

THE ROYAL REGIMENT OF NEW ZEALAND ARTILLERY



THE GUNNERS HANDBOOK

**AN INTRODUCTION
TO THE REGIMENT**

PREFACE

Welcome to the Royal Regiment of New Zealand Artillery.

"The Gunners' Handbook - An Introduction to the Regiment" contains information on the history, customs and traditions of the Regiment you have now joined. It is published by the Advisory Council of the Royal Regiment of New Zealand Artillery from notes first compiled by Mr W.C. Ruffell.

Ours is "The Royal Regiment", and we are immensely proud of our history, customs and traditions. They are our heritage, and now that you have joined us it is our joint responsibility to ensure that they are maintained and enhanced.

A copy of this Handbook is given to all gunners on joining the Regiment. Study it well. It will hopefully form the basis of an ever deepening interest in all matters Regimental.

EDITOR'S NOTES

As this publication has been produced, in the main, for new gunners the language and words used have been simplified where possible to assist in understanding.

It is accepted that this publication may not be perfect - there are sure to be errors of fact and omission. It was felt however that it would be better to get the handbook published even with some faults rather than wait to get it 100% correct.

The DRNZA Staff are happy to be notified of any errors and/or additions which will be considered for the second printing.

THE GUNNERS HANDBOOKCONTENTSParasPart 1: Introduction

Introduction	101 - 103
Role and Organization	104 - 110
The Regimental Family	111 - 117
Ceremonial	118 - 123
Traditions	124 - 130
Dress and Insignia	131 - 133

Annex:

- A. Legend of St Barbara

Part 2: Outline History

Introduction	201 - 206
Boer War	207
1909 Defence Act	208 - 209
World War I	210 - 211
1919-1939	212
World War II	213 - 214
1946-1964	215 - 218
1965-1972	219 - 220
Present Organization	221

Part 3: Trade and Career Progression

Trades - General	301 - 302
- Common Branch Trades	303
- Field Trades	304
- Locating Trades	305
- Air Defence	306
Trade Progression	307 - 311
Promotion Requirements	312 - 317
Streaming	318

Part 4: Current Major Equipments

Gun Equipments	401 - 416
Radars	417 - 422
Command Post Equipments	423 - 428
Vehicles	429 - 433
Survey Equipment	434 - 438
Observation Post Equipment	439 - 443
Air Defence	444 - 445

Part 5: Origins of Ranks, Trades, Appointments

Gunner	501
Limber Gunner	502
The Driver	503
The Bombardier	504
The Lance Bombardier	505
The Troop	506
The Detachment	507
The Battery	508
The Regiment	509 - 510

PART 1INTRODUCTIONIntroduction to the Regiment

101. The full name of our Regiment is the 'Royal Regiment of New Zealand Artillery'. It is also known by its short title 'Royal New Zealand Artillery' (RNZA) and as 'The Royal Regiment' (which encompasses the Commonwealth Brotherhood of Gunners).

102. In joining the RNZA you are joining much more than just a Regiment. You are also joining a close family of gunners with links throughout the Commonwealth. We share our history, customs and tradition with our wider family, and this helps distinguish us from all other Corps. We have formal alliances with:

The Royal Regiment of Artillery (RA),
The Royal Regiment of Australian Artillery (RAA), and
The Royal Regiment of Canadian Artillery (RCA).

103. Notwithstanding the family aspects of our Regiment we are primarily an operational group, organized into branches to perform our role in war.

Role and Organization

104. The role of artillery is:

'to support other arms and services by establishing such fire supremacy in the battle area that the enemy can neither interfere with our operations nor develop his own effectively.' (or in simple terms - "to fire our guns in support of the infantry and armour so that the enemy can neither stop our activities nor start his own").

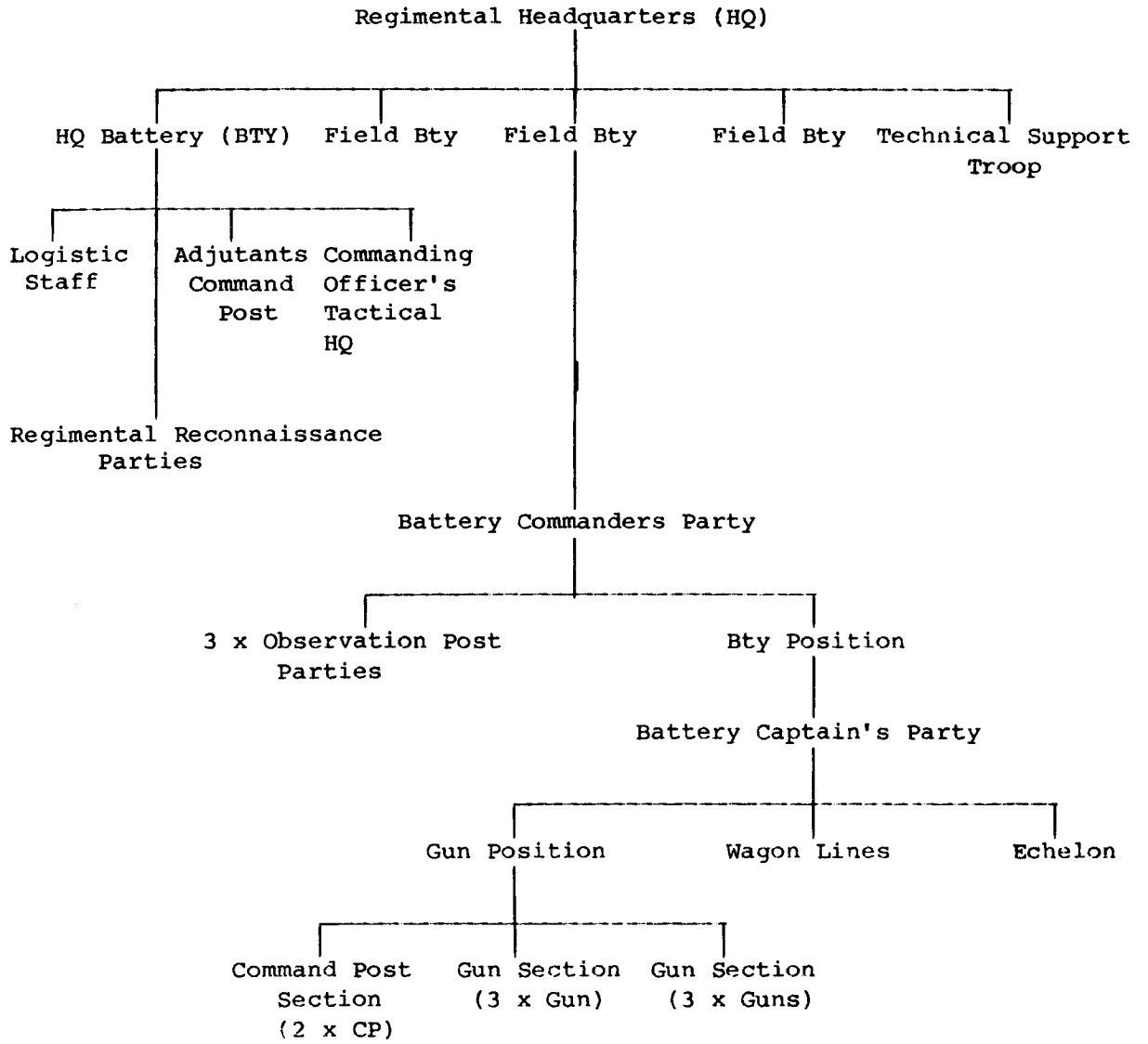
105. In carrying out this role we are required to provide the firepower necessary to support our commanders' plan. We must be able to locate enemy weapons and find targets to attack, and we must be able to find and hit aircraft as part of the air defence system. Each of these jobs are covered by separate types of artillery units under different branches. The branches of the RNZA are:

- a. Field Branch. This consists of all surface to surface artillery, whether equipped with guns, howitzers or mortars (and missiles in larger armies). The main job of the field artillery is to help the infantry and armour during attacks and in defence. Included in this role is the requirement to fire directly at enemy tanks, this is known as the anti-tank role.

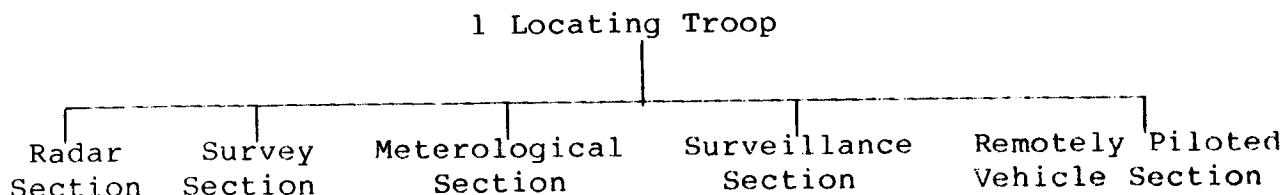
- b. Locating Branch. This is the term given to artillery units responsible for locating targets providing information on the enemy, and for the provision of meteorological (weather), survey, and calibration data.
- c. Air Defence Branch. The Air Defence Branch is the surface to air artillery, whether equipped with guns or missiles. Their task is to shoot down enemy aircraft. In addition to the weapons themselves it includes associated surveillance, tracking and guidance systems.

