The Battle for Cemetery Hill

14th - 15th February 1942

A Historical Review and Archaeological Assessment of the Bukit Brown Cemetery Site

CONTENT

Summary

The aims of this document is to present a history of the battle for Bukit Brown Cemetery, fought on the 14th and 15th February 1942, reflect on the archaeological trace that has been left as a result of the action and suggest ways in which any future development of the site could benefit the recovery and preservation of that heritage.

The opening chapters provide a detailed account of the action as recalled by eye witnesses. Every effort has been made to introduce the readers to the context of the event by describing in detail the lead up to the fight from both the Allied and Japanese perspectives. The section concludes with an emotive firsthand account of the attack on Cemetery Hill and the subsequent action at Mount Pleasant.

The middle section of the work describes the typology of any potential artefacts that may be left on the site. It considers the equipment carried by the protagonists, how the battlefield tactics would have scarred the landscape and considers the disposal of the flotsam, including the dead, after the battle. It is hoped to provide a guide for any further surveys on the site and heighten awareness of the types of artefacts that may be found during future building work.

The final chapters consider the difficulties and potential of any further archaeological work on the site and assess the risks and opportunities any future development of the cemetery may incur.

The conclusion is stark. There is every chance that traces of this battle will be found on the Bukit Brown Cemetery. It is fragile and difficult to get at in any meaningful way yet will be lost should the site be built upon. The proposed new road will destroy the archaeology however the process also provides a unique opportunity to access the artefacts. There will only be one chance to find, record and preserve this remarkable heritage. Once its gone.. its gone for good.

Introduction

It is not the intention of this work to be a detailed military history of the Malayan Campaign or that of the Suffolk Regiment and 11th Regiment IJA in Singapore. There are many other publications that do that in greater detail and accuracy than is required here. The scope of this piece is confined to the action that took place in and around the immediate vicinity of the Bukit Brown and Hill 130 from the 13th February 1942 until the ceasefire on the 15th February 1942.

The report has been written with due consideration to the impact the fighting would have had on the archaeological record on Bukit Brown Cemetery and the surrounding hills. Whereas other historians may have felt no need to mention the building of field works for example, this account has intentionally included it, as it may well have left an archaeological trace on the landscape.

It is hoped that in taking this approach the text has not belittled or undervalued the actions of individual soldiers that fought on Bukit Brown. In fact the intention is to evoke a sense of humanity into what could have been a bland list of dates, times and actions. It must be remembered that every bullet fired, every trench dug and every wound inflicted was done so by an individual.

The WW2 archaeological record across this site is a delicate and ephemeral layer. The proposed construction of the Lornie Road bypass will undoubtedly destroy the archaeological evidence of this battle along its route. The subsequent development of the land in the years to come will inevitably wipe away all further traces of the action as similar construction has done in many other parts of the island.

It is not the aim of this document to put forward a case ‘for or against’ the road development but to inform those engaged in the process of the WW2 heritage and archaeology potential of the area. It is hoped once duly conversant with the facts suitable arrangements will be made to protect, recover and preserve the archaeological record and exploit the heritage value of the site. Likewise any new building development may like to consider the memorialisation of the landscape in order to ensure the sacrifice of the men who died amongst the gravestones are duly remembered by future generations[1].

[1] Memorialisation not only includes the erection of monuments. The naming of roads and estates can provide a lasting tribute to the fallen.

Chapter 1

Sources

1. Primary and Secondary Sources for the British Accounts

Little has been written by British publishers on the fight for Bukit Brown[2] primarily because the action was yet another defeat amongst a long line of defeats throughout the Singapore campaign.

The 4th Battalion Suffolks were the main allied protagonists in the action and their history is recorded in *The History of the Suffolk Regiment 1928-1946* by Nicholson yet only four pages mention the final days of the Singapore campaign. However much of the defence of Hill 95 and the withdrawal across Bukit Brown is indirectly referenced in the books and diaries of the Cambridgeshire men who fought in and around the Adam Park Estate to the south of Bukit Brown. Their accounts mention in passing the collapse of the right wing on the evening of 14th February and their own experiences amidst the same terrain on the days leading up to the arrival of the Suffolks

Sgt Len Baynes' account of his life as a FEPOW was published in 1984 under the title 'Kept – The Other Side of Tenko'. It is heavily based on the earlier transcript 'Diary of a Bad Dream.' held in the Norris Museum in St Ives. The detail is again remarkable despite their being a few aberrations in the rewrite. Sgt Baynes was the SNCO of 8 Platoon, A Company and has recalled in great detail the fighting, in particular the defence of Water Tower Hil and Hill 95 on 13th and the events immediately after the surrender.

Michael Moore's *Battalion at War* primarily describes the role the author's father played in the defence of Adam Park however there are a number of exerts which mention the defence of Hill 95 by the Suffolks.

Fig 1.1 – Sgt Len Baynes in 1940 prior to his trip out to Singapore

[2] Technically Bukit Brown was not the site of the Cemetery in 1942. The Bukit Brown Cemetery was located around Hills 160 and 130 to the north of Bukit Brown. The Japanese refer to the objective of their attack on the 14th as 'Cemetery Hill' for obvious reasons, a reference which refers to all the land immediately to the east of Lornie Road and beyond the Sime Road Crossroads. The crossroads were in turn known as Hellfire Corner by the Allies.

The majority of the primary sources for this report have been gathered from the Cambridgeshires Regiment holdings found in the Cambridge Archives[3].

Amongst the papers are the regimental diaries for the period of the Cambridgeshires stay in Singapore. It appears to have been compiled by a Capt CB Hill the Battalion's adjutant[4] some months after the original had been destroyed. The appendices include accounts from various Company and Platoon officers and as one could expect when considering the conditions in which they were written, vary in accuracy and coverage. There are a number of entries that substantiate the Suffolk history and describe the terrain and disposition of forces around Bukit Brown and Cemetery Hill

After the fighting Adam Park, Sime Road and Lornie married quarters became POW camps used by various detachments as accommodation as they struggled to build the Shinto shrine on the SICC Golf Course. The museum archives include diaries written by the inmates that describe recovery of the bodies of men lost on Cemetery Hill and provide a valuable insight into the disposal and recovery of the dead later that year.

2. Primary and Secondary Sources for the Japanese Accounts

The most comprehensive accounts of the battle for Cemetery Hill are to be found in the Japanese archives. Elements of both the 41st Regiment and the 11th Regiment of the IJA fought to take the area and in particular Colonel Shimada's tank company led the subsequent charge to Thompson Village

The 41st journey down the Malaya peninsular is vividly documented in the diary of Sgt Tadamasa Miyakubu who was attached to the HQ Company's Railway Advancement Unit and was primarily employed in the recconaisance and reconstruction of the vital bridges the battalion were needing to cross. Extracts of his diary appears in *Ningen no Kiroku Marei sen (The Human Documentary Malayan Campaign) Vol 1 and 2* by Shigetaka Onda (Onda 1988). Although Onda's work has was widely criticised at the time of its publication as being carefree with its interpretation of references it is believed the diary entries are genuine and as such provide an accurate account of the second battalions fight for Singapore.

In 1980 Shushin Kataoka published a history of the 41st Regiment entitled Fukuyama Sentaishi (History of the Fukuyama Regiment) which included chapters on the Malayan campaign. The work is a collection of firsthand accounts, casualty lists and 5th Division War Diary entries.
AWM54 3553/1/3 is a written record file held in the Australian War Memorial covering Japanese Studies in World War II – 25th Army operations in Malaya: November 1941 to March 1942. These records were compiled from the memoirs Colonel Suguita of the Intelligence Staff , Colonel Kunitakn, Operation Staff Officer and Lieutenant Colonel Hashizune, an officer attached to the rear operations staff, all of whom took part in the Malayan Campaign. Extracts were also taken from the

[3] Many thanks must go to Will Fenton, Archives Assistant for pulling together these documents.
[4] His signature rank and post appears at the bottom of the handwritten notes detailing the authors of the Appendices

operational memorandums as well as snippets from other diaries and memoirs. The authors, the US Army's Historical Division, caveat their introduction that the information may not be absolutely correct.

Henry Frei's work entitled *Guns of February* brings together a number of memoirs and interviews with Japanese soldiers who fought in the Malayan campaign, unfortunately none of whom were from the 41st. However, one veteran , Captain Ochi Harumi (b.1918) was with the 11th Regiment, the 41st sister regiment in the 9th Brigade, and fought in China, French Indochina, Malaya, Singapore and New Guinea. After the fall of Singapore in February to December 1942 he was deployed to Port Dickson and then onto Wewak in New Guinea where he remained for the rest of the war. He was returned to Singapore after the surrender and was interned on Rembang Island until his repatriation in 1946. He has published two books Malay Senki [A Battle record of the Malayan Campaign] and Kyoran Do Singapore [Singapore Upside Down].

Ochi not only corroborates Miyakubu's front line experiences but also identifies the 41st Regiments as being the unit fighting in the Adam Park area during the final stages of the campaign. It was probably Ochi's machine gun company of the 11th Regiment 3rd Battalion that the Cambridgeshires faced across the Sime Road Golf course on the 12th and 13th of February as well as being responsible for the withdrawal of the 4th Suffolks from Hill 95. Ochi's account certainly ends with a vivid description of the defence of Mount Pleasant by the 4th Suffolks on the 15th which in itself is worthy of further research.

Miyakubu's diary should also be read in conjunction with Colonel Masanobu Tsuji's account of the campaign (Tsuji 1997). Tsuji was given the responsibility of developing techniques and strategies for fighting in tropics in preparation for the invasion of Malaya and joined the front line units to ensure his plans were put into practice. He accompanied the 5th Division 9th Infantry Brigade for much of the campaign down the peninsular and therefore inadvertently recalls many of the incidents that befell them.

Toyosaku Shimada graduated from the Military Academy in 1933. After being appointed an officer, he was sent to Tsudanuma Tank School. He fought in the Sino-Japanese War for seven tours and became a company commander of 6th Tank Regiment in 1940. He went on to fight in the Pacific War as Major for the Malayan Tank Regiment. After teaching at the Military Academy and becoming 18th Tank Regiment Commander, he became Lieutenant Colonel in 1945. He survived the war and became a high school teacher at the time of publishing his account of the tank campaign in Malaya. His Company of tanks from the 6th Tank Regiment took part in the fight for the Singapore Island Golf Course and Bukit Brown alongside Major Ichikawa's 3rd Battalion, 11th Regiment and he makes reference to the fighting on his right flank during the last few days of the campaign which was in and around Hill 95. None of the tanks under his command are used in the assault of Adam Park, it can be concluded however that other units of the 6th were assigned support roles for the assault on Hill 95 and the estate.

Further detail of the 5th Division's campaign can be taken from passing comments found in many of the westernised accounts of the campaign. The individual regiments

are rarely named in the accounts but by cross referencing these incidents with the diaries it is possible to add valuable information as witnessed by the Allied soldiers.

This document includes a detailed account of the 5th Division's fight for Singapore and ultimately the attack on Cemetery Hill where, out of ammunition and suffering intolerable casualties, it came to a bloody climax amidst the gravestones of the Bukit Brown Cemetery and on the slopes of Hospital Hill .

3. Maps

It quickly became clear during the research that the lack of contemporary maps was to be an issue. The sketch maps provided in the diaries were a good starting point but it became necessary to plot the movement of individual units about the estate as the texts progressed. These maps have been included in this work. A full account of the history of the maps is given at Appendix A

4. Photographs

Where possible features that have been mentioned in the accounts and can be found in the modern landscape have been photographed and included in the text. Images of individuals have been extracted from the regimental photographs supplied by the Regimental Archives or taken from secondary accounts. Good use has been made of contemporary images acquired from museum archives however these will be subject to copyright and are not for general circulation.

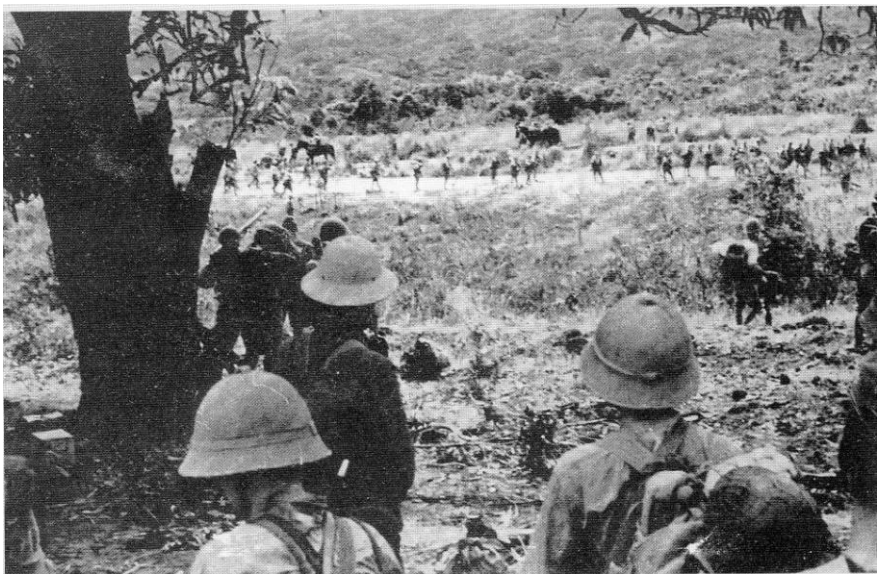


Fig 1.2– Japanese troops advance on Bukit Timah Hill

Chapter 2

The Defence of 'Cemetery Hill' - 4th Battalion Suffolks

1. Introduction

This chapter concentrates on the Suffolks action in and around Bukit Brown. Only passing reference is therefore made to the battalion's actions at Bukit Tingii and around the Singapore Country Club in the days leading up to the fighting on the 13th February. Text has been copied almost word for word from the source material in order to ensure none of meaning, especially when it refers to locations and troop movement, is lost in the transcription. The text has been heavily annotated with notes which endeavour to identify the source of each passage or statement and to highlight items that may be of particular relevance to the battlefield archaeology of the site. In the case where the primary sources remain unpublished, page numbers refer to those shown on the typed copy or have been excluded entirely.

2. The Days Before

The troop carrier *USS Wakefield* had been home for the 4th Battalion of the Suffolk Regiment since 8th November 1941 when they had embarked on the convoy out of Halifax, Nova Scotia. They had steamed, via Trinidad West Indies, for a stopover in Cape Town, where word got through of the Japanese attack on Pearl Harbour and that Malaya had been invaded. On 13th December the convoy set sail once again destined, so the men thought, for the Middle East. Christmas was a sombre affair as news came through of the sinking of HMS Prince of Wales and HMS Repulse by the Japanese off Malaya and it was with some relief that the ships docked in Bombay on the 27th December. The battalion was moved up country to Ahmednagar for the New Year celebrations and training but three weeks later the stay was cut short and the battalion once again boarded the *Wakefield.* 24 hours later it was announced that the battalion would be heading to Singapore and various pamphlets on jungle warfare were distributed around the men.

The *Wakefield* docked at Keppel Harbour on the 29th January 1942. The troops disembarked in a state of disbelief at the chaos around them. The CO, Lieutenant Colonel Johnson hastened his men off the ships so as to avoid the defeatist talk that was rife around the wharfs.

The battalion disembarked in quick time then driven to their temporary billets on the Changi peninsular and the officers set about acclimatising the troops to their new surroundings. For the next few days the battalion remained oblivious to the impending invasion as no word came through from command as to the situation in the west. Only the sound of gunfire gave any indication as to the Japanese invasion taking place along the shoreline 8 days after the Suffolks arrival.

