other material which may be used to effect the end in view.

If fascines are used, the sides should slope outward to resist the pressure of the earth; the fascines should be secured by pickets and anchoring withes, it should be roofed by joists laid two feet apart 6 inches by 12 in size, they should be covered by two layers of fascines, laid side by side, and the whole by at least four feet of earth.

The bottom flooring should be plank laid

on joists, and the earth underneath should be sloped from each side to the centre in order to have an outfall for drainage, which should be carried towards the door, the walls and ceiling should be covered with tarpauling.

A coffer work is formed of frames of 6 by 12 inch scantling, each frame is composed of two uprights, termed staunchions, and a cap and ground sill, all well nailed together, each frame is six feet high and six feet wide in the clear, the flooring joists formed by the ground sill, the frames are set upright two and a half feet apart and connected by a wall plate 3 by 12 inches spiked on to the cap sill, the whole is sheathed with two inch plank, fascines are laid upon top and the work finished as before described.

To build a magazine with gabions, a trench the size of the proposed work is excavated in the ground, it will be about 3-6 in depth, the gabions are placed in two rows close together around it, leaving a berme of a foot in width between the innermost and the ditch or trench, they are filled with earth, the top is formed in the usual way as also the internal arrangements.

No error can be committed in building a magazine if the rules laid down be adhered to, logs flattened and pinned to one another will make a very effective structure, strong and capable of bearing a large depth of earth, especially if they are covered with the same material, as the walls are built of; it will also be dry, and more likely to resist the effects of shot shell or weather than any of the other structures.

The entrance to a magazine ought not to be direct, it should be parallel to the side for half its length and thence turned at right angles to the true door, the outer entrance should be further protected by a splinter proof, which is simply a structure formed either by scantling of the same size as that described in the coffer work, laid at an angle of 45 degrees against the face of the slope or a regularly built shelter of logs outside it, in either cases a lean to with sufficient earth to render it shot or splinter proof.

The best description of magazine is that wholly underground, the roof formed of heavy logs, covered by at least six feet of earth.

Excellent splinter proofs for trenches and enclosed works are made as follows: piles 12 inches in diameter and 12 feet high, and driven into the bottom of a ditch, twelve feet wide and three deep to a depth of three feet, the inner row which is the longest is driven in a line near the centre of the ditch about three feet apart; at the outer side of the ditch, a corresponding row ten feet in length is driven to the same depth, a cap sill projecting three feet beyond the inner row is morticed into both, and three inch plank laid for roofing along the top, over which a layer of earth four feet deep is laid, a flooring is laid on joists along the bottom of the ditch, and a casemate six feet high at the outer, and eight feet at the inner, face of

parapet or traverse is thus formed, the earth should be sloped on the outside.

It may happen that field works of a permanent character which would be occupied for an indefinite period will have to be constructed, capable of standing a siege and resisting the fire of heavy guns and mortars.

A very strong and permanent work of this description can be constructed of logs twelve inches diameter, flattened at the sides, placed close together vertically on ground sills with a wall plate at the top of two inch plank spiked on to every log, and with a flattened log roof of fifteen inch logs, notched for a depth of two inches to catch the wall plate, over those a layer of logs should be laid, the centre being a fifteen inch log, and the sizes should diminish to each wall so as to give a proper pitch for roofing; earth is packed solidly in between those logs till the surface is levelled, roofing boards one layer of inch and half grooved and jointed is first laid, a good coating of asphalt is then put on, the second layer will be inch boards coated on the outside with asphalt, the whole covered with eight or ten feet of earth, the flooring is of joists and plank, as this kind of magazine is generally excavated for three-fourths of its depth, its ventilation is secured by a very simple process, it is on each side eighteen inches wider at the base than at the top as the log walls are perpendicular, this leaves an air chamber all round the magazine of that width, planks are set on end against the wall plate to serve as a facing to the earth, and shafts are carried out to the top of the mound covering the magazines as ventilators.

The entrance may be secured by a bomb-proof shelter made of heavier logs than the splinter proof, but on the same plan, care should taken in all cases to adapt those works to purposes of possible defence, the inner row of logs could be closed by sheeting them with plank, covered with iron to render them bullet proof, leaving loop holes at suitable distances while the lower portion might be masked with earth. The drainage of all those works should be a first consideration, and might be effected by fascines, saplings or other ready and effective means, the skill of the military engineer will be signalized by adopting each description of work to its peculiar locality.

Traverses are structures designed to cover guns or men from enfilade fire or to close the outlet to a work or its gorge, when used to cover guns it is termed a gabionade, it is generally constructed of a double row of gabions set close together, enclosing a space of twelve feet from out to out by about twenty four or thirty feet in length, an inner row is placed inside each of the outer rows, all are filled with earth, four rows of fascines laid on each, and on the top a single row is placed resting on the two fascines covering the outer rows, the earth is heaped on top, making the gabionade nearly eight