



The Tiger's Companion

A guide to the organisation, weapons, uniforms and equipment of the combatants of the Adam Park battle for the reader of 'Tigers in the Park' and visitors to the Adam Park Virtual Museum

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Introduction

Over the course of the last 7 years work on the Adam Park estate it has been a pleasure to meet so many folk from all walks of life who have ventured into the world of battlefield archaeology for the first time. They have been awed by the poignancy and tragedy, thrilled by the bravery and shocked at the sheer brutality of twentieth century warfare. But I have regularly launched into accounts of the fighting and POW life only to look up and see a whole audience of blank faces bemused by the jargon and technicalities of military speak.

The book "Tigers in the Park" is a chunky piece of work and it would have been twice the size had the editor allowed me to add everything the research had thrown up about the uniforms, arms and equipment, tactics and strategies of the campaign. It was therefore decided to tackle this issue via the Virtual Museum. In hindsight, we concluded to pull together a free to view companion document.

So here we have a selection of material that looks at all those military matters that every good Adam Park archaeologist would need to have in the back of their mind when searching for WW2 artefacts. I have attempted where possible to illustrate the text with examples and quotes from the Adam Park historic documents however the work could be used as a guide for the whole campaign. I hope it answers a few more questions that have been raised in the main publication.

Please note that the great majority of this documented is heavily copyrighted or extracted directly out of books or off the websites. We must thank all those historians and military boffins who have pulled together all this information of which I have simply extracted the relevant items for the Adam Park fight. It remains unedited or even spell checked.

This document is for your information only and certainly not for general publication. And of course, all opinions expressed are my own. If there are any publishers out there that think this work could be the start of a best seller, then please give me a call!

The Organisation of the 1st Battalion Cambridgeshires

1. Introduction

In early 1940 the British Expeditionary Force set off for France with much of the Army's motorised transport, infantry and cruiser tanks and all the heavy artillery. In the following month much of this equipment was lost, many of the troops returning to the UK with only the clothes they stood up in. The lessons had been painfully and tragically learnt.

The first major reorganisation of the British Infantry Battalion, incorporating lessons learned during the Dunkirk campaign, took place during late 1941. The overall structure of the battalion remained unchanged, with a Headquarter Company and four Rifle Companies however the firepower of the Mortar and Carrier Platoons and the manpower of the Rifle Platoons had been notably increased from that available to the BEF in 1940. The Cambridgeshires' 1st Battalion was manned to this model. This chapter details the ideal structure, manning and allocation of equipment for each platoon and highlights where the Cambridgeshires once in Singapore fell woefully short of these requirements.

Much of the information on the standard battalion of the period is derived from the following War Establishment tables –

- An Infantry Battalion (Higher Establishment), ref II/1931/12F/2, notified in Army Council Instructions 4th June 1941.
- An Infantry Battalion, Middle East, ref VI/587/1, notified in Army Council Instructions 30th September 1942, effective date 4th April 1942.
- An Infantry Battalion, Middle East, ref VI/587/2, notified in Army Council Instructions 3rd February 1943, effective date 30th November 1942.

2. The standard infantry battalion in 1942

The standard infantry battalion in 1942 consisted of the following elements:

Battalion Headquarters (5 Officers, 50 men)

Headquarter Company (8 Officers, 247 men¹), comprised of;

Company HQ (1 Officer, 7 men)

Signals Platoon (1 Officer, 35 men)

Anti Aircraft Platoon (20 men)

¹ Capt Stagg records in Appendix D of the War Diary that the 'HQ Coy' on 11th Feb 1942 left Seletar at 1000hrs and consisted of Coy HQ (1 Officer & Batman), Signals (20), AA Platoon (22) and a Mortar Platoon (40). This suggests ideal and actual platoon numbers seldom tallied.

Mortar Platoon (1 Officer, 45 men)
Carrier Platoon (2 Officers, 62 men)
Pioneer Platoon (1 Officer, 21 men)
Administrative Platoon (2 Officers, 57 men)

Four Rifle Companies (5 Officers, 119 men), *each* comprised of;

Company HQ (2 Officers, 11 men)
Three Rifle Platoons, *each* comprised of;
Platoon HQ (1 Officer, 6 men)
Three Rifle Sections, *each* comprised of 10 men

This gives a theoretical total strength of 806 all ranks (33 Officers and 773 men)

Lt Col Carpenter reported his battalion as being at full strength before going into Adam Park and in addition they had available 141 OR's of the 1st Line Reinforcements² (War Diary: 4). However most of their vehicles had been lost on board the *Empress of Asia* which was sunk by Japanese bombers on its approach to Singapore. The battalion MTO, 2nd Lt GR Grigs, was engaged in a constant scrounge to find more vehicles, commandeering civilian transport, acquiring vehicles from the repair shops and hitching rides with other units. As the battalion moved off from Thompson Village on the 12th February they did so with an alarming deficit of vehicles and heavy equipment made up partly by a smattering of commandeered transport.

3. The Elements of the Battalion:

3.1 Battalion Headquarters – the Battalion was commanded by Lieutenant-Colonel GC Carpenter, with Major ELV Mapey as his second-in-command. There was also an Adjutant (Captain CB Hill), Assistant Adjutant (Lt J Bigmore) and Intelligence Officer (2nd Lt AB Gates). The other ranks provided drivers, batmen, orderlies and twenty stretcher bearers. A Universal Carrier was included among its vehicles to allow the CO to visit forward areas with some form of protection. However Carpenter did acquire a extra 'car' to carry out his initial reconnaissance of Adam Park (War Diary. Hutt: 22).

3.2 Signals Platoon (1 Platoon) - This was commanded by 2nd Lt RF Lucas and it was their duty to maintain radio, wire and telephone communication between the battalion and higher and parallel formations. This was a dire task in combat as

² With the exception of Lt Lewis on the Reinforcement Company who was attached to Command HQ whilst the battalion was at Seletar.

many of the No. 11 and No. 18 wireless sets proved to be useless in the tropical environment (War Diary: 6). Cable laid over ground was often broken up by shell fire and runners were organised as a contingency³.



Fig 1a - Wireless Set No. 11. mounted in a restored 30 CWT truck in Australia.

Fig 1b – No 18 Wireless set. The Wireless Set No.18. was designed for short range telephony and CW. working in forward areas, and was primarily intended for use between Battalion HQ and Company HQ. It could be used as a ground station for working in the open or from cover, and as a man carried back set for working on the march. The set is entirely self contained.

3.3 The Anti-aircraft Platoon (2 Platoon) - This was usually commanded by a Platoon Sergeant Major, and should have included four 15 cwt trucks, each fitted initially with a single Bren gun on a 'Motley' mounting and carrying a Boys anti-tank rifle. The firepower of the standard AA Platoon was marginally increased after Dunkirk by the adoption of twin Bren gun mounts on each truck. The AA platoon for the Cambridgeshires recorded little success against enemy aircraft⁴ and was hampered by the fact that Lt Col Carpenter ordered that indiscriminate AA fire was to stop as it wasted too much ammunition (Stagg Appendix D: 1.War Diary). It is unclear as to whether the platoon managed to acquire suitable vehicles for their task or the name of its SNCO.

³ During FewForces excursion to the 'Pipeline' included a battalion Signale party with two w/t sets. However it was felt that in order to relay messages back to the Battalion HQ one set had to be rigged on the road near the Tian Guan Estate as a relay station along with a section to guard it and to provide runners in case the set refused to work. Sure enough the sets failed at the first attempt and Dalforce officers were subsequently despatched to carry written messages. (Hutt: 18)

⁴ The exception was the action of Cpl Rolls of the AA Platoon who, whilst advancing to Adam Park on the 12th February emptied a Bren magazine into a passing Japanese aircraft and pieces of it were seen to fall away. (Stagg Appendix D: 1).



Fig 2a A 15cwt truck fitted out in the AA role with a single bren mounted on the flatbed pictured during a training exercise in the UK

Fig 2b A Canadian Universal carrier fitted out as 3" mortar carrier.

3.4 Mortar Platoon (3 Platoon) – The standard Mortar Platoon was increased from the early war years from two weapons to six, but still equipped with the 3-inch mortar. Each detachment was to be transported in a modified Universal Carrier, though 15-cwt trucks could still be substituted dependent upon supply. The six detachments were paired into three Sections, each provided with an ammunition truck to augment the carrier load. The truck also carried an anti-tank rifle for defensive purposes. Platoon HQ had a seventh carrier plus motorcycles for liaison.

The Cambridgeshire's mortar platoon only have had five mortars at Adam Park and were split into detachments under the command of Sgt Reeves, Sgt Bennerson, Sgt Holyhead, Sgt Cross and Sgt Pike, each commanding their own gun team⁵. Sgt Chapman acted as the 'platoon sergeant' and Sgt Burrell returned to the Platoon on the 15th after completing his detachment to the Reserve Company. Each mortar was transported in a 15 Cwt truck⁶ however both mortars and trucks were lost on the 15th February when they and the ammunition they were carrying were set on fire by the enemy barrage (Spooner Appendix F: 1-2. Cosford 1988: 10-19).

3.5 Carrier Platoon (4 Platoon) - Ideally the Carrier Platoon contained four Sections, each of three carriers, plus one at Platoon HQ for a total of thirteen. Each Carrier was still crewed by three men, an NCO, a driver-mechanic and a rifleman, with each carrier mounting a Bren gun, and each section having both a 2-inch mortar and a Boys anti-tank rifle.

The Cambridgeshires' Carrier Platoon, commanded by Capt JRE Stagg and Lt FW Munday, appeared to have lost most of its transport before reaching Adam Park. On the 12th February orders came in for the Seletar detachment to rejoin the battalion at Adam Park which initiated a trip to the MT Dump to salvage five Universal Carriers. The platoon made it to Hill 105 by 2000hrs then a detachment of 35 men went on by

⁵ Carpenter reports in the War Diary that 'On the 12th one 3" mortar and some Bren & AT rifles were taken from the battalion to equip troops who lacked these weapons' (War Diary: 8).

⁶ Three drivers are named in the accounts; LCpl Cosford and Pte Twinn (Cosford 1988: 9) and Pte Belchambers (Spooner Appendix F: 2).

foot taking their small arms and ammunition with them and leaving the remainder of the platoon to look after the carriers and vehicles. Carpenter suggests in the War Diary that four carriers were eventually available to the company but were used primarily for re-supply and carrying despatches as the ground was unsuitable for tactical deployment. (War Diary: 9)

Additional to the carriers was nominally a Motorcycle Section of twenty men, with eight solo machines and four combinations, the latter each carrying three men. It seems this element was only deployed by units serving at home. However the Cambridgeshires did acquire a number of motorcycles in theatre which were used by despatch riders, traffic control and reconnaissance. Carpenter recalls that when the battalion moved off on 12th February towards Adam Park the column was headed by the advanced HQ party that included 2 motorcycles (War Diary: 5). It is likely that these bikes were pre-war civilian models fitted with extra toolboxes, panniers, rear carrying rack and masked lighting. The body work was painted khaki and stripped of unnecessary chrome. Nortons, BSA's Triumphs and Ariels were the most common makes. As all officers up to the rank of lieutenant-colonel and many of the OR's were expected to be able to ride bikes, there would be plenty of men capable of making good use of the few bikes the battalion had available (Forty 1998: 264-265). Pte Weeks for example made good use of the wounded Intelligence corporals motorcycle when returning from an ammunition run to C Coy on the 13th February (Dawson Appendix G: 1).

3.6 Pioneer Platoon (5 Platoon) - The Pioneer Platoon remained largely unchanged through the war, with ten Pioneers plus tradesmen. It included a motorcycle for the Platoon Sergeant Major and a truck with attached driver for stores and equipment. During the early stages of the war, the Pioneer Platoon was also responsible for anti-gas and decontamination duties. By 1942 the Pioneer Platoon was commanded by a Subaltern and used a 3-ton lorry to transport its stores and equipment, but otherwise was little changed.

The Cambridgeshires' Pioneer platoon had a busy few days of action. They were commanded by 2nd Lt Dawson and arrived with the Battalion HQ at Adam Park on 12th February from which time they started to strengthen the battalion position and provided men for patrols. They strung out wire, carried up supplies and ammunition and prepared trenches. At one point they were tasked to extricate an artillery officer's carrier from the wire on the Back Road. Their truck and driver (Pte Artiss) were commandeered early on for use as an ambulance. The men also assisted in the recovery of wounded by guiding stretcher parties to the casualty, providing extra bearers and protecting the medics whilst they worked. On the evening of the 14th they were called upon to construct the barricade on Adam Road out of two 3 ton trucks and dannert wire and it was this that held up the advancing Japanese tanks the following day. (Dawson Appendix G: 1-2)

3.7 Admin Platoon (B Echelon) – This provided the bulk of the Battalion motor pool, plus the various cooks, fitters and tradesmen required to keep the unit functioning.

The Cambridgeshires 'B' Echelon landed in Singapore without transport but made good the deficit by 'acquiring' suitable vehicles on route. The Battalion had moved

out to Adam Park with 10 days rations on them leaving the B Echelon troops with no transport and having to undertake a return journey to bring up the rest of the stores left behind on the first trip. 'B' Echelon made it eventually to a sports field at Farrer Park on the 12th February only to find their allocated place being used by another unit and had to make do with a location in a Hindu temple compound nearby. On the 13th the unit moved once more only to come under sustained artillery and mortar fire which led to the hospitalisation of the QM and a number of other ranks. The echelon succeeded in bringing up hot meals on a number of occasions to the Adam Park detachment; the last being delivered in the early hours of 15th February.

'B' Echelon also provided men and equipment for the Reinforcement Company that arrived at Adam Park on the 13th and was promptly ordered to retake Water Tower Hill. In doing so the company was decimated and the remaining men reallocated to the other companies that evening.

3.7 The Rifle Company – The nominal strength of the four Rifle Companies was increased to over 120 men each after Dunkirk, retaining the previous format of a HQ and three Rifle Platoons.

Each Rifle Section was commanded by a Corporal and consisted of a rifle group of six men, armed with the bolt action Short Magazine, Lee Enfield rifles, and a gun group with a Lance-corporal, gunner and loader manning a Bren Light Machine Gun. The section commander was among the first to replace his rifle with the US supplied Thompson submachine gun. The three members of the gun group were also armed with rifles, though there was no realistic way the gunner could carry his along with the Bren gun and its associated kit.

The Rifle Platoon included three such sections under a small HQ. All Rifle Platoons were now to be commanded by a 1st or 2nd Lieutenant with a Platoon Sergeant, batman and orderly, a two man team for the 2-inch mortar, and a driver for the Platoon's 15-cwt truck. Each Platoon also had a Boys anti-tank rifle.

The Company was commanded by a Major or Captain, with a Captain or Lieutenant as his second-in-command, with a small HQ including two 15-cwt trucks. The Cambridgeshires command structure is shown at Appendix B.

4. Attached Units

4.1 Artillery Observers.

The 88th, 118th, 135th, 148th Field Regiments of the Royal Artillery were assigned to support the 18th Division. An artillery officer was tasked with setting up an OP for each battalion and directing fire down on potential targets. However the Cambridgeshire's OP officer often found that the communications were down, primarily because the cables had been laid on the surface and had been destroyed in the Japanese barrages. By the end of the 14th the defensive fire signal had to be sent by runner. Carpenter noted that on a few occasions friendly fire fell short despite the Royal Artillery OPs sending messages to their regiments and command. By the afternoon of the 15th communications were so bad that when Brigade ordered fire to

be brought down on C and D Coy positions assuming the battalion had withdrawn, no message could get through to stop them (Moore 1988: 65).

4.2 Royal Army Medical Corps Personnel.

The RAMC units were present at all levels. A battalion would be allocated a Medical Officer, a medical orderly, a 15cwt truck in which to carry their equipment and an NCO with around 20 infantrymen who were trained as stretcher bearers. The latter were usually regimental bandsmen. Their primary task was to collect the wounded from the battlefield and get them to the Regimental Aid Post (RAP) where the MO and orderly would remove the field dressings and administer aid that would ensure they survived long enough to get to the Main Dressing Station (MDS) (Forty 1998: 117- 122)

The 196th, 197th and 198th Field Ambulance units that were allocated to the 18th Division and it was the 196th that received the majority of the Cambridgeshire injured. The Cambridgeshires MO was Capt MF Smith RAMC who served with distinction throughout the campaign and through the subsequent imprisonment. The stretcher bearers came in particular praise from many of the men and officers for their bravery in recovering wounded. They took quite a few casualties in doing so however so by the 14th February volunteers were called for from the rifle company's (Moore 1988: 52) (See Chapter 7 for more details).

5. Brigade Structure

The Cambridgeshires were originally assigned to the 55th Infantry Brigade and the Brigade commander, Brigadier T.H. Massey-Beresford, M.C., had kept very close and personal contact with the battalion often risking his own life in the process.

However during the afternoon of the 13th February the battalion was switched to the command of the 54th Brigade as Percival reshuffled his units after the abortive counter attacks on Bukit Timah. Carpenter recounted that this change was seriously detrimental to both his strategic position and the moral of his men as the unit had little knowledge of the new commander and his staff. The close personal touch by Massey Beresford was sorely missed and the distrust and resentment of the new command was exasperated by the constant breakdown in communication (War Diary: 12).

6. Neighbouring Battalions

6.1 4th and 5th Suffolks

The 4th and 5th Battalions of the Suffolks were assigned to the 18th Division for the Singapore Campaign. Both units served in the 54th Brigade and were originally assigned positions to the north east of the island.

The 4th Suffolks were first called into action in support of Tomforce's attempt to retake Bukit Timah. However by the time the battalion had received the order at Thomson Village on 11th February they had already dismissed their RASC company transport. This meant that the troops had to move across country on foot and subsequently failed to get into a position to support the Tomforce attack. By the evening of the same day the battalion was badly dispersed and it took all night to establish a fragile line just short of the Swiss Rifle Club Road with its left on the Bukit

Timah Road and the right near the clubhouse of Singapore Golf Course. At midnight the battalion was ordered to advance to his original objective at the Rifle Club and by morning D Company was pushed forward only to suffer a number of casualties with Japanese units infiltrating the British lines. Later on the 12th February the 4th Suffolks were ordered back to the right of a new perimeter to the rear of Adam Road where it fell into temporary reserve behind the Cambridgeshires.

On the morning of the 12th February the 5th Suffolks found themselves to be the only battalion remaining in the original 54 Brigade sector. But now they were shuffled across the island through the mayhem of Singapore to the bolster up the Bukit Timah road defences. They debouched at Mount Pleasant Road and took up positions in the deserted residential houses⁷ along the road. On the 13th the CO, Lt Col Barker, established a front covering some two miles extending from Adam Road, across the Bukit Timah Road and along Farrer Road⁸. On the left was a gap⁹ and then elements of the Australian 2/26th Battalion of the 8th Australian Division. On the morning of the 14th February the 5th Suffolks moved forward to crossroads of Adam, Farrer and Bukit Timah roads. They established their HQ in the Raffles College. The positions were held up until the ceasefire.

The 4th Suffolks moved onto Hill 95 to relieve the Cambridgeshires on the night of the 13th / 14th finally moving into their positions by 0300hrs. The Japanese attacked the next morning. The Cambridgeshire accounts are quite damning as to the performance of the Suffolks claiming their hasty retreat was down to poor preparation of their defences (War Diary: 11,13). Whatever the cause, the 4th Suffolks suffered numerous casualties before vacating the hill and falling back to positions around Mount Pleasant where they regrouped in the houses and gardens of the estate. They later repelled enemy advances into the area.

The Cambridgeshire's retook Hill 95 in the early hours of the 15th February but needed reserves to hold the hill under mounting pressure. B Coy of 5th Suffolks was despatched at dawn but failed to take over the defence of the hill as the Japanese pushed once again along the golf course road. Elements of B Coy remained with the Cambridgeshires until ceasefire. (Nicholson 1947: 203-205)

6.2 5th Loyals

The Loyal Regiment (North Lancashire) was an infantry regiment of the line in the British Army from 1881 to 1970. The Loyals were one of seven county regiments recruiting in Lancashire. The 5th Battalion was converted in 1941 into a Reconnaissance Corps unit for the 18th (East Anglian) Infantry Division and re-designated as the 18th Battalion Reconnaissance Corps. They were transferred to Singapore with the rest of the 18th (East Anglian) Division as reinforcements for the beleaguered garrison. They arrived off the coast on the 5th February 1942 on board the

⁷ According to the Regimental History this included the peace time residence of the 'Commander in Chief' (Nicholson 1947: 204).

⁸ The diary suggests that their right met up with the Cambridgeshires however it does not take into account the deployment of the Foresters in the same area. (Nicholson 1947: 204)

⁹ Nicholson again may have overlooked the presence of the 2/17th Dogras

Empress of Asia but were bombed by the Japanese. Fortunately most of the men escaped without injury but their equipment was lost. They spent the rest of the campaign fighting as regular infantry (Warren 2007: 205). They were the centre element in the Tomforce attack on Bukit Timah on the 11th February but their forward company's were pinned down along the railway embankment to the south of the village (Warren 2007: 247). Eventually on the 12th February they fell back to Hill 80, just to the east of Adam Road on the Bukit Timah Road having temporarily making contact with the Cambridgeshires on their right along the Adam Road. Carpeneter comments that there were only two companies present. This was probably a good estimate as the Loyals could only muster some 120 men by this time (Warren 2007: 253). They were relieved from their Adam Road position by the 1/5th Foresters around midday on the 13th February (War Diary: 5).

6.3 1/5th Sherwood Foresters (Nottinghamshire and Derbyshire Regiment)

The Sherwood Foresters have had a long and distinguished history. First formed in 1741 the regiment has seen action in the Peninsular and Crimea. In 1940 the 1/5, 2/5 and 9th Battalions joined the BEF in France, the former as lines of communication troops, and the latter two for pioneer duties. All three of these Battalions were totally ill equipped for the operational tasks they eventually had to perform in the retreat to the Channel coast. The 1/5th Battalion, after a period fighting alongside 51st Highland Division, was evacuated from Cherbourg.