On the night of the 10/11th February, the Battalion was ordered to evacuate their positions and prepare to move up to the frontline at Bukit Timah. The battalion moved out on the morning of the 11th only to find considerable congestion along the

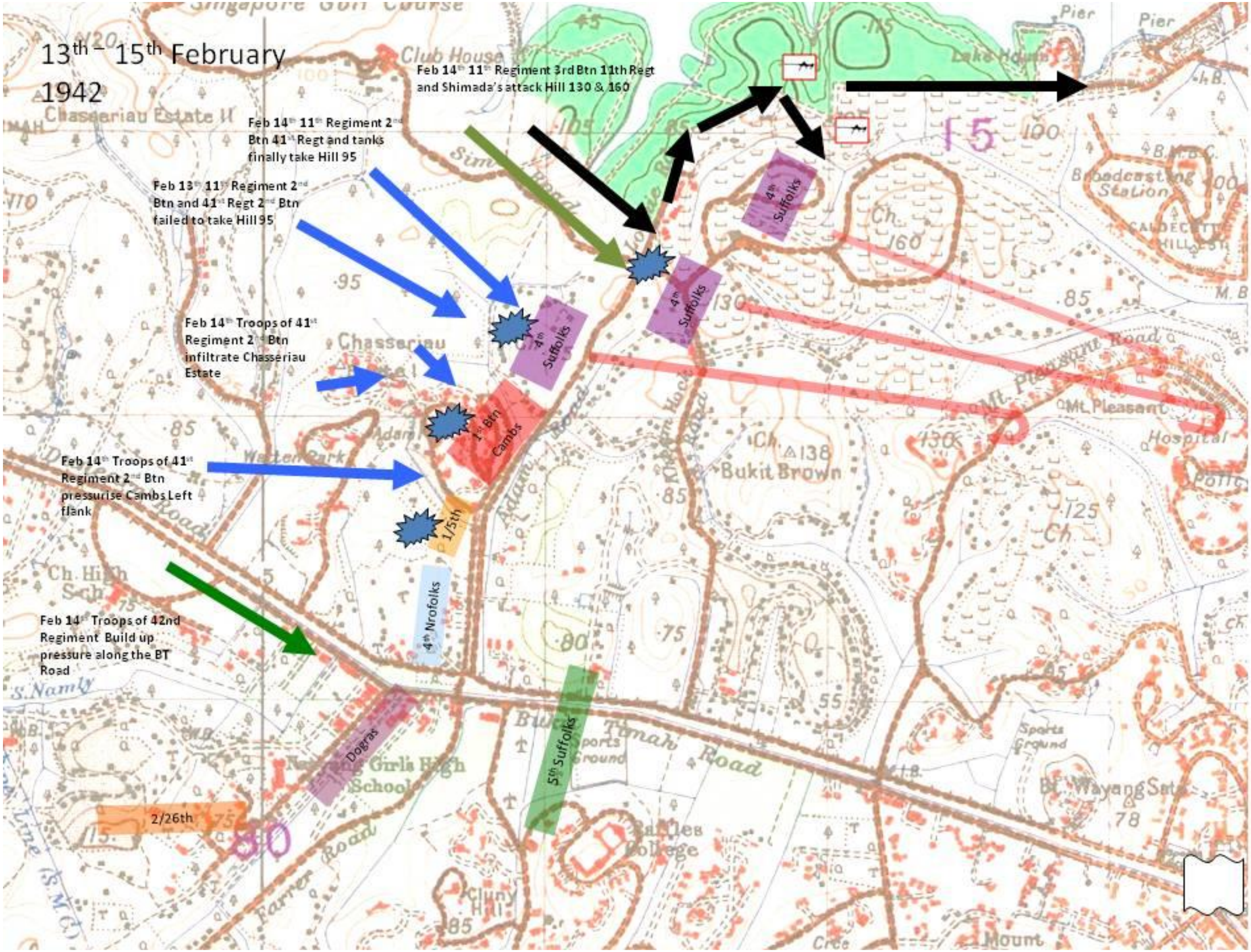
highways moving west. Finally the battalion's 'Recce' force arrived at Thompson Village where it dug in facing north into the village. However when the rest of the battalion made it to the same location they were ordered to continue their advance and to connect with the right hand units engaged in the only British counter attack of the campaign, 'Tomforce'.

3. 11th February 1942

On the 11th February the brigade sized attack led by Lt Colonel LC Thomas advanced up the Bukit Timah Road. The 18th Reconnaissance Battalion (The Loyals) advanced astride the road with the 4th Norfolks on their right and the 1/5th Foresters to their left. However the battalions made slow process across the plantations and Chinese cemetery on the outskirts of Bukit timah village and the Loyals were eventually pinned down behind the railway embankment just to the east of their objective. The Norfolks were scattered amongst the scrubland to the north and the Foresters managed to infiltrate into the village but were later pulled back into the Chinese Cemetery along Reformatory Road. The attack ground to a halt and the men dug in for the night.

The 4th Suffolks were called into action to support the Norfolks on the attacks right flank. 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 12 miles across country on foot with inadequate maps and no guides and they subsequently failed to get into a position to support the attack. The OC's advance party did manage to get as far as the Swiss Rifle Club where they ran into the enemy and were forced to withdraw under heavy fire. Johnson then concentrated his efforts of extending the allied line from the Norfolk positions. By the time night fell he had strung out his companies with his left hand unit on the Bukit Timah Road and his right near the SICC Golf Course clubhouse. 'B' & 'D' Company held the right and 'C' and 'A' Company to the left. The line was pretty thinly spread out and HQ Company had to fill up the whole in the centre. There was no reserve. 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. Lt F Barnsley of D Company was their first officer to be killed during this action

Later on the 12th February the 4th Suffolks were ordered back to the right of a new perimeter to the rear where it fell into temporary reserve amidst the Bukit Brown cemetery behind the 1st Battalion Cambridgeshires who had moved into positions along the Lornie and Adam Roads during the day.



13th – 15th February 1942
Feb 14th 11th Regiment 3rd Btn 11th Regt and Shimada's attack Hill 130 & 160
Feb 14th 11th Regiment 2nd Btn 41st Regt and tanks finally take Hill 95
Feb 13th 11th Regiment 2nd Btn and 41st Regt 2nd Btn failed to take Hill 95
Feb 14th Troops of 41st Regiment 2nd Btn infiltrate Chasseriau Estate
Feb 14th Troops of 41st Regiment 2nd Btn pressurise Cambs Left flank
Feb 14th Troops of 42nd Regiment Build up pressure along the BT Road
4th Suffolks
4th Suffolks
4th Suffolks
1st Btn Cambs
1/5th
4th Nrofolks
Dogras
5th Suffolks
2/26th
15
80

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 location had already been the scene of heavy fighting and the Cambridgeshires had prepared a line of trenches along the western slope behind a triple dannert wire fence. Wounded and dead of both sides were scattered across Water Tower Hill in front of them.

Shortly after 6.00pm on 14th February 1942, the Japanese suddenly started a very heavy artillery and mortar attack on the 4th Suffolks positions on Hill 95, Bukit Brown and their neighbouring units along Adam Road. It was far and away the heaviest and prolonged attack the Suffolks had experienced to date.

Sgt Baynes A Company of Cambridgeshires recalls this bombardment as the heaviest of the whole campaign. Shells crashed in across the hillside around him. But this time Baynes noted that the A Company trenches were well dispersed and in much better positions to withstand the fire. They subsequently did not suffer any (Baynes 2009: 32). However the sheer weight of fire had its effect on the beleaguered 4th Suffolks. Having relieved the Cambridgeshires early that morning, the Suffolks had had most of the day to dig in. But their efforts proved to be woefully inadequate. The shot ripped through the foliage, blasting the Chinese grave markers to pieces and sending the resulting concrete and brick fragments zipping through the grass. The Suffolks who had already experienced combat in supporting the Tomforce assault on the 11th February found the whole experience demoralising.

After about half an hour of this bombardment started a platoon of the 4th Suffolks from their forward company were seen running from their positions on Hill 95. At first they ran under cover of the trees at the base of hill but apparently the undergrowth impeded their progress and in order to attain a greater speed the majority of them broke from cover and ran along the open along the valley between Adam Park and Hill 95. Most of the men showed a marked inclination to pass through the Cambridgeshires' rear positions in the general direction of Singapore. They were however dissuaded from this course by the drawing of loaded revolvers of some of the Cambridgeshire officers. As Lt Col Carpenter wrote in the diary '*It seems that men who run from mortar fire will cease to run if faced by pistol fire - if the pistol is sufficiently close to their nose*'. (War Diary: 11). If Carpenter had been fully aware of what was happening along Sime Road at the time he may well have been a little more understanding.

Shortly after the platoon of 4th Suffolk runners had been rallied to the lines the Japanese artillery appeared to bracket off the Cambridgeshire's right flank and directed heavy concentration on to Hill 95. It was clear to Lt Col Carpenter from the reports coming in that an attack was being pressed home as far as the reservoir against the wavering Suffolks.

As darkness fell the defenders of Cemetery Hill peered out between barrages across the smoke covered fairways of the SICC golf course and awaited the first signs of the inevitable assault. They did not have to wake long. From along Sime Road came the cries of 'banzai' and the first elements of Ichikawa's 3rd Battalion came sprinting up the road. As they did so eight Chi Ha medium tanks crested the nearest rise on the golf course and poured in support fire that ripped through the undergrowth and smashed up the gravestones. The battle for Bukit Brown was underway.

The regimental history of the Suffolk's makes little reference to the subsequent defence of Cemetery Hill suffice to say 'The battle continued during the night of 14/15th February and on the morning of the 15th the Japanese continued their progress on the 4th Suffolk on the Mount Pleasant Road. Lt Col AA Johnson M.C. commanding officer of the battalion was wounded; the command being taken over by Major S.G. Flick. The enemy succeeded in establishing themselves well forward; but by midday the houses were clear of the enemy – partly due to the bravery of Sgt Salter of the 85th AT Regiment R.A. who almost single handed brought one of his guns into action at point blank range against an occupied building'.

However the Japanese archives have more to tell of the action.

Fig 2.1 – This shot of Japanese troops reputedly advancing at Gemas provides a useful insight into the type of fighting undertaken at Cemetery Hill

Chapter 3

The Assault on Cemetery Hill – 5th Division IJA

There follows a detailed account of the days leading up to the battle of Cemetery Hill and the action itself as seen through the eyes of the Japanese regiments involved in the fight.

Yamashita's invasion was planned for 7th February, leaving four days to capture Singapore by Kigensetu, birthday of Emperor Jimmu, 1st Emperor of Japan. However by the deadline not all the artillery ammunition was in place and Yamashita's commanders asked for more time. Reluctantly the general agreed. D Day was put back to the 8th February.

The Imperial Guards Division was to create diversion to the east of the island. The assault itself was to be led by the 18th and 5th Divisions to the west of the mouth of the Kranji and across Choa Chang mangrove swamps

1. The Landings

Fig 3.1 Japanese troops embark on launches to cross the Johor Channel

Our battalion steadily proceeded with the preparation for the Singapore attack. Engineers are transporting the boats on trucks to cross the Johor Channel, and artillery units are placing several hundred battery near Johor Bahru, with 1,000 ammunition per gun.

We finally begin our attack today. Every conceivable firearm was gathered here to attack Singapore. We also raid them from the air every day. Ammunition was to be replenished in the 2nd Battalion as well, so I drove 60 miles back to the Car Unit twice to stock up on supply. There were two canned pineapple factories, and though one was hit, we could have all the canned pineapples we wanted (Onda Vol 2 1988: 109).

On the evening of the 8th February all was set for the attack and Yamashita gave the word to proceed. The assault troops from 11th Regiment 3rd Battalion (Ichikawa) and 1st Battalion (Maj Omoto) with Major Mishiba's 2nd Battalion in support alongside the 42nd Regiment, 4,000 of them in the first wave, boarded their craft between nine and midnight, hauling the craft and equipment through the stinking mangrove mud.

A fleet of approximately 150 small craft edged its way out of the Skudai River and were swept down the Johor shoreline on the ebb tide before heading out across the straits in a ragged line abreast. (Smith 2005: 461).

Captain Ochi Harumi of the 11th Regiment recalled in his memoirs the lines of troops shuffling towards the water's edge and sinking slowly deeper into the mud and the loading was delayed as the men floundered around in the mire. To make matters worse the engineers had miscalculated the ebb of the tide and the depth the laden soldiers would sink in the silt meaning many of the men now waded into deeper water and needed to be pulled from under the surface onto the boats. Some sank beneath the waters for good.

A fleet of approximately 150 small craft edged its way out of the Skudai River and were swept down the Johor shoreline on the ebb tide before heading out across the straits in a ragged line abreast. (Smith 2005: 461).

The 41st Infantry Regiment were moved into position as part of the second assault wave alongside Colonel Harada's 21st Regiment. They made their way through the plantations of rubber in the pitch black stumbling and slipping in the mud and roots. Their route was lit by fireflies and each man followed the footsteps of his compatriot in front. Their arrival at the launch site coincided with an eerie and temporary cessation of artillery fire. The first units boarded their craft at 2330 in preparation for a midnight departure (Kataoka 1980: 83)

9th February 1942

The 1500m wide Johor Channel separating Singapore from Malaysia lies as though oil was spilled in the darkest of night. We boarded the boat quietly and advanced toward the opposite shore on the (boat's) captain's signal. Tense minutes pass by. Our intense shelling still goes on[5]*. I can faintly see the other side like a shadow*

[5] The Imperial Guard Divisional artillery continued the shelling both in the east as a diversion then switching to the west coast putting down a barrage on the Australians that lasted much of the day.

picture. The boat travels with the engine's low murmur. I can see the water splash white against the dark. Trench mortars were fired randomly along the water edge. Water pillars of about 2m spring up on all sides of the boat. The boat reached the shore. Anxious soldiers jump into the black water. The water came up to the chest, and underneath was mud (Onda Vol 2 1988: 151).

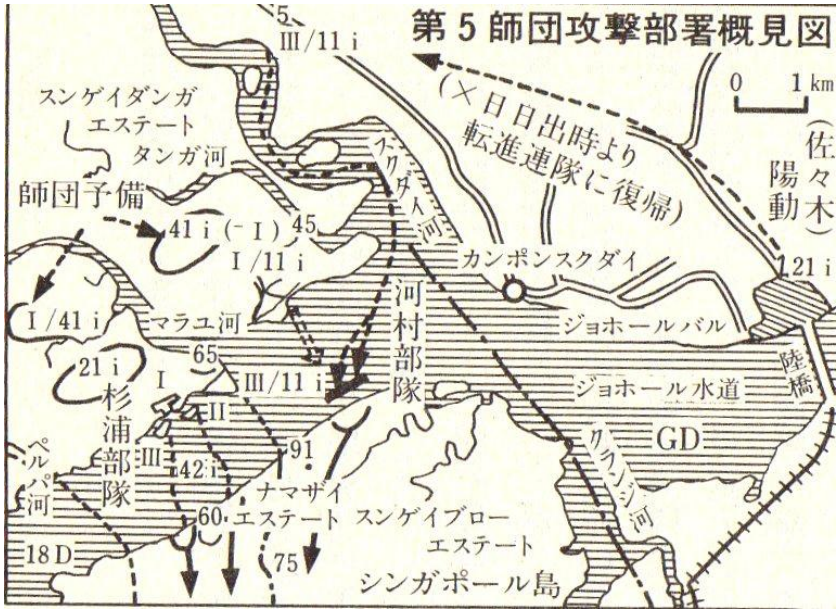


Fig 3.2 – Map showing the embarkation sectors for the 18th and 5th Division assault troops. The 41st 2nd and 3rd Battalions crossed with the 1st and 3rd Battalions 11th Regiment from the peninsular between the Skudai and the Malayu Rivers. Their attack fell upon A Coy 2/20th AIF

The Australians were placed too thinly to offer much opposition. The Japanese coxswains steered their craft into the quieter sections mangroves to allow their cargo to disembark under relatively good cover and landed the first wave at 4.00am. Not that the crossing was unopposed, one lucky hit set ablaze an ammunition barge that lit up the estuary and silhouetted the approaching craft (Smith 2005; 464) and the 11th lost more than 60 dead or wounded in the assault (Kataoka 1980:84)

Barbed wires laced the shore, and there were shells everywhere. Tracer shells fired by the enemy line in front crawl the ground. The boat behind us got shelled, and I hear the desperate cries. We came upon a palm forest once we cut through the barbed wire. There were irrigation ditches, and we went into them to fire back. Intense battles developed around the entire area where we landed, fighting back enemy fires. Shells started to fly from Seletar. They explode with a big bang that sounds like something's been smashed to the ground. The soldiers call them oil barrels. The rubber forest area is especially badly hit by trench mortars, spattering the mud. [6](Onda Vol 2 1988: 151).