106. Although not currently a branch of the RNZA, artillery also covers Coastal Branch Artillery. This branch consists of artillery units whose primary role is to engage or assist in the engagement of enemy ships. This branch has played a major role within the RNZA over the past century, and could well do so again in the future.

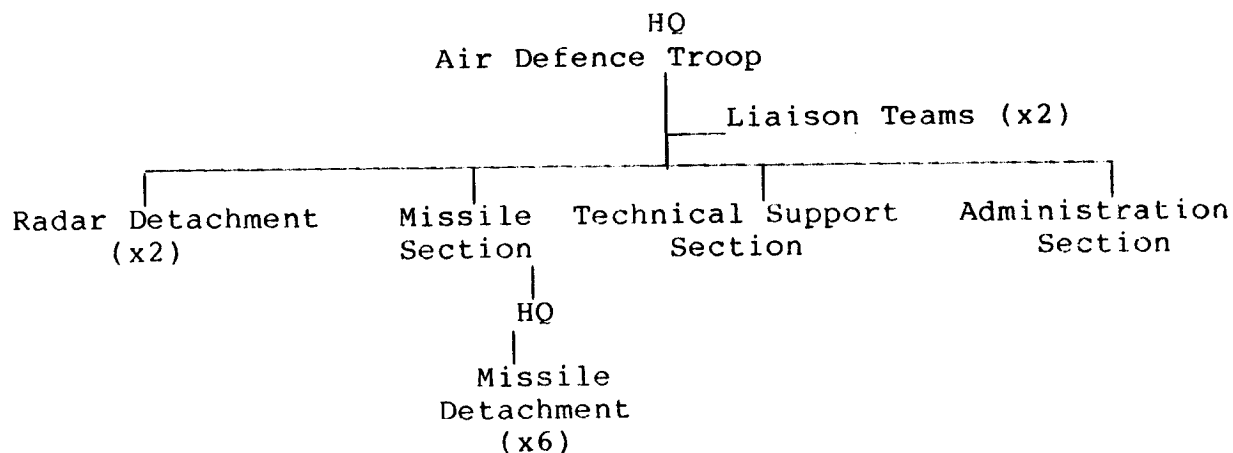
107. The standard field branch artillery unit is the Field Regiment. This consists primarily of a regimental headquarters, a headquarters battery, field (or gun) batteries, and a technical support troop. During peace time training, there are six guns in each battery. When the Regiment goes to war it will go with eight guns in each battery - this will increase the weight of fire which can be provided. In outline it looks like this:



108. Within the RNZA Locating Branch is represented by 1 Locating Troop. Its outline organization is:



109. The air defence unit within the RNZA has yet to be established, although the Regular Force outline organization is:



110. In common with most units of the NZ Army all RNZA units are a combination of the regular and territorial forces, (RF and TF). This is one of the strengths of our Army, with both elements complementing each other.

The Regimental Family

111. The Captain General. The family is headed by HM Queen Elizabeth II, our Captain-General, who assumed the appointment in 1953. The rank of Captain-General dates from the fifteenth Century but was replaced by Field Marshall in 1736. During a guest night at Woolwich in 1950 HM King George VI expressed a desire to revive the rank. This was effected, and HM Queen Elizabeth assumed the appointment on her accession to the Throne.

112. The Master Gunner, at St James Park. The Master Gunner St James Park is the head of the Royal Regiment of Artillery in all regimental matters and is the channel of communication between the Regiment and the Captain-General. His appointment stems from the days of Henry VIII, who first established a permanent force of gunners in England when he appointed a Master Gunner and 12 paid gunners to the Tower of London. This idea was later expanded and Master Gunners were appointed to all main towers and castles. They were responsible for the care of their equipment, training the

gunners and for retaining the service of some civilians to be called to the colours if required (The first TF?). In 1545 Henry VIII appointed the Master Gunner of The Tower of London to be Master Gunner of England, with jurisdiction over all other Master Gunners. This title was changed in 1796 to Master Gunner of St James Park, and remains so to this day.

113. Colonels Commandant. The office of Colonel Commandant dates back to 1727 when Colonel Albert Borgard was appointed the first Colonel of the Royal Regiment of Artillery. This precedent has been carried on in New Zealand where the Colonel Commandant is a distinguished retired Gunner Officer. He is not concerned with the operational affairs of the Regiment, but rather with domestic matters and the general well being of the Regiment. Details on the current Colonel Commandant are on display in your Regimental or Battery areas.

114. The Director RNZA. (DRNZA) The DRNZA is the senior serving officer in an RNZA appointment. He is adviser to the Chief of the NZ Army and his staff on all technical and professional matters connected with the RNZA. He advises the Military Secretary on artillery officer appointments, and the Director of Manning on all artillery other rank appointments, and is the official link between the Regiment and the Colonel Commandant. He issues instructions on regimental matters on the latter's behalf.

115. NZ Master Gunner. As well as recognising the Master Gunners of St James Park, the RNZA has its own Master Gunner. The origins of Master Gunner is an ancient one. In the past monarchs from time to time appointed various masters, eg, Waggonmaster, Trenchmaster, etc, to specialise in their particular military arts, and to keep abreast of progress. They have all since faded away - except the Master Gunner. He has held his ground for over six centuries, for as soon as Gunners became soldiers Master Gunners were put in charge of them, whether on board ship, in the field, or in coastal defence forts. The Master Gunner on board ship gradually lost the 'Master' part of his title, and became simply 'Gunner'. In the field he was the executive officer in charge of the artillery, or more correctly, the artillery train, and as such was responsible for the training of his men and the maintenance of the equipment in his charge. He disappeared from the artillery train with the arrival of commissioned 'artillerists'. However, the Master Gunner in fort or fortress remained until 1956 when coast artillery in the British army came to an end. From the earliest days in forts he was not only answerable for the care and maintenance of ordnance, ammunition and stores, but was also in executive command of the guns and Gunners in action. It was only with the appearance of the commissioned officer in coastal artillery that he relinquished the last duty, and became solely responsible for the proper maintenance and accounting of guns, ammunition and associated stores. He is back with us in field and air defence artillery. In 1980 the Royal Artillery abolished the appointment of Assistant Instructor in Gunnery, and substituted Sergeant Major Instructor of Gunnery, (WO2 SMIG) which carries the rank of Warrant Officer Class Two.

116. The RNZA Advisory Council. The RNZA Advisory Council was formed in 1980 to provide advice to the Director on aspects of the Regiment's history, customs and traditions. The Council has no executive authority. The Council is chaired by the Colonel Commandant and comprises past Colonels Commandant, the Director, senior serving RF and TF Officers and senior Warrant Officers, and the President of the Old Comrades Association. The Council normally meets twice yearly.

117. The Regiment has many associated organizations throughout New Zealand. These include the New Zealand Permanent Force Old Comrades Association, Artillery Officers' Messes and Artillery Associations.

Ceremonial

118. Precedence. When units of artillery are on parade they take precedence in their numerical order. When batteries are on parade they take precedence among themselves by alphabetical lettered order followed by numerical order. When detached Batteries or Troops are on parade with complete Regiments, the larger units take precedence over the smaller.

119. Right of the Line. By the middle of the 18th century development of military tactics had led to the guns being placed on the right flank of infantry formations in battle. It is because of this, and an increasing admiration for the skill and accuracy of the gunners, that in 1756 King George II stated that the Royal Artillery was to 'take the right of Foot and all Dragoons when dismounted'. The right of the line was always considered the post of honour and this order of precedence has continued in effect to this day. RNZA units always therefore take the right of the line when on parade either with or without guns.

120. Our Colours. The term 'Colours' normally refers to Cavalry Standards and Guidons, and Infantry Colours. These bear the battle honours of the unit concerned. In 1833 The Royal Regiment of Artillery, because its battle honours were so numerous, relinquished Colours and was granted the honour title 'UBIQUE' meaning 'everywhere'. Our guns were accepted as Colours, 'an emblem to be kept bright and free from all reproach'. Today the Colours of the Royal Regiment of New Zealand Artillery are its guns. When on parade on ceremonial occasions the guns are accorded the same compliments as the Standards, Guidons and Colours of the Cavalry and Infantry. It is impracticable in modern times to treat the guns as Colours on non-ceremonial occasions, but they are always to be treated with dignity and respect.

121. Regimental Marches. The Regimental marches of the RNZA are:

Slow	:	The Duches of Kent
Quick	:	Right of the Line
March Past	:	British Grenadiers

122. The Firing of Salutes. The custom of firing salutes on important occasions dates from the early 15th Century, when it was customary for ships on entering a foreign port or harbour, to discharge their guns, so that they were then defenceless and in the power of the individual or country to whom it was desired to pay honour. In 1688 the scale of salutes was officially laid down, with 19 guns being the maximum fired for the highest ranks which might be honoured. Later, this was increased to 21 guns in the case of honours paid to members of Royalty.