After retraining and re-equipping, the 1/5th were once again posted overseas with the 18th Division, arriving in Singapore on the 29th January. Their first taste of action came alongside the 18th Battalion Recce Corps as the left hand unit of Tomforce. They made slow progress advancing along the south side of the Bukit Timah road. One company was dispersed as friendly troops retreated through them but other platoons made it into Bukit Timah, only to withdraw after being subjected to 'friendly' shelling. The battalion formed a defensive cordon that evening around the Chinese Cemetery on Reformatory Road. On the 12th February Japanese incursions forced them to fall back along the Bukit Timah Road. They were caught by Japanese tanks as they did so and only extricated themselves after taking heavy casualties.

The Foresters relieved the remains of the 18th Recce Corps to the south of Adam Park around noon on the 13th February. They held their ground under persistent enemy bombardment and attacks until the afternoon of the 15th February. Farrell suggests that the Foresters were provoked into leaving their positions by the passing of the surrender party up the Bukit Timah Road (Farrell 2006: 409).

6.4 4th Battalion Royal Norfolks

This Battalion was embodied on 3rd September 1939 with Battalion HQ and HQ Company at Chapelfield Drill Hall, Norwich, A and D Companies at Great Yarmouth, B Company with detachments at Wymondham, Attleborough, Thetford and Watton, C Company with detachments at Diss, Harleston and Long Stratton. The battalion was commanded in Singapore by Lt Col A E Knights MC MM TD with Major J N Packard as his 2ic. (Cofepow 2009)

For the first year the battalion was stationed in the Yarmouth area on Coastal Defence duties but in September 1940 it was moved to Langley Park. In December it received the order to mobilise and it moved in early January 1941 to Scotland for training where it remained until April when it moved to Blackburn in Lancashire and then onto Ross-on-Wye in Herefordshire.

The battalion sailed from Liverpool on 29th October 1941 and joined a convoy just north of the Clyde. At Halifax, Nova Scotia, the Battalion was transhipped to the *USS Wakefield* and the rest of the 18th Division. The battalion arrived in Keppel Harbour, Singapore on 29th January 1942

The battalion defended north east of the island until the Japanese landings. It was then taken out of the 54th Brigade and reformed part of 'Tom Force'. Tom Force moved to Bukit Timah, some 5 miles west of Singapore Town. On 11th February it went into action west of the racecourse and met a strong Japanese attack on Singapore from the north west. They advanced in extended order with A Coy in the lead, down the straight of the racecourse and across the over ground water pipeline and soon started taking casualties from air attacks and bombardment. By nightfall the battered remnants of the Norfolks once again were on the racecourse falling back through the burning supply dumps. They were harassed all the way back down the Bukit Timah Road, its Carrier Platoon having made a desperate charge through enemy tank formations. The survivors of the battalion formed up along the Adam Road to the left of the Foresters (Smith 2005: 510).



Fig 3 - Signaller Edward Fox, born on 24 September 1922 in Sydney, New South Wales was captured by the Japanese on 15 February 1942. While he was being held at the prisoner of war camp at Adam Park in Singapore, he came across a damaged British regimental badge that was caked in mud. Fox cleaned it up and carried it through his captivity. The badge is that of the Royal Norfolk Regiment. After he arrived home he took the badge to a jeweller, had it gilded and attached to the boomerang to make a brooch, as a memento of his service.

7. Conclusion

The Cambridgeshires were an 'A' typical battalion on leaving for Singapore. But fate had seen to it that by the time they moved into Adam Park on the 12th February that they were suffering from a severe deficit of heavy equipment despite the best efforts of the unit's B Echelon officers to make good the shortfalls. However, as the Cambridgeshires fought on in a static defensive role then the lack of vehicles became less of an issue. As long as the men had spades, ammunition, food and water they could be expected to hold their ground. The command structure was sound and fared well despite mounting casualties among the SNCO's and officers.

The Cambridgeshires were not alone in their defence of Adam Road. However they were fairly unique in that they had not been in much contact with the enemy prior to their arrival on the estate. Their neighbours on the other hand had been seriously mauled by the Japanese on the preceding days and when called upon to defend against another onslaught they were found to be less resilient. Their withdrawal amplified the efforts of the Cambridgeshires to hold their ground. True, the Cambridgeshires were one of the few units to actually remain in place but then again they had not been subjected to the battering other battalions around them had.

As a foot note it is interesting to recall that the 4th Suffolks once established in the Mount Pleasant estate were also capable of putting up a stalwart defence despite their battered morale, heavy casualties and fatigue. It could be argued that the fortification of estates such as Adam Park and Mount Pleasant was the antidote to the Japanese attacks.

Uniforms, Weapons and Equipment - British

1. Introduction

This section is in no way a fully comprehensive guide to all the military equipment and uniforms for the period. It is however selective review concentrating on the most likely items used by the Cambridgeshires at Adam Park. What became clear during the research was that there was nothing uniform about the appearance of the troops. For every rule there were exceptions and it is hoped that the archaeology reflects this assortment of weapons and equipment within the artefacts recovered.

2. Uniforms

2.1 Headgear

Standard British headgear for the tropics was the 'Toppee' or 'Pith Hat'. However these were heavy and clumsy and provided little protection against shrapnel. Many were 'lost' on route to Adam Park and the Cambridgeshires on the whole wore their Mk 1 steel helmets whose distinctive bowl shape dated back to WWI. It was usually worn with a string net or hessian cover in which could be placed foliage to break up the distinctive outline¹⁰.

2.2 Uniform

In 1941 – 42 troops wore a standard tropical kit termed 'khaki drill' or 'KD'. The term originated from the Urdu 'khak' meaning 'dust'. The phrase 'drill' refers to the 'drilled' cotton fabric of which it was made. The standard dress consisted of 'aertex' fabric shirts, shorts and puttees worn over KD socks. However it was soon noted by observers on training exercises that the outfit was unsuitable for tropical climates. Shorts exposed the knees to sunburn, groins suffered from chafing and exposed skin was a prime target for bugs to bite and sting. Men were encouraged to wear trousers however these were difficult to get hold of during the early years of the war. The lighter khaki stood out in the tropical green backdrop, especially when the soldier moved¹¹. (Jeffreys 2003: 27. Brayley 2002: 35)

The high humidity in the forests tended to rot fabrics and leather at an alarming rate. The standard issue boots tended to collapse after a fortnight in the forests. They were replaced by light weight canvas, rubberised boots and eventually by American made jungle boots. It was not unknown for troops to use captured Japanese boots (Jeffreys 2003: 27).

¹⁰ Pte Jesse Adams recalls that he was issued with a 'bush' or slouch hat on his arrival in Singapore in an effort, as he believed; to deceive any 5th columnists into thinking they were an Australian unit (Adams 2009). However there is no other evidence to back this up and Sgt Baynes when asked about this, said it was not true. This story has a more serious twist to it; after the conflict, accusations of Australian troops routing through Singapore were countered by claims that many of the British units were issued slouch hats and in fact it was they who were seen fleeing. Farrell believes only two units, 1/5th Foresters and the 2nd Loyals took up wearing slouch hats when theirs were lost or worn out (Farrell 2006: 393).

¹¹ Adams described his outfit as 'sand coloured, almost white'. (Adams 2009)

The Cambridgeshires were on the whole issued with uniforms that should have seen them through an arduous campaign in the desert, however once diverted to the tropics they had to make best use of the clothes they were given. Sgt Len Baynes recalls that he and his men were fitted out with 'Bombay bloomers' (trousers which could be either full length and tucked into puttees or gaiters or tied up by buttons mid way down the thigh to form somewhat baggy shorts¹²), with hosetops and canvas anklets. (Baynes / Cooper 2009).



Fig 1 – A collection of photos showing the varying patterns of 'khaki drill'

Fig 1a – Fresh off the boat at the Singapore harbour front - this Royal Artillery L Sgt wears a pith helmet, KD shirt , khaki shorts and socks.

Fig 1b – A stretcher bearer in a RAP in Malaya 1942 wears a pair of full length 'Bombay bloomers' – note the button halfway up the thigh used to secure the eyelet at the ankle.

Fig 1c – An Australian gunner in Malaya wears a KD shirt and full length trousers

Fig 1d – Men of the Argyll and Sutherland Highlanders a/c platoon have learnt lessons from their jungle training. They are wearing a bonnet, aertex shirt and full length trousers.

2.3 Webbing

The 1938 webbing had been born out of the 1908 pattern that had been used throughout WWI. It was designed to be much lighter and universal for all elements of the army. With the exception of the bayonet no items of kit were to hang below the waist and thereby impede the soldier whilst running.

¹² Baynes recalls his 'bloomers' extended to just below the knee. (Baynes / Cooper 2009)

The basic harness consisted of a 2 ½" wide belt joined by a patent buckle at the front, on which was suspended two web pouches, each capable of carrying Bren magazines, rifle ammunition clips and / or No. 36 hand grenades. Two braces went up over the shoulders and through the shoulder straps on the shirt before crossing in the middle of the back and attached to buckles on the rear of the belt. A 'frog' to hold the bayonet and entrenching tool could also be attached as well as the essential canteen. In addition troops in tropical climates also carried a 'machete' or 'dhah' (an Indian made knife) for clearing foliage. P37 webbing was replaced in 1944 as it was found to rot, cause chafing on the shoulders and armpits, especially when heavily loaded and wet and the metal fittings tended to rust (Forty 1998: 183 -185. Jeffreys 2003: 28).

Two packs were issued to carry personal equipment, clearly entitled 'large' and 'small' and secured with a flap top and two narrow webbing straps with buckles. These could be worn in various combinations depending on the load to be carried and attached to the webbing or carried separately thus allowing them to be dropped in a hurry. The service respirator was carried in a waterproof canvas bag that was carried across the chest by means of a canvas strap and chord. Many were discarded in combat (Forty 1998: 185).

Non standard attachments were available for the basic webbing, including Thompson sub machine gun ammunition pouches, mortar round holders and cartridge pouches. Officers webbing could carry the P37 pistol set which included a binocular pouch, compass pouch and holster. Otherwise officers wore the traditional 'Sam Brown' belt. (Brayley 2002: 41)



Fig 2 – Platoon Officers of the 1st Battalion Cambridgeshires pose for a photograph in Ahmednagar in December 1941 prior to being shipped to Singapore. Note the khaki drill and 'Sam Brown' belts.

From L to R: Lt Lewis (Reinforcement Coy), 2nd Lt Fulcher (C Coy), 2nd Lt Sutor (D Coy), 2nd Lt Baber (Reinforcement Coy)

3. Personal Equipment

As the name may suggest the list of personal items varied from man to man but there were essential issue items that had to be carried in his pack.

Each man required a sewing kit or 'housewife' which held needles, darn and spare buttons. Along with water bottles each man was issued with a pair of rectangular mess tins with folding handles, one fitting inside the other. These were made of tinplate or an aluminium alloy. Brown enamel water mugs came in either 1 pt or ½ pt sizes and replaced the pre-war white enamel ones. Finally there was an all metal set of knife, fork and spoon often stamped with the owner's initials and number (Forty 1998: 186 -187).

A typical pack may therefore consist of spare clothes, poncho, mess tins and cutlery, shaving gear, emergency rations, field dressing (normally kept in a pocket), cigarettes, washing gear and toothbrush, water sterilising outfit, spare laces, hairbrush or comb, gun cleaning kit including oil bottle, pull through, rifle cleaning brush, dubbing and possible an additional medical kit with mosquito repellent, mosquito net, plasters, lint and foot powder (Forty 1998: 173).

More personal items would include the ID tags worn around the neck, paybook, pencils, penknife, notepad, wallet, photographs, money, spare tobacco, lighter and other small luxury items or mementoes (Forty 1998: 173).

4. Weapons

The most common weapon carried by the Cambridgeshires in Singapore was the **.303in bolt action SMLE** (Short Magazine Lee Enfield) Mk 3. This used a 10 round charge loaded detachable magazine, had an effective range of 600yds and a maximum range of 2000yds. It weighed 8lbs 14.5oz and was an unwieldy 3ft 8 1/2 inches long. When the No.1 Bayonet was added it extended to a length of 5ft 12/3 rd inches.



Fig 3 – The SMLE (Short Magazine Lee Enfield) Mk 3 and ammunition clip

Junior officers and some NCO's were equipped with a **Thompson sub-machine gun**. There were two military types of Thompson SMG by the outbreak of the war. The M1928A1 had provisions for box magazines and drums (the drums were disliked because of their tendency to rattle). It had a Cutts compensator, cooling fins on the barrel, and its charging handle was on the top of the receiver. The M1 and M1A1 had a barrel without cooling fins, a simplified rear sight, provisions only for box magazines, and the charging handle was on the side of the receiver. Because the option to use drums was not included in the M1 and M1A1, the 30 round box magazine was designed for use with this model. The .45in Thompson Sub machine was issued in large quantities to allied troops in the Far East and its stopping power was welcomed by those who used it¹³. It was however prone to jamming. (Brayley 2002: 38,39)



Fig 4 – The Thompson M1928A1 Sub Machine Gun

The Bren Gun provided the Cambridgeshires with their light machine gun support. Ideally each section was to have a Bren but the Cambridgeshires had to give a number of their guns up to re-equip other units before going into Adam Park (War Diary: 8)

The Bren was based upon the Czech ZB 26 MG and was developed by RSAF at Enfield Lock in 1937. The Mk 1 was identifiable by its drum rearsight, butt handle and adjustable bipod all of which were dropped from later models. A number of mounts were designed for AA and vehicle mounted roles. It weighed 23lbs, fired .303 calibre bullets mounted in a 29 round overhead magazine. It had an effective range of a 1,000yds and fired 500 rpm (Forty 1998: 202). It required two men to use it under normal conditions; one to fire and one to reload, normally lying prone, but it could be fired from the hip. After prolonged use the barrels used to wear out and accuracy deteriorated. Spares were carried as back up by the No.2 gunner.

¹³ Sgt Baynes noted in his correspondence that his Platoon CO took off with the sections Thompson early on in the fighting much to his disgust.



Fig 5 – The Bren Gun

The Lewis Gun - After the debacle at Dunkirk the British Army were forced to use old war surplus. 59,000 Lewis guns were brought out of retirement and used by the British in WW2. The gun saw action in all theatres and was used by commonwealth soldiers throughout the Malayan campaign. Captain Stagg recalls the Cambridgeshires A Coy setting up a Lewis gun in the 'Bofor emplacement' in the vicinity of Water Tower Hill (Stagg Appendix D: 1) to assist in the defence of that sector.

The Lewis gun was a light machine gun that fired a .303 round. It first came into service in 1912 and was used throughout the First World War on all fronts. It could be used on a variety of mounts but the ground bipod was the most common. It weighed all in at a relatively light 28 lbs and could be carried by a single man and fired from the waist if required. It fired 500rpm fed from a 47 or 97 round drum magazines mounted on the top of the breech. The gun was designed with a distinctive aluminum barrel-casing which used the muzzle blast to draw air into the gun and cool down the internal mechanism.



Fig 6a – Recruits of the Singapore Volunteer Force training with a Lewis gun in 1941



Fig 6b – The Lewis Light Machine Gun was a relic from WW1 pressed ganged into service after the loss of so much equipment at Dunkirk.

The Boys Mk 1 Anti - Tank Rifle provided the Cambridgeshires with the only recognised anti tank capability. Renown as being cumbersome and ineffective it was the bane of many a section. It had tremendous recoil which would bruise the shoulder of the strongest operator. It could only penetrate 21mm of armour at 300yds. It weighed 35lbs and used .551 inch calibre bullets fed from a five round detachable box magazine. A good operator could fire 10 rounds a minute providing his shoulder did not give up first¹⁴.

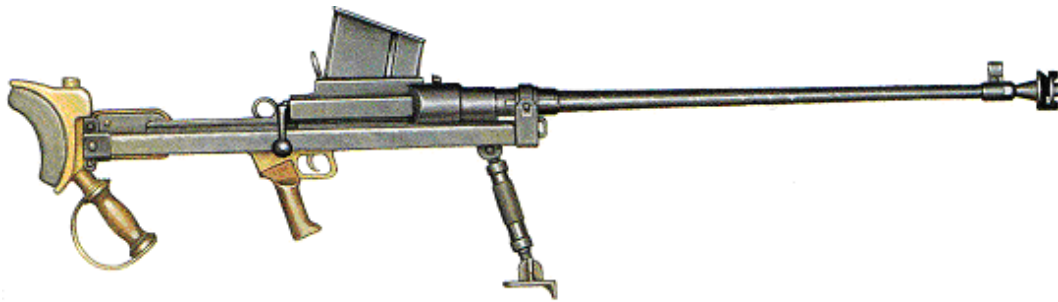


Fig 7a – The Boys Anti-Tank Gun

¹⁴ Baynes recalls 'The heaviest weapon that we infantry were called upon to carry was the anti tank rifle. We had humped it up hill and down dale for two years in England, grumbling all the way. It was our most unpopular weapon. No one really believed in its efficiency as it seemed impossible that a rifle fired from the shoulder could avail much against a modern armoured tank. Pte M was in charge of our anti-tank rifle. When the tanks appeared I crawled over to his trench. I told him that as I was weapons training instructor perhaps it would be better if I fired his weapon, to make best use of the ammunition we had. Pte M suffered from no illusions 'Not bloody likely Sarge' he said with a pitying look... All as per the book Pte M fired at the joint between the turret and the body of the tank, letting each have one round in turn.... Then came our first indication of success. One of the tanks went up in a cloud of fire and smoke. We thought that one of our dear mortar platoon boys had scored a direct hit with one of his bombs. Pte M swore it was one of his anti tank bullets' (Baynes 2009:33,34).



Fig 7b – The Boys Anti – Tank weapon being used on a training exercise in Malaya 1941

The No.36 Hand grenade or ‘Mills Bomb’ development stemmed back to WWI. The result of the development across the years of combat was the 36M, a waterproof variant that was developed for the Mesopotamia Campaign just after the war and it was this model that was used in the early years of the war. The mechanism had changed little since Mills took out his patent in 1915. The central channel holds a striker, retained against the pressure of a spring by a curved handle which in turn is held in position by a safety pin. Beneath the striker is the igniter set consisting of a .22 cartridge, a safety fuse and a detonator. The original fuse was set for 7 seconds with time being allowed to launch the grenade from a rifle cup discharger. But when thrown by hand it was found it gave time for the enemy to throw the grenade back. A 4 second fuse was then developed and the 7 second fuse held over for use with the launcher. The 36M was used in most theatres of conflict. It was primarily a defensive pattern grenade with the tendency to launch large fragments over 100 yds away from the landing point (Hogg 1977: 160).



Fig 8 – No. 36 Grenade or MillsBomb; A series of illustrations showing the design and components of the grenade.

The Mk1* Enfield Revolver was the standard issue weapon for infantry officers in 1942. The British army looked for a lighter all purpose revolver to replace the powerful but heavy .455 revolver used in WWI. The result was a hybrid of the Smith and Weston .38 and the Webley designs. The initial Mk 1 revolver was capable of operating as a single shot or double action weapon but the Royal Tank Regiment, the prime users, were afraid that the hammer spur would

catch on the innards of a tank as the men climbed in and out; a potentially dangerous occurrence when the pistol was loaded. The result was the Mk 1* which had the spur removed but meant that the gun was double action only. It weighed 1lb 11¹/₂oz and carried six shots in the chamber (Hogg 1977: 20).



Fig 9 – The Mk1* Enfield Revolver

The British 2” Mortar was the standard platoon support weapon for the Cambridgeshire Regiment. The barrel was 21” long and weighed 19lbs¹⁵ (when fitted with the larger base plate). Each mortar round weighed a further 21³/₄lbs and had a maximum range of 500yds. The projectile was a simple high explosive bomb with an impact fuse in the nose and a die cast four finned tail carrying a single priming cartridge. Smoke bombs were also available (Hogg 1977: 104).



Fig 10a – A 2-inch mortar team of the 2nd Battalion, East Lancashire Regiment, keep up covering fire during the advance on Pinbaw, December 1944.

Fig 10b – A British soldier carrying an early Mk2 2”mortar (19lbs) and a full kit bag.

The British 3” Mortar was the primary weapon for the Mortar Platoon. This smooth bore muzzle loading weapon was the descendent of the Stokes mortar used in WWI. The barrel was 51” long and rested one end on a base plate. A bipod was used to support the muzzle and allowed the

¹⁵ This was later reduced to 10lbs by the fitting of a smaller plate and removal of the sighting mechanism.

weapon to be elevated and traversed. The Mk1 version had a range of 1600yds and the Mk 2, with its slightly heavier barrel, a greater range of 2800yds. All in the weapon weighed 112lbs and was usually transported on a carrier or truck.



Fig 11 a and b – Two views of a 3" Mortar in action with the Malayan Regiment prior to the outbreak of the fighting.

5. Armoured Cars and Carriers

The British Mk1 Universal Carrier, (The Bren Gun Carrier) was the main mode of transport for the Cambridgeshire Carrier Platoon. Unfortunately most of the battalions carriers were lost at sea and only a few were acquired prior to the move to Adam Park.

They were classified as a light armoured tracked vehicle designed to provide infantry sections with all terrain transport capability. Usually manned by a two man crew the carrier would carry up to 6 infantry with equipment. Its primary armament was the bren gun mounted at the front through an armoured slit, however a Boys AT gun and extra Brens could also be carried. Variants included a mortar platform, flamethrower, amphibious and AT version. However the Cambridgeshires would have had the Mk 1 infantry carrier. The Universal carrier weighed 3.75 tons and could travel at 30mph. It was the work horse of the British infantry units with over 113,000 being built in total.



Fig 12a - A Mk.I Universal carrier in service in Italy. It is carrying ten men with weapons and equipment.



Fig 12b – The inevitable fate of many carriers - disabled Bren-Gun carriers in a plantation in Papua 1942.