Kataoka text also describes the crossing:

[6] In fact there was minimal fire laid down by the Allied artillery who waited for flares and signals from the front line troops that never came or were not spotted. A similar fate befell the search light parties who awaited orders to switch on that never came (Smith 2005: 463-465).

There was a difference of 3m between high tide and low tide, making it a very fast current as it approached flood tide, and we were all showered with water splashing on the sides of the ships. Pew, pew, enemy machinegun bullets grazed past our ears. The enemy front line on the opposite shore continued to blow red fire, followed by the great big sound of explosion.
Every time the wave slams on the sides of the ship, we suspect enemy torpedo. Time felt extremely long, it was almost suffocating. The rhythmical sound of the engine carries on.
The firing red shore approaches us by the minute. 20 more metres. 10 more metres. Grrrr, grrrrr. The ship creaks. We throw a rope without a word, and a black shadow receives it on the opposite shore and ties it to the post immediately. One black shadow after the other plunges into the ocean. It was muddy up to the chest. We treaded forward by parting the water, as if we were swimming. Enemy fire landed all around us, the white splash harsh on the night vision. Trench mortars came at us blindly, and numerous layers of barbed wires lined the seashore.

We had once mentally prepared ourselves for the worst, but it was still very hard to bear that so many of us fell dead. Surprise and sadness made our hearts sink .Once the soldiers jumped into the swampland with mud up to their waistline, enemy shelling and machine gun attacks from the Tochkas rained on them. It was muddy land made of red mud. We could not pull our legs out easily. Sweat streamed down. Breath quickened. Though our progress was slow, we had finally set our foot on Singapore. (Kataoka 1980: 84, 85)

2. Pressing Inland

The 41st landed at Namaji Point and had come off the beach with the loss of only two men[7]. For the Japanese troops on the first few waves the objective was simple. Land and move SE. According to the divisions battlefield report the landings were completed by 4.30am and the troops had concentrated on rubber plantation 300m in shore. The troops mustered around the regimental colours being carried by 2nd Lt Zent Nakamura. Each junior officer carried a cheap luminous compass which showed the way inland through the Namaji Estate to their rendezvous point at the deserted Tengah Airfield. Between them and their objective were retreating bands of demoralised Australians, some chose to stand their ground others chose to fall back to the city. The 41st not only came under a sustained artillery barrage but they also came across pockets of Australians still putting up a fight. It took the regiment the rest of the morning to suppress the resistance and they reached the outskirts of Tengah in the early afternoon. It started to rain at 3.00pm and this turned into a down pour at 5.00pm. The men got little rest that night.

Our battalion attacked the enemy trenches and advanced to the rubber forest. The red light from tracer shells knits through the rubber trees. They would smack the rubber trees every now and then to fell the branches. I hear cheering from the right. They must have charged. The battalion inched forward through the dark rubber forest. As we reached the point about 1km from the shore, the day began to break. There were enemy trenches everywhere. I saw a white soldier dead in a trench,

[7] Lance Cpl Ikuro Tanaka and Lance Cpl Kiyotaka Sentani (Kataoka 1980:85)

covered in blood. I could not see any Indian soldiers, only white soldiers. It's strange because it had always been Indians on the front lines up until now. Maybe they had the white soldiers up front because they considered this their last battlefield. The enemy left ammunition and food in the huts in the rubber forest. One soldier carried out a crate of chocolates. There was still resistance after daybreak, but we fought on and advanced. A little after 0800, two enemy reconnaissance planes flew over us[8]*. The rubber trees hid us well, and they flew away after about five minutes .The wind changed direction, and the black smoke that had been flying south-west started blowing directly onto us.*

We continued fighting west through the rubber forest and came upon the asphalt road leading to Tengah Airfield around noon. We attacked the retreating enemy, and after advancing for about 10km, they started fighting back with tanks. We pressed on with our counter attack, destroying five tanks. The fighting went on into the night. Meanwhile, our artillery and tanks also crossed the channel. Japanese fighter planes were bombing Tengah Airfield. It started to rain at night (Kataoka 1980: 86).

Fig 3.3 – Japanese tanks were ferried across the Johor Straits on specially constructed rafts each capable of taking up to 16 tons (Smith 2005: 490)

Shimana's 6th Tank Company crossed behind the infantry once the shoreline had been secured. But even without opposition on the far shore the trip proved hazardous and time consuming*:*

At last it was our tanks' turn to cross the channel. When the first unit was crossing, our artillery seemed very encouraging. However, now that it was our turn to cross, there were still incessant enemy shelling at the boarding point, and the ocean was full of water pillars from the shelling. Enemy artillery had not been compromised at all. We hit the dirt every time the shells exploded, so our face was all blackened. There was oily smoke on the ground from the fire.

We could have easily been mistaken for Indian soldiers. After much struggle, we finally managed to set afloat two boats, lay a thick plank across, and load the tank. The boat began to set course. We had a hard time synchronizing the two boats' speed, and the tank made for a very big target. Whenever the shells dropped all around the tank, splashing up pillars, the boats would swerve from left to right like a drunken march. Although we had already made up our minds for this battle, we were still praying we would not get hit until we landed. By the time all tanks finished crossing, it was already the morning of February 11 (Shimada 1967: 244).

[8] Hurricanes were in the area at the time preparing to escort a reconnaissance mission that was eventually cancelled. They then climbed away to take on the Japanese fighter escorts for the bombing raid on Singapore City. (Shores et al 1992: 372)

It was a misty drizzly start to the morning. The sky was filled with acrid black smoke from the burning fuel tanks and the previous days fighting which stained the uniforms and blackened the skin. A layer of black soot covered every tree, corpse and building reminding the men of a mining town. The soot covered faces brought amusement to the ranks. The 41st made their way through to Tengah. The airfield looked like it had been hit by a typhoon; the buildings remained intact but the trail of corpses around the camp bore witness to the fierce fighting from the evening before.

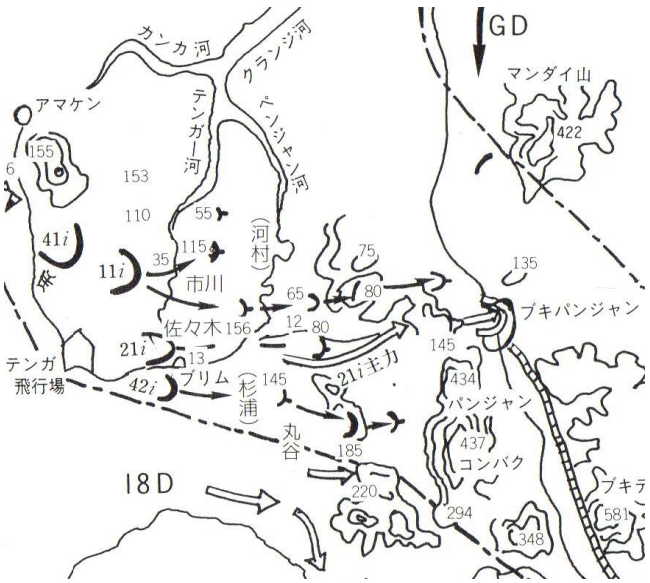


Fig 3.4 – Combat map showing the movements of elements of 5th Division on the 10th February 1942. Note the 41st seemed to be in the rear with 11th, 21st and 42nd taking the lead on the advance north of the Chua Chu Kang road to the northwest of Bukit Timah Hill (581). Bukit Panjang (437) fell to the 5th Division during the late afternoon of 10th February.

We took the enemy antiaircraft artillery position at dawn[9]*. The rain from last night soaked the earth, trees, and soldiers' faces black.*

"Look at your face. You can't tell if it's front or back!"
"What are you saying, you look just as black!"

Everyone was laughing at the others because you could not see your own black face. The explosions of the oil tanks blew black smoke up in the air, raining down black soot on trees and humans alike. There was oil all over the surface of the stream as well. There were two enemy antiaircraft guns where we took over. Both had been destroyed by the enemy. We continued onto Tengah Airfield and reached it a little after noon.

[9] Tsuji recounts the taking over an anti aircraft position near Tengah as their army HQ later that day. It was on the edge of the jungle to the south of the airfield and appeared to have been hastily constructed around a single barrack block surrounded by a trench and barbed wire. It was attacked by Allied forces on the evening of the 10th February (Tsuji 1997: 188,189).

At this time, 18th Division, which had landed to the right of our division, was closing in on Tengah Airfield as well, so at last the enemy line retreated. There were 8 abandoned planes at the airfield, but most of them had been bombed[10]. There was a 3-story barrack on the east end of the big airfield. We took to the east, and fought on toward the crossing with the main road. We have just 10 miles left. We are about to enter Singapore on National Foundation (Kataoka 1980: 86)

3. Bukit Timah

By nightfall on the 10th February the leading Japanese troops had established themselves on the west side of the Racecourse along the Bukit Timah Road and General Matsui had issued fresh orders to break through the Allied positions at 8.00 pm. The 5th Division overwhelmed elements of the 12th Indian Brigade, including the Argyll & Sutherland Highlanders at the Dairy Farm and by midnight tanks and infantry arrived in Bukit Timah village where they intermingled with the 18th Division units. Shimada's tank company was in the heart of the traffic jam.

We could hear gun shots right in front of us, and shells dropped to our left and right. Once we reached the front gate of Ford Company, there were infantry men on the front line waiting.
"We cannot advance because it is too packed in front."
There were enemies in front. We still hadn't established communication with either Mudaguchi Division or Matsui Division. We were still in the formation we had landed in, so in other words we were a mess. We rushed forward without much organization, with a single hope-like conviction that once we took Bukit Timah, everything would somehow fall into place

The tanks stopped and waited as well. The soldiers huddled round in the shade from the mountain jutting out from the left and sat down. The enemy shells would fly right above us, making a spooky sound and land on the garden of the Ford Company to the right of the road to explode.

Trailing units all congregated at that spot. Even military reporters and military painters came into the shade under the mountain. The spot was teeming with people (Shimada 1967: 244).

There was a brief pause as the units sorted themselves out. This gave Percival a chance to organise his one and only attack of the campaign for the island under Lt Col Lionel Thomas of the Northumberland Fusiliers – Tomforce.

The 41st were behind the leading elements of the 11th Regiment and advanced to positions 2km southwest of Ama Keng despite the continual resistance of pockets of Allied soldiers left behind in the retreat.

[10] By 0700hrs the Japanese were reported attacking Tengah airfield where the last four Swordfish of 4 AACU were destroyed (Shores et al; 372)

Fig 3.5 – Bukit Timah Village at the Y Crossroads

Miyakubu's has little to say about the action on the 11th February and what he does say suggests that the 2nd Battalion 41st Regiment is somewhat away from the fighting around Bukit Timah

11th February 1942

I hear part of our battalion is headed toward the reservoir area. The sky was light well into the night due to the burning oil tanks.

Fig 3.6 -Japanese troops advancing through plantations

However by noon on the 11th the 41st had caught up with the rest of the division in the massive congestion approaching Bukit Timah caused by the collision with elements of the 18th Division but remained in reserve as the Japanese stormed the village. Kataoka recalls the gruesome scene that met them when they finally entered the battlefield:

Once we were there, we noticed sticks with pieces of paper tied to them standing all around us. These sticks told us where the mines were. A rough count gave us 18 mines. We saw two holes where presumably the mines had gone off. Ripped uniforms dotted the place, and half of a 38 caliber rifle lay forlorn. Looking up, there were shredded puttees and uniforms hanging from the electric wires. In this battle against the remaining enemy, Warrant Officer Ryuzo Kodama (1336 Honmachi, Shouhara) and Lance Corporal Takemi Mochizuki (3251 Azumano-cho, Toyoda-gun) died (Kataoka 1980: 87).

4. Race Course to Chasseriau

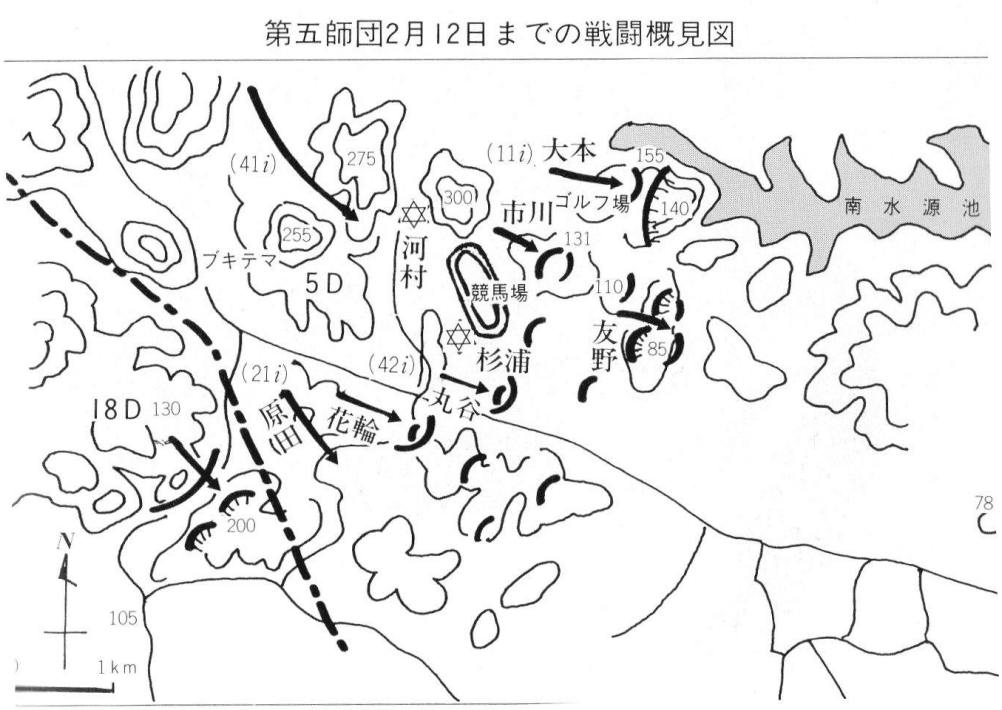


Fig 3.7 – This battle map taken from Onto's work shows the state of the Japanese advance on the 12th February. Now the 41st has advanced passed Kawamura's HQ at Bukit Tingii, to the east of the Racecourse and with 11th moving along the south bank of the MacRitchie Reservoir, Tomono's 2nd Battalion 41st Regt takes Hill 85 at the head of the thrust.

Fig 3.8 – Japanese troops coming under fire in the fighting for Bukit Timah

By the 11th, offensive targets had been decided upon, with Mudaguchi 18th Division driving to the south of the main Bukit Timah road, Mukouda's 1stTank Regiment advancing along the main road, and Matsui's 5th Division with elements of Kawamura's 6th Tank Regiment attacking the area to the north of the main road in eastward direction. The Imperial Guards Division was to come down south from Kranji, taking on the enemy's main line of defences the east of the reservoirs.

The 41st finally made it onto the front line around noon on the 12th February and the second battalion took the lead on the advance to Hill 85 just to the north of the Bukit Timah Road opposite the Chinese Girl School taking over from the 11th Regiment 3rd Battalion who were sent north to take Hill 95 and the SICC Clubhouse[11]. The battalion dug trenches in the plantations and awaited enemy counterattacks. Four 'tanks' duly obliged each being knocked out by grenades without great loss to the regiment.

