

1877.

## NEW ZEALAND.

## SOALL'S SYSTEM OF MUSKETRY INSTRUCTION

(REPORT OF BOARD OF OFFICERS ON).

*Presented to both Houses of the General Assembly by Command of His Excellency.*

## No. 1.

Lieut.-Colonel MOULE to Lieut.-Colonel LYON.

Native and Defence Office, Wellington, 31st October, 1876.

SIR,— Under instructions from the Hon. the Native Minister, I have the honor to request you will be good enough to assemble a Board of Officers, consisting of yourself as President, and Captains McPherson and Marshall, members, for the purpose of testing the system of musketry instruction proposed by Mr. J. C. Soall, of Auckland, as against the system now in use in the Colonial Forces.

Sir Donald McLean also desires me to say that the services of the Armed Constabulary are to be made available for the trial—which should take place as early as convenient—when you will be good enough to report fully to this office as to the result, showing such in the case of each principle, and a statement of comparison of the two.

I have informed Captain Marshall and Mr. Soall that the Board has been ordered to be held, and shall feel obliged by your giving them intimation as to when their presence will be required in Waikato.

I enclose herewith correspondence in connection with Mr. Soall's application for the trial (and beg to draw your attention specially to the last six lines of his letter of the 2nd May last); and Sir D. McLean requests you will be good enough to render Mr. Soall every assistance, with a view to carrying out his object.

I have, &amp;c.,

W. MOULE, Lieut.-Colonel,  
Acting Under Secretary, Defence.Lieut.-Colonel Lyon,  
Commanding Militia District, Hamilton.

## No. 2.

Lieut.-Colonel LYON to the Acting UNDER SECRETARY for DEFENCE.

Militia and Volunteer Office, Hamilton, 27th November, 1876.

SIR,— Adverting to your letter of the 31st ultimo, containing instructions for a Board of Officers to assemble at Hamilton, consisting of myself as President, and Captains McPherson and Marshall, members, for the purpose of testing the system of musketry instruction proposed by Mr. J. C. Soall, I have now the honor to forward herewith the proceedings of the Board, which commenced sitting on the 22nd instant, and concluded on the 25th.

I have, &amp;c.,

W. C. LYON, Lieut.-Colonel,  
Commanding Waikato District.The Acting Under Secretary, Defence,  
Wellington.

## No. 3.

Lieut.-Colonel LYON to Mr. SOALL.

Militia and Volunteer Office, Hamilton, 10th November, 1876.

SIR,— Agreeably to instructions received from Lieut.-Colonel Moule, Acting Under Secretary, Defence, I have the honor to intimate that a Board of Officers, of which I have been appointed the President, and Captain McPherson and Marshall, members, will assemble at Hamilton on Wednesday, the 22nd instant, at noon, for the purpose of testing the system of musketry instruction proposed by you as against the system now in use in the Colonial Forces. As it is my intention to carry out the trial in the manner which you may deem best to illustrate the superiority of your system, I

request you will have the goodness to send me as early as convenient a statement in detail of the measures which you propose to take to attain the object in view, so that I may be enabled to order the requisite arrangements to be made in time to begin on the date above mentioned, when I am informed you will be present.

J. C. Soall, Esq.,  
Kyber Pass Road, Auckland.

I have, &c.,  
W. C. LYON, Lieut.-Colonel,  
Commanding Waikato District.

## No. 4.

Mr. SOALL to Lieut.-Colonel LYON.

Kyber Pass Road, Auckland, 13th November, 1876.

SIR,—

I have the honor to acknowledge the receipt of your letter dated November 10th, in which you request me to give you a detailed statement of the measures I propose to suggest as best calculated to obtain the object in view, &c., and in answer would respectfully point out the difficulty of a fair test being made by the Armed Constabulary, inasmuch as that they are trained men under what is termed the system now in use in the Colonial Forces—in other words, the Imperial system of musketry instruction for the army.