British Armoured Carrier ACV-IP (India Pattern) Mk.2 was a four wheeled armoured car. The G.M.C./Ford Canada chassis, as the name suggests was built in Canada then shipped to India where the armour was added by the Railway Company. The Mk 2 differed primarily from the Mk 1 by the transfer of the engine to the back of the vehicle. It was primarily used as a command vehicle or for reconnaissance. They were armed with a Bren and a Boys anti-tank rifle and had maximum speed of 50 mph. They had crew of three

The MK II was on issue to Malaya Command in 1941 until the fall of Singapore. The Mark 2 appears to have been used in Malaya by the 9th and 11th Indian Infantry Divisions. Some Mark 2s were obtained by the 8th Australian Infantry Division and were used in Singapore by the 18th British Infantry Division. The Cambridgeshires would have seen these being used at Seletar airfield.

6. Field Artillery

The primary artillery gun used at Brigade level was the **Ordnance QF 25pdr Mk1 and Mk2**. This was a spawned from an attempt by the British Army to design a combined gun and howitzer. Initially this was achieved by reborng old 18pdr guns and these became known as the 25pdr Mk1. Many were lost in France and most of those remaining were used for Home Defence and in the Western Desert. In 1936 the Royal Artillery looked for a new gun that had an increased range. The result was the Mk 2 which first saw action in 1940 in Norway. Eventually over 12,000 were produced. The Mk 2 weighed 3,986lbs, fired a 25lb shell at a maximum range of 13,400yds. The design proved a winner as the gun was rugged and reliable. In some circumstances it was even used as an Anti Tank gun. They were usually towed by a 4x4 tractor; the Morris C8 'Quad' or the Guy 'Quad' Ant (Forty 1998: 220 -222).



Fig 13 - 25-pdr field gun and limber in action at Gemas on 15th January 1942 .

At dawn on Friday 13th February, Capt. Ochi Harumi of the 11th Regiment 5th Division was resting in his slit trench amongst the green fairways around the clubhouse of the Singapore Golf Club. They had taken the position the night before and were expecting to move forward again that day. However, they were not to get it all their own way. The British opened up on them with a tremendous barrage:

'Just when the sun rose like the devil with a red glint the first morning shell exploded with strength....every one minute a giant shell exploded in the same manner. 'Daaawn' was the first seemingly unrelated sound the bomb made when it was fired off far away. But almost at once the lethal black monster was upon them' (Frei 2004: 118).

These 'drum cans' had been fired from the Fort Siloso on Blakang Mati Island by members of the Royal Artillery. **The Mark VII BL Guns** installed at Fort Siloso fired a HE or AP projectile, propelled by a separate bagged cordite charge, inserted into the breech after the shell. The guns had a maximum range of 17,000 yards (15,700 metres). Each gun had a supply of 500 rounds of AP ammunition, but only 50 of HE. This lack of HE ammunition would be a telling factor in the battle for Singapore. The fact that these guns landed shells on elements of the 5th Division goes some way to dispel the myth that they were as good as useless as they faced the wrong way.



Fig 14 – The 6" gun of No.1 battery at Fort Siloso, now recreated in the museum landed shells on Japanese troops approaching Adam Park.

7. Overview

The Cambridgeshires at Adam Park had with them a limited selection of weapons and equipment. Much of their heavier items of equipment were lost at sea or reallocated to more needy units. The unit scrounged as many replacement items as they could but it failed to make good the deficiencies totally.

The following images have been taken out of the Osprey publication that cover the period and have been edited to provide a truer likeness of the Cambridgeshires at Adam Park (Brayley 2002: plate B)



Fig 15a – A 2nd Lt of the Royal Norfolk Regiment, 4th Battalion, 18th Infantry Division in Singapore 1942.



Fig 15b – NCO of the 1st Battalion Cambridgeshire Regiment, 18th Infantry Division ‘The Fen Tigers’

Defending Adam Park

1. Introduction

Understanding how soldiers interact with the battlefield is vital if we are to interpret correctly the traces they leave in the archaeological record. By understanding the training and tactics employed by the protagonists it is possible to predict the most likely areas of recoverable artefacts. Soldiers also tend to do things 'by the book' when they can. If we have access to those books then we can recreate the things soldiers do, understand the effects this has on the landscape and look for similar traces on site.

This chapter looks at the training manuals that were made available to the Cambridgeshires, the likely tactics they subsequently employed in the defence of Adam Park estate and identifies any local variations enforced upon them. It reviews the nature of the field fortifications built by the defenders and their likely locations around the estate.

2. 'By the Book' – Tactics in the Field.

Many authors on the many works recounting the battle for Singapore have made much of the lack of allied training for the Malayan campaign. It was clear that the Allied assumption that the jungle was impenetrable and therefore there was no point training in it was a major factor in the collapse of allied positions all along the peninsula (Farrell 2006:136 -137. Warren 2007: 45-46). But could the same be said for the defence of Singapore and more precisely the defence of Adam Park?

By the time war had broken out in Europe little had been done to prepare allied troops to fighting in the jungle in the outer realms of the empire. Despite a number of exercises that had proven the jungle not to be the impassable barrier the military hierarchy had done little to heed the advice and less to prepare their troops. By 1940 there were only two manuals which covered the subject: Tactical Notes for Malaya and Military Training Pamphlet No. 9 (India) Notes on Forest Warfare. However the rapid recruitment of the Indian Army meant that any jungle training was diluted as experienced officers and SNCO were split up between the newly recruited units. There was also little co-ordinated action from high command who believed any war in Malaya would be won by the Royal Navy and the Royal Air Force (Smith 2005: 83 -85. Jeffreys 2003: 15,16).

The one notable and well publicised exception to this was the Argyll and Sutherland Highlanders, who under the command of Lt Colonel Stewart had spent many months training in the heat of the jungle, adapting to their new environment and in effect rewriting the jungle training manual. Stewart realised the importance of lines of communication; roads, navigable rivers and rail. He also developed the art of 'filleting' the opposition's defences; a frontal assault combined with a wide flanking attack that would infiltrate to the rear of the enemy lines and in effect split the enemy into two and forcing them into the inhospitable jungle. Stewart advocated the use of

aggressive patrolling, often with as few as half a section in an attempt to undermine enemy moral and disrupt their lines of communication. These 'Tiger Patrols' as they became to be known depended on every individual understanding the art of jungle warfare. However replacements and the continual reassignment of trained personnel to new units meant that at the outbreak of the fighting only a third of the A&S were proficient in the subject (Moffatt et al 2003: 69-72. Jeffreys 2003: 15,16).

There were no more than a dozen officers and men within the ranks of the 1st Battalion of the Cambridgeshires who had seen any service in tropical climates. On arriving in India on 29th December the battalion was immediately despatched to Ahmendnagar and started desperately needed training soon after. The men were able to acclimatise to the heat and learn valuable hygiene and sanitation lessons which later proved to be invaluable in the Far East. However at this point the battalion still believed it was heading to the Middle East and tropical battle tactics were not on the agenda. By 16th January the battalion were once again at sea and only 24 hours after that was their destination made public (Hutt 2009: 10.3).

Although the news was not unexpected there was little information on board as to the nature of the theatre of operations. Hutt remarks that a few 'official notes' that were circulated on board were not very helpful. Presumably these were the copies of 'Pamphlet No.9' and 'Tactical Notes'. Only 2nd Lt Clift had any knowledge of Malaya having done some planting out there some years before and he was able to hand on some valuable information about the geography and climate. But there were no official briefings (Hutt 2009: 10.3).

Fortunately for the 1st Battalion and unlike many of their colleagues, they were to see very little actual jungle fighting. Their stint in Seletar airfield consisted primarily of setting up the defence of the airfield and then they were moved to first Thompson Village and then onto Adam Park. Only B and C companies were asked to venture through the secondary forest and plantations on their excursion to the pipeline and this they did with the help of local Dalforce guides. It was to be a baptism of fire for both units as they found the going tuff, the terrain inhospitable and the heat oppressive. They did however manage to locate and destroy a number of enemy units before falling back in a gruelling night march (Hutt 2009: 11.16).

Singapore in 1942 was primarily covered in plantations (See Chapter 10 for more detail). This offered acre upon acre of lightly wooded areas crisscrossed with unmapped footpaths and sporadic water erosion channels and ponds. Surface vegetation was light compared to the primary and secondary rainforests and visibility at eye level was reasonable in comparison¹⁶. Much of the coasts were bordered by mangrove swamps, especially in the north, which made troop landing particularly difficult yet in turn made defence nigh on impossible as visibility, and therefore fields of fire, was limited and gun positions soon became isolated. A similar story could be told in the secondary forestation that surrounded the reservoirs in the hinterland of the island.

¹⁶ The Argyll's came up with a practical solution for firing brens in plantations. They found in training that when on the ground their lines of sight were impeded by the grass and undergrowth. So they carried bicycle chains to attach the brens to the trees thus supporting them above the level of the undergrowth and providing the gunner with shelter behind the tree (Moffatt et al 2003: 69)

However as the Japanese advanced ever nearer the city limits the landscape changed. Plantations gave way to housing estates, some densely populated but many like Adam Park set high on the hills (to make the most of the breeze) with their large houses spread along good metalled roads bordered with deep anti malarial ditches. The number of large municipal buildings increased, each set in their own gated compounds and substantial grounds. Jungle gave way to manicured lawns and hills covered in tall lalang grass. Suddenly the lack of jungle experience became less important. Allied troops such as the Cambridgeshires were given positions to defend which, notwithstanding the weather, could be considered akin to small villages back in Britain. (See Map Regression.)

The Cambridgeshires moved into Adam Park on the morning of the 12th February into relatively familiar surroundings. Now their training manuals and operating procedures would make more sense. The battalion set about fortifying the estate and surrounding hills. They didn't know at the time but they had 24 hours in which to complete the work before it was to be tested by a full on assault.

3. Fortifying Adam Park

The Directorate of Military Training had the unenviable task of producing a plethora of training manuals for the British Army. On paper it seemed quite sensible to update literature on the lessons learnt as the war progressed. However, keeping the troops up to date with latest techniques and the new equipment proved to be a monumental task. (Forty 1998: 12)

The Field Service Pocket Book was the primary reference for the troops in the field. It was issued as a collection of pamphlets each covering in detail particular topics. This meant that when a section needed updating only a single pamphlet would need reprinting and redistributing. All officers and SNCO in the battalion had access to a copy of the book and no doubt certain pamphlets were circulated to the OR's as required.

Pamphlet No. 4 issued in 1939 covered the subject of 'Field Engineering'. The pamphlet detailed everything a soldier would need to know on creating field defences including the tools and material required, the amount of time it should take and design of each construction. Undoubtedly many of the officers would be acquainted with its contents and the Pioneer Platoon commander, 2nd Lt Dawson, would have most likely had a copy at hand and his NCO's knew it in detail. It is a fair assumption to believe that the Pioneers and the infantry platoons would prepare their positions in line with these notes where possible accepting a degree of local variation when material and terrain dictated otherwise.

2nd Lt Dawson and his Pioneers were one of the first units to arrive at Adam Park and were immediately asked to send out patrols under L/Sgt Fordham and Cpl Chopping. Not only did these patrols provide the Battalion HQ staff with important intelligence it gave the pioneers a chance to view the ground.

The first task was to decide on the location of the defensive perimeter. D Company was to advance into the estate to set up their lines amongst the houses. A Coy was allocated a sector from the Sime Road across Hill 95 and as far forward as Water Tower Hill. This was primarily on open hillside and within plantations. The HQ Company set about establishing their Battalion HQ.

4. The Battalion HQ – No.7 Adam Park

One of Lt Col Carpenter first actions after reconnoitring Adam Park was to relocate the Battalion HQ. He had originally set up his post in the RASC hutted camp to the SE of Adam Road, however Carpenter quickly identified a better site and all his staff moved into the buildings and gardens of No. 7 Adam Park across the road. The house offered more space for his teams and a substantial complex of ARP trenches¹⁷ had already been dug into the large gardens. It would take no time at all to interconnect and extend the trenches and make a suitable location for his HQ teams (Hutt 2009: 22). The house was also on the reverse slope of the hill on which the estate was built and therefore could not be easily spotted by the Japanese observers (War Diary: 5).

As soon as Dawson's men had returned from their patrols they were set to work wiring up the approaches to the HQ (Appendix G Dawson: 1). 1st Platoon (AA) moved into the ground to the west of No.7 Adam Park and linked up their sector with that of D Company (Appendix D Staggs: 1). Signals platoon dug in with the Battalion HQ staff and the Pioneers, at the end of the day, dug 'three trenches on the roadside left front of the Battalion HQ', overlooking the old battalion HQ position, so they could add their firepower to the defence of the perimeter (Appendix G Dawson: 1).

The inner workings of a typical battalion HQ would usually consist of four work areas:

- 1) The Commanding Officer – Usually accommodating the CO and his 2ic. He would have room to display a situation map, latest intelligence reports and possibly room to bed down. He would also have communications with the other areas.
- 2) Adjutant and Intelligence – This area would house the intelligence staff and display the unit dispositions on a wall map along with the latest message board split between incoming and outgoing. This would also house a defence plan, intelligence log, location list and again a telephone link.
- 3) Signals – Usually equipped with the battalion level R/T sets, message pads, typewriter and telephone. Manned by the Signals platoon's clerks and runners.
- 4) Administration – Home to the duty rotas and battalion files.
(GHQ Home Forces 1943: 22).

¹⁷ The Strait Times on January 30th 1942 published a guide to civilians to help them prepare air raid trenches – 'An Air Raid Alphabet'. In it, it recommends that; 'Slit trenches should not be more than 4ft deep. 2'6" wide and 20ft long i.e. for 10 – 12 people. Light cover of timber or corrugated iron with 6" of earth will keep out splinters.... Entrances should always be kinked against splinters and blasts.... Breastworks are shelters built to the same dimensions as slit trenches but where you cannot dig a trench because it fills with water. Bend entrance against splinter blast. (Strait Times 1942: 1)

It appears that initially these units were encamped outside of the building, protected by trenches and hidden under camouflage netting (War Diary: 10). But by the last day the CO had moved into the building as Sgt Baynes noted:

'Still no instructions as to what I was to do with my men had I received from BHQ. It could well be we were wanted somewhere else altogether. I therefore ran across the battalion HQ to try and get some orders, and found the Old Man and the Adjutant in the basement (Baynes 2009:38).'

5. Fortifying the Houses

It appears from the war diary that not all houses on the estate were fortified or indeed manned by the Cambridgeshires during the fighting. On a number of occasions, houses close to, if not within, the defensive perimeter, were taken over by the enemy and proved very difficult to retake. So why did the Cambridgeshire occupy some houses and leave others undefended?

According to the instruction books, choosing which houses to fortify will depend on a number of tactical requirements.

1. Any structure should ultimately provide a firm base from which more mobile elements can be despatched,
2. It should be easily defended.
3. It should be able to withstand a heavy assault
4. It should provide support to its neighbours
5. It should provide a secure link in the communication chain
6. It should deny the enemy tactically beneficial ground

The house must also demonstrate a degree of durability. It should take a considerable amount of enemy ordnance to flatten any chosen building. The most durable buildings are those made of reinforced concrete, then stone buildings and at the bottom of the list, wooden buildings as they offer a potentially lethal combination of splinter fragments and combustible material (GHQ Home Forces 1943: 67).

The Class 3 houses ringing Adam Park therefore offered a combination of a concrete lower storey with a brick, plaster and wood construction on the 1st floor. It was no wonder then that the Cambridgeshires tended to use the space under the buildings to store their ammunition and supplies but refrained from using the upper stories, preferring to fight their battles from slit trenches dug into the surrounding lawns and gardens (Cosford 1988: 12). The exception to this was the RAP where space was premium and it was not expected to be attacked. Cosford's account of the destruction of the RAP gives a good impression of the poor defensive qualities of the upper floor.

'The fighting must have peaked soon after 6.00 pm when bullets came crashing through the windows of the RAP. The room where we were seemed full of fallen plaster, dust and broken glass. A bullet struck the petrol tank of one of the ambulances outside. It immediately caught fire

and before anything could be done the flames spread to the others. One of these was under the porch of the RAP and the building itself was soon burning fiercely' (Cosford 1988: 20).

Selection of the right buildings also depended on its surroundings. It was important that structures provided good all round fields of fire and that it could not be easily approached or difficult to guard. Approaches to the building were to be out of view from the enemy¹⁸. Adam Park houses appear to have met these requirements. Set out along the slope of a hill with superb views of the hills opposite, each resembled a 'bastion' linked to the next by the back roads and ditches. Within this was a central core of larger dwellings providing an inner sanctuary.

The instruction pamphlets also advocate a defence in depth. Each house was to be fronted by a line of foxholes and slit trenches dug into the hedgerows and boundaries of the property. This would ensure that they were difficult to see from the air and that were not likely to be buried by the rubble of the building should it be hit¹⁹. Moreover, the beaten ground of an LMG placed at ground level is more than that of a gun mounted in a first storey window and offers less of target. Houses can always be used as fall back positions should the trenches be overrun (GHQ Home Forces 1943: 67).

When D Company moved into the estate they had all these considerations to bear in mind. They duly selected a number of houses and began to dig positions within the grounds and prepare the house itself for limited occupation.

Guidance for the defence of buildings usually assumed a two storey brick built structure with outbuildings and perhaps cellars; very common in Europe but clearly not so in Singapore. Advice on creating loopholes and gun slits is dependent on removing individual bricks and mortar rather than concrete and plaster board and few windows in the 'black and whites' were fitted with glass; many were protected purely by wooden shutters to encourage air circulation. However, some advice would have been pertinent. Knocking through 'mouseholes' between rooms would allow troops to move freely while remaining under cover, preparing fire steps and bullet proofing the adjacent walls ensured protection for the shooter and removing all flammable material was all good advice (GHQ Home Forces 1943: 63. War Office 1939: 36-38).

It cannot be said for certain to what degree the houses were fortified as there are no written descriptions of the fortifications within the buildings or the nature of fighting in their defence. There are however several accounts of the efforts made to oust the Japanese from their positions within the estate building which provide an insight into how difficult it was to storm even an unfortified building.

¹⁸ Fortunately many of the buildings around Adam Park were serviced by drainage ditches and anti malarial ditches. These provided an ideal crawl trench and immediate cover in a barrage. They also however provided cover for approaching Japanese and may account for the easy infiltration of enemy troops.

¹⁹ Carpenter notes in the War Diary that a house in 18 platoon D Company's sector was flattened by aerial bombing; *'the house itself was badly damaged, but as the platoons positions were naturally 'dug in' around the house no casualties occurred'* (War Diary: 10)

On the night of the 13th Japanese units apparently infiltrated the Cambridgeshires lines and not only emplaced snipers within the trees but also established machine gun posts in a few houses including No.20 Adam Park:

'In the vicinity of house number 20, a bitter contest was in progress between the forward platoons and a number of Japanese troops who had worked their way into the area during the hours of darkness. In this area, the enemy were close enough to snipe and lob grenades²⁰ into the forward sections, causing serious disruption and making movement between sections extremely difficult.

"2nd Lt Fulcher of C Company led a patrol through the wire²¹ to try to determine the enemy's strength. The patrol took a number of casualties when a Japanese machine gun suddenly opened fire from a flanking position. The patrol took cover in a ditch bordered by a hedge²² and gradually worked their way towards the houses²³. As they approached the nearest house they were surprised by a group of Japanese soldiers but extracted themselves from the fight by throwing a number of grenades at the enemy.

As the patrol was returning to their lines a fierce fire fight broke out between the forward sections and some infiltrating Japanese. Fulcher saw two of the enemy run into a small house²⁴ nearby and the officer immediately ordered his men to attack. During the exchange of fire Sgt John Cockerton was killed and the remainder of the patrol were pinned down by heavy machine gun fire. The situation was threatening to become serious when Capt Derby came forward to give his support. The officer grabbed hold of an anti tank rifle and blasted a good number of rounds through the thin walls of the building, until all enemy fire had ceased. The patrol rushed the building and forced their way inside whereupon one of the Japanese immediately fled from the house. The body of his companion was found dead in one of the rooms.

In a bid to eject the enemy from the houses, a number of bombing raids were organised by the other platoons but no house windows overlooked 'C' Company²⁵ and although the patrols were able to reach the houses they found it difficult to get grenades into the buildings. Several patrols forced their way into the buildings and in the close fighting Sgt Jack Palmer was killed and a number of men wounded.

²⁰ Estimated to be approx 30yds

²¹ See the section below on the erection of Dannert wire fence across the estate

²² This is good evidence of the protection to be found in the anti malarial ditches that criss-crossed the estate.

²³ It would appear from this passage that a number of houses were beyond the wire and possibly occupied by the Japanese.

²⁴ 'Small houses' probably refers to outhouses, servants quarters or garages.

²⁵ This interesting statement infers that the houses in question were not the main buildings which had windows and balconies on all sides but again the outbuildings.

Major Few then forbade any more platoon attacks. Any further attacks were to be coordinated across the company. Plans were made once again to clear houses adjacent to C and D company positions.

The attack was carried out with deadly efficiency. The anti tank rifles and 2" mortars tore great holes in the side of the buildings while the 3" mortars directed a furious barrage to the rear of the house, thus preventing any attempts of escape by the enemy. As covering fire was laid on 2nd Lt Clift dashed forward and fired his tommy gun through the holes made by the AT rifles.

While Clift was keeping the enemy occupied, 2nd Lt Fulcher led two of his sections through the wire and attacked the houses. As the sections broke into two of the buildings, Fulcher attacked a third by himself. As he entered the building, he suddenly found himself confronted by a large number of the enemy, all of whom were frantically struggling into their equipment. The officer promptly fired long bursts from his tommy gun into the seething mass until his magazine was empty. With great coolness, and under cover of the confusion, quickly fitted a fresh magazine to his gun and again opened fire on those left standing. By now some of the enemy had recovered from the initial shock of the attack and Fulcher suddenly found himself with an empty magazine. The officer calmly and resolutely deposited four grenades among the crowd, killing all those who had remained untouched by his gunfire (Moore 1988: 49,50).