We have occupied the hill to the east of the Singapore Race Course [Hill 110], and, after attacking the enemy in strong retaliation, at last took the Race Course itself. Horses were munching on grass on the beautifully mowed lawn. We saw remnants of enemy camps with tents, and there were mountains of canned goods and other foods as well as fodder[12]. We could see downtown Singapore from here, and to the right, two strips of Bukit Timah Road stretched straight into town. Enemy shelling exploded even inside the race course, surprising the horses.

[11] See Ochi's account of the taking of the club house in Frei 2004: 116, 117.
[12] The Allies had used the Racecourse as a central supply dump. The area was covered in camps set up by support units and field hospitals.

We continued to advance toward the hill to the left of Bukit Timah Road [Hill 85]. It was a rubber forest[13] in a hilly area, and there were small hills in every direction. Enemy lines formed on the summits of those hills and fired on us hard. They had mountains of gasoline drums in the rubber forest, but as we advanced, they set fire on the drums and attacked us with tanks through the fire[14]. Our loss mounted. The roar of artillery echoed in the hills[15], and shells from both sides exploded in the rubber forest. We dug trenches in the rubber forest to fight back.

Enemy tanks came down in a mad dash down a steep slope, tank guns firing, enemy soldiers daring to stick half their body out of the tank, firing even their own automatic pistols. We waited in the trench for the tanks to approach, and once they were within 20 to 30 meters, used depth charge and hand grenades to take down four tanks. Gruesome fight to the death continued until dusk enveloped the forest. We used the dark to our advantage and closed in on the enemy camp[16]. We crossed a small stream in the rubber forest and charged the enemy camp perched atop a hill above the rubber factory, fortified with barbed wires[17]. At 2300 we occupied the hill to the south of the rubber factory (Onda Vol 2 1988: 210.)

It was noon on the 12th when Shimada regiment advanced from Bukit Timah to the race course and eventually to the rubber forest to the west of the golf course, breaking through a curtain of enemy shelling.

The regiment commander had severed communication during this battle. Even theories that he had died made their round. Maj Inoue with the HQ was looking all over for the commander's tank. Because of this, I had no choice but to go to the division HQ in his place to discuss the attack on the golf course. It was then decided that we would aid the left flank attack on the golf course. Since one tank regiment was wide enough to cover the golf course, I decided to take Shimada Company only. Kawai Company and Noguchi Company stood by the HQ near the rubber forest, waiting for the commander's tank to appear (Shimada 1967:251).

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[13] All the land from the Racecourse to Adam Road once belonged to the Chasseriau Estate. Although this had gone into liquidation in the late 1880's, the plantations were still in use.

[14] Once again the 4th Norfolks passed through the race course where a bombed fuel dump was ablaze. But to Captain Reginald Burton's (OC D Coy) great regret they did not return to their original positions (Smith 2005: 501). They had spent the night 10th /11th in foxholes a little south of the race track on a gentle and thinly vegetated slope with good fields of fire) with good fields of fire Instead they went to a rubber planted hillock that lay between it and the oval track (Smith 2005: 511).

[15] Smith describes the role the 15" Guns from Changi Fire Control who laid down fire in this area (Smith 2005: 517).

[16] Compare this with Smith's account of a counterattack by Bren Carriers by the Norfolks. 'Ordered to rescue some isolated Norfolks he (lt ic Carrier Platoon) had charged to the scene with half a dozen opened top carriers spitting fire only to be decapitated by another dashing young officer, who Samurai sword in hand dropped into the vehicle from tree. Eventually the carriers escaped by driving straight down the Bukit Timah road surprising in the process some Japanese tanks which they briefly engaged with Boys Rifles before escaping in tact to rejoin the battalion amidst the tropical tudor splendour of Singapore's Adam Road (Smith 2005: 511).

[17] Most likely that this was around Hill 85 which borders the Bukit Timah Road and is opposite the Chinese Girls School. According to 1938 OS Map Hill 85 sits to the south of a collection of substantial builders within the Chasseriau Estate which are most likely the Rubber Factory. 400 metres to the NE is another small hill which overlooks the Rubber Factory. To get to this hill from the west you have to cross a small stream and road.

Elements of the 11th Regiment approached the edge of the SICC golf course and looked across the 800m of fairway towards the building in the distance. Ochi was amongst the party and spotted allied troops moving stores and supplies into the buildings. He estimated that there were about 200 soldiers and a number of armoured vehicles guarding the site. The Japanese troops sprung up from the cover of the rubber plantation and set out across the manicured fairways. The Australian and British troops scattered in front of the surprise attack and Ochi and his men made the crossing to the buildings with few losses. General Percival was informed of the fall of the clubhouse and he made the decision to abandon the Sime Road headquarters and move to Fort Canning.

5. Friday 13th February 1942

According to the report for February 13th from the 5th Divisions log, the 41st was by 3.00am held up in the low ground near Hill 85. They were joined by elements of a tank company and commenced the advance at dawn after a brief meal. However the main threat came from an accurate and intense artillery bombardment.

Captain Ochi Harumi 11th Regiment MG Company and his men had fought hard to secure the Clubhouse on the golf course and now spent the early hours of Friday morning resting and eating a breakfast of rice cakes. Ochi's men were low on ammunition and were surprised by the continuing opposition being put up by the British (Frei 2004: 117, 118).

Kataoka and his men were hunkering down under the constant British barrage:

That was when we heard the roaring explosion. We all held our breath. Another explosion. "It's the shelling, yeah, no doubt," said someone in a pain-ridden voice. Another explosion. Oh, someone got hit 'I got hit, I got hit'. ' Stomach or head?' ' Who's been hit?' ' Is he dead?'

There was a sudden stir among the files. "Don't panic. Who told you to abandon your post!" yelled Corporal Taniguchi.

"Private 1st Class Hisazo Fukushima (833 Anshuku, Toyoe—cho, Kamo-gun) has been hit in the head. He is already dead," reported someone in a trembling voice, as if to protest against Corporal Taniguchi.

Private 1st Class Fukushima had bent his black shadow of a back, facing down. As I felt the iron helmet, it was slimy, and there was a hole in it. Warm blood was still pumping out. Something hot poked my heart. I held him to roll him over, and I could see the black blood on his young face and a few white teeth (Kataoka 1980: 88.)

During the 13th elements of the 11th Regiment 2nd Battalion and the 41st Regiment 2nd Battalion engaged Cambridgeshire units on the Golf Course and Water Tower Hill. The hill changed hands twice before the Japanese withdrew to consolidate positions on the Chasseriau Estate and Sime Road.

The 5th Division war record states that Mishiba's 11th Infantry Regiment 2nd Battalion and the 41st 2nd Battalion were to take Hill 95 but were repulsed after coming under severe Allied shelling and the stubborn Allied defence along the line of the crest of Hill 130 (Bukit Brown)

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Shimada's tanks had been at the forefront on the assault across the golf course

I had broken through the golf course line in a dust operation. It was the first horizontal deployment since landing[18]. Infantry regiments had charged into the frontline and were stuck there. As soon as I was on the frontline, I had charged all the way to the eastern edge of the golf course to secure our farthest point and waited for the rest of the infantry to catch up with us.

Feb 13 (v2 p216) after taking Hill 85 and areas near Watten Park at 0230

We have been fighting a battle to the death over an enemy camp site since last night. Enemy shelling destroyed the roof of the rubber factory, and the rubber trees are whacked to pieces, bleeding white sap. Shelling does not leave even one tsubo [3msq] of land untouched, and we, too, kept firing from our trenches as if we were out to burn off our gun barrels. Our artillery regiment has also reached the race course, shooting incessantly. It seems as though the enemy considers this their last resistance and gives it their all.

I drove a military truck we seized in the rubber forest to get ammunition. On the way back, I got a flat tire in the back driving past a shell explosion. When I drove the vehicle with the flat tire back to the rubber factory, another shell came and blasted the engine. The windshield was shattered to pieces, but strangely I was not hurt. The truck fell into the shell hole and stopped. I jumped off the truck and called for assistance and was able to replenish ammunition. The enemy shelling is no joke. The number of casualty keeps rising, and everyone looks aghast. Some gathered under a wooden bridge paved with dirt over a stream to avoid the shelling. The enemy poured gasoline upstream and set fire on it, so the stream became a sea of flames in a split second, singeing those soldiers to death. The battlefield has become a living hell.

I hear 18th Division, which had advanced to the west of Singapore, is also fighting to the death since Feb 11th at Bukit Timah junction. The Guards Division is similarly having a very tough time. We 5th Division are no exception. With downtown Singapore at a stone's throw from us, we simply cannot budge. What's more, we have no idea when this struggle would end, and the scene grows horrific by the minute. We cannot advance even 1000m in an entire day and night.

Night has fallen but the shelling continues, and there are more dead and wounded than the temporary medical facility can accommodate. At night a field hospital was set up at the race course. I drove patients on a truck we seized near Bukit Timah Road. Several hundred patients squirmed in the dark room. On the way back, I loaded the canned food piled high at the race course on the truck and distributed them to the soldiers who were hardly fed. The cans included peach, pineapple,

[18] Shimada refers to deploying his platoons in line abreast across the Golf Course rather than fighting in column as he had been forced to do up to this point.

radish, and potato among others. I could not turn the light on the truck, so I bumped into the rubber trees twice or so and ruined the front of the truck (Onda Vol 2 1988: 216).

Fig 3.9 Japanese troops probably of the 5th Division at Bukit Timah Village

6. Saturday 14th February 1942

February 14th began with an opening Allied barrage on to the Japanese units advancing into the Chasseriau estate and infiltrating into Adam Park.

Corporal Taniguchi sidled up to the soldier and stared at the enemy camp in the dark. At that moment, a sudden fire pierced through the mound in front. Hot air blew over us.
While he could not order what to target, enemy fire still reached them. He could not even tell from which direction the enemy shells flew, and his frustration mounted. He was tempted to shout out "Don't get hit, don't get hit."

Suddenly a there was a heavy explosion above the Fukuyama 41st. "It's close, it's very close!" Falling flat on their faces in their trenches was all they could do. There was not a second of rest in between the enemy shelling, and that's how the morning of February 14th began (Kataoka 1980: 89)

Miyakubu takes up the story:

We advanced 1000m during the dawn offensive and occupied a hill with houses after an intense battle. There were about 10 houses[19] for the white people atop a hill along

[19] According to the 1938 OS mps and aerial photos, the Chasseriau estate had four houses on the hill, however each had large servants quarters attached which could have been mistaken as individual

the road. This is already a suburb of Singapore. We dug trenches under the floor and beside the houses to fight on. We took the houses on top of the hill, but there are still enemies in the houses down below[20], firing Czech[21] guns and automatic pistols at us. We had to take those houses one by one.

These white people's houses are mostly made of concrete, so enemies press hard on us out of the windows.

We got 20 prisoners around noon[22] and occupied the hill (Watten Hill) completely. Ammunition started to run thin around this time, so I brought those prisoners to get some ammunition from the back. I made each carry a box, and they were huffing and puffing, but in any case I was able to replenish the front line. Enemy shelling was getting closer and closer, and they finally started targeting this hill.

The Japanese planned to renew the assault at 2.00pm in this sector but found the unremitting defence of the estate prevented launching a successful assault. The Japanese commentators noted the distance between the lines was little more than 100m and less than 50m along parts of the front. (Kataoka 1980: 91)

Meanwhile on the Golf Course Shimada's tanks had taken up positions behind Ridge 105 since late on the 12th February and had been under fire from the mortars in Adam Park and Allied artillery ever since. This had forced the tanks to stay battened down for hours in the suffocating heat of their tanks.

"Who has the canopy open?! Close it!"
"Masuda Tank, don't stick your head out."
The second tank is Sgt Baba with the driver Ln Cpl Fujikawa.
"Don't die, no matter how difficult, live on."
The third tank is Sgt Itaya with the driver Ln Cpl Kitagawa.

From within the sauna-like cockpit, I was observing the tanks in formation to my right and left and shouting out words of encouragement. Just last night Sgt Nakamura had his arm blown out from the shoulder down and was sent back. Enemy shelling was getting even more severe since landing, incessantly bombarding us. After yelling to my right and turning left, I saw the second tank from the Watanabe platoon opening up its canopy. It was Sgt Hamura.

I was about to shout when a shell hit the back of the tank, blasting our eardrums with it. The tank shook widely. The canopy of the third tank was closed. It was commanded by Sgt Ueda and was driven by Ln Cpl Igawa.

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houses. There were two more houses and outbuildings at the foot of the hill. Houses No.16 and No.15 may have been included in Miyakubu's calculations

[20] Miyakubu is most likely talking about No.s16 and 15 in Adam Park looking down into No.6, No.13 and over to No.12 or houses on the Chasseriau Estate.

[21] Probably means the Czech model Bren Guns.

[22] No Cambridgeshires appeared to have been taken so probably he refers to stragglers taken from the Chasseriau estate houses.

We tanks had secured our position that had jutted out from the rest of our force, on the line of a mountain in the golf course, across the road from the enemy looking down on us from their solid line of defence on the cemetery hill [Bukit Brown].

On 16 February 1942, Japanese armoured troops entered the urban areas of Singapore from Nee Soon.

Fig 3.10 Japanese tanks reputedly entering Nee Soon after the fighting

The three days of fasting, lack of sleep, the heat, and the continuous shelling had made the tank operators long for a quick death to escape from their current state. The scalding sunlight roasted the tanks' iron bodies that were placed in a neat horizontal line a little below the fully exposed mountain ridge. There was no breeze, and the air was as thick as oil. Inside the tanks was as hot as bathing in boiling water, and the last of our sweat had been already long since gone, leaving only the white salt on the operators' faces. When you opened the canopy, it felt as if there was a slight breeze. However, with the canopy open, the shrapnel from nearby explosions would fly into the tank. Being fully aware, they still had their canopy opened in hopes that they would get hit[23].

Behind us, one shell after another hit the already cratered golf course, blowing up the yellow earth. Corpses that the enemy left behind also flew through the air among the dirt. Enemy shelling also focused on the rubber forest about 1000m away. There in

[23] It is this bombardment that the Cambridgeshires' mortar section skilfully managed from their forward positions in the estate. However Shimada does not comment on the loss of up to six tanks reported by the Cambridgeshires war diarists.

the rubber forest stood by the HQ of Matsui Division, left flank units, as well as Kawamura Tank Regiment, to which we belonged.

Some of the frontline infantrymen from the left flank units were left stranded on the fairly gentle slope on the golf course, a little to the front of the rubber forest. We could see infantrymen being blown to bits. To the north of the golf course was the blue reservoir, surrounded by the jungles. Out of the jungles the enemy fired antiaircraft guns incessantly at our planes[24]*. There was enemy camps left in the rubber forest [Adam Park and Hill 95] to the south of the golf course, the right flank units [41st Infantry Regiment] attacking this area was about 500m behind the advances made by the left flank units. It was just the golf course jutting out into the enemy camps. And we were isolated at the tip of that golf course, directly facing the enemy on cemetery hill. The front-liners on the left flank were trying to come as far as where we were, but were hindered by severe enemy shelling.*

During the day when it was atrociously hot, we longed for nightfall, and during the night, as we prepared ourselves for enemy charges and close-up battles, we would hope for dawn.

The only thing we were waiting for was the attack order. We waited and waited, telling ourselves today was the day, but the division order never came. We were exhausted from enduring the offensives without being able to fighting back, and I understood perfectly well why those in the tanks would open up their canopies and stick their heads out, hoping to get hit. And precisely because I understood, I did not want them to waste their lives. For all I know, we were all already slightly deranged, stepping off course.

"What was the date today?" I thought to myself in my only half-conscious mind. (Shimada 1967:251)

Ochi and his M/G Company in the rubber plantation at the west end of the Golf Course were awoken on the 14th by a tremendous bombardment from the Singapore big guns at Buona Vista

Just when the sun rose, like the devil with a red glint, the first morning shell exploded with strength. Some of those who had dug no holes were thrown through the air like matchsticks. Ochi happened to be in a hole four metres deep and five by ten metres wide, probably designed as a British tank trap which saved his life. Every other minute a giant shell exploded in the same manner 'Daaawwnn' was the first seemingly unrelated sound the shell made when it was fired off far away. But almost at once the lethal black monster was upon them.