123. Freedoms. In past centuries units were often recruited entirely from one village or town with all the men of fighting age going off to war as required by the local nobility. When a unit's performance was particularly heroic, thereby achieving prestige for the town, the unit would be given the "Freedom of City". This entitled the unit to certain privileges in that town (including cheap or free liquor!). It also included the right of parading through the town with weapons drawn. In modern times in NZ 'Freedoms' have been granted to a number of NZ units and amount to parading through the town and being inspected by the Mayor. In the RNZA our guns are paraded through the city or town. RNZA units have the following Freedoms:

- a. 16 Fd Regt : Freedom of the County Town of Raglan
- b. 22(D) Bty : Freedom of the City of Wellington
- c. 4(G) Mdm Bty : Freedom of the City of Hamilton

Traditions

124. Battle Honours and Mottoes. The battle honours won by the Royal Artillery are far too numerous to display on Colours. It was decided in 1833 that a badge be cast incorporating a design that would indicate to all the honours held by the Royal Artillery. A replica of the type of nine pounder gun used at the Battle of Waterloo was selected as the centre piece of the badge. The battle scroll 'UBIQUE' meaning 'EVERYWHERE', indicated that the Royal Artillery had fought in every major engagement that the British Army had fought, and took the place of individual battle honours. Above the battle scroll was placed the Royal Coat of Arms. This was later replaced by a crown only. A scroll bearing the motto of the Royal Artillery, QUO FAS ET GLORIA DUCUNT (Where right and glory lead) was placed below the gun. The NZ Artillery was granted the 'Royal' title on 10 April 1958.

125. Gunners Day - 26 May. The anniversary of the formation of the Royal Artillery by Royal Warrant dated 26 May 1716.

126. Patron Saint. Our patron saint is St Barbara. Somewhat to the chagrin of gunners she was decanonized in 1970. Her feast day is 4 December. The legend about her is given at Annex A of this chapter.

127. Bayonets on Parade. Bayonets are not fixed on normal ceremonial parades in the Royal Artillery because they are not traditional weapons of the Artillery. They were used by the Foot Artillery in the 18th Century, but for the 150 years up to World War II they were not issued to the Regiment at all. It was considered, and rightly, that the Gunners could defend themselves against close-quarter attack with their guns, firing case shot, and later shrapnel shell with Fuze 0, timed to burst at the muzzle. Furthermore in horse-drawn days the rifles were carried in leather rifle buckets on the horses or on clips on the gun limbers and wagons, and it was found most uncomfortable for a man riding a horse to have a bayonet on his belt. However, During World War II, bayonets were issued to Gunner units in Burma, and later elsewhere, for use against enemy infantry infiltrating into the gun positions at night, and they have been with us ever since. Nonetheless, at the time that the ceremonial drills were evolved we had no bayonets to fix, and we have carried on the tradition of not fixing them except on very special occasions. These are normally confined to Guards of Honour for Her Majesty The Queen or persons representing Her Majesty.

128. Regimental Ties. The Regimental tie is navy blue with a red lightening flash. It is normal for all Commonwealth Gunners to wear their Regimental tie each Friday and on other suitable occasions, when dressed in suitable civilian attire.

129. The Silver Grenade. Within the RNZA it has become a tradition to present retiring RF gunners, who have served the guns for a minimum of 25 years continuous service, with a silver grenade. The grenade is normally presented by the DRNZA when the recipient is dined out of the active Regiment.

130. The 20 Year Parchment. Similarly when a gunner completes 20 years service both RF and TF are presented with a parchment acknowledging that service.

Dress and Insignia131. The Cap Badge.

The badge of the Royal Regiment of New Zealand Artillery is shown above. It should be noted that 'Royal New Zealand Artillery' has been inscribed on the scroll in lieu of the motto 'Quo fas et Gloria Ducunt'. This is the last of a series of badges that have evolved since the New Zealand Artillery Volunteers days. The bronzed officers and WO1 cap and collar badges were introduced just prior to World War II because they were less conspicuous in battle than the brass type. This was particularly important for OP officers. It should be remembered that prior to World War II the dress for service in the field was Service Dress.

132. The Beret. On St Barbara's Day 1984 the RNZA moved away from the traditional 'service corps' blue beret to adopt the Khaki beret as its own distinctive headdress. The Khaki beret had first been worn by New Zealand gunners in the desert during World War II, and later by 16 Fd Regt in Korea.

133. The Stable Belt. The stable belt worn by the RNZA is that of the RA. The colours of the belt are red, dark blue and gold. The red and blue are also the colours of our flags and pendants. The gold indicates our close connection with the sovereign, our Captain General.

LEGENDS OF ST BARBARA
THE PATRON SAINT OF ARTILLERYMEN

Saint Barbara is the patron saint of Artillerymen. Her feast day, the 4th December, is celebrated throughout the Regiment. There are at least two legends of St Barbara, that given first below being the one most appropriate to the Regiment. The second legend (which is too long for this publication) is available on request from the RNZA Directorate.

First Legend

This beautiful legend shows us how appropriate was the choice of the Virgin and Martyr St Barbara as the patroness of artillerymen.

Alypius, the Saint's father, during military service in the East, became friendly with a certain Fakir, from whom he learned marvellous secrets as to the use of naphtha and saltpetre. From the same source he also learned the preparation of Bengal lights.

Alypius, on his return to his native town, Hippo, devoted his life to the study of chemistry. Barbara received a liberal education, spoke several languages, and in addition became deeply interested in her father's research work.

By their united efforts in the laboratory an explosive of extraordinary power was discovered.

The beauty of Barbara attracted many suitors, but she rejected them all and entered the convent of St Perpetua, founded by St Augustine.

Africa was then a prey to invasions, and one evening in the summer of AD 430 the Vandals arrived under the walls of Hippo. The town closed its gates and a siege began.

The barbarians dug wide trenches round the city walls and threw therein the dead bodies of men and animals, the slain of their recent conflict. By this means they hoped to overcome the besieged by causing death from fever and plague.

Alypius, in this hour of need, summoned his daughter from the convent to assist in the defence of the city. While they were placing large jars, full of mysterious substance, in position Alypius was killed by an arrow. Barbara the sole possessor of her father's secrets, was called upon to continue the heroic combat. She ordered the contents of the urns to be poured into the enemy's

trenches. In an instant the substance ignited, consumed the putrified bodies and dispelled the pestilential miasmas.

During the 14 month siege, the surprise attacks of the enemy were frustrated by the frequent use of Bengal lights, and at intervals incandescent globes of fire were hurled from catapults at the enemy.

After an heroic struggle the besiegers captured the city and thirsting for revenge stormed into the convent where Barbara had sought refuge when the city was forced to surrender.

The warrior saint was, however, prepared for emergencies and had accumulated a quantity of explosives in one of the subterranean passages of the convent.

At the crucial moment a deafening explosion was heard and both conquerors and vanquished were crushed beneath the debris of masonry. Thus did the Saint with her companions escape the outrages of a licentious soldiery.

For this reason Barbara is held to be the patroness of Fire, Cannon and Firearms; she is also invoked against the thunder and lightnings of Heaven, for just previous to her death Barbara prayed that whosoever should invoke her aid might receive protection against implements of war and lightning.

PART 2AN OUTLINE HISTORY OF THE ROYAL REGIMENT
OF NEW ZEALAND ARTILLERYIntroduction

201. The early defence of New Zealand was provided for by regular troops of the British Army. These troops included artillery, and our close association with the Royal Artillery (RA) dates from 1845. Several RA units served in New Zealand during the Maori Land Wars, and this link is remembered to this day by the 'New Zealand' honour title held by 94(NZ) Bty, RA.

202. In order to understand the origins of the RNZA it is necessary to study the formation of the New Zealand Artillery Volunteers, the New Zealand Naval and Garrison Artillery Volunteers, and the New Zealand Permanent Militias.