It appears that these attacks were not totally 'by the book'. The use of AT rifles and mortars (presumably fired at almost the horizontal) are very much spontaneous solutions to ongoing problems.

6. Slit Trenches and Weapon Pits

The Cambridgeshires were good at digging. Carpenter wrote in the War Diary that:

'The two great lessons of the fighting so far were – dig as soon as a position is occupied, and there is nothing to fear from Japanese mortar and artillery; remain in position after digging as the Japanese will retire if the position is firmly held' (War Diary : 10)

The Field Service Pocket Book (FSPB)(1939) states that:

'1. An infantry platoon not in contact with the enemy, with a working strength of 20 men should be able to carry out the following work:

1st 4 Hour task

Dig weapon pits (12), erect 300yds of wire obstacle by day (200 yds at night) if stores are dumped at 100 yds interval, and do some clearing of field of fire

2 nd "	Dig 12 Alternative weapon pits and 40 yards of crawl trench
3 rd "	Dig 100 yards of crawl trench
4 th "	Dig 100 yards of crawl trench
Each Subsequent 4 hour task	Deepen to 3 feet depth of 60 yards of crawl trench

2. Digging tasks per man in average ground :

4 hour tasks:

Weapon Pit	6 ft by 3 ft. 6 ins, by 3 ft deep.... One
Crawl Trench	3 ft 6 ins by 1ft 6 ins deep at centre.... 5 yds
Trench	3 ft 6 ins by 3 ft deep..... 2 yds
Trench	3 ft 6 ins by 3 ft deep developed from crawl trench3 yds

Any protective work must :

- 1) Permit effective use of weapons
- 2) Provide protection from the enemy's weapons
- 3) Be Inconspicuous.

(War Office 1939: 17,18)

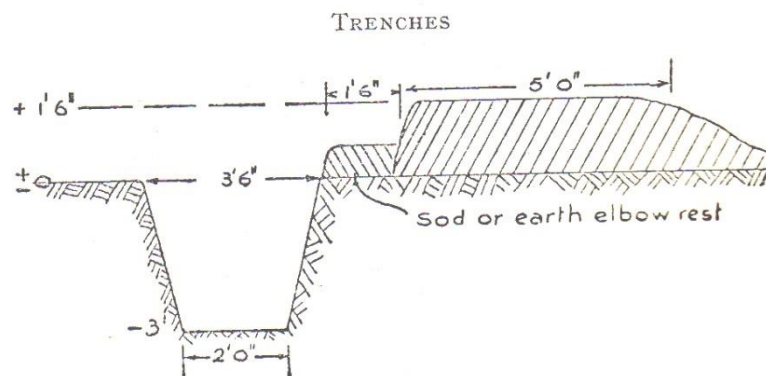


FIG 3.—Section of a weapon pit.

(393/4645)Q

A 8

Fig 1 – A diagram from the FSPB showing the dimensions of a weapons pit.

When time was at a premium, priority was given to the erection of obstacles, such as barbed wire fences and barricades. This was followed by the digging of the weapon pits and crawl trenches. Repetition of this process followed as time allowed with the aim of digging deeper and of adding overhead cover.

Care had to be taken in ensuring the weapon pits were properly concealed both from the ground and from the air. Drainage, access and sanitation had to be considered. Each pit would usually take three men although it was not uncommon for trenches to be extended to take more²⁶.

Fatigue and prevailing circumstances could affect the rate of digging and the subsequent size of the trench. Sgt Baynes' 8 Platoon, A Coy found the first day very frustrating and tiring as the unit was shifted from one position to the next:

'Every fresh position we were moved into that day, already tired out, meant we had furiously to start digging ourselves in again. As each trench was completed without having any idea why, we were ordered to leave it. Then fully exposed to bullets and bomb once more, we had to start digging afresh in another spot. Thus it came about that when we did settle in what was to be our main battle position our over tired men dug so slowly that when the attack came the trenches were not so deep enough to protect them fully, and the initial onslaught cost more lives that it would otherwise would have done'. (Baynes 2009: 13,14)

On the 14th, 8 Platoon was relocated once again to the far side of Adam Road. This time it would be the nature of the ground that was to be the problem:

Thus as the morning sky began to turn grey we moved out of our now friendly trenches. We soon found ourselves in completely new positions among the huts on a hillside opposite the BHQ..... I sighted the positions for our new trenches. As the sections began to dig in (not a very easy task on that rocky hill) HQ sent rations over... We had our breakfast in shifts as we could not afford to lose any digging time. The enemy might open fire at any moment, and under fire a good trench is worth many breakfasts. (Baynes 2009: 31)

²⁶ Sgt Baynes recalls that the trench dug by 8 Platoon at the bottom of Water Tower Hill was dug for seven men to fight in. (Baynes 2009: 22)



Fig 2 – A fire trench circa 1944 showing a three man team dug in on the edge of a plantation.

It is interesting to note that the FSPB encourages the use of hedgerows noting that they provided ideal locations for fortifications as they provided cover, good field of fire and cause the enemy to disperse their fire along the length of the feature. However they did tend to attract fire and it was advisable to position weapon pits just behind or just in front of the hedge rather than within it and using the hedge itself to conceal the spoil. As most of the gardens at Adam Park were bounded by drainage ditches and open hedges it is possible that many trenches were dug in this vicinity (War Office 1939: 38).

7. Mortar Positions

Mortar positions were built to a different design. The 'L' shaped layout would not only provide an area in which to service the mortar but also an 'annex' in which the ammunition was stacked.

Capt Spooner's men were split up on arriving at Adam Park and set up their 5 remaining 3" mortars at various points around the estate:

'Disposition at dawn (Friday 13th February); on extreme left Sgt Reeve's detachment covering position in front of area then held by Recce Bn [Loyals]; Sgt Bennerson covering left of Bn front; Sgts Holyhead and Cross on right of Bn front under the command [of] D Coy (Capt Hockey); Sgt Pike was given counter penetration task onto high ground to right area of Bn front; Sgt Holyhead det was first in action and their work highly commended by Capt Hockey' (Appendix F Spooner: 1)

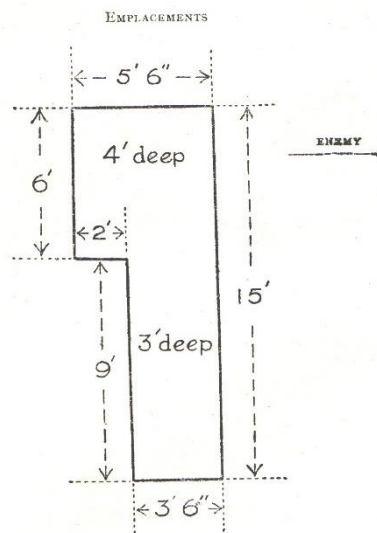


FIG. 10.—Mortar emplacement

Fig 3 – A second diagram from the FSPB showing the recommended dimensions of a mortar trench.

LCpl Cosford was assigned to Sgt Holyhead's detachment as driver. He describes his position within Adam Park:

'Our platoon occupied an area just off Adam Road, a residential district, not too far from Bukit Tima. Here were quite large houses with verandahs in front, thirty to forty yards apart and a private road running through the middle of them. They were built on the side of a hill, the backs of the houses being at ground level and the front on concrete or stone pillars several feet high allowing movement underneath. We had positions around and under these houses, our mortar being mounted on the lawn of the forward. We appeared to be more or less centre of the line, other companies from our battalion occupying positions on either side'²⁷ (Cosford 1988: 11-12).

Cosford admits his memory of the fighting on the 13th was a little vague but he does recall that much of the fighting on the first day:

'.. seemed to be coming from the undergrowth and coconut palms about 200 yds away to our right front. Our houses being built on the side of the hill, below us was a valley, on the other side of which was another hill'²⁸, and it was here the bulk of the enemy appeared to be' (Cosford 1988: 13).

²⁷ There was only D Coy in the estate when Cosford arrived on the 12th. He may have been referring to being between A Coy on Hill 95 and Water Tower Hill and D Coy in the estate. Or he could have simply been mistaken.

²⁸ Most of the fighting on the 13th took place on Water Tower Hill

On the 14th February, Cosford came under fire from the Japanese who had infiltrated the lines and taken up positions in No.20 Adam Park. Cosford describes this as being

*'..a house next to ours, possibly up to twenty of them in the house itself and others nearby'
(Cosford 1988: 14)*

However on the 15th Cosford tells of his mortars being relocated to the other side of Adam Road amongst the RASC huts. But first they had to vacate their forward position under fire.

*'I crawled to the truck²⁹ to start the engine. When ready I signalled the others, who reached the truck at the double. Where were we off to now? Two hundred yards down the road coils of dannert wire barred our progress. We appeared to have been in front of our own front line! I slowed down and Sergeant Holihead hopped off the truck to clear the road. Although under fire all the time he held the wire back until I had driven through, then calmly replaced the wire and rejoined me in the front seat... we reached the BHQ safely, things were a little quieter here
(Cosford 1988: 16).*

Judging from this description Holyhead's detachment was dug in on a lawn of one of the smaller bungalows beyond the wire and next to No. 20; most likely No. 13 Adam Park³⁰.

The other mortar detachments established similar positions in other locations around the estate but we have no detail as to their exact position.



²⁹ Cosford recalls that the truck was left under cover in front of their position and it was necessary to creep on ones stomach to reach it.(Cosford 1988: 15)

³⁰ This is surprising as the much of the fighting on the 14th was in and around these buildings. Possibly the Japanese infiltration was very localised and they just got into No. 20 and its outbuildings.

Fig 4a- A 3" mortar manned by the 1st Borderers, 'dug in' and firing in support of the Operation Market Garden in Holland 1944. Note the cramped operating conditions and the depth of the trench.

Fig 4b – A 3" mortar crew of The Regina Rifle Regiment in Normandy, 9 Jun 1944.

Their Carrier can be seen in the background. Again note the layout and depth of the trench and the use of camouflage netting to hide the spoil from aerial observers.

8. Dannert Wire Obstructions.

The Pioneer Platoon spent a good deal of their time on the 12th February laying wire obstructions around the estate. They had 'acquired' great many coils of wire from the stores at Seletar and from stockpiles they found unused by the side of the road on their journey across to Adam Park. (War Diary: 3,4). This was hauled up into the estate in the afternoon and laid out with the assistance of D Coy men. Dawson notes in his review that the platoon:

'Assisted in construction of dannert fence on that front [D Coy Position] linking on the left with the Recce Corps [Loyals] wire, crossing the Back Road³¹ (Dawson Appendix G: 1).

The fence was subsequently mentioned in many of the other sources as it acted as a local landmark and for many represented the outer perimeter of the Cambridgeshire's lines. Not only did it stop the enemy attacks but it also impeded the recovery of injured men.

Cosford 's account (See paragraph 7 above) locates the dannert wire fence across the road 200 yards from his position in No.13 Adam Park.

Moore describes his father's last patrol moving out from D Coy's positions in the estate and along the front to the right of the line:

In between salvos, they gradually worked their way through the rear gardens of the houses on their right..... 'Pony'[Sgt Moore] was in front leading the way towards the valley. By now the two men were near to house No.20 to the right of the Company positions. As they drew near to the house their way was obstructed by a wire barrier and they continued to move the right (Moore 1988: 40).

2nd Lt Baber was wounded on the 'D Coy side' (south side) of Water Tower Hill (See 'The Dead and Dying in Adam Park' for more detail). Carpenter, in his War Diary, states that he was '*on the far side of a triple dannert wire*' (War Diary: 9).

³¹ The 'Back Road' is most likely the road that links house 2-6 Adam Park with Adam Road

Sgt Baynes states:

'Our position [8 Platoon at the foot of Water Tower Hill] was separated from that of the rest of the battalion by triple dannert barbed wire, running parallel to and on the other side of the dead ground in front.[of their trenches]. Dannert is a springy barbed wire in coils of two or three feet diameter. Triple dannert consisted of two of these coils staked down side by side touching each other with another coiled wire along the top. It is a very formidable obstacle to cross if you are in a hurry.' (Baynes 2009: 23).

Baynes and his section were later asked to cross the wire under fire:

As I rushed for the 5ft high wall of dannert it was as though elixir poured into my veins. I did not hesitate as I ran full tilt at the wire and sailed cleanly over without touching it (Baynes 2009: 24).

Others in his unit crawled underneath it. Baynes and his section were then relocated along the edge of the wood at the base of Hill 95 on the other side of the wire from his old position. Here they dug trenches and then sent out patrols to recover the wounded (See 'The Dead and Dying at Adam Park'). In doing so they were once again called upon to cross the wire but did so through a gap located about a 100yds to the left of their new position (Baynes 2009: 26).

Baynes' description of the wire appears remarkably accurate. According to FSPB a triple dannert fence consisted of :

1. *Three concertinas in the form of a pyramid*
2. *Long screw or angle iron pickets at 5 paces (4 yds) intervals through the bottom two concertinas*
3. *A longitudinal strand of ordinary barbed wire along the top of each bottom concertina. This strand is to be fixed to the second eye from the top of each picket and to be windlassed to the bottom concertina at intervals.*
4. *The top concertina to be fixed to the top eye of the long screw pickets on the home side of the fence. The horizontal strand on the home side of the fence to be windlassed to the concertina.*

The ends of the adjacent concertinas are fixed to a single picket. (War Office 1939: 43-45)

Taking all the references into consideration it would appear that a triple dannert wire fence ran a position on the 'Back road' where it met wire already laid by the Loyals, perhaps somewhere between No. 4 and 5 Adam Park, up across the lawns between No. 10 and 11, across the inner road and down between No 19 and 20, then down across the valley and along the base of Hill 95. Where it goes after this can only be guessed at.

This does not mean that it was the only wire to be used. Most likely more wire was placed in front of the slit trenches and weapons pits around the perimeter of the gardens. FSPB recommends that the wire:

'should be under fire from section posts; beyond the range of grenades thrown by hand, but not so far that it can be cut in darkness or fog; and that it should be inconspicuous as possible, particularly if position consists of concealed weapon pits (War Office 1939: 20).

This may account for Moore's assertion that a wire fence ran along the front of the buildings on the estate.

An undetermined number of Japanese had infiltrated into the houses opposite D and C Companies but their progress had so far been frustrated by a wire barrier that ran along the front of the houses and across the valley (Moore 1988: 46).

See Maps in Chapter 1 for position of defences.

9. The Barricade

On the evening of the 14th February 1942, the Pioneer Company were asked to erect a barricade on the Adam Road towards 'Hellfire Corner'. It was recognition that the battalion's position was getting desperate as the Japanese had by then managed to get troops on and beyond Hill 95. 2nd Lt Dawson noted in his appendix to the War Diary:

'During the evening road block on main road was constructed from two 3 ton trucks and on a side road a Dannert obstruction was made. These road blocks were made under the supervision of Sgt Vigar (Appendix G Dawson: 1)

Carpenters's entry in the full diary adds more information about the construction:

During the mortar attack [on the 15th] the Japanese worked a tank and at least one m/g along the road from Hellfire Corner. These took up positions near the point where Adam Road left the woods around the base of Hill 95. Very gallant work was done by the Pioneer Pl. and by Sgt Homphrey and Pte Kerry of the Signal Platoon in putting improvised obstructions across the road. The obstruction was improvised out of a broken down vehicle and baulks of timber and could hardly be described as A/Tk obstacle but they had the effect of stopping the movement at the point just mentioned. (War Diary: 14).

Dawson's diary adds stark detail to the battle that raged around the barricade:

Enemy m/g post to the right of the main road obstructions and second m/g post beneath the front of one of the vehicles used to make the obstruction, spotted and put out of action by rifle fire. Excellent spotting by Sgt Vigar and Pte Noakes (Appendix G Dawson: 1)'

It would appear on all accounts that the barricade did its job.

10. Improvised Positions

When there was no time to dig in, units found themselves taking up improvised positions. The most commonly used features were the anti malarial ditches that run along most of the roads and criss-cross the gardens and plantations usually cutting across the contours of the slopes.

Cosford recalls one such incident where the ditches were used for cover:

'We both crouched low in the truck. I gave it all the acceleration it would take, in spite of bursting shells we were through and we pulled up under cover unscathed. No sooner had we stopped than mortar shells started bursting among us and we received our first casualties. We took cover in an anti-malarial drain, a concrete affair about three feet deep, six inches wide at the bottom and about three feet wide at the top. It was most uncomfortable but it saved our lives (Cosford 1988: 11)'

However the drawback to these readymade trenches was that they offered protected lines of infiltration for enemy patrols.

The Cambridgeshires also made good use of the rubble and shell craters left by the bombardment. One 1000 lb bomb that landed a mere 20 yds from the Battalion HQ left an enormous 20ft crater into which Baynes later established a machine gun post on the understanding that bombs never fall twice on the same spot. However on his return from a visit to the Battalion HQ he found the bren gun team that he had posted there had moved out and had taken cover by a tree. Apparently the crater had been so large it did not offer adequate all round cover and *'would catch any bomb that fell near them'* (Baynes 2009: 42).

11. Conclusion

This section has reviewed the types of fortification that were used in the defence of Adam Park. These would have predominantly consisted of weapon pits and slit trenches dug in and around the gardens of the houses. The houses themselves offered protection at ground level under the concrete piles and supports but the first floor was made of lighter material and would have offered scant cover. However the layout of the estate along the contours and on the crest of a dominant hill meant that the perimeter could be established on a line of buildings each provides an interlocking arc of fire with its neighbour. But for various reasons not all houses were occupied allowing for the infiltration of enemy patrols that were subsequently difficult to dislodge. It appears in the latter days of the action the front line was marked by a dannert wire fence that crossed through the heart of the estate, however some units remained forward of this line. The wire fence was extended over the valley and along the foot of Hill 95. Good use was also made of existing cover such as the anti-malarial drains

In the 24 hours that the Cambridgeshires had to prepare the position they created a substantial complex of trenches and fire points. These defences were tested and found to be resilient. As Carpenter puts it in additional written notes to his diary:

'Defence against the tactics deployed by the Japanese shows not to present a great problem and no new lessons need to be learnt. Depth is necessary, in the [unreadable] of defended localities with a co-ordinated fire plan – it is necessary to dig in and finally there must be the determination to remain in the defended locality (War Diary: 16 hand written notes).

The Dead and Dying in Adam Park

1. Introduction

The artefacts of battle come in many forms but perhaps the most poignant are those that relate to wounding or death of an individual. The Cambridgeshires lost forty nine dead, seventeen more to die later of wounds received in the action, nineteen missing and over eighty wounded³² (Moore 1988: 71). The Japanese lost considerably more in and around the estate³³. Dealing with this amount of casualties is sure to have left a mark on the landscape. It is therefore important to understand the casualty handling process in order to recognise and correctly interpret any evidence that remains of it.

This chapter reviews the process and equipment used by the combatants to deal with the dead and wounded during their stay at Adam Park and speculates on the trace that may have left on the archaeological record³⁴.

2. *The Royal Army Medical Corps (RAMC)*

The medical services for the British army in World War 2 were provided by the Royal Army Medical Corps (RAMC) which had been formed prior in 1898. The role of the RAMC was to ensure the safe evacuation, care and treatment of all sick and injured troops, initiate and provide advice on all matters pertaining to the soldiers health, supply medical equipment and assisting commands at all levels with the location and deployment of medical services (Forty 1988: 117).

In order to meet this role estimates had to be made as to the amount and type of casualties that would occur in any given situation. Estimates from World War I suggested 5 – 20 percent of forces involved in the fighting would become casualties of which 25% of these would be killed. Also it was expected that under usual circumstances 0.3% of personnel would be sick at any one time. In order to deal with these numbers a 'Chain of Evacuation' was established which detailed the plan to be put in place for the evacuation of casualties (Forty 1988: 117).

³² Moore's figures do not tally. The casualty numbers on page 71 list 47 dead and 21 missing

³³ Moore estimated over 600 Japanese dead lay around the battalion's position. He also reckons another 200 were killed by B Coy's attack on the units by MacRitchie Reservoir on 12th February. He concludes that the total number of casualties sustained by the Japanese in their attempts to capture Adam Park was over 1,500 men. This unfortunately cannot be confirmed by Japanese records.

³⁴ Much of the following information has been taken from an article on the history of the 196th Field Ambulance by Clayton Ford to be found on the 'Roll of Honour' web site.

The RAMC personnel were present at all levels of command. At battalion level they were represented by a Medical Officer (MO) who would be accompanied by a Medical Orderly and 20 stretcher bearers (SB's) led by an NCO and usually taken from the regimental band should they have one. They were transported in a 15 cwt lorry which took all their equipment. The task of this unit was to set up a Regimental Aid Post (RAP) to which the SB's would convey the wounded. Men of the 196th Field Ambulance unit were attached to the Cambridgeshires (Ford 2009: 1)

2.1 The 'Chain of Evacuation' at Adam Park

2.1.1 Immediate Action

The 'Chain of Evacuation' started in the front line. A wounded man would be expected to administer his own first aid or, if unable to do so, be treated by his colleagues using the casualties own personal first aid kit.

There are a number of anecdotes relating to the immediate assistance provided to a wounded man during the fighting at Adam Park:

Sgt Baynes recalls:

'Only a few yards on the other side [of the barbed wire] we came upon three lads who had been hit. I have always been good at first aid (I would have liked to have been a doctor) and soon bandaged these lads up with their own field dressings. Once they had been treated, all three found that they could walk with support, so we helped them back to our lines' (Baynes 2009: 26).

Later on Baynes' first aid talents were once again put to the test:

'At quarter past five Sgt Hurrell received a bullet in his bottom. As he had been facing the front when he was hit consternation reigned in our ranks. We thought our flank had been turned once more. I bandaged Hurrell up and sent him back to the RAP with the stretcher bearers.' (Baynes 2009: 29).