You will perceive from this remark that I am in the position of a person heavily weighted. I trust you will also perceive that the competitors in the trials should be novices, especially in the judging-distance matches, as the question at issue is, "Which is the best system for making novices effective with the rifle in the shortest time?" With these remarks I respectfully suggest the following matches, after the settlement of the questions of first principles by the Board:—

Any number of men you may deem best, taking into consideration the targets available, &c.

Each match will require 2 targets—1 white, 1 dark; the whole of the matches to be fired with the black and white foresight alternately.

Two matches at 200, 300, and 400 yards, 3 shots at each range at each target; any position.

Two matches at 500 and 600 yards, 2 shots at each range at each target.

Two matches,  $\frac{1}{2}$  minute, at 200, 300, and 400 yards, at each target.

The usual sized targets for these ranges, any position.

Two matches at 100, 130, 160, 250, and 280 yards, 3 shots at each distance at each target.

Two matches at 100, 130, 160, 250, and 280 yards,  $\frac{1}{2}$  minute, at each distance at each target.

These four matches to be fired with the elevation on the back sight due to 200 yards throughout.

Targets, 6 x 2; centre, 2 x 2; 1 point for every hit; any position.

*Remarks.*—For the results, note the number of points made by each sight, and also note the number of points made on each target.

The grounds for judgment in the judging-distance matches are—the minimum of time required, simplicity of procedure, and results in points.

I would also respectfully remark that, to insure best efforts by the competitors, prizes are necessary to produce good honest firing.

Lieut.-Colonel Lyon, Commanding Waikato District.

I have, &c.,  
J. C. SOALL.

PROCEEDINGS of a BOARD of OFFICERS assembled at Hamilton, Waikato, on 23rd November, 1876, by order of the Hon. the Native Minister, bearing date 31st October, 1876, for the purpose of testing the System of Musketry proposed by Mr. J. C. Soall of Auckland, as against the System now in use in the Colonial Forces.

*President.*—Lieut.-Colonel Lyon, commanding Waikato District.

*Members.*—Captain McPherson, New Zealand Militia, Captain Marshall, New Zealand Militia, commanding Nelson Volunteer District.

The Board, having assembled according to order, proceeds to receive statements from Mr. Soall upon the points under consideration.

Mr. Soall propounds the following question upon "first principles," to which he requests answers from the Board.

*First.*—Ought the eye and judgment of the rifleman to be educated in conformity with the circumstances that he will meet with in the field?

*Second.*—Would the ground or colour either of a person of an enemy or his surroundings be white or dark?

*Third.*—Taking into consideration the circumstances likely to be met with in the field, should the rifleman's eye and judgment be educated to meet them by having to aim on a dark ground?

*Fourth.*—Which would be the best colour for use in the field as respects rifle sights, black or white?

*Fifth.*—Would not a mechanical means of finding distance by the individual rifleman be as desirable and advantageous as the use of the back sight of a rifle?

In accordance with a request contained in a letter from the President (copy herewith attached and marked B), Mr. Soall forwarded to the President of the Board, Lieut.-Colonel Lyon, a letter dated 13th November 1876 (marked A and attached), containing a detailed statement of the measures he proposed as best calculated to attain the object he had in view.

The matches proposed by Mr. Soall were carried out by six men of the Armed Constabulary who were above average shots, in the presence of the Board, with the exception of those marked \*, which were not considered necessary, and with which opinion Mr. Soall coincided.

The target practice registers of the several performances of the different ranges and targets are hereto attached, as well as the result of his mode of judging distance.

*First Proposition.*—Ought the eye and judgment of the rifleman to be educated in conformity with the circumstances that he will meet with in the field?—Yes.

*Second Proposition.*—Would the ground or colour either of a person of an enemy or his surroundings be white or dark?—Entirely depends upon circumstances over which the rifleman has no control.

*Third Proposition.*—Taking into consideration the circumstances likely to be met with in the field, should the rifleman's eye and judgment be educated to meet them by having to aim on a dark ground? The practice of firing at a dark object—viz., a bull's-eye painted black—has always obtained, and is mostly suitable for making a rifleman a good marksman in the field.