203. Records indicate that an attempt was made to form a volunteer artillery company in Auckland in 1858, but that this failed because of a lack of guns. The first recorded unit with guns was the Nelson Naval Artillery Volunteers, formed and disbanded in 1862. The generally accepted formation date of the first batteries of the New Zealand Artillery Volunteers was 1864, when batteries with a maximum establishment of one captain, two subalterns and 25 other ranks were raised. These batteries were eventually lettered from 'A' to 'O'. In December 1878 the New Zealand Regiment of Artillery Volunteers was formed, comprising A to K Batteries, and later included L to O Batteries as follows:

<u>Battery</u>	<u>Location</u>	<u>Date of Acceptance</u>
A	Auckland	1864
B	Dunedin	1864
C	Timaru	1866
D	Wellington	1867
E	Christchurch	1867
F	Napier	1869
G	Invercargill	1872
H	Nelson	1873
I	Oamaru	1875
J	Cook County	1878
K	Invercargill	1878
L	Port Chalmers	1879
M	Queenstown	1879
N	Lyttleton	1885
O	Parnell	1885

204. Apart from the Nelson Naval Artillery Volunteers mentioned in para 3, a number of mainly short-lived Naval and Coastguard units served during the Maori Land Wars. It was not until the Russian scares of the 1880s that these units, known as "Navals",

were organised into a corps. It should be noted that although these units initially dressed nautically, operated cutters and took instruction in rowing, etc they were really coastal defence units, came under army command and were trained to operate coastal defence guns. These "Navals" were under Army command because in those days there was no Navy command, all NZ ships were part of the British Royal Naval. The Naval Artillery Volunteers formed a Corps in 1885, and in 1902 this Corps became the Regiment of New Zealand Garrison Artillery Volunteers (NZGA). The NZGA in 1902 comprised:

<u>Company</u>	<u>Location</u>	<u>Date of Acceptance</u>
1	Auckland	1864
2	Dunedin	1864
3	Port Chalmers	1864
4	Wellington	1880
5	Lyttleton	1880
6	Petone	1885
7	Lyttleton	1885
8	Ponsonby	1885
9	Devonport	1898
10	Westport	1901

205. The New Zealand Permanent Militia was formed in 1886 from the Field Force portion of the New Zealand Armed Constabulary, and comprised:

- a. an Artillery Corps of four garrison artillery batteries each of 30 men, one in each Auckland, Wellington, Lyttleton and Dunedin. The Artillery Corps was renamed No 1 Service Company of the Permanent Force in 1897;
- b. a Torpedo Corps (Submarine Miners) of 50 men; and
- c. an Engineer Corps of 20 men.

206. In 1888 the Engineer and Torpedo Corps were amalgamated with the Artillery Corps. In 1902 No 1 Service Coy was renamed the Royal New Zealand Artillery, and in 1911 the Field Branch section of the RNZA was formed. The volunteer elements were called the New Zealand Artillery (NZA), and comprised field artillery (NZFA), the old New Zealand Artillery Volunteers, and Garrison (coastal) Artillery (NZGA), formed from the old Naval and Garrison Artillery Volunteers.

Boer War Service

207. The volunteer troops that went from New Zealand to the Boer War included some artillery elements. An unnumbered Hotchkiss battery accompanied the 2nd Contingent NZ Mounted Rifles to South Africa, and thus became the first NZA element to serve overseas on active service. The battery saw little service as their guns were found to be too heavy for the horses to pull; a

factor that saw the Battery being quickly disbanded. In mid 1900 the 1st NZ Battery of the 2nd Brigade Rhodesian Field Force was formed from No 11 (Auckland) Coy of the 5th Contingent NZ Mounted Rifles, and this battery saw active service in the closing stages of the war.

1909 Defence Act

208. The 1909 Defence Act abolished the Volunteers and created the Territorial Force, introducing universal military training at the same time. In 1911 the country was divided into four military districts, with a NZFA brigade of two batteries per district plus one mountain battery (D Bty - Wellington), extra. These were:

Auckland FA Bde

A Bty (Auckland)
G Bty (Hamilton) (the formation of G Bty)

Wellington FA Bde

F Bty (Napier)
J Bty (Palmerston North)

Canterbury FA Bde

E Bty (Christchurch)
H Bty (Nelson)

Otago FA Bde

B Bty (Dunedin)
C Bty (Invercargill)

D Bty

Wellington

209. The NZGA was similarly organized into four Divisions as follows:

Auckland	:	No 1, 8 and 9 Coys
Wellington	:	No 4 and 6 Coys
Lyttleton	:	No 5 and 7 Coys
Dunedin	:	No 2 and 3 Coys

World War I

210. When New Zealand Forces seized German Samoa on 29 Aug 1914 D Bty NZFA, with two 15 pdrs and two Nordenfeldt guns, became the first and only NZ Territorial Force battery to serve as a complete unit outside of New Zealand.

211. In the main body of the 1st New Zealand Expeditionary Force to the Middle East in 1914 was a NZFA Brigade (what we would now call a Regiment) of three batteries (1, 2 and 3) each of four 18 pdrs and a Brigade Ammunition Column. A fourth battery (4 How Bty, of four 4.5 in howitzers) sailed with the 2nd Reinforcements. This Bty became the first NZ battery to land at Gallipoli, early morning on 26 April 1915. These batteries were formed under Expeditionary Force regulations and although they comprised many gunners from the NZFA and NZGA batteries, no complete TF batteries served in the Middle East, or later in France. In February 1916 the NZ Division was formed with a NZFA of four brigades (regiments), and this Division served in France for the remainder of the war. For further information read:

"New Zealand Artillery 1914-1918" by J. Byrne.

1919-1939

212. There were several reorganizations during the period between World Wars I and II. Key points of history are:

- a. 1919. The RNZA entered into alliance with the RA.
- b. 1921. The NZ Military Districts were reduced to three with the NZA being formed into three brigades (twelve batteries) of field artillery, one brigade (four batteries) of medium artillery, two coast batteries and two light pack batteries. This reorganization also saw the end of the old alphabetically lettered batteries and the introduction of numbered batteries.
- c. 1925. The rank of Corporal was changed to Bombardier.
- d. 1936. The first anti-aircraft batteries were formed.
- e. 1937. The first experiments with mechanical haulage of field guns took place.

World War II

213. For comprehensive accounts of New Zealand gunners during the Second World War a study of the following books is recommended:

- a. NZ Divisional Artillery : W.E. Murphy.
- b. 2 NZEFIP - The Gunners : Various, Editor
- c. New Zealand in the Pacific : B.M. Brown.
- d. 3 Field Regiment NZA during WWII : 2Lt S.D. Newman
RNZA

214. New Zealand Gunners served with distinction in England North Africa, Greece, Crete, Italy and the Pacific throughout the Second World War. Units serving overseas were:

a. 2 New Zealand Division (Middle East)

HQRA
4, 5, 6 Fd Regts
7 Anti-tank Regt
14 LAA Regt
36 NZ Svy Bty

b. 3 New Zealand Division (Pacific)

HQRA
17 Fd Regt
28 HAA Regt
29 LAA Regt
33 Hy Regt
114 Independent Lt Bty
53, 54 Anti-Tank Btys

1946-1964

215. The Territorial Force (NZA) was reactivated in 1948 and in pursuit of the 'one Army' concept was amalgamated with the Regular Force Artillery in the following year. During most of this period the RNZA order of battle was:

RNZA Directorate, Army HQ
School of Artillery, the Army Schools
HQRA, NZ Division
1 Fd Regt RNZA (Auckland)
2 Fd Regt RNZA (Palmerston North)
3 Fd Regt RNZA (Dunedin)
4 Mdm Regt RNZA (Hamilton)
5 Lt Regt RNZA (Wellington)
6 LAA Regt RNZA (Auckland)
9, 10, 11 Coast Regts, RNZA (Auckland, Wellington,
Lyttleton respectively)
12 HAA Regt, RNZA (Auckland, Btys at Auckland, Wellington
and Christchurch)
1 Loc Bty, RNZA (Auckland)

216. 16 Fd Regt, RNZA was raised in 1950 as part of a United Nations emergency force for Korea, and served from 1951-1954 in that theatre. This unit has several 'firsts' to its credit - the first RNZA unit to serve overseas and the first to carry the title "Royal New Zealand Artillery" into battle. The Regiment was disbanded at the end of the emergency but reactivated in 1958 as part of the Regular Force Brigade Group. As such it was the first Regular Force artillery regiment in the Army.

217. In 1953 Her Majesty Queen Elizabeth the Second graciously accepted the appointment of Captain General of the RNZA and in 1958

the Regiment was redesignated the "Royal Regiment of New Zealand Artillery". Short title RNZA.

218. In March 1964 the New Zealand Army was reorganised into a more integrated Regular/Territorial Force formation. The RNZA order of battle was then fixed as:

RNZA Directorate, Army HQ
 The School of Artillery, the Army Schools
 'A' Bty, Territorial Force Depot, Army Training Gp,
 Waiouru
 16 Fd Regt RNZA
 4 Mdm Bty, RNZA
 1 LAA Bty, RNZA (not raised)
 1 Loc Tp, which later became part of 16 Fd Regt
 3 Fd Regt RNZA
 9, 10, 11 Coast Regt Cadres, RNZA (Disbanded later)

1965-1972

219. In July 1965 the Regular Force battery of 16 Field Regiment, 161 Battery, was deployed to South Vietnam where initially it was under the operational command of the 173rd Airborne Brigade, US Army, based at BIEN HOA. Later the battery moved to Nui Dat and the 1st Australian Task Force, when that formation arrived in-country in 1966. The Battery supported all the various allied forces in South Vietnam except for the Koreans and fired its 225,000th round during March 1971.