Sgt Moore was wounded outside No.19 Adam Park. Having been hit by grenade shrapnel and machine gun bullets across the chest it was clear that he was seriously injured. He however managed to stagger back towards his own lines before collapsing on the lawn. Moore's wounds were beyond the scope of first aid so immediate evacuation was called for:

Pte Neal stayed by his sergeant's side but, in the darkness, there was little he could do to relieve the pain, or to staunch the flow of blood. He knew the wounds were serious and held little hope for the sergeant's survival. Realising the urgency of the situation, Neal called for assistance and it was not long before 17 Platoon Commander, 2nd Lt Skinner arrived at the scene.... He quickly lifted the wounded man and carried him to a safer location (Moore 1988: 41).

2.1.2 First Aid

Each soldier carried at least one³⁵ first field dressing consisting of a small khaki bag containing waterproof gauze, cotton wool, bandage and two safety pins (Forty 1998: 187) as well as perhaps rudimentary first aid kit with foot powder, scissors, extra lint and any other personally acquired accessories. Should evacuation be deemed necessary stretcher bearers, often positioned a few 100 yds to the rear of the line, would be called forward. Unarmed and carrying a heavy load often across difficult terrain the SB's job was not an easy one.

Lt Col Carpenter paid tribute to their efforts:

'The work of the Stretcher Bearers and RAP on the 13th deserves special praise. They brought in attended and evacuated a large number of casualties both of this and other units. Most of the wounded had to be carried from exposed positions and in spite of heavy S.A. fire the SB's time after time went out and picked up wounded. In this they were greatly assisted by personnel of the Pioneer Platoon who acted as guides, relief SB's and gave protection to parties going out' (War Diary: 9).



Fig 1 – Medics and SB's at work in a plantation in Malaya 1942

This was ably demonstrated during the recovery of Lt Kennett who was wounded in the attack on Water Tower Hill on the 13th of February. Despite a number of searches following the attack Kennett could not be traced. Then, on the 14th, word came through that Kennett had been found by some Malays who had moved him to a hut in between the protagonists' lines. They in turn were forced to abandon him when the fighting got heavier however they had left word as to his location with elements of the 4th Suffolks. The Suffolks passed the message on to the Cambridgeshires who organised a patrol to find him. A stretcher party under Sgt Preston was

³⁵ Soldiers soon realised that most gunshot wounds had an entrance and exit wound and therefore two bandages would be needed.

sent out, protected by 2nd Lt JA Dawson of the Pioneer Platoon and some of his men. The patrol succeeded in bringing him in despite heavy small arms fire without losing a man.

However many men were retrieved by their colleagues using less conventional methods. Baynes resumed his search for wounded and came across Pte Singleton who had been shot in both legs. He had to improvise an evacuation:

'The poor old boy had lost a lot of blood and was in considerable pain. When he saw us and that we had come back for him his face lit up with unspeakable joy.... I stayed with him whilst Sgt Hurrell went back for help. Some minutes later he returned with more helpers and they were carrying an old bed which they had rustled out of an empty hut. We gently lifted him on to the bed and carried him over to the RAP. Doc patched him up as well as he could and managed to get him through to our base hospital'

Baynes once again returned to the search for wounded:

Back we went through the gap in the wire and a little further on we found Pte 'P'. He was wounded in the legs and there was only two of us, without a stretcher, we decided it would be less painful for him if one of us at a time carried him over the shoulder, fireman fashion. Being fairly strong I took him first and Hurrell carried my rifle for me.

2.1.3 The Regimental Aid Post

The casualty would be taken to the Regimental Aid Post where basic treatment would be administered by the MO and orderly. The RAP in Adam Park was situated in one of the houses near the Battalion HQ at No.7.

Colonel Hutt recounts in his history of the action:

'In the meanwhile, Battalion HQ was moved into Number 7 Adam Park, a building which provided excellent facilities and some measure of comfort; its main advantage lay in the ARP trenches in the lawn which suitably linked together and adapted proved useful accommodation for the operational staff. The RAP was also moved into a nearby house and the MO was able to spread himself a little. (Hutt: 22)

But we are not told for certain which house was used. There is however plenty of anecdotal evidence as to the address of the RAP:

Sgt Len Baynes's stoic evacuation of Pte P to the RAP gives more clues as to its location:

The RAP was several hundred yards away up a hill, and the first hundred yards to the start of the slope passed uneventfully. No sooner did we start to climb the rise though little puffs of dust rising from the ground around us indicated we were coming under enemy fire. We broke into a jog trot. The bullets started to come faster. We broke into a run and covered the last 100 yds (the steepest part of the hill) flat out. There had been no time to change our burden over and I had carried him all the way.... (Baynes 2009: 27)

Seeing as Sgt Baynes began his journey on Hill 95 it would suggest that the RAP was in the estate on the slope of the hill facing him.

We also have various descriptions of the RAP written by its visitors. LCpl Cosford was in the RAP after the ceasefire when the Japanese opened fire on the building:

'It immediately caught fire and before anything could be done the flames spread to the others. One of these was under the porch of the RAP and the building itself was soon burning fiercely.

The MO's assisted by the orderlies and other fit men carried the wounded from downstairs up to our room. It seemed crazy to me. We should all be trapped.

Smoke began billowing up the stairs. Flames followed. I thought the end had come. After the burning trench, now this and there was no escape this time! By now I was barely conscious and events became vague, but the Medical Officers knew what they were about. This house, like the others, was built on a slope and the room we were in opened on to the hill at the back. Someone had gone out with a large white sheet tied on a pole, the walking wounded next and the others were carried. Two chaps half carried me. We were on the lawn at the back of the house and there were the Japanese ... (Cosford 1988: 20)

Not only does this suggest that the RAP had a single storey and a porch but also that it was built into the side of the slope.

Sgt Baynes also describes the RAP in his recollection of the post ceasefire attack:

Outside the RAP stood a big army ambulance with red crosses all over it. Coming from my visit to the MO I took a peep into this ambulance. It was packed full of medical supplies. The stretcher bearers had been getting ready to move the whole RAP when the surrender call came. As I looked several machine guns opened fire at me from a direction I thought to be free of Japs. I jumped to cover in a shallow alcove in the house wall. The guns were using tracer bullets and as I stood in the precarious shelter of the alcove, the tracer bullets were whistling by so close, I could have put out my hand into them. They were thudding into the ambulance only a few feet away looking like shooting stars as they zipped by my face. Suddenly the ambulance burst into flames. One of the tracers had evidently penetrated the fuel tank.

The firing did not stop and the ambulance became an inferno. The fire got hotter and hotter until I had to choose between cooking and stepping out into the bullets.

The RAP was in another private house and like most of these tropical dwellings was built on piers so that there was a space of about 18" under the floor. I jumped out of my alcove flat onto the floor and rolled back under the floor. I rested there for a few moments. It had been a nerve racking experience watching those bullets go by so close. Then I crawled out at the other end of the house.

Before running the gauntlet of the open ground, I stopped again to get my breath back (or should I say my nerve). I then heard a crackling noise. Looking round I saw that the fire from the ambulance had spread to the RAP building. The wounded were being evacuated out of the back windows, where there was some dead ground protected by a steep bank. This had been formed when the houses were excavated out of the hillside. I was now some way away and as the orderlies seemed to be coping alright I did not go back to help

I continued creeping along the anti-malarial drain which ran in the direction of the BHQ on the route back to my men.

(Baynes 2009: 46)

Baynes's description endorses the style of bungalow and the location as being near to the Battalion HQ. The best candidate for the location of the RAP is No.17 Adam Park. It is however possible that No 8 next door was used. Both are one story bungalows built into the hillside with porches and direct access from the first floor to gardens at the back.

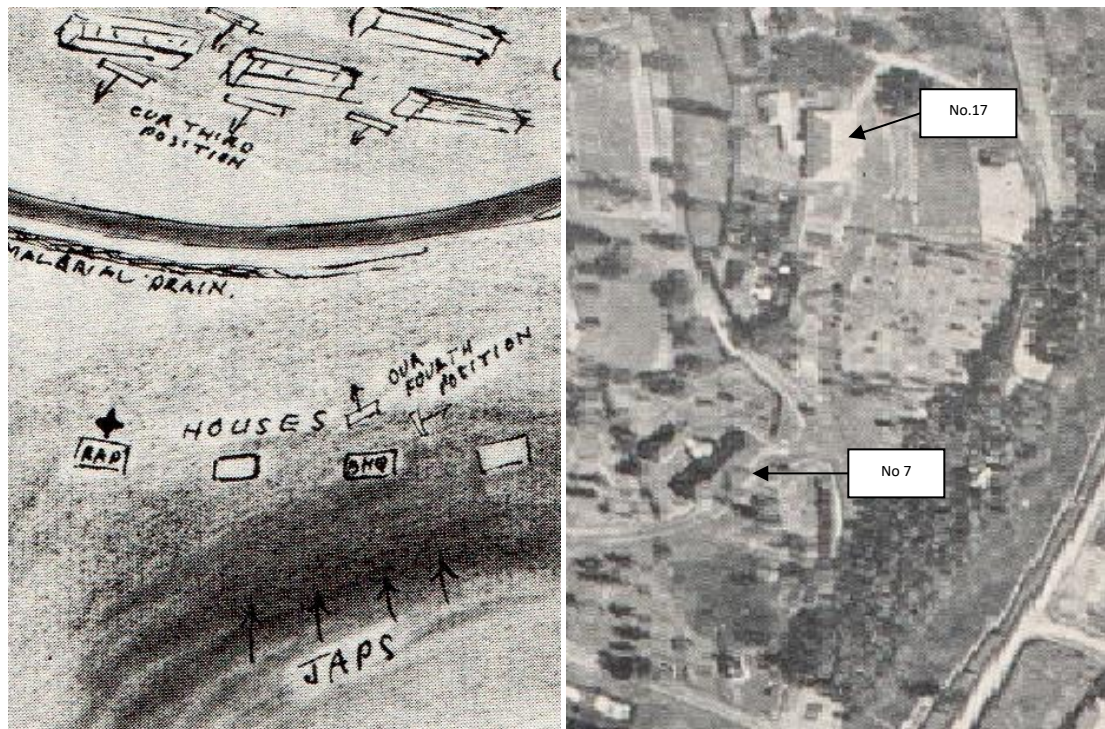


Fig 2a – Len Baynes' sketch map shows the RAP two down from the BHQ inferring it to be No.17 Adam Park

Fig 2b – The 1950 aerial photograph shows what looks like a brand new roof on No. 17 again inferring a rebuild after the fire.

Although the MO would have appreciated all the space available in the bungalow it quickly filled up. An overspill area was required. Pte Knibbs recalls the scene outside the bungalow:

'We finally reached C Coy and started taking the wounded up to a big tent where the doctors were trying to perform miracles. I have never seen so much blood.... the last thing I can remember was standing outside the hospital tent with blood everywhere.' (Moore 1988: 52)

As space became a premium efforts were made to evacuate the wounded along the 'Chain'. Basic treatment and assessments were carried out by the RAMC doctor, before more serious casualties were evacuated to an Advanced Dressing Station (ADS) by Field Ambulance stretcher bearers. From here the casualty was again treated or assessed before being taken to a Main Dressing Station (MDS) before finally being evacuated to the Casualty Clearing Station (CCS) or hospital. The Field Ambulance unit was responsible for everything coming from the RAP and going to the CCS. Ambulances were driven by members of the RASC attached to the unit, who were also armed for the protection of the RAMC. The RAMC men did not carry or have access to any weapons and relied solely on the soldiers around them for protection (Ford 2009: 1).

2.2 Evacuation by Ambulances and Alternative Transport

The main workhorse for the RAMC was the Austin K2Y built by the Austin Motor Company.



Fig 3a - The rear body, built by Mann Egerton, could take 10 casualties sitting or 4 stretcher cases.



Fig 3b - Over 13,000 'Katies' were built for the war and despite the temperamental gearbox. They were known for their reliability and sturdy construction³⁶. The top speed was around 50 mph The Mann Egerton was also fitted to Bedford and Morris chassis.

The Cambridgeshires also press ganged a number of other vehicles into the role of ambulances as the casualties mounted making good use of many of the companies' 15 cwt as and when they became available (Appendix G Dawson: 1)

The ambulances needed to be fast and rugged. The trip into Singapore was fraught with dangers. Moore's trip to the Alexandra Hospital was interrupted on several occasions by air attacks and shelling (Moore 1988: 47) Diversions for UXB's, roads blocked by abandon vehicles and the destruction of the roadways meant the convoy had to negotiate the back roads around the island. By the 13th many of the hospitals were full up and ambulances were redirected across town to hotels, community halls and church buildings. Even once at a hospital, safety was not guaranteed. Moore was caught up in the infamous Alexandra Hospital Massacre where patients and staff were butchered by marauding Japanese soldiers (Moore 1988: 55-58).

Back at Adam Park the final convoy made preparations to leave as the ceasefire took hold. Ironically it was the ambulances parked outside and under the porch of the RAP that proved the greatest threat to the patients housed inside as their fuel tanks and medical contents fuelled the fire that burnt the place down (Baynes 2009: 46-47).

3. 196th Field Ambulance

At the beginning of the war 196th Field Ambulance had not been established. The unit was raised as a clone of the 161st Field Ambulance; a Territorial unit based in Ipswich, Suffolk and was formed on the 1st December 1939. The 196th was assigned to the 18th Division, 54th Brigade and as each division had three infantry field

³⁶ A K2Y played the leading role in the film *Ice Cold In Alex* in which it demonstrated its remarkable survivability in the harshness of environments

ambulance, one per brigade, the 197th and 198th Field Ambulances joined the 196th on the trip to Singapore

The 196th travelled on the *SS Andes* and the *SS Oransay* leaving Great Britain on the 30th October 1941. The unit comprised of 54 RASC and 199 RAMC. On arriving at Nova Scotia in Canada the unit travelled on the *USS Joseph T Dickman* and eventually disembarked at Keppel on 29th January 1942.

During the fighting the 196th was based behind the 4th and 5th Suffolks and the 5th Beds and Herts from the 55th Brigade. Some men were attached to other units such as the Royal Artillery and 1st Cambridgeshires and they soon began to take casualties themselves.

As the situation grew more and more desperate 30 RASC men were taken from the unit to act as riflemen, along with RASC men from other units. The allied forces were slowly withdrawing closer to Singapore City and the 196th was initially based to the east of the MacRitchie reservoir. The 196th were then called up to support Tomforce and as the assault collapsed, the unit found itself surrounded and had to evacuate the wounded under heavy fire.

The 196th finally withdrew to two Main Dressing Stations. One was based at the City High School next to Government House and behind the Cathay Building, and the other at the Goodwood Park hotel. This is where they remained until the surrender. (Ford 2009)



Fig 4 – Artist's impression of a Field Ambulance outfit in action just behind the firing lines (IWM)

4. Dying

Death on the battlefield around Adam Park came in many forms. Bullets, mortars, shelling, snipers, aerial strafing and even friendly fire took lives indiscriminately. For a relatively lucky few

it was quick and painless. For others it was a long drawn out and painful affair. No matter the method the result was the same. Bodies had to be reverently disposed of in the best way conditions would allow. For the majority their bodies would eventually be laid to rest in a marked grave at Kranji Cemetery, however 19 Cambridgeshires remain missing; their bodies never found, unidentified or simply misplaced (Moore 1988: 72).



Fig 5 – Kranji Commonwealth War Cemetery – Front and centre is the grave of Sgt Palmer of the 1st Battalion killed on the 14th February at Adam Park

Understanding how men were killed will provide some insight as to the intensity of battle and the environment in which the soldiers had to operate. Baynes, Moore and Cosford have written accounts on how the men were killed. Some of it may have been upsetting reading to relatives as the authors are explicit in the telling however their accounts provide eyewitness evidence into the nature of the fighting:

Baynes recalls the death of one man in his company:

'Cpl Gill was standing beside me "I reckon there's one of those bastards [Snipers] up that palm tree behind the RAP" he said. He stepped up onto higher ground at the other end of the trench to bring the tree into rifle sights. He gave a gasp before he could fire. He had been killed outright by a bullet. Poor old boy, another section left without a leader. During the next hour we lost several more men. (Baynes 2009: 36)

Cpl Gill's death demonstrates how instantaneous death could be even in the comparative safety of prepared positions. By the 15th February there was no 'safe' place within the perimeter. Even the Battalion HQ that had been relocated into No.7 Adam Park because it was on the reverse slope to the front line and therefore relatively safe from indirect enemy fire, was by then overlooked by Japanese spotters and was under constant barrage. (War Diary: 14)

Snipers were a constant menace and claimed numerous victims over the four days of fighting. Pte Knibbs was able to see their handiwork close up:

'One thing I can remember, during the action later, we came across some soldiers who had just been killed. Most of them had cigarettes still burning in their mouths and bullet holes through their heads. It was very strange to walk past them. They must have been killed by snipers (Moore 1988: 52).'

The sniper threat led to a number of patrols being sent out with varying degree of success. Lt Colonel Carpenter comments in his war diary:

Between 1630 and 1700hrs a Japanese sniper had been harassing D Coy rather badly and had inflicted several casualties. Capt FS Hockey, very unwisely, decided to go out for him and left his Coy area. He has not been seen or heard of since although 5 minutes of his departure a very heavy artillery concentration was put down in the area he was presumed to be in. His loss was a great blow and an utter waste³⁷ (War Diary: 9)

A Coy platoons found themselves pinned down to their trenches by light machine gun and small arms fire for much of the 13th February at the foot of Water Tower Hill. Some sections had dug trenches in clearings which gave them a clear arc of fire but also meant they were easy targets for Japanese units using the cover of the trees and grass to approach the positions without being spotted³⁸ (Baynes 2009: 20-21). This drove some to distraction with fatal consequences:

'Pte G, the lad who had first fired at the dive bomber after we landed, was dead. He got fed up with being pinned down all day by a bunch of Japs, and stood up with his borrowed Bren gun. He only had time to fire one burst before he was stopped a 'oncer'. He did not suffer. (Baynes 2009: 25).

Raising a head above a parapet was clearly a risky strategy. It therefore took a brave man to attend an injured colleague in the open whilst under fire:

Lt OS Taylor was killed within a yard of Lt Kennett. It is reported that he was attempting to assist Lt Kennett, but no clear account of the death of either officer is available (War Diary: 9).

³⁷ Carpenter was clearly annoyed by the death of this officer. This was not solely down to the loss of a colleague. Hockey had been lost just at the time when the Company needed to be steadied by a good leader. To lose an officer on a patrol which should have been led by an NCO was in Carpenter's eyes inexcusable.

³⁸ This may leave a particular archaeological record. The topographic survey may reveal the 'dead ground' and the metal detecting survey may pick up a concentration of bullets and shrapnel in and around the position.

Those men caught up in fighting beyond the recognised front line faced the risk of a lingering death cut off from any medical assistance. The fate of 2nd Lt Baber typifies this:

'2nd Lt AH Baber was wounded by a mortar splinter in the thigh on the D coy side of Water Tower Hill during the first counter attack of Reinforcement Coy. He was on the far side of the triple dannert wire and although several attempts were made to get him in , it was unfortunately not possible to do so. C Coy made further attempts when they took over part of D Coys front but they were not successful, although at night 2nd Lt Fulcher did manage to pass food to this officer through the wire. Just before ceasefire a Japanese tank was seen to stop near him and a man got out of the tank – it was thought they evacuated him, but 2 months later identifications of his body were forwarded to this unit by a burial party' (War Diary: 9).

The ever present spectre of death enveloped the whole area and came in many forms. For many of the Cambridgeshires this was their first and last experience of combat. For them, death was something that happened to the other man. If it was to come to them, then they prayed for a 'oncer'.

5. Body Distribution

5.1 Chronological Distribution

A review of the dates of death for the men who were killed during the defence of Adam Park provides some indication as to the intensity of fighting on each day:

Date	Number of Killed	Died of Wounds	MIA
Friday 13 th February	21	2	9
Saturday 14 th February	15	4	3
Sunday 15 th February	13	2	7
Subsequently after ceasefire		9	
Total	49	17	19

(Moore 1988: Appendix 1)

The statistics reflect the nature of the combat. Fighting on 13th centred on Water Tower Hill. 9 Platoon was overrun early on in the morning and later Reinforcement Platoon was virtually wiped out retaking the hill. They did retake the position long enough for the wounded to be

recovered. However the retrieval of the dead was not possible and took place some weeks after the ceasefire, which may account for the high number of 'missing' men.

The action on the 14th was no less bloody but was one of static defence in and around the estate where bodies could be accounted for. Hence the number of missing is few.

The deaths on the 15th were primarily caused by the bombardments and loss of men after the cease fire. Those that went missing probably did so fleeing the fires that engulfed the RASC camp in the late morning and may be found in and around the ridge line to the SE of Adam Park.

4.2 Geographic Distribution

It has been impossible to date to identify in the majority of cases the platoons in which the OR's served in. If this could be deduced it would be possible to identify with some certainty where the men went 'missing' or where they died from the detailed battalion histories and diaries.

Instead we have evidence as to when and where the officers were killed along with comments as to where the main loss of life occurred left by eyewitnesses. (See Appendix 1 for the fate of the officers and the units they commanded).

For example Baynes recalls the scenes on top of Water Tower Hill when his section was asked to go and find out what had happened to his Company HQ:

'Thus I reached the Water Tower, or what was left of it, with four men. The Tower had evidently received a direct hit from a bomb or shell, and was partly on its side. I counted ten of our boys dead on my side of the tower alone. They must have been part of an earlier party sent up there to remove 'snipers'.³⁹ (Baynes 2009: 19)

Baynes returns down the hill and discovers another grisly scene:

'On the way back to our position we passed by the clearing in which Company Headquarters was situated..... Lying near the trench we could see several bodies... .'

[Baynes meets up with 2nd Lt Donaldson and offers to take a man across the clearing to check if the men were still alive]... but he said that his party had been there for some a long time and he was sure no one was left alive; he told me not to risk any more lives going over to them. The position was in direct range of enemy guns and he said it was virtually impossible to reach them anyway.'

³⁹ In the published version of Baynes' diary he states that these men were from another regiment (Baynes 1984: 7) In later conversation he stated that these were men of 4th Suffolks .