*Fourth Proposition.*—Which would be the best colour for use in the field as respects rifle sights, black or white?—The Board is of opinion that the proposition by Mr. Soall to use white for sights should be entertained and be optional with rifleman; also, that the permission granted for prize firing 1877 be adhered to.

*Fifth Proposition.*—Would not a mechanical means of finding distance by the individual rifleman be as desirable and advantageous as the use of the back sight of a rifle?—The Board is of opinion that the mechanical means proposed by Mr. Soall, although where time would be of no object it might assist a rifleman to get an approximate distance, yet would be totally impracticable in the field, and even dangerous, from the liability through carelessness of its being blown away.

The Board, having carefully considered the propositions of Mr. Soall and witnessed the results of the process, is of opinion that the target practice registers speak for themselves, showing that at the regulation target with present sights the total points were 303.

At the like targets with white sights the total points were 262.

At black targets with white sights the points were 249.

And at black targets with black sights 239; and cannot agree with Mr. Soall's opinion that a rifleman should be educated for his work in the field by means of a target coloured black, and not white.

The Board cordially agrees with Mr. Soall that a knowledge of distance is the first requisite in the field, and also that judging-distance practice should form part of the drill of the Volunteer, and made one of the requirements for capitulation.

In conclusion, the Board begs to state that throughout this trial every facility has been given to Mr. Soall to fairly test his propositions.

W. C. LYON, Lieut.-Colonel., President.

J. MCPHERSON, Captain, } Members.  
J. T. MARSHALL, Captain, }

### REGISTER OF TARGET PRACTICE.

FIRST MATCH. Number of Targets fired at, two. Three shots at each Range, any position.  
22nd November, 1876.

#### BLACK TARGETS.

RANK AND NAME.	WHITE SIGHTS.			Total Points.	WHITE SIGHTS.			Total Points.	WHITE SIGHTS.			Total Points.	—			Total Points.
	200 Yards.				300 Yards.				400 Yards.				—			
	Points per Shot				Points per Shot				Points per Shot				Points per Shot			
	1	2	3		1	2	3		1	2	3		1	2	3	
2nd Class Sergeant E. Jones ... ..	3	3	0	6	3	2	0	5	4	0	3	7	...	...	...	...
Constable T. Cassidy ... ..	2	2	2	6	3	3	3	9	3	0	3	6	...	...	...	...
Constable J. Mullins ... ..	3	3	3	9	2	2	0	4	0	4	2	6	...	...	...	...
Constable W. Murry ... ..	4	3	4	11	3	3	4	10	3	3	2	8	...	...	...	...
Constable W. H. O'Neill ... ..	4	2	4	10	4	4	2	10	2	4	3	9	...	...	...	...
Constable G. Smith ... ..	3	2	2	7	3	3	2	8	3	0	0	3	...	...	...	...
				49				46				39				...
	BLACK SIGHTS.				BLACK SIGHTS.				BLACK SIGHTS.				...			
2nd Class Sergeant E. Jones ... ..	4	3	0	7	0	0	2	2	2	2	2	6	...	...	...	...
Constable T. Cassidy ... ..	4	2	2	8	2	3	3	8	0	0	0	0	...	...	...	...
Constable J. Mullins ... ..	3	2	3	8	2	2	4	8	3	0	3	6	...	...	...	...
Constable W. Murry ... ..	3	3	4	10	3	3	3	9	0	3	0	3	...	...	...	...
Constable W. H. O'Neill ... ..	3	2	2	7	3	4	3	10	0	2	0	2	...	...	...	...
Constable G. Smith ... ..	2	3	4	9	2	2	4	8	4	0	0	4	...	...	...	...
				49				45				21				...

REGISTER OF TARGET PRACTICE—*continued.*

FIRST MATCH. Number of Targets fired at, Two. Three shots at each Range, any position. 22nd November, 1876.

WHITE TARGETS.

