G 17.

ROYAL MILITARY COLLEGE—HALF-YEARLY EXAMINATION, JANUARY, 1879.

IV CLASS.

SURVEYING AND RECONNAISSANCE.

NOTE.—The Cadets of this class have three more terms before completing their full course of instruction.

TIME ALLOWED, 3 HOURS. TOTAL MARKS. { SURVEYING, 270. RECONNAISSANCE, 60.

SURVEYING.

(1) In traversing with the theodolite, what is the object of taking angles to conspicuous points in the neighbourhood?

(2) What are the uses of the compass in traversing with the theodolite?

(3) Mention any advantage gained by finishing a traverse at a point previously fixed.

(4) Under what circumstances would you make a survey of a large tract of country by means of traverses?

(5) What special advantage is gained by plotting a traverse by means of rectangular co-ordinates?

(6) When a traverse makes a complete circuit, what are the three conditions that must be fulfilled?

(7) What is the use of the scale on the back of the vertical arc of the theodolite?

(8) Explain how you would make a section of a piece of country by means of the theodolite?

(9) Why does the theodolite measure the angles of a spherical instead of a plane triangle, and what is usually done with the spherical excess?

(10) Explain by a figure the effects of curvature and refraction in simple levelling.

(11) In compound levelling how are these effects practically eliminated?

(12) Explain briefly the method of making a section by compound levelling.

RECONNAISSANCE.

(1) Mention the different methods of rendering a ford impracticable.

(2) Describe a method of destroying a portion of a railway track.

(3) In reconnoitring a road through a hilly district, which are the principal points to be noted?

G 18.

ROYAL MILITARY COLLEGE—HALF-YEARLY EXAMINATION, JANUARY, 1879.

IV CLASS.

FRENCH.

NOTE.—The Cadets of this class have three more terms before completing their full course of instruction.

TIME ALLOWED, 3 HOURS. MARKS 190.

(1.) Translate into English:

Près des murs de Florence, une coutume antique
Consacrait[1] tous les ans une fête rustique.
Le peuple des hameaux, dans les champs *d'alentour*,[2]
En chœur vient du printemps saluer le retour;
Mille groupes joyeux précipitent leur danse,
Fidèles au plaisir plutôt qu'à la cadence.
Tout à coup, ô terreur! un horrible accident
Perce la profondeur du bois retentissant.
Un lion, l'œil en feu, se présente à la vue.
Tout fuit. Dans ce désordre, une mère éperdue
Emporte son enfant.....Dieu! ce fardeau chéri,
De ses bras échappé, tombe; elle jette un cri,
S'arrête.....Il est déjà sous la dent dévorante.
Elle le voit, frémit, reste pâle, mourante,
Immobile, l'œil fixe et les bras étendus,
Elle reprend ses sens un moment suspendus;
La frayeur l'accablait, la frayeur la ranime.
O prestige d'amour! ô délire sublime!
Elle tombe à genoux: Rends-moi, rends-moi, mon fils!
Ce lion, si farouche, est ému par ses cris,
La regarde, s'arrête, et la regarde encore!
Il semble deviner qu'une mère l'implore;
Il attache sur elle un œil tranquille et doux,
Lui rend ce bien si cher, le pose à ses genoux,
Contemple de l'enfant le paisible sourire,
Et dans le fond des bois lentement se retire.

(1) *Consacrait*, celebrated, (2) *d'alentour*, around.

(2) Parse, retentissant, frémit, accablait, rends, est ému, contemple.

(3) Translate into French;

A lion, having become old and feeble, could no longer pursue and catch (prendre à la chasse) any animal. He resolved to employ cunning (la ruse) in order to procure his food, and feigning to be sick, he retired into a cavern. All the animals that entered there to visit him were torn in pieces, and devoured one after the other. The fox came in his turn, and stopping at the entrance of the cavern, he saluted the lion in these terms: "How do you do, O king of animals?" The lion said to him "Why do you not enter, father of beauty?" "I would enter with confidence," replied the fox, if, "in considering the traces of the animals who are come to you, I did not see that all have entered, but that none have come out (ressorti)"

APPENDIX No. 15.

SCHEME FOR THE ORGANIZATION OF AN ENGINEER AND INFANTRY SCHOOL AT TORONTO.

TORONTO, January, 1879.

