NZAR ID A59 Maxim .303” machine gun Mark II made at the New Zealand Railway Workshops, Petone 1915.

Image and Information courtesy Rose Young, Curator of History, Auckland War Memorial Museum.

Compiled by Dr John Osborne MG PhD FSG

Vickers Maxim design .303 inch calibre Mk II with brass water jacket machine gun, on its tripod, recoil operated, water cooled, manufactured by New Zealand Railway Workshop, Petone in 1915. Serial number: PET 1 and serial number 763 on barrel under feed-block. Auckland Museum number: W1505

Provenance Maxim .303 machine gun, Mark II; made by New Zealand Railway Workshops, Petone in 1915 WW1. Presented by the New Zealand *Army 4.8.52 - Army Dept Vchr SAW/M1*

Reports Below

1. Musketry Instructors Report on demonstration and test 15 January 1916.
2. Department of Defence Report to the Hon Minister of Defence 31 January 1916.
3. Article by John Wadham in the “Museum News”, No 22, 1985.

REPORT on DEMONSTRATION and TEST on MACHINE GUNS at TRENTHAM CAMP on the 15th JANUARY at 4 p.m.

The test was carried out in the presence of the Hon. Minister of Defence, Hon. Minister of Munitions, The General Officer Commanding N.Z. Military Forces, and The General Manager of Railways.

Two guns were under trial:-
No. 1 Gun being made by Messrs Vickers Son & Maxim, the date of manufacture 1901.
No. 2 Gun made by the N. Z. Railway Dept. at Petone Workshops 1915.
Barrels of both guns were made at the Royal Small Arms Factory-Enfield.
Fusee Springs were made in England.

The firers were:-
No. 1 Gun-Lieutenant D. Smith - 1st Canterbury Regt.
" 2 " -Lieutenant L. Potter- N. Z. Staff Corps.

No. 1 Test & for accuracy of Gun & barrel.
In this demonstration both guns fired three groups of Six Rds. each.
No.1 gun failed to fire after a couple of rounds owing to the fusee spring being too heavy. This was a fault of the gun team neglecting to test the parts before firing. This spring was readjusted and completed the demonstration.
Result. No. 1 Gun - Indifferent groups owing to traversing gear not being properly clamped.
No. 2 Gun - Fair groups.

No. 2 Test.- Distributing fire - Target represented a line of skirmishers. Group traversing. The firers fired a group of six rds. then turned the guns to right and fired again repeating this about seven or eight times.
No. 1 Obtained very good traverse.
" 2 Grouped the shots very closely together.

No. 3 Demonstration - A continuous traversing fire across the target without stop. In the case of No. 1 the firer altered his sight without altering the elevating wheel of the gun- consequently the shots fell on to those of the previous practice. In the case of No. 2 gun the traversing was fair.

No. 4 Demonstration - Vertical Searching of group from 800 yds. to 1200 yds. In this practice both guns were very good.

No. 5 - A test of parts of the gun by 3 minutes rapid fire.
No. 1 - Fired 705 Rds. with 2 Jambs - friction owing to dried oil. After firing two belts 500 yds. the firer found it necessary to replenish with water to the extent of 2 pints (20 secs).
No time was allowed for jambs etc.
No. 2 Gun fired 573 Rds. and had 3 miss fires, 4 friction stoppages, 1 light spring. The firer had to replenish with water. The rate of No. 2 was considerably lower than that of No. 1 gun owing to friction of the gun.

No. 6. In this test, the locks were interchanged and it was found that in the case of :-
No. 1 Gun - worked well with the Petone lock.
No. 2 Gun - worked hard and stopped in the 3rd position with the Vickers Maxim lock.

Summary. The Comparison between the two guns is not to be taken as altogether fair for the reason that the firer on the Petone gun was more expert than the firer on the Vickers Maxim but the test proved that the accuracy of the Petone Gun is good but that friction exists in the working parts. I consider that a great amount of the hard-working is due to the barrel casing not taking the barrel properly.

(Sgd) E. PURDON,
CAPTAIN N.Z.S.C.,
MUSKETRY INSTRUCTOR.

DEPARTMENT OF DEFENCE,
Headquarters Office,
WELLINGTON,

31st January, 1916.

MEMORANDUM for :

The Hon. Minister of Defence.

Referring to the attached report on Maxim Gun manufactured at the Railway Workshops, I am of opinion the result demonstrated that these guns can be made locally. Before deciding upon local manufacture, however, it is necessary to consider the following :

(a) The barrels and fusee spring used were imported, and are certainly the important and most difficult parts to manufacture. There is now in store barrels and fusee springs as replacement parts for the maxim guns retained here for training purposes.