RANK AND NAME.	WHITE SIGHTS.				WHITE SIGHTS.				WHITE SIGHTS.				—			
	200 Yards.			Total Points.	300 Yards.			Total Points.	400 Yards.			Total Points.	—			Total Points.
	Points per Shot				Points per Shot				Points per Shot				Points per Shot			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
2nd Class Sergeant E. Jones ... ..	0	0	0	0	3	2	0	5	0	0	0	0	...	...	...	...
Constable T. Cassidy ... ..	4	4	2	10	4	0	0	4	2	0	2	4	...	...	...	...
Constable J. Mullins ... ..	4	4	4	12	4	3	3	10	0	0	2	2	...	...	...	...
Constable W. Murry ... ..	4	4	4	12	2	3	4	9	0	0	3	3	...	...	...	...
Constable W. H. O'Neill ... ..	4	2	2	8	2	2	3	7	2	3	3	8	...	...	...	...
Constable G. Smith ... ..	3	0	4	7	0	2	4	6	4	0	4	8	...	...	...	...
				49				41				25				...

	BLACK SIGHTS.				BLACK SIGHTS.				BLACK SIGHTS.				—			
	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.
2nd Class Sergeant E. Jones ... ..	4	3	3	10	0	3	0	3	0	2	0	2	...	...	...	...
Constable T. Cassidy ... ..	3	3	4	10	2	3	3	8	0	0	3	3	...	...	...	...
Constable J. Mullins ... ..	4	4	4	12	2	4	3	9	2	2	2	6	...	...	...	...
Constable W. Murry ... ..	4	4	4	12	4	4	3	11	0	2	2	4	...	...	...	...
Constable W. H. O'Neill ... ..	4	4	3	11	4	3	4	11	3	0	0	3	...	...	...	...
Constable G. Smith ... ..	2	3	0	5	4	2	2	8	0	3	3	6	...	...	...	...
				60				50				24				...

SECOND MATCH. Number of Targets fired at, two. Rapidity, half minute. 23rd November, 1876.

WHITE TARGETS.

	WHITE SIGHTS.				WHITE SIGHTS.				WHITE SIGHTS.				—			
	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.
2nd Class Sergeant E. Jones ... ..	...	...	...	9	...	...	...	11	...	...	...	3	...	...	...	...
Constable T. Cassidy ... ..	...	...	...	9	...	...	...	6	...	...	...	2	...	...	...	...
Constable W. H. Kelly ... ..	...	...	...	10	...	...	...	7	...	...	...	2	...	...	...	...
Constable W. Murry ... ..	...	...	...	15	...	...	...	0	...	...	...	5	...	...	...	...
Constable W. H. O'Neill ... ..	...	...	...	8	...	...	...	10	...	...	...	8	...	...	...	...
Constable G. Smith ... ..	...	...	...	6	...	...	...	2	...	...	...	3	...	...	...	...
				57				36				23				...

	BLACK SIGHTS.				BLACK SIGHTS.				BLACK SIGHTS.				—			
	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.
2nd Class Sergeant E. Jones ... ..	...	...	...	14	...	...	...	6	...	...	...	7	...	...	...	...
Constable T. Cassidy ... ..	...	...	...	13	...	...	...	6	...	...	...	3	...	...	...	...
Constable W. H. Kelly ... ..	...	...	...	10	...	...	...	5	...	...	...	4	...	...	...	...
Constable W. Murry ... ..	...	...	...	11	...	...	...	2	...	...	...	2	...	...	...	...
Constable W. H. O'Neill ... ..	...	...	...	16	...	...	...	6	...	...	...	8	...	...	...	...
Constable G. Smith ... ..	...	...	...	13	...	...	...	2	...	...	...	6	...	...	...	...
				77				27				30				...

BLACK TARGETS.

	WHITE SIGHTS.				WHITE SIGHTS.				WHITE SIGHTS.				—			
	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.
2nd Class Sergeant E. Jones ... ..	...	...	...	9	...	...	...	0	...	...	...	0	...	...	...	...
Constable T. Cassidy ... ..	...	...	...	12	...	...	...	2	...	...	...	4	...	...	...	...
Constable W. H. Kelly ... ..	...	...	...	9	...	...	...	5	...	...	...	2	...	...	...	...
Constable W. Murry ... ..	...	...	...	7	...	...	...	4	...	...	...	6	...	...	...	...
Constable W. H. O'Neill ... ..	...	...	...	8	...	...	...	6	...	...	...	6	...	...	...	...
Constable G. Smith ... ..	...	...	...	11	...	...	...	4	...	...	...	6	...	...	...	...
				56				21				24				...