These were the 'drum cans' Arai had been watching over at Buona Vista, guessing correctly that they were meant to stop the 5th Division onslaught south of Bukit Timah.

[24] The Cambridgeshires had by the 13th been told to ease off on anti aircraft fire as it wasted ammunition. But its interesting to read this comment suggesting the AA fire was notably impressive if not effective.

'Its coming! – its here' Huge thuds and explosions ushered in 14th February. For two hours the shells kept pouring into their rubber tree positions. It was chaos. (Frei 2004: 118)

Once the firing subsided, Ochi's and his troops resumed the advance across the Golf Course with Major Ichikawa's 3rd Battalion in the lead. However Ochi was worried, his gunners only had four and a half cases of ammunition left; that equated to 2 minutes 15 seconds of ammo left for his two machine guns (Frei 2004: 118).

Finally Shimada's tanks were ordered to advance once again, this time supporting Ichikawa's 3rd Battalion, 11th Regiment in an assault on Bukit Brown. The arrival of the orders was met with blessed relief

Near dusk [approx 6.00pm], a light tank came over the golf course toward us from the rubber forest.

"The order is coming," shouted everyone, suddenly spirited. Maj Inoue came bearing news. He was in the same class as mine at the military academy.

"Hey Shimada, how have you been? Tomorrow at dawn we attack cemetery hill. Do you want to switch?"

Since he knew we had been on the very front for three straight days, he had in mind the instruction from the commander to have Kawai regiment attack tomorrow instead of us.

Once I heard about the attack, I simply could not turn back. Even if Kawai's tanks were to spearhead the attack, we would still be shelled, and we might spill blood unnecessarily. In addition, I knew that all my men were so tired of being attacked that they would never step down from the frontline.

Moreover, because we had no idea how long this battle would go on for, I figured it was to our advantage to fight here where we knew the environment and the enemy state well instead of in a new location.

"Let's switch after we attack cemetery hill. Please relate that to the commander."

"OK, the infantry battalion commander will be coming here around dusk," he uttered and quickly went back to the rubber forest. Shells were reaching the rubber forest after flying over our heads (Shimada 1967: 251)

Japanese artillery commenced a further softening up barrage of Hill 130, 160 and 138 at 7.50pm to support a second assault by 11th and 41st Infantry Regiments with the 6th Tank Regiment on Hill 95. This shelling was extremely fierce, smothering the darkening battlefield in smoke as the sun set. The attack was more successful, driving the 4th Suffolks and a platoon of the Cambridgeshires off Hill 95 and allowing the Japanese to cross Adam Road. Notably the 5th Division war diary comments that part of the 11th Regiment and the 41st regiment took Hill 95 under the cover of a rolling barrage and by attacking along a narrow front and overrunning the Allied positions.

However, the hard fighting, hot conditions and lack of sleep were beginning to take their toll:

The heat on February 14th kept going up without mercy. It was as if the earth spouted the heat up. It was as if an invisible fire went up in full flame in order to stop the breath of every 41st soldiers, who were hunched over. Nobody had a water bottle that made any noise. On their forehead was the white powder that was their dried sweat. Since there was no cloud in the sky, the only thing that moved was the wind. The green grass would wave as if startled by something, and that's when they could see the wind. The sun was beginning to set, and dusk arrived like a sepia-coloured silk that was taut across the sky. The bullet-riddled sky was a beautiful red, and the sunset was reaching its climax. One after the other, the starts began to appear. In a short while, the little blue shiny objects were scattered about the sky and began to twinkle (Kataoka 1980: 92).

Ichikawa's 11th Regiment, 3rd Battalion took Hill 130 to the east of Adam Road at 9.45pm and then went on to take Hill 160 at midnight before driving on towards Hill 85. The diary goes on to note that elements of 41st Regiment 2nd Battalion advanced as far as Hill 85 (beyond Adam Road but SW of Bukit Brown ?) by 8.30pm a position well to the rear of the Cambridgeshires. Major Kiyohito's 11th Regiment, 1st Battalion and Shimada's tanks after supporting Ichikawa to take Hill 130, and then turned up the Lornie Road to take Hill 125 on the banks of MacRitchie Reservoir.

Shimada recalls this plan of attack on Cemetery Hill from his vantage point on Ridge 105.

From the ridge line [Ridge 105], I took out the gun turret to observe the enemy. I looked up onto the hill, which was bristling with stone towers. On the foot of those stone towers were the enemy positions. It looked like a Chinese cemetery as there were no crosses in sight. It was hard for us to fire at a cemetery, which to us was sacred, but we didn't have the luxury of keeping to our beliefs. The slope was nearly 30 degrees. If it weren't for the stone towers, we tanks could have advanced, but we could never have charged. There was an asphalt paved road from the right that went round the hill, disappearing into the hill with a low forest to the left back. It was the jungle to the left of the road. Between us and the enemy was a small stream from the reservoir flowing to the right.

The path from the golf course to the paved road was to the right of us [Sime Road]. That was the only transit point. Near the enemy ground by the Y-junction, there was a small temple, and was a forested area [On Hill 130]. Behind the forest was a hill that extended from the cemetery [Hill 160]. I could see no enemy there.

Fig 3.11 – Ichikawa's men attacked up Sime Road and across Hellfire Corner. Shimadas tanks rolled up to Lornie Road across the fairways beyond.

It was decided that Ichikawa's battalion commander would charge first. Our attack plan was finalized. Infantry was to advance to the forest by the temple by 3am with the backing from the tanks and to attack the cemetery hill from the right and seize the area by dawn. Tanks were to advance to the paved road [Lornie Road] as soon as the infantry's success and to attack the hill to the left back covered by woods, in cooperation with the rest of the infantry battalions.

We were all prepared. What we had left to do was to wait for 3am to come around. We were actually in good spirits, convinced that our three-day-long suffering would finally come to an end. (Shimada 1964: 257).

The attack on Cemetery Hill started at 9.45pm on 14th February with a barrage to which Shimada's tanks joined in.

The remaining moon still threw some dim light at us. From the rubber forest behind us, our artillery began shelling the enemy artillery. Enemy fire range extended so that they started to land in the rubber forest. Artillery fire from both sides flew on either direction above our heads. Infantry units seized on this opportunity to run through the golf course toward the ridgeline where we were. With our backs to the ridge, we stared at the cemetery hill where we were about to charge into, and mentally readied ourselves. I could see their readiness to die in their eye brows. I saw the sword glitter in the moonlight.

"Stop preparation for charge," said the battalion commander [Ichikawa], flagging me his right hand from the side of the road after getting everything ready.

"Open fire."

I shouted the commands at the top of my lungs, but my voice was drowned by the burst of shots from the tanks. In an instant, the cemetery hill surfaced as bright as daylight because of the explosions. Crimson sparks peppered the dark blue stone tower, and flames flew everywhere as if someone through a stone in the fire. The stone tower tilted far, and enemy soldiers blew up in front of it. A shell ricocheted on a stone and continued its roaring course toward downtown Singapore.

"Learned your lesson now, haven't you!"

Gunners loaded each shell with vengeance and fired it toward the enemy camp.

Fig 3.12 – The 'Stone Towers' referred to by Shimada are most likely the headstones and gateways on the cemetery: These would easily stop a light Japanese tank. The pillar on the left is clearly dated 1942.

Every time the shell exploded above the trenches, we could see enemy soldiers' iron helmets moving to and fro in panic, completely disconcerted. And every time we saw that, enemy's blown-off arms and legs would fly up with the dirt as dark shadows in the sea of sparks. We continued to fire until there were no moving soldiers left. Even the machine gunners that were firing blindly at us after our surprise attack stopped. There was no moving enemy soldier in sight. Enemy camps were blown up to pieces and the stone towers had fallen, and there was only the barren cemetery left (Shimada 1967:258).

Ichikawa's 3rd Battalion moved up along Sime Road crossed the bridge over the MacRitchie tributary then attacked across Lornie Road into the cemetery beyond.

"Charge!" shouted the infantry battalion commander in a dignified voice, who had been observing the effect of the tank offensive without even a blink of an eye. Infantrymen ran down the ridgeline like fleeing rabbits, every man wishing to be the first, and fanned out as soon as they crossed the bridge, and disappeared into the forest by the temple as if absorbed by it.

I had the tanks continue the firing while I kept an eye on the hill behind the forest. Eerie darkness and bottomless depth hung over the forest. Our forces that had just been absorbed into the darkness did not surface for a long time. And then, as soon as we saw a company commander waving his sword above him and running up toward the hill, more waving swords followed suit to the right and the left. They climbed up toward the hill. To their left emerged another unit, diagonally up the hill to the left. To their left emerged yet another unit. They are advancing toward the cemetery hill. Flash lights signalled toward us, telling us their frontline location. Suddenly the machine gun roared. For a split second our forces swayed but returned to formation immediately and gave a loud shout. They began to run. The swords above their heads and their bayonets caught light and charged into the enemy.
Enemy soldiers jumped out of the cemetery. Bayonets pursued and stabbed. Swords were brought down on fleeing enemies, and our forces continued onto the next camp. There was yelling from both the right and left, and one unit after another charged a clump of enemy forces and ran toward the top of the cemetery.

At around this time [evening 14th], the remaining two companies of the Kawamura tank regiment, which had been waiting in the rubber forest to the west, advanced across the golf course to the frontline. As Shimada notes:

There were some enemy forces in the rubber forest to the right, and they began attacking the tanks. A confused melee started up in front and in the back. The enemy was charged with renewed fighting spirit.[25]

7. Sunday 15th February 1942

Just after midnight Shimada's tanks edged forward off the fairways onto Lornie Road at Hellfire Corner to support Ichikawa's men. Shimada formed a column of tanks along the road and headed north towards Thompson village hoping to flank the Suffolk positions on Cemetery Hill. He is to have a rude awakening as he approaches Hill 105 on the south bank of MacRitchie Reservoir.

[25] This corresponds to the barrage laid down by Bennerson's mortars on the evening of 14th from the ront garden of No13 Adam Park and the assault on Adam Park which was brusquely repulsed.

Fig 3.13 – Japanese medium tanks provide covering fire in a night attack

Tanks began their course on the charge. On the cemetery hill to our right, we began to hear much gun fighting. I knew instinctively that the enemy has begun its counterattack. We must get to the forested hill as soon as possible with the infantry or else even our position on the cemetery hill would be in danger. The situation could reverse. We went right around, hearing the dreadful gunshots above us to the right, and came upon the side of the cemetery hill. Infantry units that were supposed to be there were not there. Just then, enemy forces oozed out from right and left. Outside the armour plate was all enemy, enemy, enemy.

The forested hill was 200m in front of us. To the left of the road was the jungle. Even on the hill, the left half was forested while to the right was open area. There were enemy forces there, too. The area to the right of the road rose from the hill that continued from cemetery hill, making it a little higher than the tanks. Enemy forces popped out at the end of the heightened area. It was so close we could almost touch them. The tanks fired against the red, sunburned skin and the blue eyes. Surprised, they pull back their heads into the shade. Then they fired at us again. This was such a slugfest; both sides were desperate.

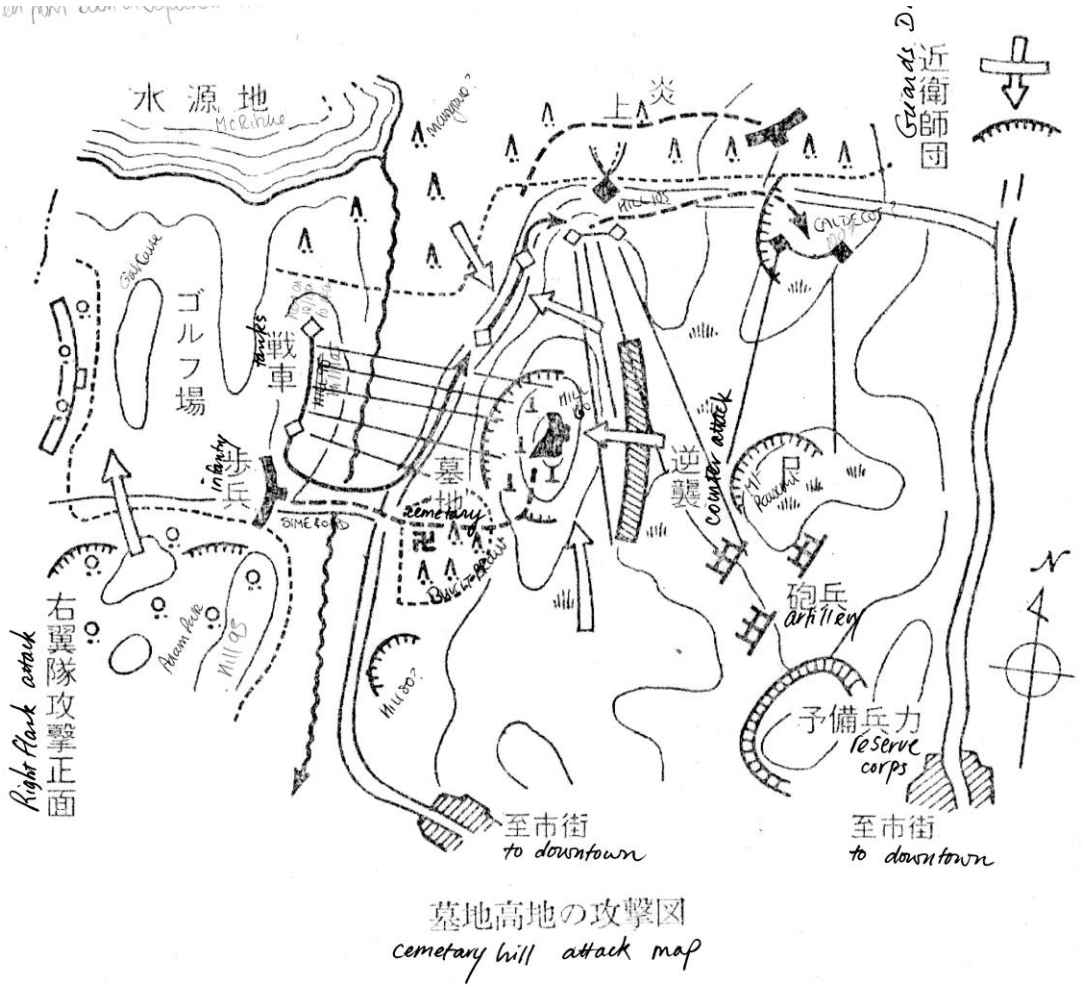

Fig 3.14 - This annotated Japanese sketch map provided shows the approximate course of the battle described in Shimada's account. The Colonel's tank attack up Lornie Road and onto Caldecott is shown by the thick black arrows. The infantry attack led by 3rd Battalion of the 11thRegiment up Sime Road, across to the temple and onto Hill 160 is marked in a dotted arrow.

Shimada's column ground to a halt with the lead tank being knocked out by an anti tank gun

At the very front, we could hear PANG, PANG, PANG, and BANG, BANG, BANG. So the enemy has come upon us from above the road, too. Damn. Show us what you've got. I ordered to charge and began driving forward, but the tank soon stopped because the others were stuck there.

"Charge, I said charge. What's wrong?"

I shouted but nothing moved forward. Through enemy fires came running out was Ln Cp Miyabe. He was the gunner for the Masuda Tank. I held my breath.

"What happened, Miyabe?"

I opened the canopy and asked him. He was bleeding from the face.

"We are hit."

His expression was so tragic it looked as if he was about to cry.

"The tank is not moving, is it?"

"No, we are all hit."

"What? All…?"

I was taken aback by this unexpected report and jumped down from the tank. Ln Cpl Miyabe pulled himself together and led me to just behind the second tank.