A similar story can be said about 15th. Baynes not only witnessed the bombardment of the RASC camp but also the massacre of a section of troops dug in on the lawn outside Battalion HQ

'An hour and a quarter after the ceasefire was given, these men tried to get out of their trench. Instantly a machine gun opened up on them. They fell and lay still. Being in the centre of the lawn they were unapproachable while the Japs kept firing.' (Baynes 2009: 45)

Baynes later visited the site and discovered that all the men were beyond help.

It must also be remembered that the Cambridgeshires were not the only British unit to be fighting in the vicinity of Adam Park. The 4th Suffolks were called upon to take over Cambridgeshire positions on the 14th. Their subsequent withdrawal under heavy fire and bayonet attack by the Japanese left a trail of dead from both sides on Hill 95 (Moore 1988: 60).

6. Burying the Dead.

The recovery of the majority of the bodies within the estate was carried out by colleagues and the SB's. They were carried over to the RAP and laid out ready for burial. When the fighting died down and time allowed volunteers were called for burial parties.

'Sometime in the early morning [15th] a small group of men were detailed to report to the aid post to organise the burial of the battalion dead. A number of graves were dug and when this work was completed the men began to collect bodies that were awaiting burial. The party worked silently as familiar faces were among the dead. The burial party carried on their grim task and one by one the dead were placed into graves and each plot numbered and recorded'. (Moore 1988: 47)

The records were kept by the MO and used to organise the recovery of the bodies to Kranji Cemetery after the war. In the following months after the surrender, allied prisoners of war were sent out to search for bodies primarily on health grounds but also in an attempt to find men missing from the roll calls.

Keith Wilson of the AIF describes the state of bodies found on the golf course:

'At the golf course there did not seem to be many British graves although there were some partly eroded bodies of British service men. These we buried with little ceremony as they were decomposing badly under the tropical sun'. (Wilson 1989: 19)

Some bodies were easier to find than others. James Boyle's recalls the sights on his arrival at Adam Park:

'The gardens and coolie quarters in the vicinity of the houses contained dozens of rudely constructed graves. On the cement floor near the doorway of the native quarters at the rear of

our house was the imprint in dry blood of a soldier's body: legs and arms outstretched where he had apparently fallen after being shot. Another soldier lay in a shallow cement drain nearby with a small covering of earth over him. After his identity had been established, we buried him in the back garden of our house.' (Boyle 1990: 28)

A little further a field and some time later bodies were still turning up. Keith Wilson who was held in Camp No.1 at Adam Park recalls one macabre seen as he was out scrounging for food:

'I spied an absolute treasure, or half a treasure: a brand new English boot. No sign of wear what so ever, and exactly my size. I couldn't imagine one boot being on its own in the middle of a field, so I eagerly searched around for its mate. Some earth had been recently disturbed and partly buried by this I saw the other boot. I grabbed it and pulled it out. With it came most of the leg of its owner. By this time the leg was merely skeletal (Wilson 1989: 28).

Charles Watson recalls in his diary that in one day alone, the off duty men in Adam Park Camp had found, identified and reburied 17 Englishmen killed in Adam Road and returned their identification tickets to the British HQ (Watson: 45).

7. Missing

Moore lists 19 men as being missing and it is possible that their remains are still to be found on the battlefield. However consideration as to how the dead were interred may reveal the most likely location of the missing men or whether indeed they remain at Adam Park at all.

There are many reasons why a soldier may go missing. The most obvious is that his body is literally blown to bits leaving no trace to be found. It is likely that this was the fate of Capt Hockey who was caught in a friendly barrage soon after leaving his lines. It may be that the man simply died alone in a remote location a fate that befell many in the jungles of Malaya. However would this be likely in a busy urban environment like Adam Park?



Fig 6 – L Cpl Cosford's ID Tags. (Cosford 1988: 34) All serving soldiers were issued with a set of fibre identity discs – a green octagonal No.1 disc, a red No. 2 disc and a 3ft length of cord. Both

were worn around the neck with the red disc on an extension chord so that it could be removed. There was a second red disc issued separately that was attached to the respirator. The discs showed name, number and religion. The red disc was to be removed before burial the green disc remained on the body. However it was later discovered that the fibre discs lost their markings especially in a fire or humid conditions. In 1944 metal discs were issued to men serving in the Far East. (Forty 1998: 185-186, Brayley 2002: 7)

The other alternative reason for a man being listed as missing is that the soldier's body cannot be properly identified. This could be due to the fact that the wounds prevent the visual identification and his ID had been destroyed⁴⁰. However it is more likely that the soldier's ID has been removed from the body at the time of burial and no corresponding record has been kept as to the burial location or identity of the occupant. Once the body is subsequently recovered, and there being no record by which to identify the man, then the remains will be listed as an 'unknown soldier'.

Bodies may also have been reburied or destroyed without any records being made at all. It was not uncommon for wounded men to be tended by local Malay and Chinese civilians. Those that died in care would have likely been buried in unmarked and unrecorded graves. On a more gruesome note it was not unknown for carrion to feed on bodies left in the open, dispersing the bones and destroying the grave site.

It is very unlikely that excavations at Adam Park will unearth remains of British soldiers. Out of the nineteen missing men, the likelihood is that the majority were lost on Hill 95, Water Tower Hill or to the SE of Adam Road. Those men who went missing in or near the estate have probably been recovered but have not been properly identified. We are more likely to find evidence of a disturbed burial site than the actual remains of the fallen.

8. Japanese Casualties

It is important to note that the greater majority of men killed at Adam Park were Japanese. If Moore's estimates are to be believed the Japanese lost nearly seven times more men than the Cambridgeshires in the attacks on Adam Park and its associated high ground (Moore 1988: 71). The commentaries tell of similar fates to those that befell the British:

'As anticipated, the enemy began their attack and one Japanese officer foolishly standing in the open brandishing his sword, found every available weapon in the forward area aimed at him. The Cambridgeshires shot him dead and met the front line of the attackers with a violent burst of gunfire (Moore 1988: 51).

The Japanese evacuation system was slightly different to that of the British and Commonwealth troops. When the soldier was wounded he was first attended by a medical orderly attached to the platoon who gave him first aid. Then if required he was moved to a place where he could be easily picked up by the stretcher bearers from the 'collecting platoons' and taken to a first aid

⁴⁰ Each soldier wore identification discs and probably carried official documents such as pay books and a collection of personal items could be used to identify him.

station, where he was tagged and supplementary aid was administered. He was then sent onto a casualty clearing station and evacuated by ambulance when circumstance allowed to the field hospital. More serious cases were fast tracked along the lines of communication to the 'Lines of Communication hospital'⁴¹. (Forty 1999: 89)

The Shinto burial rites required a piece of the fallen to be cremated and have it returned to Japan. Frei describes the burial of Capt Matsumoto, killed during the landings on the 9th February.

'The company commander ordered a rest and a meal, and with three other soldiers, Tsuchikane went to bury Capt Matsumoto. The platoon leader ordered him to cut off Matsumoto's hand at the wrists and lent him his company sword to do the job..... They dropped the severed hand into Matsumoto's mess tin and put it carefully away in the ordinance bag of Senior Soldier Otsuka, who hailed from the same province. When time allowed the wrist would be burnt and made into ashes. For now they buried Matsumoto and from a branch Tsuchikane plucked the leaves, peeled bark, offered an inscription and stuck it on the mound as a burial marker' (Frei 2004: 94).

After the fighting there was time to carry out the cremations:

'With two others, Tsuchikane was then ordered to ossify the wrists and hands by burning them to the bone. In an adjoining house, after sealing it and making sure no smoke escaped outside, they washed the pan from which they had just eaten their hot meal and put it on the stove. First they took commander Matsumoto's hand from the mess tin and began to grill it ...Strong smoke and hideous stench soon filled the room. It got unbearably hot and the three stripped to their loincloths as sweat cascaded down their bodies. One wrist took ages. Their chopsticks got shorter, catching fire many times owing to their efforts of turning the flesh and then burning away the muscle from the bones. The bones picked from the charcoal were transferred to a British tobacco tin and passed onto the men waiting outside. They in turn put the bones in a white cloth and stored the packages with great care in their service bags. (Frei 2004: 136).

The bodies were buried on site, as and when circumstance allowed. Keith Wilson recalls the burials on the Golf Course along Sime Road:

'It had been the scene of some heavy fighting as there were numerous Japanese graves marked with Japanese characters. We didn't know what they said, but imagined they were similar to the graves of the English soldiers that we had seen that just announced name, rank and number and the usual 'R.I.P' (Wilson 1989: 19).

⁴¹ The Lines of Communication hospitals had a nominal strength of approximately 250 staff and could accommodate 500 – 1000 patients and were normally found in the rear bases or along the lines of communication. (Forty 1999: 87)

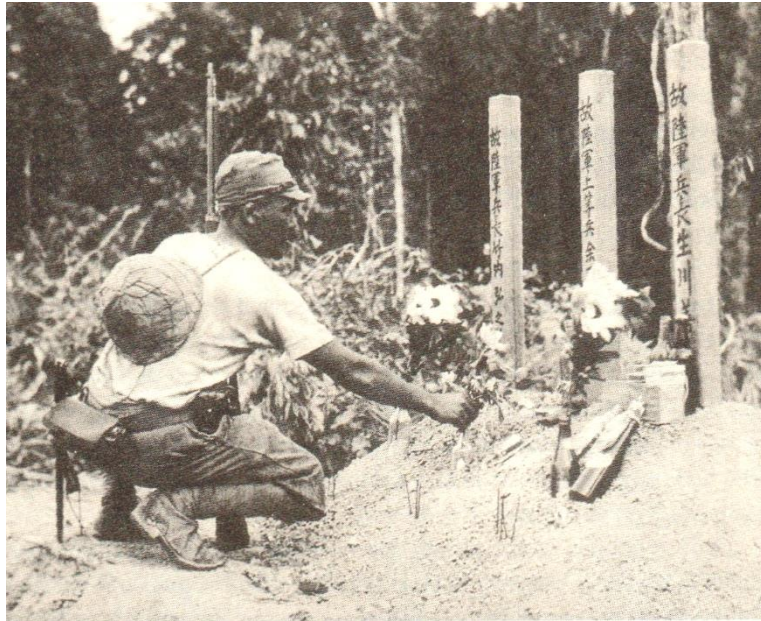


Fig 7- A Japanese Soldier pays homage to fallen comrades

There are probably no Japanese graves within the Adam Park area as most of their casualties fell outwith the estate boundary. Unlike the British records there are no corresponding rolls to indicate the number of missing Japanese. What became of them remains a mystery.

9. Civilian Dead and the Chinese Cemetery.

The local population did not flee the battlefield entirely, many were caught up in the fighting and some became casualties. Sgt Baynes recalls meeting a 7 year old Malay boy on the 12th February in the vicinity of Hill 95:

'His little hand had been smashed by what must have been shell fragments. It had been done some hours ago and left untreated. He held a bloody leaf in his good hand with which he had evidently been covering the wound' (Baynes 2009: 23).

The boy was treated by the SB's and sent on his way. Some were less fortunate. L Cpl Cosford recalls collecting water out of an anti-malarial ditch during their captivity after the fighting.

'Rations of two or three army biscuits with a small portion of bully beef or tinned fish were washed down with water taken from the anti – malarial drain in which lay the body of a Malayan.' (Cosford 1988: 23)

How many of the local population were lost in the fighting around Adam Park and where they were laid to rest is impossible to say.



Fig 8 – The body of a dead Malay lies ignored by the Japanese troops at Bukit Timah. Two of his colleagues await their fate in the background.

One likely location would have been the Chinese Cemetery on Bukit Brown and Hill 95. The Bukit Brown Municipal Cemetery, located between Lornie Road and Mount Pleasant Road, was officially opened on 1 January 1922 and remained in constant use until its closure in 1973. Bukit Brown was initially unpopular with the Chinese because of its small plot sizes. However, it slowly gained acceptance after improvements were made to the layout. It was reported that by 1929, 40% of all officially registered Chinese burials within the municipality took place there (Saparudin 2009: 1).

Since the Bukit Brown Cemetery was set up to serve the burial needs for the wider Chinese community and space was at a premium, all families were to be given equal access to burial plots⁴² (Saparudin 2009: 1). However, great variation can be found in the layout of the graveyard and within the individual plots. The graves seem to be spread haphazardly across the hillside. Some are covered in grass and foliage others by a slab of concrete. Many have concrete or brick borders and gravestones that are generally shaped as an 'Ω'. Most tombs reside in a single plot fronted by either a small groove or ditch. Many of the graves are adorned with decorations, such as lion statues, from traditional Chinese mythology. In some cases only the names of the deceased and the spouse are written on the gravestone, on others the names of all the family members are included. Some graves are adorned in green and red characters others in gold. Many graves on Bukit Brown seem to be left unattended however families will

⁴² An amendment (Section 245, no. 9) was passed on 25 August 1922. The amendment stated that no special favors would be given to any members of the community. Incidences where one person was allocated to two burial plots were no longer permitted. The by-law came into effect on 21 September 1923. Between the date when the amendment was passed and its effective date, two cases of double occupancy took place in January 1923 and April 1923 respectively (Saparudin 2009: 1).

come to the site during the Quing Ming Festival to offer food and gifts and to tidy up the grave. (Tong 2004: 52-60).

The portion of the state land of Bukit Brown was exhumed to make way for the alignment of Lornie Road, off Adam Road, in 1965. Later, the graveyard was also divided into two sections due to the construction of the Pan Island Expressway in the 1970s. The other part of the cemetery is called Mount Pleasant Cemetery. (Saparudin 2009: 1) Gravestones are still to be found on Hill 95 and at Hellfire Corner.



Fig 9 – The Sime Road Heritage Board at Hellfire Corner with Chinese burial plots in the background.

The site of the Bukit Brown Cemetery continually faces the threat of redevelopment in land-scarce Singapore. However at the time of writing no formal plans have been announced for any further development on the hill. The Land Transport Authority has though announced the construction of a Bukit Brown MRT station at Jalan Mashor, near the cemetery. It is to be one of the 13 new MRT stations along the Circle Line. Though the Circle Line is due for completion in 2010, the Bukit Brown MRT station will remain unfinished until the area becomes more developed. (Saparudin 2009: 1)

10. Conclusion

Adam Park and the surrounding land bears witness to a long history of death. The men of the Cambridgeshires, Suffolks and the IJA died amongst the graves of the Chinese who they had come to save. There is a chance that some of those combatants may still remain on the hillside or in graves around the estate. However if it was not for the bravery and skill of men of the RAMC and their mates in the front line many more would have met their end along Adam Road.



Organisation of the 9th Infantry Brigade, 5th Division of the IJA

1. Introduction

The bulk of the fighting in the sector south of the McRitchie Reservoir to the Bukit Timah Road fell upon the 9th Infantry Brigade of the 5th Division of the Japanese XXV army. These were veteran troops who had already established a fearsome reputation in China and down the Malayan Peninsular. By the time they reached Johor their numbers were seriously depleted. However they gathered themselves for one last effort. This chapter considers the units history and organisation for the Malaya Campaign.

2. Division History and Structure

It was the Japanese XXV Army under the command of Lieutenant General T Yamashita that was set the task of invading Malaya and taking Singapore. The Army was made up of three divisions: The Imperial Guards Division under Lieutenant General T Nishimura, the 18th Division under Lieutenant General R. Mutaguchi and the 5th Division under Lieutenant General T Matsui. All three divisions fought their way down the Malayan peninsular and then landed on Singapore island. However it was elements of the 5th Division that were to launch the attacks on Bukit Timah and then along the north side of the Bukit Timah Road towards Hellfire Corner.

The 5th Division ('The Carp') was formed as the Hiroshima division in 1871 as one of the six original regional commands in the original Imperial Japanese Army. As one of the oldest Divisions in the Imperial Japanese Army, the 5th Division saw combat in the First Sino-Japanese War. It was better known in the west as the main Japanese division in the multi-national coalition during the Boxer Rebellion, and was lauded by the foreign observers for its bravery, professionalism and discipline. Whilst under the command of General Nozu Michitsura, it went into action at the Battles of Sandepu and Mukden during the Russo- Japanese War. The division was then assigned to Manchuria from 1911-1913, and provided the majority of the Japanese forces for the Siberian Intervention in 1918. During the Second Sino-Japanese War from 1937 onwards, it participated in the invasion of Chahar and fought in the Battle of Xuzhou in 1938 before being moved into south China.

At the start of the 'Pacific War' the 5th Division was reassigned to the southern front under Field Marshall Terauchi Hisaichi's Southern Command based in Saigon. It was considered one of the most experienced divisions in the army and somewhat of an elite unit.

The 5th was organised as a 'motorised square' division (i.e. two brigades, each of two regiments with supporting units supported by 860 trucks (Rottman 2005: 26)). The square (four infantry regiments) infantry division was being gradually phased out by late 1941. On paper, this type of division had about 25,000 men. But the divisions were never at full strength. Elements were consistently being attached or detached, so that some divisions had as few as 17,000 men and

some as others as many as 32,000. The 5th was in comparison an under strength unit when it landed in Singapore, even more so after taking casualties in Malaya.

Their order of battle for the campaign was as follows:

5th Matsui 'Hiroshima' Division

Lt-Gen Takuro Matsui
Chief-of-Staff: Col. Shigesada Kawagoe
Senior Adjutant: Lt-Col. I. Ishibasi
SO Operation: Lt-Col Ogata
SOO Coastal Operation: Not Known

9th Inf Bde

CO: Maj-Gen. Saburo Kawamura
Adjutant: Lt-Col Shigeru Hirano
11th Inf Rgt: Col. T. Watanabe
41st Inf Rgt: Col. Kanichi Okabe⁴³

21st Inf Bde

CO: Maj-Gen. E. Suguira
Adjutant : Lt-Col Fumio Sometani
21st Inf Rgt: Col. Noriyoshi Harada
42nd Inf Rgt: Col. Tadao Ando

5th Recce Rgt: Col. Shizuo Saeki

5th Field Art. Rgt: Col. M. Nakahira

5th Engineering: Col. Y. Tamura

5th Signals: Capt. Y. Coto

Shimada and Ochi Tank Coys – However these units were left in Malaya. For the Singapore offensive, one tank company from 1st Tank Regiment (Tiger Cub) was attached.
Nitiwara Flight Unit of IJAAF

⁴³ The CO of the 41st Inf Regt, Col. Kanichi Okabe was relieved of command on 8th Feb 1942. On the same day, he was replaced by Col. Kiyomi Yazama. Col. Yazama would command the 41st until he was killed in action on 5th Feb 1943, close to a year later.

Total strength: 16,000 men

3. The Regimental Structure

The component parts of a Japanese Infantry regiment were as follows:

The Infantry Regimental HQ – Composed of 55 officers and men and divided into a regimental staff of administration, intelligence, ordnance and intendance, an AA / HQ guard and a colour card

The Regimental Supply Train – This was divided into a field baggage section and an ammunition section. It usually carried all the regimental baggage and rations for one day.

Regimental Pioneer Unit – The unit's principal duties was to the demolition or construction of field works and transport links.

Signal Company – Split into one field and two wireless platoons

Regimental Infantry Gun Company – This consisted of a Company HQ and two gun platoons of two gun sections usually armed with 75mm Infantry Guns

Anti Tank Company – Consisting of an HQ and three gun platoons each of two sections armed with the 37mm anti-tank gun

Infantry Battalion (See below)

(Forty 2003: 58,59)

4. *The Battalion Structure in 1942*

The attack along the south side of MacRitchie Reservoir was led by battalions of the 11th Infantry Regiment and 41st Infantry Regiment. A typical battalion had the following OOB:

Battalion Headquarters (3 Officers, 34 men)

Battalion Train (4 Officers, 106 men)

Gun Platoon (1 Officer, 54 men)

Machine Gun Company (4 Officers, 170 men)

Company Headquarters (1 Officer, 13 men)

Three Machine Gun Platoons, *each* (1 Officer, 45 men)

Ammunition Platoon (22 men)

Four Rifle Companies (4 Officers, 177 men), *each* comprised of;

Company Headquarters (1 Officer, 18 men)

Three Rifle Platoons, *each*

Platoon Headquarters (1 Officer, 1 man)

Grenade Discharger Squad (13 men)

Three Rifle Squads, *each* comprised of 13 men

Total Strength of 1100 all ranks (28 Officers and 1072 men)

The one glaring omission from the battalion is mortars. There are references that the Battalion might include a Mortar Platoon either instead of the Gun Platoon, or sometimes as well as. Where included, the Mortar Platoon is credited with 1 Officer and 39 men serving two 90-mm infantry mortars. (Kennedy 2009)

4.1 The Elements of the Battalion

Battalion Headquarters - the Japanese Battalion was typically commanded by a Major, assisted by a Captain, who was responsible for ordnance and chemical warfare duties, and a Lieutenant as Adjutant. Headquarters included a number of senior NCOs, plus messengers who undertook the usual communications required without benefit of radios. The battalion was often referred to by the name of their commanding officer. Major Tadashi Ichikawa led the advanced 2nd battalion in the fighting along the south side of MacRitchie and onto the slopes of Mt Pleasant (Frei 2004: 118).

Battalion Train - this primarily consisted of the horse drawn transport of the Battalion, plus its associated medical and veterinary officers.

Battalion Gun Platoon – The gun group provided dedicated artillery support to the battalion. They were usually equipped with two, Type 92, 70-mm infantry guns⁴⁴. The 70-mm was a heavy weapon for a light gun and had a range of over 2700

⁴⁴ It was probably these guns that Stagg saw being brought into action on the 13th against A Coy and the Carrier Platoon (Appendix D Stagg: 2)

metres. It could also be deployed as a mortar type weapon, to engage targets at close range using a high elevation, making it a valuable asset.

Machine Gun Platoon - the Machine Gun Company served the standard Japanese medium machine gun, the Type 92 and provided the battalion with instant suppressing fire. At full strength, the Company had twelve guns, deployed in three Platoons of four guns each. Allied reports however stated that in the field only eight guns were likely to be deployed in four Platoons of two guns each. (Kennedy 2009)

Ammunition Platoon - consisted of an NCO and twenty one men, probably split into three squads of seven, sufficient for one squad per Machine Gun Platoon. When the Machine Gun Company operated eight guns rather than twelve, as mentioned above, the Platoon may have been expanded or served in a more general role within the Battalion. Their primary role was to ensure the steady supply of ammunition amongst the machine gun units.