	BLACK SIGHTS.				BLACK SIGHTS.				BLACK SIGHTS.				—			
	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.	1	2	3	Total Points.
2nd Class Sergeant E. Jones ... ..	...	...	...	8	...	...	...	0	...	...	...	5	...	...	...	...
Constable T. Cassidy ... ..	...	...	...	11	...	...	...	7	...	...	...	2	...	...	...	...
Constable W. H. Kelly ... ..	...	...	...	13	...	...	...	6	...	...	...	4	...	...	...	...
Constable W. Murry ... ..	...	...	...	7	...	...	...	12	...	...	...	2	...	...	...	...
Constable W. H. O'Neill ... ..	...	...	...	9	...	...	...	6	...	...	...	0	...	...	...	...
Constable G. Smith ... ..	...	...	...	3	...	...	...	0	...	...	...	6	...	...	...	...
				51				31				19				...

REGISTER OF TARGET PRACTICE—continued.

THIRD MATCH. Number of Targets fired at, three. Ranges, 500 and 600 yards. Two shots at each Range, any position. 23rd November, 1876.

BLACK TARGETS.

RANK AND NAME.	WHITE SIGHTS.				WHITE SIGHTS.				BLACK SIGHTS.				BLACK SIGHTS.			
	200 Yards.			Total Points.	300 Yards.			Total Points.	400 Yards.			Total Points.	—			Total Points.
	Points per Shot				Points per Shot				Points per Shot				Points per Shot			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
2nd Class Sergeant E. Jones ... ..	0	0	...	0	0	0	...	0	3	2	...	5	0	3	...	3
Constable T. Cassidy ... ..	0	0	...	0	0	0	...	0	0	0	...	0	0	0	...	0
Constable W. H. Kelly ... ..	3	4	...	7	0	0	...	0	4	2	...	6	0	0	...	0
Constable W. Murry ... ..	0	2	...	2	0	0	...	0	0	0	...	0	4	2	...	6
Constable W. H. O'Neill ... ..	0	2	...	2	0	0	...	0	0	0	...	0	0	0	...	0
Constable G. Smith ... ..	3	0	...	3	0	0	...	0	0	0	...	0	3	0	...	3
				14				0				11				12

WHITE TARGETS.

2nd Class Sergeant E. Jones ... ..	2	0	...	2	0	3	...	3	3	4	...	7	0	0	...	0
Constable T. Cassidy ... ..	0	3	...	3	0	0	...	0	2	2	...	4	3	0	...	3
Constable W. H. Kelly ... ..	0	2	...	2	4	0	...	4	3	0	...	3	3	3	...	6
Constable W. Murry ... ..	2	2	...	4	0	2	...	2	0	2	...	2	2	0	...	2
Constable W. H. O'Neill ... ..	0	3	...	3	0	0	...	0	0	4	...	4	0	0	...	0
Constable G. Smith ... ..	2	4	...	6	2	0	...	2	2	2	...	4	0	0	...	0
				20				11				24				11

Total Points: Black sights on white target, 303; white sights on white target, 262; black sights on black target, 239; white sights on black target, 249.

REGISTER OF JUDGING-DISTANCE PRACTICE, testing SOALL'S Principle of Range Finding.