"Right there. We were hit by the enemy fast firing gun. When I fired back with my machine gun, I had already been hit. Platoon commander, gunner, and driver were all hit."

He said as he pointed to the enemy fast firing gun, concealed under leaves, about 30m in front of the platoon commander's tank, by the side of the road. I saw a fallen enemy soldier as well. All of a sudden, I didn't want to fight any more. Normally, I would get all pumped up with fighting spirit if I faced a situation like this, but this time my fighting spirit was sucked away. I even forgot that I was in the midst of a battle and simply stared at the Masuda Tank as if in daydream. From the back, it looked like a perfectly normal tank. I could even see smiling crew inside it. I was scared to open it right away. I wanted to believe that they were still alive. I was waiting for the canopy to open, for Masuda to pop his head out. A shell fell just beside me, but I did not feel like moving.

"Masuda, Lt Masuda. Sgt Oe, Ln Cpl Takeichi."

I called out at the top of my lungs. Miyabe started to sob. As if in answer to his sob, the tank shuddered.

"Ah, the tank is alive."

I was about to go toward the tank. POP. Instantly went up the flame. With a deafening explosion, ammunition sprayed out of the window Miyabe got thrown out of. The flame enveloped the tank and went on consuming it.

Shimada's tank was now stuck behind the burning wreck of Masuda's and the enemy fire coming in from Cemetery Hill was getting heavier. Shimada jumped down from his tank and tried to identify a safe path up the hillside. Cresting the rise he looked down upon the Allied troops advancing to retake the hill from Ichikawa's men now digging in on the summit. As he looked to the left again Shimada could make out a grassed area in which the Allied artillery was lined up. Shimada then came under fire and was slightly wounded. He looked further to the left and spotted entrenched Allied infantry lining him up for another shot. Machine gun bullets clattered into the ground not more than 5 metres away and Shimada decided to beat a hasty retreat back to his tank.

Leaving Watanabe's platoon to cover Lornie road, Shimada prepared to lead his platoon as well as Masuda's remaining two tanks around west end of Hill 105 where he could bring down fire on the Allied troops trying to retake Hill 160. But before he can move off the remaining Tank Companies of the 6th Regiment catch up with him then peel off into the jungle.

I hadn't seen the Regimental Commandeer since Bukit Timah. If he was in that crowd he must have seen Masuda's tank up in flames. Surely he will come out – I was hoping he would pay respect to the Masuda tank. I waited for awhile but the tank that drove into the jungle had stopped its engine and no one seemed to be coming out' (Shimada 1967: 258)

Shimada's anger spurred him on into the attack, passing by the burning tank forcing the British back to the 'lawned' hill [possibly referring Caldecott].

The troops nicknamed Singapore 'Mr Paul' and it was now clearly in view from the hills around the cemetery. However the Japanese troops were running out of water and ammunition. The Hiroshima 5th Division Battle Details for February 15th states that the Hiroshima 11th infantry regiment 3rd battalion (Ichikawa,) had been attacking Hill 85 since the night of the 14th and finally took the hill at 7am.

Ochi's attached machine gun company welcomed the dawn overlooking Mount Pleasant and the hospital from Hill 85. Officially the hospital stood in the war zone for the 41st Regiment but as Ochi noted they were still far behind in the MacRitchie reservoir area, locked in battle and could not be expected to advance their troops up to the hill by the morning. Ochi believed that if the hospital wasn't taken by dawn it would give time for the British (4th Suffolks in particular) to regroup and 'trounce' the 3rd Battalion from above. Ichikawa believed he had to take the B&W estate as soon as he could. He ordered the 11th Company under CaptainTarouka to lead the assault accompanied by Lt Yasuda's heavy machine gun platoon. After a false start where Tarouka carried out a reconnaissance and returned to report that the hospital was teeming with British infantry, he once again led his troops up the hill. There followed a viscous fire fight in which the whole company was wiped out (Frei 2004: 120).

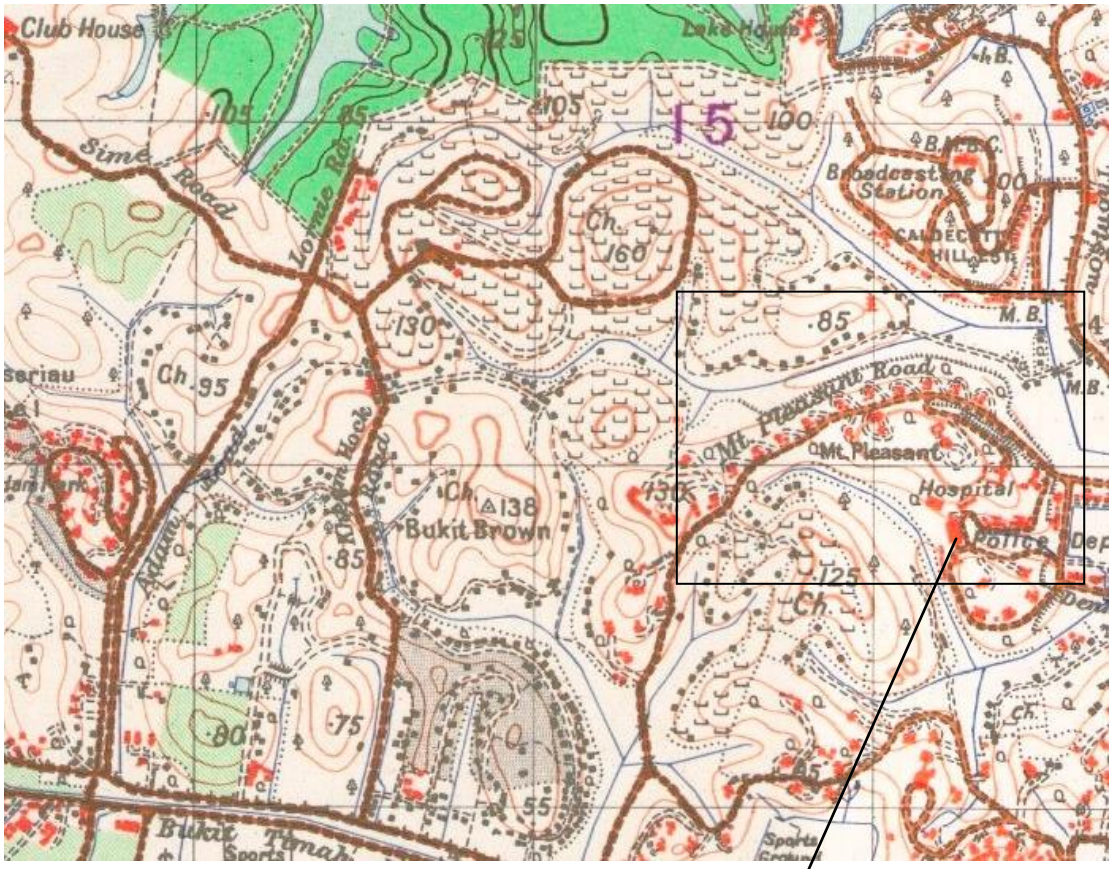

Fig 3.16 – The 1938 OS map of Bukit Brown showing the spot heights mentioned in the text.

Fig 3.17 – A Google Earth image of Mt Pleasant Estate in 2010 with the 'hospital' in the centre of the picture

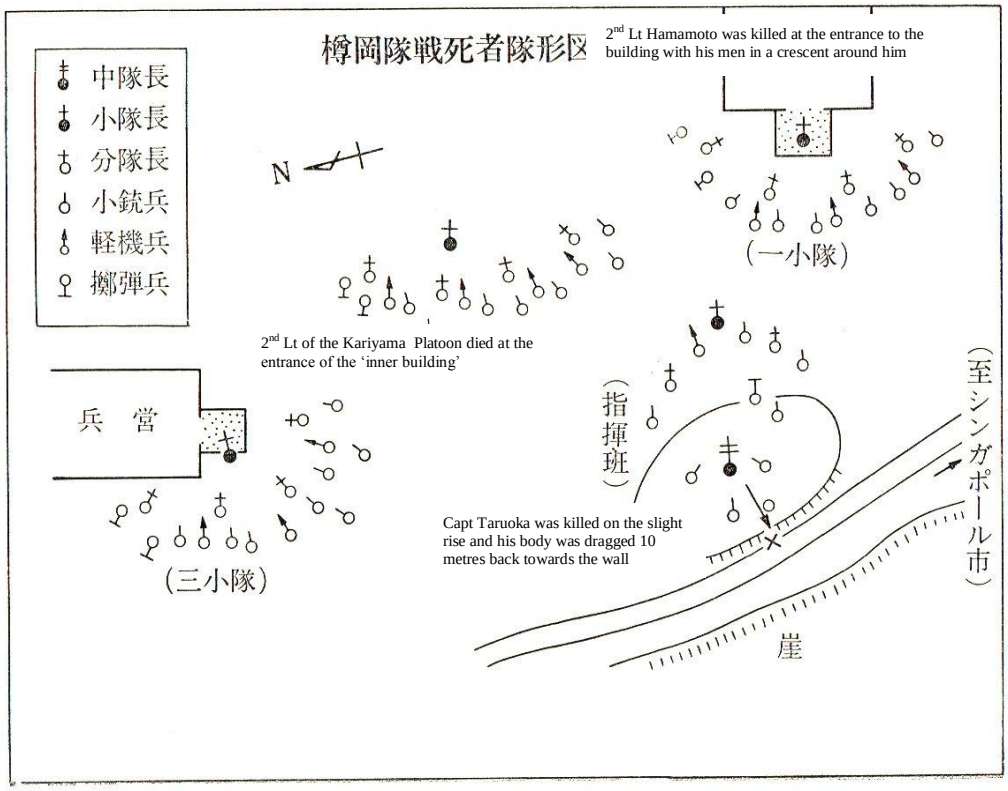

Fig 3.18- Ochi's sketch map showing the disposition of the corpses found outside the Hospital Buildings at Mount Pleasant. It appeared the soldiers were mowed down as soon as they rose out of cover. Over a 100 Japanese soldiers were lost in the attack.

The rest of the 3rd Battalion remained pinned down as the high grass that covered the hill offered little cover and gave away any troops movement which brought down an instant barrage of small arms. Lack of ammunition also ensured a daytime attack was out of the question. The 3rd Battalion had ground to a halt and would wait until nightfall to launch their next assault. Sometime around 9.00am the grass was set alight in front of Hospital Hill and Ochi and his men cleared the grass to form a fire break. The morning passed by and then around 2.00pm Ichikawa ordered the 10th Company under Captain Okawa to skirt around the west end of the hill and approach the hospital from the south. As they approached their objective they were met by a mass of troops descending the hill towards them and a white flag was lowered out of the hospital window. (Frei 2004: 123, 124)

The remaining elements of the 5th Division had found progress on the 15th February t difficult. The 11th Regiment's 1st battalion (Omoto's) occupied Hill 125 at around 10:30am with the help of Shimada's tanks. The 41st infantry regiment 1st battalion under Major Miyamoto, overtook Tomono's 2nd battalion which was still held up around Adam Park and Hill 85 at around 3am and finally occupied Hill 138 at 5:20am.

By the ceasefire on the 15th February the Hiroshima 5th division had inched forward, nudging the half open door but not driving on to the city as they hoped. But they had effectively cut off MacRitchie and Pierce Reservoirs, the only source of water for the 3 million Singaporeans and this was the final straw for Percival.

Feb 15 1530 (v2 p250)

White flag went up in the hill before us. However, the sound of firing guns continued. At 1600 both camps stopped firing[26]*. Eerie silence came upon us. (Onda Vol 2 1988: 250)*

The British troops in Mount Pleasant surrendered mid afternoon on the 15th February 1942. Ochi estimated that nearly 2,000 men descended the slope of the Hospital Hill. The officers remained in the hospital until the official ceasefire at 4.00pm.

The 11th Regiment had fought itself to a bloody halt amongst the headstones and grasslands of the Bukit Brown Cemetery. Their final suicidal assault on Hospital Hill signified their furthest point of advance. They were out of ammunition and supplies and were facing British units dug in around concrete houses set upon the upper slopes of the hills; effectively they defended mini bastions. Had the battle raged on for another day the men of the 11th and 41st Regiments of the IJA were in no condition to fight on.

Fig 3.19 – A famous image of the surrender of British troops that reputedly includes members of the Suffolk regiment.

[26] Tallies nicely with the surrender of the Cambridgshires at about that time.

Chapter 4

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 Suffolks 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 Bukit Brown.

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 head[27]. 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

[27] The unique chin strap was modelled on the type found on traditional Samurai headgear.

likely brought a more expensive variant privately perhaps with a badge of gold thread or metal (Jowett 2002: 35,36).

2.2 Uniform

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 4.1 - 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 4.2a – This close up of Japanese 5th Division troops on the outskirt 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 4.2b – 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 tag[28], 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

[28] Unlike the western counterpart this oval metal disc was won 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 moe 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 tassle. 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 heirlooms[29].

Fig 4.3 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 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.

[29] 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).

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 4.4a - Japanese Arisaka Type 38 rifle, 6.5 mm calibre with forged steel bayonet and clip.

Fig 4.4b – 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 4.5 – 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 **Nambu**[30] **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 4.6 – 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.

Fig 4.7– 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.

[30] Named after the manufacturer.

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 4.8a – 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 4.8b – 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 4.9a – The Type 3 HMG was strong and reliable but lacked power at range.
Fig 4.9b –The Type 92 HMG, nicknamed the 'woodpecker' by the allies after the distinctive sound when firing, was more powerful but tended to jam.
Fig 4.9c – 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 mortar[31]' 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).

[31] 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.

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

'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).

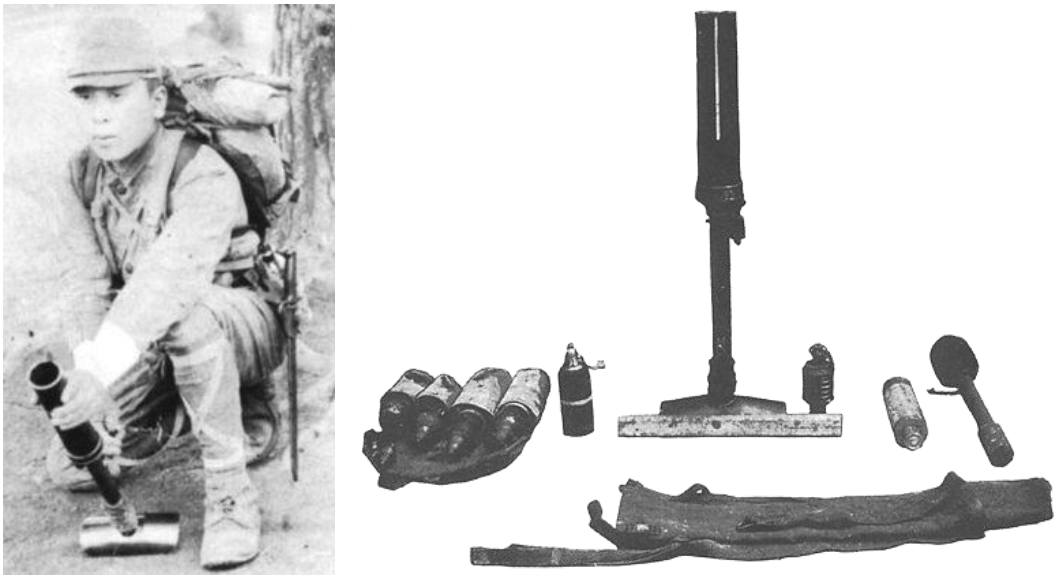

Fig 4.10 – The Type 89 50mm mortar in action and with a selection of ordnance and carrying bag.

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 4.11 – 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 it 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) fairly heavy shell (31.2kg) and light weight (2,800kg). The guns 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 budgetery 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 diesal engine which generated a top speed of 24mph.