The Rifle Company – The structure of the Rifle Company and platoons varies from unit to unit and is somewhat difficult to definitively describe. The most commonly referred to description comes from the US Army Handbook on Japanese Military Forces. This depicts the Company with a Headquarters section and three large Rifle Platoons. Each Platoon had a HQ element consisting of just an officer, usually a 2nd Lieutenant, and an NCO as 2ic, in command of four Squads. At full strength the Squad was to consist of a Corporal and twelve men. The first three squads each had a single light machine gun, while the fourth Squad had three grenade dischargers.

Within the Rifle Squad were four men assigned to the light machine gun; a gunner, assistant and two ammunition bearers, leaving another eight riflemen. There was a similar four-man team for each grenade discharger in the fourth Squad. There are several references to the Rifle Squad having two ‘snipers’, however the term sniper is more likely to describe a marksman with a standard rifle undertaking harassing fire rather than a specialist with a high grade rifle fitted with a telescopic sight.

Company Headquarters was, in comparison with other nations, a large body of men. The Company was commanded by either a Lieutenant or Captain, assisted by a Warrant Officer. There were four battalion medical orderlies and three NCOs, seemingly responsible for ordnance, supply and liaison. Ten men were used as runners because radio equipment was not issued down to Company, or sometimes even Battalion, level. (USWD 2005: 16-44. Kennedy 2009. Forty 2002: 60,61)

5. Other Divisional Units

5.1 Tank Regiments

The Japanese deployed three tank regiments of the 3rd Tank Group for the Malayan campaign:

Tank Unit	Commander	Tanks
1st Tank Regiment	Colonel Mukaida	31 Type 97 Medium Tanks 17 Type 95 Light Tanks

6 th Tank Regiment	Colonel Kawamura	25 Type 97 Medium Tanks 12 Type 95 Light Tanks
14th Tank Regiment	Colonel Kita	45 Type 95 Light Tanks

The deployment of tanks in the jungles of Malaya was something the British never considered but the stunning Japanese victories, such as that at Slim River, were often led by a tank charge along the main road which broke through allied positions and forced the defenders to fall back into the jungles either side where they became disorganised and ineffective.

The 1st Tank Regiment and the 14th Tank Regiment crossed the Johore Bahru Channel and landed in Singapore on the 10th February⁴⁵. A significant number of these tanks found themselves deployed in the area of the Bukit Timah road. If the regimental sources are to be believed the Cambridgeshires knocked out ten of them in and around the Adam Park estate (Few Appendix B: 1. Moore 1988: 61. Cosford 1988: 18).



Fig 1a – A type 97 Chi Ha of the 1st Tank Regiment, ‘Tiger Cub’ Brigade supporting infantry in the streets of Bukit Timah

⁴⁵ Colonel Tsuji describes the advance up the Bukit Timah road by the 5th Division as being supported by tanks of the ‘Tiger Cub’ tank brigade (Tsuji 2007: 199)



Fig 1b –A Type 95 Ha-Gō

5.2 Divisional Cavalry / Recce Regiment

The standard Reconnaissance Regiment was usually formed by re-equipping a cavalry unit attached to the division. It consisted of 730 men forming a command and train section of 130 men, a mounted company of 130 cavalymen, two truck borne companies, a tankette or armoured car company of seven vehicles and a truck transport company. The truck borne companies had the basic structure of an infantry company, consisting of two 50 man platoons, a 24 man MG platoon with two HMG's, and an AT Company with two 37mm AT guns. (Rottman 2005: 33)

The 5th Mounted Reconnaissance Regiment had been formed from the reorganized 5th Cavalry Regiment (Lieutenant-General Takuro Matsui). Its commander, Colonel Shizuo Saeki, had distinguished himself in the Chinese campaigns as commanding officer of the 40th Cavalry Regiment. Saeki's new regiment included two motorized and unusually two armoured companies, a machine-gun company and a number of quick-firing field guns. At the beginning of October 1941, the reconnaissance regiment, attached to the 5th Division, was posted to the Shanghai region where it was prepared for jungle warfare.



Fig 2 – This photograph reputedly shows Japanese tankettes moving through Singapore but it is more likely China

5.3 Divisional Artillery

The 5th Field Regiment provided the divisional artillery support. They were equipped with 24 x 75mm guns and 12 x 105mm guns. The standard field regiment consisted of three battalions – each with twelve towed guns, divided into three batteries with four guns per battery.

The average field artillery regiment had around 2,300 men. It consisted of a small HQ, an observation group and a regimental train; which in turn was made up of a field and three ammunition sections. The three battalions of guns had similar command units as well as three artillery companies. Each company manned 4 guns. There were around 2,000 horses assigned to each regiment (Rottman 2005: 32)

5.4 Divisional Engineering Assets

The standard Engineer Regiment had 900 – 1,000 men with a 100 man HQ and a materials platoon of 50 – 100 men. The 3 engineering companies were split into four 50 men platoons and supported by a 25 man strong materials section. Each company was attached to an infantry regiment and their job was to clear the path of any field obstructions and repair footbridges and roads as well as any other minor tasks. Non-

divisional engineers were called in for the bigger repair and construction tasks (Rottman 2005: 33).

5.5 Divisional Signals

Divisional Signals unit had two telephone, one radio and a materials company as well as the 20 man HQ and a messenger company. The 50 man telephone platoons was split into 4 sections each manning two telephones and a switchboard. The 100 man radio platoon had between 8 to 12 sections each operating a radio set. These sections were usually dispersed between the other units in the division. Communications at the infantry battalion level was usually done by runners (Rottman 2005: 34).

5.6 Divisional Transport

The Divisional Transport regiment usually consisted of a motorised battalion and draft battalion. The motorised battalion ideally consisted of two or three companies of up to 50x 1.5t trucks. However due to shortages in motorised transport this figure was rarely met and commandeering of vehicles especially those left by the retreating British was common. The draft battalion consisted of two or three companies of some 240 two wheeled carts and 350 men. These carts were then allocated out to carrying artillery ammunition, small arms ammunition and rations (Rottman 2005: 33).

6. Conclusion

The initial research to date has failed to find any evidence as to which companies, platoons and sections were sent into action against the defenders of Adam Park and the adjacent hills. However it may be possible in the future to uncover a regimental diary that sheds light on this detail which may lead to the discovery of personal war diaries and ultimately veterans of the action.

The 5th Division's successes in Malaya came with a heavy price. The unit's losses in Singapore alone came to 541 killed and 1,166 wounded. Their dash down the Malayan peninsular cost them 695 killed 1,292 wounded at grand total for the campaign of 3694 killed and wounded (Warren 2007: 306). This equates to 1 in 5 of the Divisions personnel became casualties.



Fig 3- Japanese troops celebrate the capture of Singapore – their fighting units had paid a high price for the victory.

Uniforms, Weapons and Equipment - Japanese

1. Introduction

The arms and equipment of a soldier from the IJA's 5th Division in Singapore is a little more difficult to identify. The long campaign ensured that any issue kit had probably been worn out, replaced and altered to suit the conditions. Certainly the Japanese that presented themselves to the Cambridgeshires at the time of ceasefire were at best described as 'dishevelled'. This section attempts to identify the most likely Japanese arms and equipment used in and around Adam Park.

2. Uniforms

2.1 Headgear

The most recognised piece of headgear is the field cap. First introduced in the 1930's it was in widespread use by 1942. It was made from the same material as the uniforms and had a cloth peak and a brown leather chinstrap attached to the cap by means of two metal smooth sided prong backed buttons. A 'sun curtain' or 'havelock' could be added to the back during the summer. The front of the cap was adorned with a yellow cloth five pointed star stitched onto a cloth backing (Hewitt 2002: Jowett 2002: 35).

Various designs of steel helmet were used throughout the war and it was not unusual for troops in the same unit to wear different types of helmet. Three patterns of helmet were introduced in 1930, the most successful being a pot shaped steel helmet, painted dark mustard brown and fastened by means of a set of tapes that passed under the chin, around the ears and then tied at the back of the head⁴⁶. The chinstrap was attached to the helmet by means of three metal loops. The sides of the helmet were sharply angled and it had a small skirt along the bottom edge. The crown of the helmet had a small ridge along it running front to back. Two small vent holes were set on either side close to the ridge. Inside the helmet was a set of small pads that could be adjusted to ensure a comfortable fit on the wearers head. The helmet was protected by a quilted linen cover which had the yellow star sewn onto the front. The cover was secured to the helmet by two pronged- backed studs and the prong backed front star. The helmet was however was prone to shattering due the poor grade of molybdenum steel used. It was in wide use with much of the army by 1942 (Jowett 2002: 35. Hewitt 2002: 110).

Like their British counterparts, Japanese troops were issued with sun hats or 'topis'. There were two main types; the first was very much akin to the colonial style with a metal ventilator at the apex, ventilation holes on the side and a brown leather chin strap; the second was a rounder bowl shaped hat, similar in style to the helmet. The latter was the most common. It to was covered in segments of Khaki cloth but laid over a cork inner and supported a yellow star at the front. Officers would have most likely brought a more expensive variant privately perhaps with a badge of gold thread or metal (Jowett 2002: 35,36).

2.2 Uniform

⁴⁶ The unique chin strap was modelled on the type found on traditional Samurai headgear.

By 1942 the majority of the troops were wearing the Type 98 issue uniform. However uniforms were often manufactured on a local basis and as such there was considerable variation in the quality and colour of the materials. Likewise officer's uniforms were purchased privately and were subject to the individual whims of the local tailor. Campaign conditions would then in turn extract heavy wear on the clothing. By the time the Japanese troops crossed the straits of Johore many would have worn an assortment of repaired and make do items of clothing (Jowett 2002: 22)

Sgt Baynes describes his first close look at his Japanese captors:

'They looked like walking bits of jungle, and their camouflage had to be seen to be believed. Their uniforms (if such shabby, mud coloured clothes could be called) were so completely hung with twigs and leaves, that if they stood still their forms disappeared into the jungle screen behind them.' (Baynes 2009: 49)

L Cpl Cosford concurs:

Loaded up with equipment camouflaged from head to foot with small branches and bushes, they looked dirty in their ragged clothes and poor equipment, like walking bits of jungle (Cosford 1988: 21)



Fig 16 - Jubilant Japanese troops on the Singapore waterfront on the 16th February 1942. Note the assortment of clothing, headgear and equipment.

2.3 Footwear

The most common type of footwear was a brown pigskin hobnailed boot. The design varied little through the course of the war. However the most notorious footwear was the *tabi*. This was a rubberised, ankle high black canvas shoe with a notable 'camel – toed' upper. Puttees were worn over the top of the boots and up the lower calf to add a degree of water proofing and support. Cavalry and transport troops wore high brown leather boots, as did the officers but usually of a better quality (Jowett 2002: 36-36).

2.4 Webbing

Unlike the allies the Japanese did not wear over the shoulder webbing. Their field equipment was slung onto a brown leather belt which went around their waist. Onto this was strung three ammunition pouches; two worn to the front carried six five round clips and the larger one at the back carried held 12 clips plus the rifle cleaning gear. The design varied little throughout the war but in the latter years the leather was replaced by a rubberised fabric and the quality of fittings deteriorated. (Hewitt 2002: 126)

Spare clothing and other personal items were carried in a cowhide knapsack. The packs were adorned with a number of straps and buckles to facilitate the carrying of extra items on the outside. The pack had so many extra straps that the Japanese nicknamed ' Taco Ashi' or 'Octopus legs'. Later in the war the hide bags were replaced with canvas versions (Hewitt 2002: 130).

In addition the soldier would also carry a haversack over his shoulder. His food, personal effects, sewing kit and mess kits were carried in these. This allowed him to drop the knapsack for combat but still keep hold of the essentials. The haversack would have an additional hook on the back which could be used to help take some of the weight on the belt. The haversack was closed by two buckle and strap sets.



Fig 17a – This close up of Japanese 5th Division troops on the outskirts of Bukit Timah shows the wide variety of equipment carried by the soldiers. The tin hanging down from the belt at the back may be carrying the ashes of a fallen comrade.



Fig 17b – Japanese troops preparing to move out of Bukit Timah. Note the wide range of packs hats and equipment..

3. Personal Equipment

Like his commonwealth enemy the Japanese soldier was asked to carry an assortment of personal equipment. This would include; blanket, poncho, a small pail type aluminium mess kit used both to cook and store food in, entrenching tools, gas mask, wire cutters and canteen (originally aluminium with a cork stopper carried in a canvas carrier) (Hewitt 2003: 130 - 170). Tropical kit would include anti mosquito face / head nets, light cotton mittens and insect repellent spray or cream. A tin carrying the water purification set was also issued.

3.1 Personal Items

Perhaps the best known personal item carried by Japanese soldiers was the '*hinomaru*' or national flag that was adorned with signatures and good luck messages from family and friends. These were then carried close to the body for the duration of service. So was the '*senninbari*' or the thousand stitch belt, made by a loved one who would stand near the temple of the home town and ask for a thousand passers by to sew a red stitch into a cloth belt. This was then handed to the soldier and supposed to bring him luck. Sometimes coins and amulets were added to the design (Hewitt 2003: 261).

Additionally the soldier would likely carry on his person; dog tag⁴⁷, a triangular first aid bandage, service handbook, a '*hokobukuro*' or small valuables pouch, sake cups and flasks, money, writing kit and personal seals, penknife, tooth brush, cigarettes, cooking fuel, sewing kit, spoon, show cleaning kit and soap (Hewitt 2003: 261).

4. Weapons

⁴⁷ Unlike the western counterpart this oval metal disc was worn around the waist. It showed the wearers name, arm of service and personal number. Officers had name rank and arm of service (Forty 1999: 108).

Swords were carried by officers and NCO's as a badge of rank and as a weapon. **The Kyu-gunto or first military sword** was a conventional western sword and was carried up to the mid 1930's. Then nationalistic fervour drove the demand for a more traditional sword in the manner of a *samurai* sword. The result was the issue of **Type 94 shin-gunto or 'new military sword'**. It was carried in either a wooden or painted metal scabbard which in turn was suspended from the waist belt by straps attached to one or two suspension mounts. The **Type 98** was introduced in 1938 was very similar to its predecessor with the exception of having only one suspension ring. The Type 95 *shin-gunto* was introduced for NCO's. The rank of the wearer was designated by the colour of the sword strap and tassel. The strap also had the function of attaching the sword to the wrist when in combat. Many officers carried *katana* or *tachi* and the smaller *wakizashi* samurai swords often as they were family heirlooms⁴⁸.



Fig 18 a to c -. From T to B: The Kyu-gunto or first military sword, The Type 95 shin-gunto Type 98 Shin Gunto

The standard issue rifle for the Japanese soldier was **the Arisaka 6.5mm Type 38** known to the soldiers as the '*sanpachiju*'. This was a five shot bolt action rifle that first saw service in the 1930's and was based on the German Mauser rifle that dated back to the Russo Japanese war. It was a reliable and hardy weapon but at 50.2 inches in length it often proved too long for the average Japanese soldier who found it difficult to reach the bolt when the rifle was in the firing position. Sniper sites were developed that had to be mounted further back for the same reason. The rifle despite the reputation of the Japanese sniper, was poor at long ranges. The sniper made up for this deficiency by mastering the art of concealment. The

⁴⁸ Sgt Baynes noted with some sarcasm on the first meeting with their captors:

'They [the Japanese] halted a few yards away and what we took to be an officer stepped forward He was wearing one of the traditional two handed Japanese swords, and its scabbard knocked against his leg with every step he took and nearly dragged on the ground. We later became very familiar with the sight of these swords. They told us that they had been handed down from father to son. However in one camp I later saw a Jap blacksmith making them out of old lorry springs and fitting Woolworthey tinsel bound handles on them' (Baynes 2009: 49).

rifle went on to be developed in a shorter 'carbine' version. In addition a type 44 carbine was introduced that had a permanently attached fold down bayonet. This primarily used by the cavalry.

In 1939 the Japanese army introduced a more powerful 7.7mm bullet which in turn saw the introduction of the new **Type 99**. This also came in a long, short and sniper version.



Fig 19a - Japanese Arisaka Type 38 rifle, 6.5 mm calibre with forged steel bayonet and clip.



Fig 19b – Arisaka Type 99 and bayonet

Type 100 8mm Sub machine gun may not be worthy for a mention as it was seldom issued but for an incident at Adam Park that may allude to the presence of a the gun in the action. Sgt Baynes' recalls the incident at the back of the Battalion HQ when he was surprised by a pair of trigger happy Japanese soldiers:

'About halfway along two Japs jumped up from behind a hedge not more than four yards away. One carried some sort of automatic weapon and the other shouted something that sounded exactly like 'shoot'.

Baynes did not hang around to identify the weapon. The Type 100 SMG was based on the German MP28 but only 27,000 were made, very few of those were issued and primarily to the paratroopers. (Jowett 2002: 40) It is more likely that it was a captured weapon that Baynes saw.



Fig 20 – Type 100 8mm Sub Machine Gun with folding stock

There were three most commonly issued hand guns used by the Japanese army. The **Type 26** was a 9mm revolver dating back to 1893. The other two were automatics; the **Nambu⁴⁹ Type 14 (1925)** and the **Type 94 (1934)** both using an under powered 8mm round. They were of poor quality and lacked stopping power. The Type 94 in particular was prone to jamming. They were generally issued to tank crews and officers.



Fig 21 – Japanese Pistols – L to R: The Type 26 Revolver, the Type 14 and the much maligned Type 94

The Japanese had a wide selection of hand grenades in their inventory including three ‘pineapple’ types; the **Type 91 (1931)**, **Type 97 (1937)** and **Type 99 (1939)** and two variants of the stick grenade.



⁴⁹ Named after the manufacturer.

Fig 22 – Japanese ‘pineapple’ hand grenades L to R: Type 91, Type 97, Type 99

The Japanese firepower was greatly increased by the introduction of the light machine gun at platoon level. This meant that a LMG team could lay down a considerable amount of fire support which could pin down allied units as the riflemen moved to outflank the enemy positions. The main weapon in the Japanese machine gun arsenal was the **Type 96 Nambu (1936) LMG** firing the 6.5mm rounds and the **Type 99 (1939) LMG** firing the 7.7mm equivalent. Both guns were very similar in design, having being based on the Czechoslovakian Brno light machine gun; both were bipod mounted, fitted with 2.5 telescopic sites, had quick change barrels, carrying handles and fed by 30 round top mounted magazines. The primary difference was that the Type 99 had a coned shaped flash suppressor and a folding monopod butt support.

The main flaw of the Japanese light machine guns was that their rapid ejection systems tended to jam. This was alleviated on the type 96 by a clever oiling mechanism built into the magazine loader and a specially reduced charge round was issued. The standard 6.5mm round could be fired but this would increase the risk of stoppages. The Type 99 was a marked improvement in this area and did not need lubricated bullets. Weighing in at a mere 20lbs and with a rate of fire of 550 rounds a minute it was a bit surprising to discover the weapons could be fitted with a bayonet.

(Rottman 2005: 46. Jowett 2002: 42. Forty 1999: 126,127)



Fig 23a – The Type 96 LMG was rugged and reliable but did not pack the same punch as the Type 99 firing a 7.7mm round.



Fig 23b – The Type 99 LMG was a marked improvement on its predecessor. This image shows the gun fitted with the 30 round magazine and the butt rest deployed.

Japanese medium machineguns were based on the Hotchkiss Model 1900. **The 6.5mm HMG Type 3** was strong and reliable but lacked the hitting power especially at long range. It was fed by a 30 round metal strip feed and like its lighter cousin required an in built oil lubrication system for the rounds to prevent the ejector mechanism from jamming. The more powerful **7.7mm HMG Type 92** took over the role in the late 1930's. It was almost identical to its predecessor and it also required a lubrication system for its rounds.

Finally in 1939 the Japanese perfected their designs and brought in their best machine gun; the **7.7mm Type 99**. This used a rimless 7.7mm round which did not require oiling. It weighed 10.4kg and fired an impressive 850rpm from a 30 round box magazine (Rottman 2005: 47. Forty 1999: 129,130).





Fig 24a – The Type 3 HMG was strong and reliable but lacked power at range.

Fig 24b –The Type 92 HMG, nicknamed the ‘woodpecker’ by the allies after the distinctive sound when firing, was more powerful but tended to jam.

Fig 24c – The powerful Type 99 solved the problems of its predecessors and became a formidable weapon.

The Japanese version of the British Boys AT Rifle was the **Type 97 20mm anti- tank rifle**. This beast weighed a 51.75kg and needed a crew of four to carry it. Like the Boys, its recoil was hazardous and the penetration power poor, a mere 2.95mm at 250m. It had a semi automatic mode that fired a seven round top loaded magazine.

Close infantry support and firepower was also enhanced by the use of grenade launchers and light mortars. The misnamed ‘knee mortar⁵⁰’ or **50mm Type 89** was the standard issue for the infantry section. It had a rifled barrel and an adjustable firing pin that gave it excellent range control of 700yds. It could fire HE, fragmentation, illumination and smoke rounds.

Heavier mortars held at higher levels of command included the Type 98 (1938) 50mm smooth bore mortar that fired a square headed 7lb stick projectile, the 70mm Type 11 built in 1922, three versions of 81mm mortars (Type 3, 97 and 99 respectively) and the heavier 90mm Type 94/ 97 and finally a 150mm Type 97 (Jowett 2002: 41. Rottman 2005: 46,47).

Carpenter was almost complimentary about the standard of mortar fire that was brought down on the Cambridgeshire positions at Adam Park:

⁵⁰ Allied troops mistook the curved base plate as means to rest the mortar on the thigh when firing. This would have likely hospitalised the operator.