RANK AND NAME.	CORRECT DISTANCE IN YARDS.								Total Points. 1st. Practice.	CORRECT DISTANCE IN YARDS.								Total Points. 2nd Practice.
	120		200		300		400			500		100		230		330		
	Ans. 1	Pts	Ans. 2	Pts	Ans. 3	Pts	Ans. 4	Pts		Ans. 1	Pts	Ans. 2	Pts	Ans. 3	Pts	Ans. 4	Pts	
Constable J. L. Croker ... ..	150	0	270	0	310	2	500	0	2	590	0	...	...	...	...	...	0	
Constable F. Carthy ... ..	300	0	400	0	438	0	450	0	0	500	2	...	...	...	...	...	2	
Constable J. Henderson ... ..	110	2	250	0	340	0	370	1	3	500	2	...	...	...	...	...	2	
Constable F. F. McLean ... ..	100	0	350	0	500	0	520	0	0	600	0	...	...	...	...	...	0	
Constable W. H. O'Neill ... ..	120	3	230	0	300	3	500	0	6	600	0	...	...	...	...	...	0	
Constable T. O'Connell ... ..	150	0	180	0	350	0	400	2	2	550	0	...	...	...	...	...	0	
Lieut.-Colonel W. C. Lyon ... ..	...	...	...	...	...	...	...	...	...	550	0	120	2	280	0	450	0	2
Captain J. McPherson ... ..	...	...	...	...	...	...	...	...	...	600	0	80	0	300	0	500	0	0
Captain Marshall ... ..	...	...	...	...	...	...	...	...	...	500	2	90	0	300	0	400	0	2
J. C. Soall ... ..	...	...	...	...	...	...	...	...	...	...	...	90	0	300	0	400	0	0

No. 5.

REPLY to the REPORT of BOARD of OFFICERS, held at Hamilton, Waikato, 22nd November, 1876. Auckland, 25th January, 1877.

THE undersigned has to express his regret at his not being made aware of the statements and objections contained in the report at the time the Board sat, so that he might have been enabled to answer them there and then; but as a period of near two months elapsed before he obtained a sight of or knowledge of them, he feels compelled to reply, which he does with the greatest respect.

And first, he begs to say the last paragraph of the report does not state, "That in his letter to Lieut.-Colonel Lyon, dated 13th November, 1876, the undersigned made it a *sine qua non* that money prizes should be obtained for the men, as an inducement for them to do their level-best under both systems; he feeling certain that, without some inducements to the men to obtain the highest aggregates, their prejudices would be sure to bias them in their firing.

The matches referred to in paragraph marked F as not necessary, the undersigned considered the most important. But as the weather was so extremely hot, and the members of the Board were so indisposed to proceed to the range, he of course could not press them.

The first proposition, marked A in the report, as conceded, is of importance, as the whole question hinges upon it.

The answer to the second proposition, marked B, bears out what the undersigned has advanced—namely, that since the introduction of arms of precision all troops following the example of the old rifle corps adopt a neutral colour for service, and as far as possible avoid being conspicuous. These are some of the circumstances which produce a dark ground to aim on.

The answer to the third proposition, marked C, is fallacious, as all acquainted with the practical use of the rifle know that all aim is relative, and that not one time in fifty at any long range can aim be taken on the bull's-eye, but that it has to be taken on some part of the white target. The answer given in the report actually goes to show that the rifleman should be taught to aim on a dark ground. This is what the undersigned contends for.

The answer to the fourth proposition, marked D, is confirmatory of that which the undersigned has advanced.

The answer to the fifth, marked E, admits the range-finder might assist the rifleman to get an approximate distance; but objects to the danger through carelessness of its being blown away. Wherein lies the danger? If the rifleman foolishly blew it away, he could not hurt himself but might hurt his enemy. This blow-away view of the question also pictures the rifleman in such a state of fright as to make it appear he would not know what he was about.

The undersigned regrets the Board has not reported on the comparative advantage or otherwise of his method of carrying on judging-distance drills or practice; and also on his method of inculcating first principles by means of the mechanical trajectory. But at the same time he must express satisfaction at the cordial agreement in paragraph G, remarking at the same time that, should the Government demand a minimum of musketry, including judging distance, from Volunteers as claims for capitulation, the returns could not be obtained under the army system, but certainly could be under his.

In conclusion, the undersigned regrets the inquiry and trials took place at so remote a distance (90 miles) as to preclude him from the advantages of the friendly assistance of witnesses on his part, he being isolated so to speak.

The Hon. Dr. Pollen, Native and Defence Minister.

I have, &c.,  
J. C. SOALL.

By Authority: GEORGE DIDSBURY, Government Printer, Wellington.—1877.