Fig 4.12 – 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 Mistubuishi 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 diesal engine. This gave the tank a maximum road speed of 28mph (Forty 1999: 176 -179)

Fig 4.13a – Two Type 95's destroyed at Milne Bay in Papua 1942.
Fig 4.13b – 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 Suffolks arrived at Cemetery Hill on 14th February, the Japanese had complete superiority in the air. It is with some disdain that Lt Colonel Carpenter of the Cambridgeshires 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).

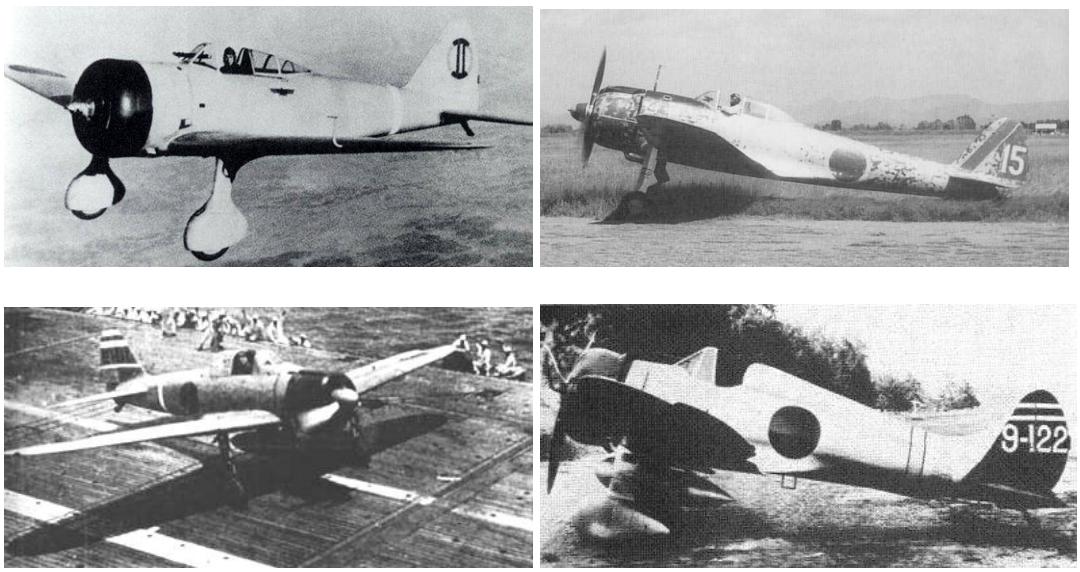

Fig 4.14 a to d – Japanese fighters that fought over Singapore and Malaya. L to R: Nakajima Ki27, Nakajima Ki43, Mitsubishi A6M Zero – Sen, Mitsubishi A5M

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).

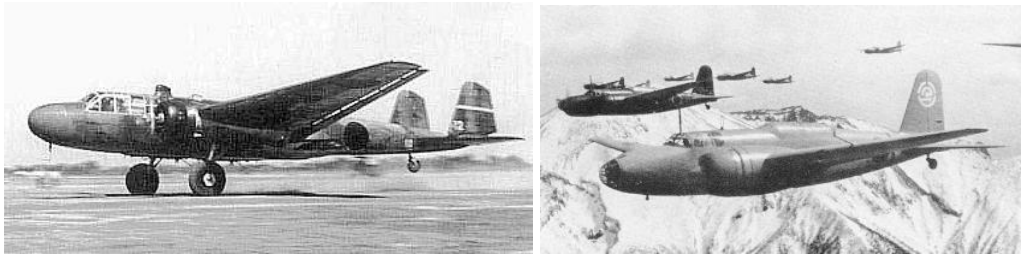

Fig 4.15 a and b – Japanese bombers; Mitsubishi G3M and Mitsubishi Ki 21

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)

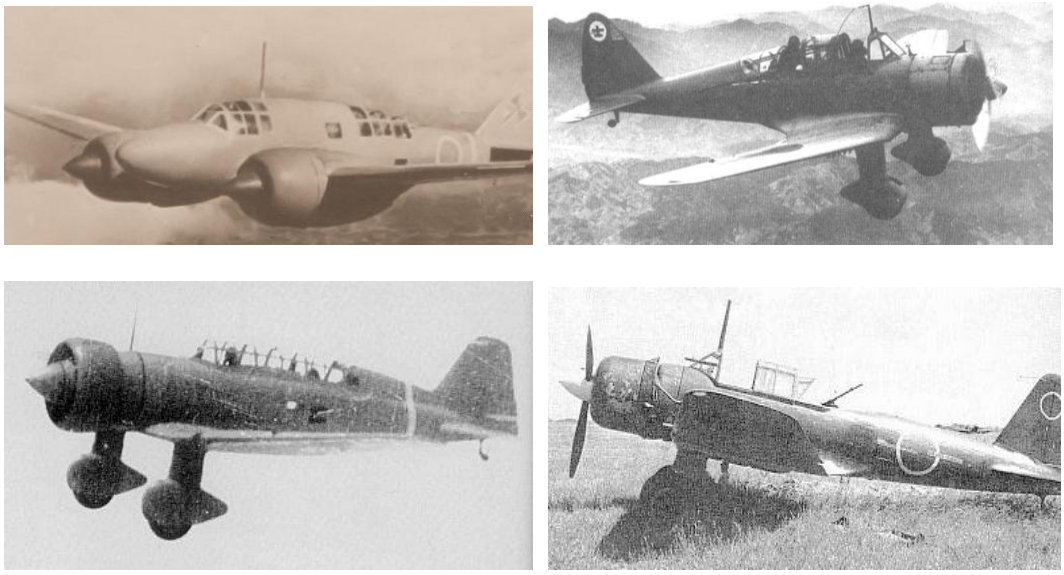

Fig 4.16 – L to R: Mitsubishi Ki 46, Tachikawa Ki 36 and the Mitsubishi Ki 15 and Ki 51. To the casual observer on the ground these last three aircraft may have seemed somewhat antiquated but they were easily a match for the allied fighters and carried out the designated role well

8. Snipers

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

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 Hill 95:

'*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 in itself 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 head[32]. 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 4.17 – 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)

[32] 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.

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.

Fig 4.18a - 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 4.18b – 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).

Chapter 5

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 and lost by 4th Suffolks in Singapore. 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 the frontline on the whole the soldiers 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 outline[33].

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 moved[34]. (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

[33] 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) .

[34] Adams described his outfit as 'sand coloured, almost white'. (Adams 2009)

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).

The Suffolks were on the whole issued with uniforms that should have seen them through and arduous campaign in the desert, however once diverted to the tropics they had to make best use of the clothes they were given. They 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 shorts[35]), with hosetops and canvas anklets. (Baynes / Cooper 2009).

Fig 5.1 – A collection of photos showing the varying patterns of 'khaki drill'
Fig 5.1a – 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 5.1b – 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 5.1c – An Australian gunner in Malaya wears a KD shirt and full length trousers
Fig 5.1d – 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.

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

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

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 5.2 – British units by the 15th would have supported a whole range of equipment and uniforms. Much of the unwanted kit would have been discarded across the site especially before battle and at the time of capture.

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 Suffolks 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 81/2 inches long. When the No.1 Bayonet was added it extended to a length of 5ft 12/3 rd inches.

Fig 5.3 – 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 it. It was however prone to jamming. (Brayley 2002: 38,39)

Fig 5.4 – 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.

Fig 5.5 – 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.

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 5.6a – Recruits of the Singapore Volunteer Force training with a Lewis gun in 1941

Fig 5.6b – 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 Suffolks 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 first

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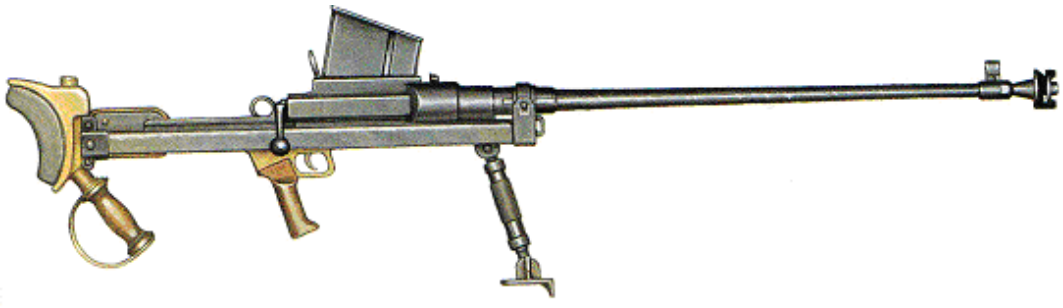


Fig 5.7a – The Boys Anti-Tank Gun

Fig 5.7b – 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 5.8 – 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 5.9 – The Mk1* Enfield Revolver

The British 2" Mortar was the standard platoon support weapon for the Suffolk Regiment. The barrel was 21" long and weighed 19lbs[36] (when fitted with the larger base plate). Each mortar round weighed a further 21/4lbs 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 5.10a – A 2-inch mortar team of the 2nd Battalion, East Lancashire Regiment, keep up covering fire during the advance on Pinbaw, December 1944.
Fig 5.10b – 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 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.

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


Fig 5.11 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 Suffolk 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 Suffolks 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 5.12a - A Mk.I Universal carrier in service in Italy. It is carrying ten men with weapons and equipment.
Fig 5.12b – 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.

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 reboring 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 5.13 - 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.

7. Overview

The Suffolks on Bukit Brown 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 Suffolks at Bukit Brown (Brayley 2002: plate B)

Fig 5.15a – A 2nd Lt of the Royal Norfolk Regiment, 4th Battalion, 18th Infantry Division in Singapore 1942.

Fig 5.15b – NCO of the 1st Battalion Cambridgeshire Regiment, 18th Infantry Division 'The Fen Tigers'

Chapter 6

Defending Bukit Brown

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 Suffolks, the likely tactics they subsequently employed in the defence of Bukit Brown 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 peninsular (Farrell 2006:136 -137. Warren 2007: 45-46).

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 Suffolks 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'.

Singapore in 1942 was primarily covered in plantations (See Appendix A for relevant maps). 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 comparison[37]. 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.

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 and Mount Pleasant were 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 and Suffolks were given positions to defend which, notwithstanding the weather, could be considered akin to small villages back in Britain. (See Map Regression.)

3. Fortifying Hill 95 and Bukit Brown

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

[37] 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)

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 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.

4. Slit Trenches and Weapon Pits

The Cambridgeshires were good at digging, the Suffolks notably not so. 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*
2nd "	*Dig 12 Alternative weapon pits and 40 yards of crawl trench*
3rd "	*Dig 100 yards of crawl trench*
4th "	*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. 6ins, 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 trench .....3 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)

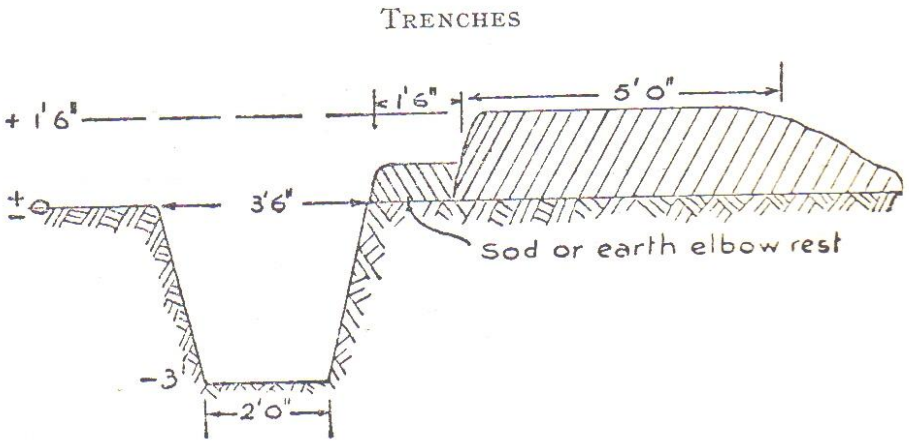


Fig 6.1 – A diagram from the FSPB showing the dimensions of a weapons pit.

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 more[38].

Fatigue and prevailing circumstances could affect the rate of digging and the subsequent size of the trench. Sgt Baynes' 8 Platoon, A Coy 1st Cambridgeshires 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

[38] 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)

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)

Fig 6.2 – A fire trench circa 1944 showing a three man team dug in on the edge of a plantation.

5. 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.

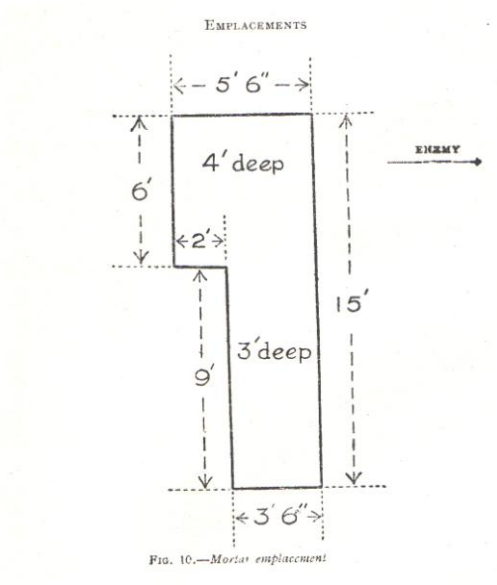


Fig 6.3 – A second diagram from the FSPB showing the recommended dimensions of a mortar trench.

Fig 6.4a- 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 6.4b – 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.

6. Dannert Wire Obstructions.

The British 18th Division troops spent 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 Road. (War Diary: 3,4). Some of this was hauled up onto the hills in the afternoon and laid out

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 wired 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)

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).

7. 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.

L Cpl Cosford of the 1st Battalion Cambridgeshires 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 Suffolks also made good use of the rubble and shell craters left by the bombardment. They also hid in and around the multitude of graves that dotted the forward slopes of their defensive line. The stonework would stop a bullet but when hit by shell fire the masonry quickly broke up sending shards of stone and brick flying through the air.

8. Conclusion

This section has reviewed the types of fortification and fieldworks that were used in the defence of Bukit Brown and Mount Pleasant housing estate. These would have predominantly consisted of weapon pits and slit trenches dug in and around the gardens of the houses and amongst the gravestones.

The Mount Pleasant 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. Good use was also made of existing cover such as the anti-malarial drains

In the few hours that the Suffolks had to prepare the position they created a complex of trenches and fire points across the hills. However these defences were tested and found to be wonting. As Carpenter puts it in additional written notes to his diary:

When B Company re-occupied Hill 95 after it had been evacuated by the Suffolks they found that the Suffolks had made no attempt to dig themselves in during the day. The three factors on Hill 95 that proved fatal were – thinness of ground - lack of depth [to their defences] and above all this deplorable failure to dig. The company had been there all day and yet when B Coy arrived they found groups of casualties lying out in the open, in places where no attempt

had been made to even scratch a hole. The result was that they broke and suffered far more casualties than they should have.

It would appear that from all accounts that the Suffolks were too exhausted to dig in to the hard sun-baked slopes of Hill 95 and Cemetery Hill. They instead chose to use the gravestones and natural features as protection. Unfortunately their lack of effective fortifications ultimately lead to their retreat. However, once ensconced in the buildings of Mount Pleasant they were able to establish and hold an effective line of defence in a manner very similar to their colleagues at Adam Park.

BOMB-DAMAGED HOUSE, MT PLEASANT

Fig 6.5 The bomb damaged houses at Mount Pleasant as photgraphed in 1942 proved a difficult position to take.

Chapter 7

The Dead and Dying on Cemetery Hill

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 Suffolks lost in the order of 113 men during the campaign for Singapore of which 39 are listed as missing and have no headstone at Kranji War Cemetery. The Japanese lost considerably more in and around the Bukit Brown area[39]. 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 the fight on Bukit Brown and speculates on the trace that may have left on the archaeological record[40].

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).

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.

[39] Tsuji states 1,714 Japanese soldiers lost their lives taking Singapore and 3,378 were wounded.