'One feature of their tactics during the day was their speed and frequency with which they moved their mortar positions. Their drill in this respect was excellent, although their fire still gave the impression of 'plastering and area' rather than firing at a particular target' (War Diary: 12).

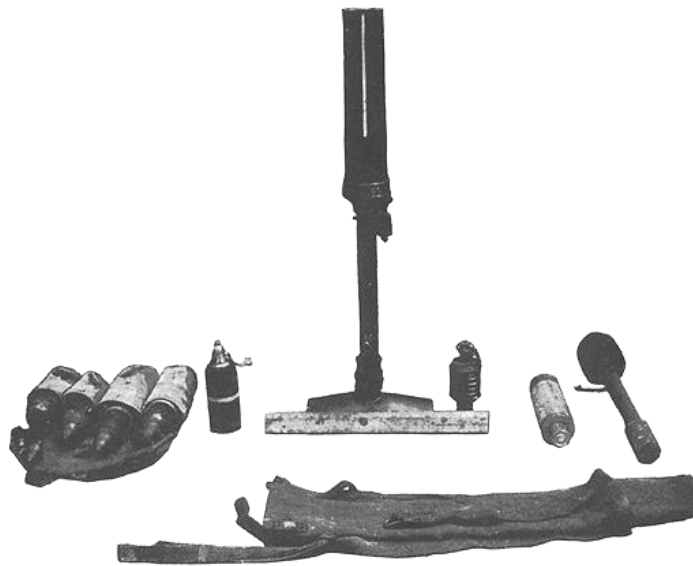


Fig 25 – The Type 89 50mm mortar in action and with a selection of ordnance and carrying bag.

5. Field Artillery

The standard field artillery for an infantry battalion was the **70mm Type 92 Battalion Gun**. Weighing 468lbs it could be readily broken down into its component parts and transported by pack horse and it required a crew of five. It had a range of 3060yds and could fire HE, AT and illumination rounds. More importantly its minimum range of 300yds made it ideal for close infantry support.

The regimental gun company was armed with the **75mm Type 41 Regimental Gun** based on the German Krupp M.08 mountain gun. It weighed 1,180lbs and could be broken down into 6 packhorse loads. It fired HE, armour piercing high explosive and AT shaped-charge as well as white phosphorus. It had a range of 7,000yds. (Forty 1999: 136. Rottman 2005: 48)



Fig 26 – Modern restorations of a Type 41 and a Type 92. The latter is outside the Bukit Chandu museum in Kent Ridge Park, Singapore.

The 5th Divisions field artillery regiment was armed with 75mm and 105mm guns. There were three types of 75mm being used at the time. The **Type 38 (Improved) 75mm Field Gun** was based on the Krupp design from the early 1900 and built at the Osaka Arsenal and went under a complete redesign during the First World War. The result was the 'Improved' variant which was for the opening years of the Second World War the most frequently encountered gun. It had a range of 10,400yds and fired a 6.6kg shell. Its replacement was the **Type 90 75mm Field Gun**. This was a heavier gun but fired a slightly lighter shell and thus reached ranges however it was never produced in large numbers. The **Type 95 75mm Field Gun** was the final variant but was even rarer than its predecessor (Rottman 2005: 49. Forty 1999: 153,154).

The **Type 92 105mm Medium Howitzer** proved to be Japan's most successful medium gun having a good range (20,000yds) heavy shell (31.2kg) and light weight (2,800kg). The gun was primarily used for counter battery and long range bombardment. The **Type 91 105mm Medium Howitzer** was first produced in 1929 and despite its poor finish and lack of range (11,500yds) it still proved to be a popular gun with a reasonable performance and it became the main divisional gun of the war. (Forty 2003: 155)

6. Tanks

The 5th Division were supported by tanks of the 1st Tank Regiment who arrived in Singapore with primarily two types of tanks; the Type 97 Medium Tank and the Type 95 Light Tank.

The Type 97 Medium Tank (*Chi Ha*) was perhaps the most successful Japanese tank of the war. It was built to replace the outgunned Type 89 OT-SU and was one of two designs presented to the War Office. The Osaka Arsenal *Chi-Ni* was 9.8 metric tons, attained 30 km/h and had a one-man turret and 25 mm armor. The more expensive Mitsubishi *Chi-Ha* was 13.5 metric tons, attained 35 km/h and had a two-man turret and 33 mm armor on the turret front, 22 mm on the hull front, but only 9 mm on the hull sides. The outbreak of the Sino Japanese War meant that all budgetary constraints were removed and the prototype Chi Ha was tested in 1938.

A total of 2,123 vehicles were constructed from 1938 to 1943, of which 1162 units with the standard Type 97 and 930 units were the improved Type 97-*kai* (*Shinhoto*) version. The remainder was various specialized variants produced in small numbers, such as recovery, flail mine clearers, engineer, bridge layers, 20 mm and 75 mm anti-aircraft and self-propelled guns

The Type 97 was initially equipped with a Type 97 57 mm main gun. The cannon was a short barreled weapon with a relatively low muzzle velocity but sufficient as the tank was intended primarily for infantry support. It also carried two 7.7 mm Type 97 machine guns, one on the front left of the hull and the other in a ball mount on the rear of the turret. The latter could be remounted on top of the top of turret for anti-aircraft use. The turret was capable of full 360-degree traverse but the main gun had a second pair of trunnions internally allowing a maximum 10-degree traverse independently of the turret. The turret featured a small periscope for use when the tank was "buttoned up." On the front of the tank was a

searchlight. The tank weighed 33,069lbs, was powered by a Mitsubishi 12 cylinder air cooled diesel engine which generated a top speed of 24mph.



Fig 27 – Two images of the Type 97 in Singapore. L to R: This first Chi Ha was photographed in the streets of Bukit Timah , the second is being unloaded off barges somewhere along the north west coast of the island.

The Type 95 Light Tank (Ke Go) was developed to meet the requirements of the Japanese army for a light support tank in the 1930's . It was designed by the Mistubishi Heavy Industries in 1934 and over 1,100 were built before production stopped in 1943

The Type 95 was a 7.4-ton vehicle with a complement of 3 crewmen (normally a commander/gunner/loader, mechanic/bow machine gunner, and a driver). The main armament was one Type 94 37 mm Tank Gun. The commander was responsible for loading, aiming, and firing the main gun. The tank carried two types of ammunition, Type 94 high-explosive and Type 94 armor-piercing. Secondary armament consisted as two Type 91 6.5mm machine guns, one mounted in the hull and the other in the turret facing to the rear. Trials confirmed that better armament was desirable and the 6.5mm machine guns were exchanged for more powerful 7.7mm Type 97 light machine guns on the right hand side, for use by the already overworked commander/gunner in 1941. The original Type 94 main gun was eventually replaced by a Type 98 weapon of the same size but with a higher muzzle velocity. The hand-operated turret was small and extremely cramped for the already overworked commander and could only be rotated through a 45 degree forward arc, leaving the back to be covered by the rear-facing machine gun which failed to compensate for this significant disadvantage. The tank weighed 7400kg and was powered by Mitsubishi NVD 6120 aircooled 6 cylinder diesel engine. This gave the tank a maximum road speed of 28mph (Forty 1999: 176 -179)



Fig 28a – Two Type 95's destroyed at Milne Bay in Papua 1942.

Fig 28b – This Type 95 is being surrendered to allied troops in 1945 – note the size of the turret with respect to the soldier standing by it.

7. Aircraft

By the time the Cambridgeshires entered Adam Park on 12th February, the Japanese had complete superiority in the air. It is with some disdain that Lt Colonel Carpenter comments on the fact:

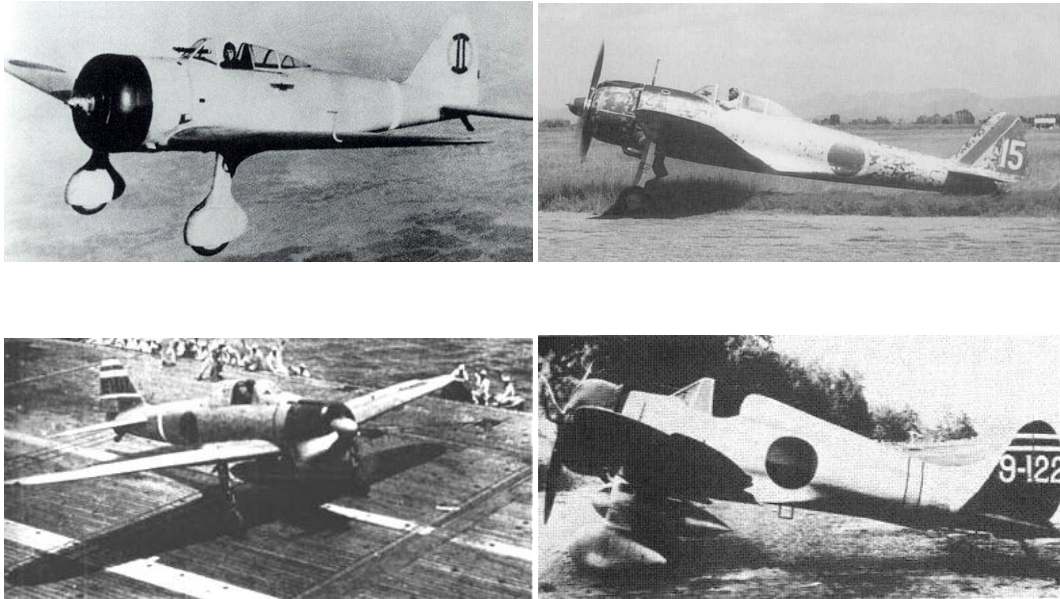
'This attack was supported by aircraft which continuously circled our positions at very low altitudes (400 – 500 ft) bombing and machine gunning. In one case it was reported they even threw grenades out of the plane at some troops on the road.... The type of aircraft used were mostly were an obsolete fighter type that appeared to be incapable of much more than 180 – 200 mph. A squadron of Spitfires or Hurricanes could have cleared the sky in a matter of seconds, and yet we had these old tubs overhead during the whole action (War Diary: 6).

The 'old tubs' could be a threat however. Sgt Baynes recalls one bomb run on the 15th February:

'The approaching plane turned out to be one of 'theirs' as it began to swoop on us. The 1000lb bomb which it carried was released at the end of its dive. Blast shook the trenches, splinters and debris flew over our heads. We put out our heads to see what had been hit and saw an enormous crater just in front of the BHQ. Twenty yards further on and the Old Man with all his staff would have been wiped out.'

It appears from all accounts that the aircraft not only added their firepower to the bombardment of the estate but they also acted as spotters for ground artillery and dropped firecrackers into the rear of allied positions to spread confusion (War Diary: 5).

The most numerous Japanese fighter was the Army's Nakajima Ki27. Although somewhat antiquated in appearance with a fixed undercarriage and lightly armed, it was still a match for any allied fighter as it was highly manoeuvrable especially when manned by experienced pilots. However, it was the Navy's Mitsubishi A6M Zero – Sen that was to take all the attention. The 'Zero' as it became to be known by the allied pilots, was one of the finest fighters of the war. What it lacked in speed it gained in manoeuvrability, incredible climb rate, heavy armament and range. It outshone its Army counterpart the Nakajima Ki43 which was itself a more than competent fighter. Often confused by the allies as one in the same aircraft the Ki43 was distinguishable by its nose mounted 7.7mm guns compared to the 'Zero's' wing mounted guns. The oldest fighter to take to the airs over Singapore was the Mitsubishi A5M. This was a 'tub' in comparison to its peers; its fixed undercarriage and open cockpit dated back to the wars in China. However, it too was very agile and could take on many of the allied aircraft with good results (Shores and Cull 1995: 67- 69).



**Fig 29 a to d – Japanese fighters that fought over Singapore and Malaya. L to R:
Nakajima Ki27, Nakajima Ki43, Mitsubishi A6M Zero – Sen, Mitsubishi A5M**

The three main medium bombers used by the Japanese over Malaya were the Mitsubishi G3M and G4M operated by the Navy and the Army's Mitsubishi Ki 21. All these aircraft had top speeds of 250 – 275 mph and carried maximum bomb loads 2,200lbs. What was more impressive was their range of 3,000 miles almost twice the distance of their allied counterparts. Flights of 27 bombers were regular visitors to Singapore City (Shores and Cull 1995: 69).

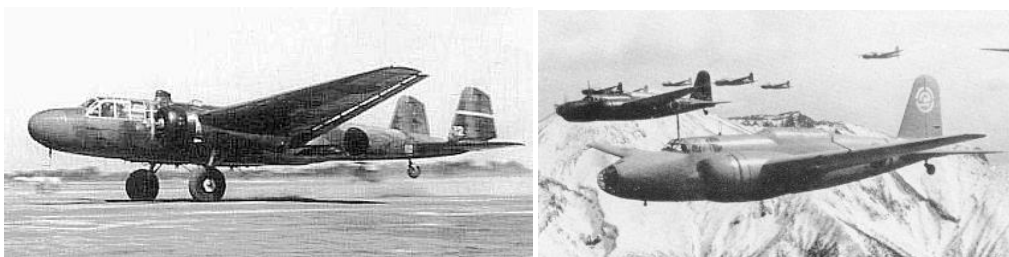


Fig 30 a and b – Japanese bombers; Mitsubishi G3M and Mitsubishi Ki 21

For reconnaissance, the Japanese deployed specialised aircraft such as the Mitsubishi Ki 46 which due to its speed was almost impossible to catch by the allies. Also available as light bombers or army cooperation aircraft were the Tachikawa Ki 36 and the Mitsubishi Ki 15 and Ki 51 (Shores and Cull 1995: 70)

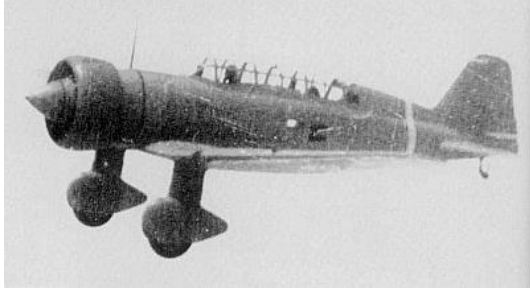


Fig 31 – L to R: Mitsubishi Ki 46, Tachikawa Ki 36 and the Mitsubishi Ki 15 and Ki 51. To the casual observer on the ground these last three aircraft may have seemed somewhat antiquated but they were easily a match for the allied fighters and carried out the designated role well

8. Snipers

The accounts of the conflict at Adam Park give us a vital first-hand account of how effective the Japanese sniper was.

Each IJA infantry section had two members allocated to the sniping role. Their task was very much like that of skirmishes in the Napoleonic wars. They were to infiltrate enemy positions and shoot officer and SNCO's thus destroying the moral and cohesion of the enemy units. As mentioned above the Arisaka Type 38 rifle did not work well at long ranges despite being fitted with a sight and so guile and patience was needed to get the snipers into effective range sometimes as little as 50yds. Moore also suggest snipers were armed with the Type 100 8mm sub machine gun but with limited range and few in number it seems unlikely that was a standard practice. Moore goes onto suggest that the snipers worked in pairs; one caused a 'distraction' as the other fired. Certainly, two men from each section were allocated the task and often two men sniper teams were used; one to fire and one to observe. (Moore 1988: 53). When they did fire, it appeared they had little regard to being discovered or the fact that they might be killed by retaliatory fire (Forty 1999: 216).

A case in point is the tendency for the sniper to climb into trees. Light weight tree climbers, two metal spikes fitted onto a frame that were tied to the boots, were used to help the man climb up. Once in position the sniper would secure himself to the branches using a leather belt or rope. He would then adorn himself with suitable foliage from the branches around him, adding this to his camouflage netting and await his opportunity to fire. However, if spotted, the sniper was in no position to make a quick getaway and the tree offered little protection other than concealment. The Cambridgeshire made a point

of spraying the trees in their locality with small arms fire if they suspected the presence of a sniper in the area. Sgt Baynes recalls:

'Rather than do nothing we decided to have a rifleman in each section firing systematically into each palm tree to try and reduce the sniping. Not one Jap fell down much to our disappointment. We could not understand it at the time as it seemed certain that the fire was coming from these trees. We afterwards discovered that all the Jap snipers strapped themselves to the trees with special belts and the ones we knocked out were left hanging there; all part of the Jap stratagem of keeping us in the dark and lowering our morale.' (Baynes 2009: 37)

Moore has this to say about the use of snipers at Adam Park:

'The Japanese used snipers extensively and had cunningly devised many forms of camouflage that had made them virtually invisible. In the heavily forested areas of Malaya and Singapore they were especially difficult to detect and although their fire was not always accurate they were very troublesome and their presence affected the morale of the troops opposing them.' (Moore 1988: 53)

Carpenter sums up the sniper threat in his review of the action on the 14th February:

'We had been told that during the fighting on the mainland the Japanese snipers took up positions in trees. This we were able to confirm, as several times a burst of fire on a suspected tree had the effect of silencing a sniper and Major Lawrence actually saw and shot a sniper in the act of climbing a tree. In another case the body of a sniper was seen hanging strapped to a tree after the tree had been fired on – the sniper in this case was in a coconut tree and was wearing a mask that resembled a coconut.'

Snipers were a source of worry during the whole day and unfortunately the battalion suffered some casualties at their hands. On the other hand there is no doubt that the majority of the battalion became far too 'sniper conscious'. There was a marked tendency to blaze away at treetops and to attribute almost every Japanese rifle shot heard to snipers' (War Diary: 12)

This is an interesting observation as it would appear that any man operating on his own or in pair was deemed to be a 'sniper'. Being 'sniper conscious' seemed to turn the odd shot fired by a single man into a concerted penetration of the lines by an organised body of men. This, along with the use of firecrackers dropped by enemy aircraft behind the lines, got the allied commanders constantly looking over their shoulders. In Sgt Baynes' case this was, at one point, literally:

'At a quarter past 5 Sgt Hurrell received a bullet in his bottom. As he had been facing the front when he was hit, consternation reigned in our ranks. We thought our flank had been turned once more.... As we now knew that we had Japs behind us as well as in front, I decided to have half the men in each trench face backwards. The trees came right down to our trenches, so the enemy could have approached to within a few yards without being seen. We were not attacked from behind. It seems it was only a sniper after all' (Baynes 2009: 29).



But the damage to moral and cohesion had been done. The very fact that all the accounts mention the presence of snipers, despite the dismissive undertone sometimes used, must be evidence as to the effectiveness of this tactic.

It is difficult to calculate the exact number of Cambridgeshire casualties caused by sniping. Suffice to say that many men were downed by a single shot often to the head⁵¹. However, Pte Knibbs summed up the cost.

'One thing I can remember, during some action later, we came across some soldiers who had just been killed. Most of them had cigarettes still burning in their mouths and bullet holes through their heads. It was very strange as we walked passed them. They must have been killed by snipers. We took cover but didn't see any Japs. I knew they were there but they just seemed to blend in with the jungle.' (Moore 1988: 52)

Fig 32 – Sniper of the 124th Infantry Regiment in Guadalcanal 1942. He carries a 6.5mm Arisaka rifle with x 2.5 telescopic sights and wears a two piece matted grass suit over his standard tropical uniform. (Rottman 2005: Plate D)

8. Overview

Japanese soldiers had carried an assortment of weapons and equipment down the Malayan Peninsular, mainly on bikes. By the time of the invasion on Singapore much of this equipment was well worn and had been adapted for the work at hand. The units of the 5th Division that attacked Adam Park were well equipped, well trained and were confident of victory.

⁵¹ To mention a few: Lt J Bigmore - killed by a bullet in the head (Moore 1988: 65). Capt Gurteen wounded in the neck (Baynes 2009: 36), Cpl Gill shot dead whilst engaging a sniper (Baynes 2009: 36), Lt Taylor shot by a sniper while attending an injured man on Water Tower Hill (Moore 1988: 34). Capt Hockey and Sgt Bill Wade killed whilst operating against a sniper (Moore 1988: 39). Pte Dare wounded whilst on patrol by a sniper (Moore 1988:27) Cpl Spalding wounded whilst evacuating men off Water Tower Hill (Hutt:) Pte Cole, Lawrence's orderly was killed while carrying a message over to 'C' Company by a sniper.



Fig 33a - Corporal of the 11th Regiment 5th Infantry Division in Singapore. As the Japanese advanced down country dress code suffered. This man has stripped down to his tropical work shirt and has hung on to his sun hat. He wears tabi black canvas and rubber soled boots (Rottman 2005: Plate C).



Fig 33b – Superior Private in Batavia in the Dutch East Indies. He carries the 50mm type 89 grenade launcher as well as extra ammunition in the pouches at his waist. He wears the Type 92 steel helmet with a canvas cover (Rottman 2005: Plate C).

Appendix A – Order of Battle 18th Division – Singapore 1942

Officer commanding: *Major-General M B Beckworth-Smith.*

Royal Artillery: 88th, 118th, 135th & 148th Field Rgts, 85th & 125th Anti-Tank Rgts.

Royal Engineers: 287, 288 & 560 Field Coys, 251 Field Park Coy.

Royal Army Service Corps: Headquarters, 53rd, 54th, & 55th Brigade Group Coys; 18th Division Troops Coy, 16th Mobile Bath Unit.

Royal Army Ordnance Corps: 18th Division Ordnance Workshops, 18th Division Field Park.

Royal Army Medical Corps: 196th, 197th & 198th Field Ambulances.

53rd Infantry Brigade: *Brigadier C L Duke*

Headquarters

5th Royal Norfolk Rgt, 6th Royal Norfolk Rgt, 2nd Cambridgeshire Rgt.

54th Infantry Brigade: *Brigadier E H W Backhouse*

Headquarters

4th Royal Norfolk Rgt, 4th Suffolk Rgt, 5th Suffolk Rgt.

55th Infantry Brigade: *Brigadier T H Massey-Beresford*

Headquarters

5th Beds and Herts Rgt, 1/5th Sherwood Foresters, 1st Cambridgeshire Rgt.

18th Divisional Troops

9th Royal Northumberland Fusiliers, Recce Corps (5th Loyals).

From: Moore 1988: 148

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