SIR,—In view of the possibility of the establishment of Military Schools, in extension of the system now pursued in the Schools of Gunnery, I have the honour to recommend that at least one of these schools should be formed upon the basis of an Engineer Company. The formation of a small body, educated and practised in the scientific and difficult parts of the profession of military engineering, would serve as the *cadre* or framework of this most necessary arm of the service, and would be capable of extension to meet the requirements of the service in case of war. An acquaintance with cavalry, artillery and infantry duties is not the only professional knowledge required in war. In the practical operations of an army in the field, rivers are to be crossed, bridges suddenly erected and destroyed, fieldworks planned and constructed, field telegraphs maintained, and the scientific appliances of modern warfare utilized. Have our Active Militia any knowledge of these things, or have they the implements and other necessities in order to accomplish them? The sister branch of the service, Artillery, is well provided for in the Schools of Gunnery, which have already trained upwards of 900 officers and men in the most efficient knowledge of their duties as artillerists. We have on the strength of the Militia upwards of 4,000 Artillerymen, while we have only 232 Engineers, although the proportion should be two-thirds the number of Artillery. Both of these arms require special training, and each is equally indispensable in time of war. Should we not therefore provide a military establishment for a body of men to be instructed and practised in this branch of military art, and rendered capable of imparting to an army the instruction necessary for such service? The cost would be little more than that of Infantry, and, while equally capable of instructing in Infantry drill, they would be able to add that instruction in field engineering which is now imperatively necessary to all officers who desire to shine in their profession. Moreover, the men enlisted, being skilled artisans, would be available for keeping in repair the fortifications under the charge of the Canadian Government, and for constructing such additional works as might be considered necessary to add to our military strength.

I have the honour to be, SIR,

Your obedient servant,

THOMAS A. SCOBLE, Lieutenant-Colonel,
Commanding 2nd Military District Engineers.

Lieutenant-General Sir E. Selby Smyth, K.C.M.G.,
Commanding the Militia.

Establishment.

1	Captain at	$2 82	$1,029 30
2	Lieutenants at	1 58	1,153 40
1	Assistant Surgeon (attached) at	1 00	365 00
1	Sergeant-Major at	1 00	365 00
3	Sergeant Instructors, 1 Engineer, 2 Infantry at	0 80	876 00
3	Corporals " 1 " 2 " at	0 70	766 50
2	Sergeants (Company duty) at	0 70	511 00
2	Corporals " " at	0 60	438 00
2	Buglers at	0 50	365 00
52	Sappers and Drivers at	0 50	9,490 00
70	of all ranks. Total pay		$15,359 20

Subsistence.

70 rations at 20 cents per day	$5,110 00	
Uniform fuel, kits. boots, &c.	2,575 00	
Fuel, light, contingencies, &c	6,000 00	13,685 00

School.

10 Officers, allowance $1.00 per day	$3,650 00	
20 Non-commissioned officers, allowance 50 cts. per day	3,650 00	
*Transport, &c., allowances	1,405 80	8,705 80
100 of all ranks Total cost		$37,750 00

*Transport only to be allowed to officers and non-commissioned officers gaining their certificates of qualification.

1. The School to consist of 70 of all ranks, and 30 attached, or 100 of all ranks.
2. Sappers to be enlisted for one year, with privilege of passing an examination at the end of that time.
3. Officers and non-commissioned officers to be admitted for the following terms:—

Infantry course,	2nd class	2	months,	1st class	3	months.
Cavalry	"	2nd	"	2	"	1st	"	3	"
Engineer	"	2nd	"	3	"	1st	"	6	"

All examinations for first-class certificates to include hasty fortification in the field, military sketching and reconnaissance.

4. Each officer and non-commissioned officer to be admitted for the first month *on probation*, and to be discharged at the expiration of that time, or sooner, if unfit or incapable. No officer or non-commissioned officer being thus discharged to receive any allowance whatsoever.

5. Applications for admission to the school to be recommended by the Brigade-Major of the District, who will also make a private report upon the character and fitness of the applicant.

6. Officers and non-commissioned officers attending the school to be borne upon the duty roster of the corps, to which they are attached, and perform all company and regimental duties. They will also be under the command of the officer commanding the School and be subject to the Queen's Regulations and Articles of War, and the Militia Act and Regulations.

A Cavalry, Infantry and Engineer School would thus be inexpensively formed at Toronto, where there are barracks, riding school and stables.

A riding-master-sergeant and a sergeant-instructor would be necessary.

There are cavalry and engineer as well as staff officers at hand to form Boards of Examiners.

The whole to be grafted on an Engineer Company School, under Lieut.-Colonel Scoble, in the New-Fort Barracks, Toronto.

EDWARD SELBY SMYTH,

Lieutenant-General.

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