220. In 1971 the titles of 11, 22, 31, 32 Field and 4 Medium Batteries were changed to reflect the historical association of these batteries in particular and the RNZA in general. The batteries are now titled:

11(A) Bty	Auckland
22(D) Bty	Wellington
31(B) Bty	Dunedin
32(E) Bty	Christchurch
4 (G) Bty	Hamilton

The Present Organization

221. The RNZA now comprises:

- a. 16 Fd Regt. An integrated RF/TF unit equipped with 105 mm L5 Pack Howitzers (soon to be replaced with the British Light Gun) at Papakura with the unit headquarters and sub units at Papakura, Hamilton and Wellington. It consists of:

- (1) RHQ and HQ Bty. (RF/TF)
- (2) 11(A) Bty. (TF)

- (3) 22(D) Bty. A TF battery equipped with 105 mm L5 Pack Howitzer and located at Fort Dorset, Wellington.
 - (4) 161 Bty. (RF)
 - (5) 4(G) Mdm Bty. A TF battery presently equipped with the 5.5 in Gun (soon to be replaced by the GHN 45) and located at Hamilton.
 - (6) 16 Fd Regt LAD. (RF/TF).
- b. 3 Fd Regt. An integrated RF/TF unit equipped with 105 mm M101A1 Howitzers. It consists of:
- (1) RHQ and HQ Bty. RF/TF and located at Burnham.
 - (2) 31(B) Bty. A TF Bty located at Dunedin.
 - (3) 32(E) Bty. A mixed RF/TF Bty located at Burnham. This battery is the training and reinforcement unit for the RNZA.
 - (4) 3 Fd Rect LAD. A TF LAD located at Burnham.
- c. 1 Loc Tp. A mixed RF/TF unit located at Waiouru. This troop consists of survey, meteorological and mortar locating sections. It has a large RF cadre, particularly in the meteorological section, which contributes daily information to the national meteorological network.
- d. Directorate. The Directorate of Artillery is a section of the Army General Staff at Defence HQ in Wellington. It is responsible for RNZA policy and planning.
- e. The School of Artillery. A sub-unit of the Army Schools at Waiouru, the School of Artillery is responsible for the advanced technical and tactical training of all RNZA officers and other ranks, and technical advice to the Directorate.
- f. The Band of the Royal Regiment of New Zealand Artillery. The Band of the Royal Regiment of New Zealand Artillery is based in Auckland and administered by 16 Fd Regt. It has a long history, tracing its origins back to 1860, although it was not called the Artillery Band until 1864. It is a Brass Band and TF manned.

PART 3RNZA OR TRADES AND CAREER PROGRESSIONTrades

301. General. Trades and pay within the Army are closely connected, with each trade being determined by a series of progressive steps referred to as bands. On enlistment a soldier receives a basic rate of pay according to his age and marital status. Progression in paybands skills is then largely the responsibility of the individual.

302. Band one is awarded on successfully completing a basic recruit course which teaches basic soldier skills common to all Corps within the Army. Advancement to band two within the RNZA is obtained by completion of the RNZA Regimental Basic Course at 32(F) Battery which gives personnel the basic skills required within the Corps. Band three is a qualification for operator skills and experience as a supervisor within each trade. Band four is the highest qualification in each trade, giving further depth to the knowledge obtained on the Band three course. Progression to Band five requires an individual to be cross-trained in several trades and is awarded to individuals qualified to instruct. Band six is only awarded on promotion to Warrant Officer and is paid for management skills and planning ability.

303. The Corps has various wings or branches with each having differing trades and requirements for progression/advancement primarily contained under the broad headings of Field, Locating and Air Defence while some trades are common to all branches. These common trades are:

- a. Signaller RNZA. This trade covers those soldiers trained in the techniques, drills and procedures necessary to transmit and receive all forms of orders and reports, using radios and telephones currently in service within the RNZA. (Signallers are required to hold a heavy trade licence so that they can drive the vehicles in which the radios are placed.)
- b. Driver. Drivers are trained in the various skills associated with the range of vehicles and the requirements to drive them in various roles. Drivers are also trained in the inspection and servicing aspects that are considered capable of being performed without specialist mechanical knowledge.
- c. Clerk All Arms. This trade is common to all Corps within the Army. Personnel employed in this trade are required to undertake and manage all routine office functions and clerical duties; to maintain personal history, course and promotion records for

all ranks and to advise on soldier welfare matters and conditions of service.

- d. Storeman All Arms. This trade is also common to all Corps within the Army. Storemen are required to account for and maintain all stores and equipments on issue to the unit. They are required to advise on equipment employment and maintenance policy as promulgated in policy statements from time to time; and demand on behalf of the unit for ammunition, clothing and equipment scales as applicable.

304. Field Trades. Within the Field branch the following trades are employed:

- a. Gunner RNZA. The gunner is responsible for serving the guns. He is part of a detachment which is trained to carry out the drills and gunnery procedures applicable to the equipment in use. Gun numbers are required to hold a heavy trade licence.
- b. Operator Command Post (Field). OPCPs are trained in the drills, techniques and procedures required to produce firing data, both by computer and manually, so that the guns can effectively deliver the required rounds when requested, where required.
- c. Signaller RNZA. See para 303 a.

305. Locating Trades have been regrouped to reflect the present equipments/capabilities and technological advances. The trades are as follows:

- a. Technical Support Operator (TSO). The disciplines of meteorology and survey will be taught, enabling the following:
- (1) production of data to make allowances for prevailing weather conditions to enhance the accuracy of artillery equipments; and
 - (2) execution of survey tasks and processes to place units within a formation on common grid.
- b. Target Acquisition Operator (TAO). The disciplines included are:
- (1) radar, including listening post duties, with the prime task of locating hostile weapon systems;
 - (2) artillery intelligence, which incorporates air photo interpretation, collation, and dissemination of all types and sources of intelligence, particularly those pertaining to target acquisition;

- (3) sound ranging (level one only), which enables the locating of hostile guns, based on the sound waves created when the guns are fired; and
- (4) remotely piloted vehicle, (level one only) with the operator being trained to operate and maintain the RPV's and associated visual equipment and accessories.

306. Air Defence. It is anticipated that an Air Defence (AD) Troop will be in operation within a year or two. When operational the following trades will apply to AD:

- a. Operator Command Post (AD) - Operators trained in the command and control of air defence assets. These personnel will also be responsible for the allocation of targets to weapon systems, and operating the early warning surveillance radars.
- b. Gunner (AD) - The missile/gun crew member is responsible for operating and serving the weapon system. He will be trained to ensure that the drills and procedures applicable to the weapon systems are correctly deployed.

Trade Progression

307. Regimental Basic Course. On completion of an initial Recruit Training Course, RNZA recruits to the Royal Regiment of New Zealand Artillery are required to attend an RNZA Regimental Basic Course at Burnham which introduces recruits to the Regiment and trains them in a selected field branch trade to a level which permits their employment within that trade in a unit. The course is in phases which allows personnel to attend individual phases to cross train to broaden their knowledge. On successful completion of this course personnel both RF and TF are advanced to Band two.

308. RF Trade Progression. Regular soldiers progress in their prime trade by attendance at a series of courses conducted at the School of Artillery which are governed by time served in trade and proficiency achieved. Attendance on trade progression courses are not guaranteed but are subject to a soldier attaining a satisfactory assessment on revision phases conducted immediately prior to the commencement of each course.

309. Cross Training. A degree of cross training is essential in the Regular Force if progression is to be achieved, as soldiers with more than one trade receive preference for appointments/promotion, being easier to place and more versatile than a specialist trade soldier.

310. TF Trade Progression. Territorial soldiers progress primarily through on-the-job training in units, although courses are conducted at Detachment Commander level during the year in home

locations. Attendance at courses conducted by the School of Artillery is encouraged provided personnel have the pre-course qualifications necessary and their attendance does not preclude Regular Force attending for trade advancement.

311. While not essential in the Territorial Force, promotion and senior appointments go to those with a broader base of trade knowledge. It therefore behoves individuals to ensure they have cross-training in an alternate trade.

Promotion Requirements

312. Regular Force. All promotions are by selection and must be within the approved establishment for the unit or Corps. Personnel posted to appointments that carry a higher rank bracket than they have, may be granted temporary promotion when they are eligible in all respects for the higher rank, ie by time, course/examination, trade qualification, Corps clearance and recommendation. Eligibility for promotion is subject to the following requirements being met:

- a. Promotion to Temporary Lance Bombardier. Promotion may be granted at any time excusing all basic recruit training, or at any time after completion of basic recruit training.
- b. For Promotion to Lance Bombardier.
 - (1) Twelve months Service provided that promotion will be granted only if the soldier has held the rank of temporary Lance Bombardier for a period of six months and then only if during the period of temporary rank the soldier has shown clearly that he is fit to hold NCO rank. Seniority is not back-dated and commences six months (or later) after the granting of temporary rank.
 - (2) Trade Band two qualification. Except in cases where this qualification requires more than 12 months to obtain, in which case the soldier must have all the qualifications it is possible to gain in the 12 months period.
- c. Before Promotion to Temporary Bombardier. Have at least six months seniority in the substantive rank of Lance Bombardier and be classified Band three in their primary trade.
- d. For Promotion to Bombardier.
 - (1) Twelve months in the substantive rank of Lance Bombardier.
 - (2) Have qualified on a Junior NCO promotion Course. (Consideration as a special case may be given to those who do not qualify on this course.)