(b) The gun is of the older type, being about one-third heavier than the new pattern. Mobility is now a great factor in machine gun tactics, a man having to run considerable distances with the gun.

(c) The Imperial Government have said they can now supply sufficient guns for our forces at the Front.

(d) On return from abroad, guns issued as in Cairo will be brought to New Zealand by the returning force.

I now recommend :

(1) That two of the more recent pattern of machine gun be obtained from the Imperial Government with a view to further experiment at the Petone Workshops.

(2) That a quantity of steel material for manufacture of barrels and fusee springs accompany the above, with necessary gauges and directions for manufacture.

It is also recommended that another gun, similar to the one just tested, be made to complete a pair, and, with the six Imperial guns, make a battalion equipment for training

in camps. As the supply of spare parts is running short, the workshops could supply and armourers fit by hand, to keep the guns in condition for training; and eventually, on return of the force, these men could maintain the guns locally.

The above course is recommended to enable the Railway Department to maintain at any workshop or shops the machines, tools, gauges, etc., and supply of material to meet our later requirements, in both patterns of machine guns.

(Sgd) A. M. ROBIN,
Brigdr.- General,
Commanding N.Z. Military Forces.

Cabinet.
(Sd) J.A.
2-2-16.

In Cabinet,
12 Feb. 1916.
No action.
(Sd) J.F.ANDREWS, Secy.

Com.
Note Cabinet Minute,
(Sd) J.A.
14-2-16.

Do you need two more recent machine guns for training or other purposes than manufactured here?
(Sd) J.A.
14-2-16.

New Zealand's Own Machine Gun

In August 1915 the machine gun was King. The great armies in France had settled down to organised slaughter and it would be hard to imagine a battleground more suited to machine gun warfare — or perhaps the battleground had been created by the machine gun. Whatever the cause machine guns were in great demand.

On 26th August 1915, Mr E H Hiley the General Manager of New Zealand Railways set in motion what must have been a pet project for him. He borrowed a Maxim machine gun from the Army to see if the Railway Workshops at Petone could make one and perhaps many more, so that New Zealand forces would be independent of arms supplies in England. He also asked for plans and specifications for the parts and in particular, specifications for the types of steel needed. Cables were sent to England asking for this information but apparently no reply was ever received.

By the 20th October a gun had been made, except for the barrel and fusee spring. These parts were borrowed from the Army and a test firing carried out. 700 rounds were fired and the armourers reported on a number of defects, mainly dealing with the hardening and tempering of some of the parts and the fit of others. The Locomotive Engineer reported on 22nd October that the parts were being rehardened and complained that no information had been obtained from the English manufacturers. He also said that he had made a barrel to the "rough turned" stage, out of tyre steel but, on verbal advice from a person employed in an arms works that tyre steel was quite unsuitable, he had abandoned that part of the project. The defects were attended to and another test was carried out in which there was a stoppage which was attributed to the packing of the barrel being rather too tight. Probably at least one other trial was carried out.

As a result of enquiries by various departments the following information was given by the Railways Chief Mechanical Engineer:

"The cost of the gun (without barrel) £247.17.04
Special tools made or bought £241.11.05
Estimated cost of manufacturing 12 guns ea. £185.00.00

Shortage of staff and pressure of railways work makes such manufacture impracticable.

If staff were available guns could be produced at the rate of three every four weeks."

The gun was sent to Trentham camp for testing on 13th November and the test was carried out on 15th January 1916.

In the test the Petone-made machine gun was matched against a 1901 Vickers Maxim. Both guns fired a series of six tests. The Petone gun measured up quite well although it had a number of troubles mainly associated with friction in the working parts.

Following the tests the commander of NZ Military forces, Brigadier General A M Robin, sent a memorandum to the Minister of Defence in which he pointed out that the barrel and fusee spring were still the imported ones and that these were the most difficult parts to make, that Vickers were now making a gun which was one third lighter, and that the Imperial Government had said that they could now supply sufficient guns for our forces at the Front.

On the 15th February following a cabinet meeting the Minister of Munitions and Supply notified Mr Hiley that no further action would be taken in the manufacture of these guns. There followed a number of letters expressing admiration for the work of the Railways staff and regret that circumstances made it impracticable to proceed with the manufacture of the guns.

In April 1921 the one gun made at Petone was transferred to the Trentham Camp School Museum, and in January 1951 the gun was given to Auckland Museum.

The New Zealand gun has the serial number Pet. 1. (Petone Number 1). Together with two Vickers Maxims New Zealand's only locally made machine gun is part of Auckland Museum's military history displays.