- e. Before Promotion to Temporary Sergeant.
- (1) Have at least 12 months seniority in the substantive rank of Bombardier.
 - (2) Be classified Band four in their primary trade.
- f. For Promotion to Sergeant.
- (1) Have at least three years in the substantive rank of Bombardier.
 - (2) Have qualified on a Senior NCO promotion course.
- g. Before Promotion to Temporary Staff Sergeant.
- (1) Have at least 12 months seniority in the substantive rank of Sergeant.
 - (2) If primary trade is Clerk All Arms, have qualified on a Regular Force Chief Clerks Course.
 - (3) If primary trade is Storeman All Arms, have qualified on a Regular Force Stores Managers Course.
 - (4) All other sergeants are to have qualified band four in their primary trade, band four in a second trade (either Gnr(Fd), Sig RNZA, OPCP(Fd)), and band three in a third trade, (either Gnr(Fd), Sig RNZA, OPCP(Fd)).
- h. For Promotion to Staff Sergeant.
- (1) Sergeants are to be classified at Band five level unless specifically exempted by DRNZA.
 - (2) Have had three years in the substantive rank of Sergeant.
- i. Before Promotion to Temporary Warrant Officer Class Two.
- (1) Have at least 12 months seniority in the substantive rank of Staff Sergeant; and
 - (2) have qualified on the Warrant Officer Promotion Course. (Consideration as a special case may be given, by SO1 Pers/Log Land Force Command, to an NCO who has yet to qualify on this course.)
- j. For Promotion to Warrant Officer Class Two. Three years in the substantive rank of Staff Sergeant.

k. Before Promotion to Temporary Warrant Officer Class One.

- (1) Have at least 12 months seniority in the substantive rank of Warrant Officer Class Two; and
- (2) have reached maximum trade band in primary trade.

l. For Promotion to Warrant Officer Class One. Three years in the substantive rank of Warrant Officer Class Two.

313. Territorial Force. Unit Commanders are empowered to promote Territorial Force soldiers up to the rank of substantive Warrant Officer Class One, subject to the following:

- a. The promotion must be within the approved unit establishment.
- b. The soldier must possess such qualifications as are laid down for the higher rank.
- c. Temporary rank is normally restricted to one rank higher than substantive rank.

314. Current qualifications for promotion are:

a. For Promotion to Lance Bombardier.

- (1) Have completed 12 months efficient Service.
- (2) Have completed the basic and Corps phases of Whole Time Training.

b. For Promotion to Bombardier.

- (1) Have completed 12 months efficient Service in the substantive rank of Lance Bombardier.
- (2) Have qualified on a Formation Junior NCO Promotion Course.

c. For Promotion to Sergeant.

- (1) Have completed two years efficient Service in the substantive rank of Bombardier.
- (2) Have qualified on a Formation Senior NCO Promotion Course.

d. For Promotion to Staff Sergeant.

- (1) Have completed two years efficient Service in the substantive rank of Sergeant.

e. For Promotion to Warrant Officer Class Two.

- (1) Have qualified on the appropriate Army Schools Course. Depending on the trade of the individual soldier, or the requirements of the unit either:
 - (a) Territorial Force Officers and NCOs A Administration; or
 - (b) Territorial Force Officers and NCOs Q Administration are the courses to be attended.
- (2) Should a Unit Commander consider either of the two courses inappropriate for a specific individual then the matter should be referred to DRNZA for his direction who may authorise a Corps Course as being appropriate.

315. Members of the New Zealand Police Force are exempted from attending Whole Time Training for promotion purposes.

316. Efficient Service means a soldier must satisfactorily complete the part-time training prescribed for the training year comprising a minimum of 20 days in-camp and out-of-camp training, to be deemed efficient for that particular year.

317. It is not mandatory for territorial personnel to progress through temporary rank unless the unit deems it desirable.

318. Streaming. A list of RF NCOs who have been recognised by the Corps as showing above average potential is maintained by the Directorate. Personnel on this streaming list are nurtured through ideal appointments and may, if required, receive accelerated promotion to meet the needs of the Service. Positions on this list are not permanent and should a person not measure up to the potential originally recognised he will be "struck off" the list.

PART 4INTRODUCTION TO CURRENT MAJOR EQUIPMENTSGun Equipments

401. There are three different types of gun equipments in service within the RNZA today. They are:

- a. the 105 mm L5 Pack Howitzer;
- b. the 105 mm M101A1 Towed Howitzer; and
- c. the 5.5 in Gun.

L5 Pack Howitzer

402. The RNZA has 24 105 mm L5 Pack Howitzers in service. They are distributed as follows:

16 Fd Regt	18
3 Fd Regt	2
School of Artillery	4

403. The L5 Pack Howitzer is the equipment the New Zealand Army will deploy on active Service with both the Ready Reaction Force and Integrated Expansion Force. The equipment characteristics are:

- a. range - 10,000 metres but with some limitation of firing changes 6 and 7;
- b. rate of Fire - 6 rounds per minute (rpm) maximum;
- c. projectile weight - 15 kg;
- d. detachment size - 6 men; and
- e. equipment weight - 1¼ tons.

404. The relatively light weight of the equipment allows it to be deployed by a variety of means, including:

- a. Iroquois helicopter;
- b. C130 Hercules or Andover aircrafts;
- c. parachute;
- d. mule; and
- e. man pack.

405. The L5 Pack Howitzer will remain in service with the RNZA until 1992. It will be progressively replaced by the British Light Gun (a 105 mm system, used by the British in the Falklands in 1982) commencing 1987.

M101A1 Towed Howitzer

406. The 105 mm M101A1 Towed Howitzer is a simpler, heavier 105 mm gun than the L5 Pack Howitzer. Its role within the RNZA is that of a training equipment. There are 20 in service and are distributed as follows:

- a. 3 Fd Regt - 12;
- b. School of Artillery - 4; and
- c. Spare/Ordnance Pool - 6.

407. The characteristics of the M101A1 are:

- a. range - 11,000 metres;
- b. Rate of Fire - 6 rpm;
- c. projectile weight - 15 kg;
- d. detachment size - 6 men; and
- e. equipment weight - 2 tons.

408. The M101A1 will remain in service beyond the year 2000.

5.5 inch Gun

409. The 5.5 in provides the RNZA with the ability to deliver a heavier projectile over a longer range. This equipment has reached the end of its Service life and is to be replaced by a new 155 mm medium gun in the near future. There are nine 5.5 in equipments in service, distributed as follows:

- a. 4(G) Mdm Bty - 7;
- b. School of Artillery - 1; and
- c. 32(E) Bty - 1.

410. The characteristics of the 5.5 in Gun are:

- a. range - 16,450 metres;
- b. Rate of Fire - 3 rpm;
- c. projectile weight - 36 kg;
- d. detachment size - 10 men; and

- e. equipment weight - 7 tons.

British Light Gun

411. The British Light Gun is due to enter service in 1987 or 1988, to replace the L5 Pack Howitzer as New Zealand's operational gun equipment. The M101A1 towed Howitzer will be replaced later as a part of a two-phased buy. Twenty-four will be purchased from 1988 to 1992. They will be issued to 161 Bty in the first instance, followed by the School of Artillery and the remainder of 16 Fd Regt in due course.

412. The characteristics of the British Light Gun are:

- a. range - 17,200 metres;
- b. Rate of Fire - 6 rpm;
- c. projectile weight - 16 kg;
- d. detachment size - 6; and
- e. equipment weight - 1818 Kg.

413. The equipment is currently in service with the British Army, and due to enter service with Australia in 1988.

155 mm Medium Gun Replacement

414. The equipment which is to replace the 5.5 in Gun is the 155 mm Gun - Howitzer with a barrel length of 45 calibres (i.e. the length is 155 mm x 45) and produced by Noricum (GHN 45). Ten equipments will be purchased and distributed as follows:

- a. 4(G) Mdm Bty - 6;
- b. School of Artillery - 2; and
- c. War Reserve - 2.

415. The characteristics of the equipment are:

- a. range - 39,000 metres;
- b. Rate of Fire - 6 rpm;
- c. projectile weight - 47 kg;
- d. detachment size - 10; and
- e. equipment weight - 7 tonnes.

416. The GHN 45 will allow the RNZA to fire the complete range

of NATO ammunition, including the new generation extended range projectiles, and charges.

Radars

417. The RNZA has at present, two types of radar in service. These are:

- a. the Cymbeline No 15 Mk 1 Mortar Locating Radar; and
- b. the WF3M Wind Finding Mobile Radar.

Cymbeline

418. There are two Cymbeline Mortar Locating Radars in service with the RNZA, issued to 1 Loc Tp.

419. The characteristics of the Cymbeline Radar are:

- a. locates an 81 mm mortar bomb out to 14 km;
- b. locates a 120 mm mortar bomb out to 20 km;
- c. radar detachment size - 8 men; and
- d. radar weight - 1¼ tonnes.

420. In addition to Cymbelines primary role of locating enemy medium and heavy mortars, the radar is also able to be used in the following tasks:

- a. ground surveillance;
- b. coastal surveillance;
- c. guiding helicopters;
- d. basic survey; and
- e. adjustment of friendly artillery or mortar fire.

WF3M Radar

421. The WF3M Wind Finding Mobile Radar tracks meteorological balloons and the data obtained is used in the production of the Artillery Meteorological Message.

422. The RNZA has one WF3M, issued to 1 Loc Tp.

COMMAND POST EQUIPMENT

General

423. To enable guns to fire at and hit a target, the following information is required:

- a. the type of ammunition and force (charge) with which it is to be fired;
- b. the bearing from guns to target;
- c. the elevation of the barrel, required to achieve the range from guns to target; and
- d. the number of rounds to be fired and by whom.

424. The RNZA uses two methods of calculating the charge, bearing and elevation for the guns. The primary means is by use of a computer, with a secondary method by manual calculation. This is to shortly change to the secondary method also being a computer.

Fire Prediction Computer

425. The fire prediction computer to be purchased for use in the RNZA is the Canadian Mili PAC. This is a second generation computer and will be issued on a scale of two per battery and two at each Regimental Headquarters. Mili PAC has the following characteristics:

- a. Built in self test.
- b. Interface expansion to:
 - (1) forward observer,
 - (2) sound ranging,
 - (3) tactical communications/fire control,
 - (4) Meteorological data reduction.
- c. Computes for up to 18 guns.
- d. Can record and hold 100 target records.
- e. Can hold 20 observer records.
- f. Stores ballistic data resident for up to 10 weapon types.
- g. Fire support co-ordination measures:

- (1) five no-fire areas,
- (2) five crest clearance zones,
- (3) two air corridors,
- (4) three minimum quadrant elevations,
- (5) five fire support lines.

Manual Calculation

427. The fire prediction computer may not always be available to produce data for the guns. This may be due to:

- a. equipment casualties;
- b. serviceability problems;
- c. limitations imposed by the field command for tactical reasons; or
- d. the need for light scale deployments (eg the Falklands War of 1982).

428. To ensure that the guns are still able to perform their vital tasks in these circumstances a manual method of calculating firing data is taught and used within the RNZA. The equipment is called MACE (Manual Artillery Computer Equipment).

VEHICLES

General

429. The equipment used within the RNZA is designed to be air portable by C130 Hercules. No self propelled or tracked vehicles feature in the equipment of our regiments. The vehicles used by the RNZA are:

- a. .75 tonne V8 Landrover;
- b. 1.5 tonne Mercedes Benze;
- c. 4 tonne Mercedes Benze; and
- d. 8 tonne Mercedes Benze.

430. V8 Landrover. This vehicle type is the most prolific vehicle type in any artillery unit. It is used for all command, control, liaison and reconnaissance duties; and is the main method of transportation for small, independant groups such as observers, survey parties, air defence missile detachments and radar detachments.

431. 1.5 Tonne Mercedes Benze. This vehicle type is used as gun tractor for the 105 mm L5 Pack Howitzer, and for command posts within gun batteries, air defence troops and the locating troop. It is also capable of towing a 1.5 tonne trailer cross-country. The 1.5 tonne will be the gun tractor for the new light gun.

432. 4 Tonne Mercedes Benze. This vehicle type is used as a gun tractor for the 105 mm M101A1 Towed Howitzer, a stores/Quartermaster vehicle and, within field batteries, an ammunition vehicle. It is also capable of towing a 6 tonne trailer across country.

433. 8 Tonne Mercedes Benze. The primary task of this vehicle type is gun tractor for the 155 mm gun. It will enter service with the 155 mm gun system in mid 1986.

SURVEY EQUIPMENT

434. To assist in the rapid engagement of targets by the guns, accurate information as to the location of the centre of the battery and the direction to Grid North are required. Both these require the measurement of distances and angles.

435. Instruments, available within the RNZA, used to determine this information are in three broad groups:

Distance Measuring Equipment
Angular Measuring Equipment
North Seeking Instruments

Distance Measuring Equipment

436. The two distance measuring equipments are:

- a. MRA3. MRA3 is a two station microwave system able to measure distances from 100 m to 50 km very accurately. The equipment is issued to 1 Loc Tp. It is due to be replaced prior to 1988, with a newer item using the same principles of measurement.
- b. Ranger 5. Ranger 5 uses laser light, reflected off prisms, and is used by regimental survey parties. It is due to be replaced prior to 1988 with RED TWO, a smaller, more accurate laser equipment, which will have a range of 7000 m.

Angular Measuring Equipment

437. The two angular measuring equipments are:

- a. Wild T2/56 Theodolite. This equipment is used by 1 Loc Tp for angular measurement. Its accuracy is

- b. L1A1 Director. This equipment is used at both battery and regimental level for angular measurement. Whilst it is not as accurate as the Wild T2/56 Theodolite, it is more robust and better suited to operations at this level.

438. North Seeking Instrument. There are currently two types of instrument used to determine exactly where Grid North is located, both use the principle of a spinning gyro:

- a. Wild Ark. This equipment is used at Battery and Regimental level.
- b. PIM. This is a more delicate, accurate instrument, and is issued to 1 Loc Tp.

OBSERVATION POST EQUIPMENT

General

439. In addition to binoculars and compasses used by the forward observer and his party in the execution of their duties, the observation post also possesses two other aids to assist in the detection and engagement of targets. They are a Night Observation Device (NOD) and a Laser Range Finder (LRF).

NOD

440. NOD works on amplifying the natural light available at night, allowing the user to see clearly to approximately 1500 m and with measured clarity, to 3000 m.

441. The equipment currently on issue to the RNZA is the NOD A. This equipment, including a method of obtaining a direction to the target, weighs 35 kg. The weight makes the equipment difficult to use in mobile operations where a vehicle is not able to carry it. It is to be replaced by a lighter version of similar capabilities.

LRF

442. The RNZA is currently equipped with the LP6 Simrod LRF. The equipment has the following characteristics:

- a. weight - 5.8 Kg;
- b. min range - 200 m; and
- c. max range - 6000 m.

443. Like the NOD A, the LP6 is heavy and not suited to foot borne mobile, operations. It is intended to replace the LP6, in

field batteries, with the Simrod LP7 LRF. This equipment has the following characteristics:

- a. weight - 2 Kg;
- b. min range - 150 m; and
- c. max range - 10,000 m.

AIR DEFENCE EQUIPMENT

444. The very low level air defence missile system is likely to be the Swedish RBS-70. RBS-70 is a laser guided system with the following characteristics:

- | | | |
|----|----------------|--|
| a. | Range | 5 km |
| b. | Altitude Cover | 3 km |
| c. | Crew (War 4) | 3 |
| d. | Weight - Stand | 24 Hg |
| | Missile | 25 Kg |
| | Sight | 35 Kg |
| e. | Warhead | Fragmentation |
| f. | Fuze | Impact and Proximity |
| g. | EW | Immune to all known
counter measures. |

445. To maximize the effectiveness of RBS-70 the weapon will be augmented by an early warning radar and Identification Friend or Foe (IFF) systems.

PART 5ORIGINS OF RANKS, TRADES AND APPOINTMENTS

501. Gunner. "Gunner" is the name given to a private soldier in the Artillery, but it means much more. It refers not only to rank, trade, profession or calling, but to our very "tribe", if you like. All members of the Regiment are Gunners, from the Master Gunner St James' Park, who is a General, down to the newest recruit. The rank of Gunner goes back over 600 years. City of London archives dated September 1339 provide the earliest record of "gonnes" in England; later they became known as "guns". "Gunners", the men who manned them, are first mentioned in a list of "persons of the Ordnance" dated 1344. The Gunner of the 14th Century was a civilian craftsman who made the gun and served it in action. When the King went to war he hired both. As the use of guns increased, they became Government-owned, and as their manufacture developed into an established industry, the Gunner emerged as a military man skilled in the art of gunnery as it then existed. It was he who judged the elevation, laid the gun, and corrected the fall of shot. He was the expert in charge. Men called "servitor Gunners" did the more mundane work of manning dragropes, loading, firing, sponging out, etc. Pioneers, who formed part of the Artillery Train, did all the digging. By 1547 the term "servitor" had been dropped, and Artillerymen divided into classes paid according to merit and ability. Gunners received 1/- (10c) a day; others called "inferior Gunners" or "Cannoneers" 8d, 6d, and 4d. Artificers received 4d, other trained soldiers 6d. One Gunner was allocated to each piece of ordnance with one or more "inferiors" as assistants. Labourers made up the rest of the detachment. A hundred years later the "inferiors" were elevated to the rank of Matross. Gunners were now all on the same rate of pay, with the Matrosses receiving somewhat less. Each gun was now commanded by a Gunner assisted by a Matross. In the field the additional men necessary to serve the guns came from the Infantry battalions, in coastal forts from the local garrison troops or militia. As these extras were usually untrained in artillery work the Gunners and their assistants had the unenviable job of licking them into some sort of shape before the first battle. With the introduction of the Bombardier in 1686, closely followed by the Corporal and Sergeant, the artillery gradually became organised on a regimental basis, and the Gunner no longer found himself in charge of a gun. The distinguished Service the Gunners gave during the wars of the early 1700s went a long way towards earning them the title "Royal Artillery" in 1716. Since then they have gone from strength to strength. You will sometimes hear old Gunners say, "Once a Gunner, always a Gunner". They mean that though a Gunner may retire from the Regiment, or even transfer to some other arm of the Service, he will always remain a Gunner at heart. He will continue to act up to the traditions of the Regiment which nurtured him, and keep alive the old spirit of comradeship we value so much.

502. The Limber Gunner. In the days of the horse the limber was a vehicle interposed between team and gun carriage in order to give the combination flexibility, and therefore tactical mobility. A box on the limber carried ready-use ammunition, tools, cleaning gear, rifles, etc. While on the move two Gunners sat on the box and were responsible for the limber and stores, for "unlimbering" the gun when coming into action, and "limbering up" when preparing to move. In the course of time they became known as "Limber Gunners". With mechanization the limber was eventually seen to be unnecessary but a conservative Regiment retained a pneumatic-tyred version for number of years. For some peculiar reason officialdom renamed these as "trailer". With modern high-speed equipments travelling on the trailer could be dangerous so the Limber Gunners moved into the towing vehicle with the rest of the detachment. However, the title has survived. A Limber Gunner is now one skilled in the basics of the Gunner trade, that is care and maintenance of his equipment and its ammunition.

503. The Driver. Guns in the field in the very early days were drawn by horses handled by civilian drivers, in most cases yokels "straight off the turnips" untrained and untried in action. So unreliable were they that troops sometimes had to be diverted to stop them running away when the shooting started. Surprisingly this unsatisfactory state of affairs lasted until 1793. In 1794 the Corps of Captains Commissaries and Drivers was formed to provide the Royal Artillery with both horses and drivers. This corps was disbanded in 1801, replaced by a similar organization called the Corps of Gunner Drivers, then reorganised in 1806 when its title was changed to the Royal Artillery Drivers. A Corps of Royal Artillery Drivers was established in 1815 but disbanded in 1822. Recruits were then enlisted as "Gunner and Driver" with the idea that every man should be trained to perform the duties of both, and change from one to the other as required. In 1858 this system in turn was abolished, and men enlisted in the rank of either Gunner or Driver. Finally the Royal Artillery abolished the rank of Driver altogether in 1920, after which drivers took the rank of Gunner. In New Zealand both the Regular and Territorial branches of the Artillery followed the same procedure. Mechanization in the RA commenced during World War I when all but two siege batteries, the equivalent of modern medium batteries, became tractor-drawn. Each battery had attached to it a company of RASC as drivers, but by 1925 the RA had become responsible for driving and maintaining its own motor vehicles.

504. The Bombardier. In 1686, having added a substantial number of mortars to his arsenal, HM King James II approved the appointment of one Chief Bombardier and 12 Bombardiers to specialize in their use. The Chief Bombardier, who was a commissioned Officer, soon became redundant, but not the Bombardiers. Like the Petardiers (qv), they came under the Firemaster, and received the same rate of pay, 6d (5c) a day more than Gunners. From that time whenever mortars were included in a train, Bombardiers accompanied them. Also, Royal Navy Bomb Vessels carried a main armament of two heavy mortars intended for the bombardment of enemy coastal defences and shipping anchored in

harbour. The detachments for these came from the Artillery, and likewise included a proportion of Bombardiers. These Artillerymen were borne on the ships' books as were Royal Marines, an arrangement which continued until 1804, when they were withdrawn after friction between the Royal Artillery subalterns in charge of them, and Royal Navy Officers who tried to make them carry out ship's duties. As a result the Royal Marine Artillery was formed to take the place of the Royal Artillery detachments. Although the Bombardier was created to specialize in mortars he soon added guns to his repertoire. In 1697 we find the guns of a train being in general worked by ordinary troops of the line under the direction of Bombardiers, Petardiers, and Gunners. The Corporal first appeared on the scene in 1692 (on the same rate of pay as the Bombardier), and the Sergeant in 1702 on 6d (5c) per day more, but did not achieve their status as layer and Number One respectively until much later. Thus the rank of Bombardier is the oldest surviving NCO rank in the Artillery. Any similarity between the word 'Bombardier' and 'bombard', the earliest piece of ordnance, is purely coincidental. The Bombardier was so named because he was trained in the use of the mortar which fired bombs and bombarded its targets. In 1920 the rank of Bombardier in the Royal Artillery, the rank denoted by a single chevron, was upgraded to replace that of Corporal, the latter being abolished. At the same time the Lance Bombardier was introduced.

505. The Lance Bombardier. After the rank of Bombardier had been upgraded there remained the 'one-striper' to be given a new title. Because he was equal in status to the Lance Corporal in other arms, he was called 'Lance Bombardier'. Thus the Royal Artillery borrowed the 'Lance' portion of his title.

506. The Troop. When formed in 1793 the Royal Horse Artillery were regarded in the same light as the Cavalry they were intended to support. Hence as the RHA tactical fire unit was roughly equivalent in size to a Cavalry Troop, it was given the same title.

507. The Detachment. The Royal Artillery at its inception in 1716 comprised two Companies of a total strength of 10 Officers, 18 NCOs and 160 men. It could hardly be called a 'Regiment' in any sense of the word. In fact it was merely a pool of trained personnel who could be parcelled out in small groups to the Infantry to man Battalion guns, or to raise a 'Train of Artillery'. When so dispersed they were said to be 'detached' from their parent Companies. Hence the squad manning a gun came to be know as a 'detachment.'

508. The Battery. In the early days of Artillery the term 'battery' applied to the collection of guns and other paraphernalia on the gun position. It did not include Gunners, Drivers, or horses.

At its inception in 1716 the Regiment was organised into Companies which later grew into Battalions of up to 10 Companies. Neither Company nor Battalion could function tactically, for they held no equipment. They existed solely for administrative convenience.

Until 1793 field guns were usually employed as 'battalion guns', ie two were allotted to each Infantry Battalion, manned by small detachments of NCOs and Gunners assisted by Infantrymen trained for the purpose.

When not split up to man battalion guns, a Company ordered to undertake a mobile field role was said to 'go into battery', meaning the Company, besides taking over the necessary guns and equipment, was allotted a complement of horses and Drivers. After 1793 this became standard practice, and battalion guns disappeared.

However, the resulting unit was not called a 'Battery', but to quote an example of the time, 'Captain Roger's Company, 8 Battalion, RA, manning a Brigade of 9 pounders,' usually shortened to 'Captain Roger's Brigade of guns.' The term 'brigade' was probably used because the guns of any Infantry Brigade were now grouped together or 'brigaded' instead of being distributed piecemeal among the Battalions.

Up to the Crimean War Companies RA could be told to man field guns one day, siege or garrison the next, an arrangement active service proved rather unsatisfactory to say the least. At the first opportunity steps were therefore taken to improve matters.

In 1859 a new organisation was introduced in which the terms 'company' and 'battalion' were replaced by 'battery' and 'brigade' respectively. For the first time Batteries were assigned to a definite role, either field or garrison (usually coast defence), and were issued with the appropriate guns, equipment, and horses (were applicable), on a permanent basis. They were also numbered; thus Captain Roger's Company became 3 Bty 4 Bde (changed to 'C' Bty 4 Bde in 1861), now 94 (New Zealand) Bty RA mentioned under 'Honour Titles'.

The Artillery traces its genealogy through its Batteries, which are the focus of loyalty and the repository of tradition. Although the Gunner has a strong sense of loyalty towards his Regiment, it is his Battery with which he most closely identifies. The Regiment as a whole is one big family, the men in the other Batteries are his cousins, but the men in his own Battery are his brothers.

509. The Regiment. Prior to 1938 both the Royal Field Artillery and the New Zealand Field Artillery were organised for war into Brigades each of four six-gun Batteries (four-gun in peace), a Brigade being commanded by a Lieutenant-Colonel. In that year the Imperial General Staff decreed that Brigades be replaced by new units to be called 'Regiments', still with the same number of guns, but comprising two Batteries each of three four-gun Troops.

The only reason for the change in name was that it did not look right for a Brigade of Infantry to be commanded by a Brigadier, but a Brigade of Artillery by a Lieutenant-Colonel.

Tactically the 1938 organisation proved unsuccessful, and in 1940 after the campaign in France was changed to three Batteries each of two four-gun Troops.

510. In the RNZA today we train with three six-gun batteries within 16 Field Regiment and two six-gun batteries in 3 Field Regiment (this restriction is caused by expence and manpower limitations). However if a Regiment is deployed overseas it will move with three eight gun batteries.