[40] 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 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 18th Division (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 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:

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).*

2.1.2 First Aid

Each soldier carried at least one[41] 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 of the Cambridgeshires 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).

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

Fig 7.1 – Medics and SB's at work in a plantation in Malaya 1942

However many men were retrieved by their colleagues using less conventional methods. Baynes resumed his search for wounded and came across Pte Singleton on Hill 95 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:

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 orderlies. RAPS were usually located directly behind the front line trenches allowing the wounded to be carried in from the slit trenches without having to go too far. RAPS were usually located in a prominent position and adorned with red cross flags to deter bombing. It is likely the Suffolk's RAP would have been a tented affair set on the lower slopes to Bukit Brown to the east of the fighting. It is also probable that the RAP was overrun during the night battle and temporary one set up in the buildings at Mount Pleasant on the final day.

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 7.2a - The rear body, built by Mann Egerton, could take 10 casualties sitting or 4 stretcher cases.

Fig 7.2b - Over 13,000 'Katies' were built for the war and despite the temperamental gearbox they were known for their reliability and sturdy construction[42]. The top speed was around 50 mph The Mann Egerton was also fitted to Bedford and Morris chassis.

[42] 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

The British 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).

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 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 Cathy Building, and the other at Goodwood Park hotel. This is where they remained until the surrender. (Ford 2009)

Fig 7.3 – Artist's impression of a Field Ambulance outfit in action just behind the firing lines (IWM)

4. Dying

Death on the battlefield around Bukit Brown 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 39 Suffolks remain missing; bodies never found, unidentified or simply misplaced.

Fig 7.4 – Kranji Commonwealth War Cemetery

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 and Moore have written accounts on how the men were killed in Adam Park and this can be used as a good indication when considering the type of injuries sustained by the Suffolks. 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. 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).'

A Coy of the Cambridgeshires 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 and Hill 95. 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 spotted[43] (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).

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

[43] 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.

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 Suffolks 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 Suffolk men who were killed provides some indication as to the intensity of fighting on each day:

Date	Number of Killed	Died of Wounds	MIA
Wednesday 11th Feb			1
Thursday 12th Feb	6	1	12
Friday 13th February	4		1
Saturday 14th February	32	1	15
Sunday 15th February	15	3	10
Subsequently after ceasefire		14	
Total	57	18	39

The statistics reflect the nature of the combat. Fighting on 12th centred on the retreat from Bukit Tingii. There were few casualties sustained on the 13th as the Suffolks fell back onto Adam Road however the bombardment and attack on the evening of the 14th and the final desperate battle over the Bukit Brown Cemetery cost the majority of lives with a considerable percentage of the casualties reported as missing. This is not surprising as the unit was on the retreat and there was no time to bury the dead left on the hillsides.

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.

It must also be remembered that the Suffolks were not the only British unit to be fighting in the vicinity of Bukit Brown. The 4th Suffolks were called upon to take over Cambridgeshire positions on the 14th February. The Cambridgeshires left 19 men missing on the battlefield

mainly during the fighting in and around Hill 95 and east of the Adam Road (Moore 1988: 60).

6. Burying the Dead.

The recovery of the majority of the bodies from the battlefield 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 and around the SICC 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)

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).

7. Missing

Records suggest 39 Suffolks went missing during their battalion's time in Singapore of which 25 most likely were lost on or about Bukit Brown 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 undiscovered 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 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 Singapore?

Fig 7.5 – 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 destroyed[44]. 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 and where better to do this but within a cemetery. 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 unlikely that excavations at Bukit Brown will unearth remains of British soldiers. Out of the 39 missing Suffolk men, the likelihood is that the majority were lost on the Bukit Brown site. We are more likely to find evidence of a disturbed burial and lost equipment than the actual remains of the fallen.

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

This calculation is of course just an indication of numbers as many other units fought through this landscape and it is likely they too lost men in this terrain.

8. Japanese Casualties

It is important to note that a great proportion of men killed at Bukit Brown were Japanese.

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 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[45]'. (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 ordinanance 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:

[45] 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)

'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).

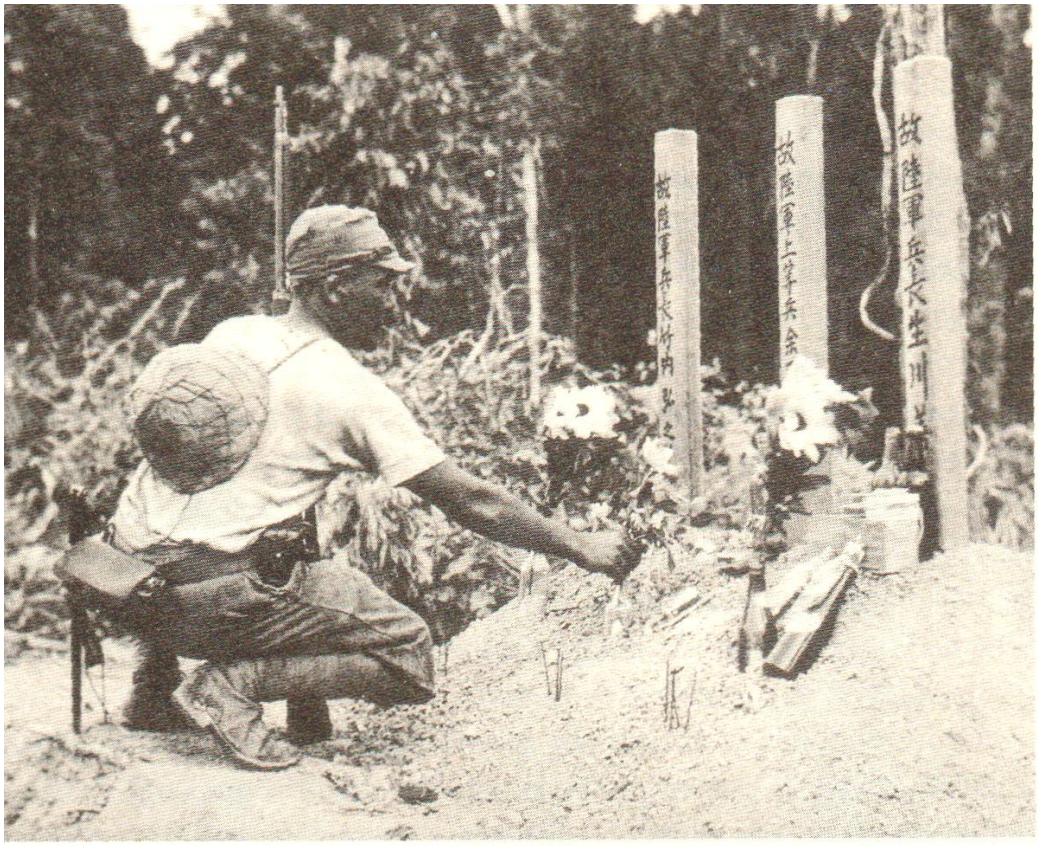


Fig 7.6- A Japanese Soldier pays homage to fallen comrades

There is less chance of stumbling across the remains of the Japanese fallen as they were left in control of the battlefield after the fighting finished. This means that there would have been time and resources available to find the fallen. Most of the bodies would have been disinterred and cremated in line with Shinto practices. 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 Bukit Brown and where they were laid to rest is impossible to say.

Fig 7.7 – The body of a dead Malayan lies ignored by the Japanese troops at Bukit Timah. Two of his colleagues await their fate in the background.

10. Conclusion

Bukit Brown 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 there end along Adam Road.

Archaeology looks at the past through the artefacts and debris of human kind. The dead may still have the chance to tell their story.

Chapter 8

Battlefield Archaeology on the Bukit Brown Cemetery

1. The Need

The battle for Cemetery Hill is at first glance an unremarkable engagement in the history of the fall of Singapore. It appears that the unstoppable Imperial Japanese Army sweeps aside a battered and inexperienced British battalion as it had done throughout the length of Malaya. However there is more to the story than meets the eye.

Firstly the written Japanese histories reveal just how close the Japanese army was to grinding to a halt in their advance to Singapore immediately before the surrender. The machine gunners were down to their last 20 rounds. The artillery was no longer able to provide adequate fire support and the tankers were running out of shells. Colonel Ichikawa could not even launch a daytime assault on Hospital Hill as his men had ran out of ammunition and were not able to provide the necessary covering fire. Instead he planned a desperate bayonet attack at night with limited fire support. Those that tried to take the hill were simply mowed down by well positioned allied machine gunners.

The action at Bukit Brown clearly shows that the Japanese advance along the Bukit Timah road had effectively stalled before Yamashita and Percival met at the Ford Factory. However, it also marked a significant strategic victory in that the push by Shimada's tanks along Lornie Road ultimately led to the seizure of the pumping station at Thompson Village; a significant factor in persuading Percival to surrender in the first place. These mixed strategic messages reinforce the historic record of Yamashita's 'big bluff'. The Japanese were on their last legs but Percival was simply not aware of the fact.

The WW2 archaeological record at Bukit Brown may never be as significant as that along at Adam Park or Sime Road. However that does not mean it should be simply ignored and bulldozed into oblivion. For starters, some of the items still to be found on site may pose a direct threat to life even today. Great care must be taken in identifying, isolating and disposing of any unexploded ordnance found during the development work. The area came under a bombardment a number of times during the last few days of the campaign and the soft and boggy nature of the ground suggests that there may still be unexploded ordnance scattered around the site.

However, most notably there are potentially the remains of dozens of missing Allied and Japanese soldiers to be found on these hills. Unlike the souls that lie under the gravestones, these men have no known resting place even within a cemetery. It is only right and fitting that we take every advantage of the redevelopment of the area to find these men and lay them to rest in a manner more fitting their sacrifice.

2. The Potential

Undoubtedly there is battlefield archaeology to be discovered across Bukit Brown Cemetery. The fact that the hillside came under a ferocious bombardment will in itself have left a scattering of shell fragments and shrapnel in the ground. The ensuing attack by the 3rd Battalion (Ichikawa) 11th Regiment up Sime Road, across Hellfire Corner and onto the slopes of Hill130 and into the cemetery temple compound left a trail of spent munitions, dropped artefacts and corpses across the site now being considered for development.

Fig 8.1 The possible remains of slit trenches and foxholes within the MacRitchie Nature Reserve show the potential for similar features to be found across the road on the Bukit Brown Cemetery site. However they may be more difficult to spot amidst the jumble of gravestones and dense surface foliage on 'Cemetery Hill'

Locals recall that a 'clean up' of the site took place soon after the battle. Abandoned equipment was collected and pitched into old wells and natural depressions. Bodies were likewise pushed into abandoned water courses, wells and drainage ditches before being covered over and in some cases marked with crosses or posts. Rumour also suggests victims of the Sook Ching massacres were buried on the site. The swampy ground along the valleys would have sucked in falling shells leaving the real risk of unexploded ordnance being found on site. Local residents recall the sporadic discovery of shells across the years as the continued excavation of new graves on the lower slopes unearthed more and more live ordnance[46]. One local observer even recalls the discovery of a Samurai sword in one particular grave cut.

The main problem the archaeologist face is accessing the archaeological record. The battlefield covers many hectares of which most are covered by the cemetery and thick

[46] The Straits Times, 8 April 1964, Page 10 – Old Japanese Bomb found at Kheam Hock Road. Strait Times, 17 August 1965, - Shell found at Lornie Road near the MacRitchie Reservoir.

undergrowth. The headstones, stonework and dense foliage covering the site prevent easy access; geophysics and metal detecting will be greatly impeded by the brickwork, discarded building material and domestic waste. The work at Adam Park proves that the artefacts will be found in the upper layers of the stratigraphy (within the first 50cms) and may also be discovered on the surface; although they are currently lost from view under the forest growth. However this archaeological layer, located so near to the surface, is a fragile one, spread thinly across the site and susceptible to damage from development.

Great care must be taken to ensure the correct recovery and recording of WW2 artefacts. The majority of items will be small, metallic and fragile. The location of the missing men may only be apparent from a concentration of artefacts such as buttons, buckles and smallest of bone fragments. Leather boots and belts may have deteriorated away to nothing; traces of fabric may only be found around the metallic objects. The identification of missing men may hinge on the recovery of the smallest of items; a rotting leather identification tag, a bent and twisted regimental badge, a fragile pay book or a wedding ring. Such items can be easily lost or destroyed if the recovery is heavy handed.

Fig 8.2 WW2 German soldiers found in Normandy in 2009 retained a full collection of metal items, boots and dog tags. However this is a notable exception. The missing soldiers on Bukit Brown may leave less obvious clues as to their whereabouts.

Fig 8.3 – The majority of the Bukit Brown Cemetery, especially in the area of the initial Suffolk positions has been lost under a blanket of greenery. Any fieldworks would be almost impossible to trace using conventional Geophysics techniques.

Bukit Brown is potentially a rich site for WW2 heritage because since the fighting there has been little or no disturbance of the landscape. Artefacts and tombs have in most part left undisturbed and simply covered in a layer of foliage and secondary forestation. The material is now lying beneath the carpet of flora and mulch it is still likely to be there. Whether it can be recovered in meaningful quantities and within the original context is debateable.

Protecting and surveying the landscape on these sites is as important as recovering the artefacts. For example collecting a bucket of bullets out of a construction team's spoil site is of little value as the ordnance has been removed from the original context and the all important patterning would have been lost. Finding individual bullets is not the aim of the game. It is the collation of many artefacts across the site that counts and the patterning within the distribution of finds that will reveal the most valuable information.

The proposed development of the new highway will undoubtedly expose and then ultimately destroy the archaeological record. Great swathes of the cemetery's real estate will be dug up or disturbed, much of it across areas of the heaviest fighting. It is not only the construction of the road that will cause the damage, temporary auxiliary sites such as work camps, access roads and new drainage systems will undoubtedly destroy the archaeology and if nothing else remove it from the all important original context. There will be no second chance to recover the archaeology once the road has been built.

3. Opportunity and Recommendations

The development of the Lornie Road Bypass will undoubtedly destroy the archaeological record of the site. However should the development go ahead as planned then it may provide one final opportunity for a meaningful survey of the site to be undertaken.

The clearing of the undergrowth to provide access for the surveyors is already under way. This land clearance would facilitate a team of archaeologists to survey the site with metal detectors and conduct field walks prior to any major construction starting up. The planned removal of graves and human remains from the site will also allow for archaeologists to remove wartime artefacts discovered during the recovery and reburial process. It is recommended that a metal detector team work alongside the grave recording and interment team not to ensure the recovery of personal grave items but also the WW2 material.

There is much more that an archaeological survey can reveal beyond the recovery of artefacts however. A full topographic site survey will reveal the relationship between the architecture and the terrain and provide a context onto which the find locations can be plotted. A botanic and geological survey would shed light on the nature of the landscape and facilitate the reconstruction of the 1942 terrain. The geophysical survey could potentially reveal subsurface features such as rifle pits, trenches and craters. In effect the archaeologists can recreate the environment in which this battle was fought and speculate on how that affected the course of the fighting all before a single artefact has been revealed. Certainly the construction teams own surveyors would be able to provide invaluable data for the archaeologists in this work and mutual cooperation in this process should be encouraged.

Once the construction teams come on site it is advisable for a clear terms of reference to be agreed when considering the recovery of WW2 artefacts especially in relation to the

discovery of unexploded ordnance, large archaeological features such as equipment caches and fieldworks and most importantly the discovery of human remains that can be associated with battle. It is vitally important that every man working on the site is aware of the procedure for the recovery and recording of WW2 archaeology and their responsibility to immediately inform the archaeology team of any artefacts or features that may be unearthed. A clear and effective line of communication must be established to ensure the quick and timely recovery of artefacts. It is hoped when properly briefed every man on the site, from the top management down, will be aware of their role in this process and eager to help out with the recovery of artefacts.

It is hoped the Lornie Bypass Development will become a role model for all future construction projects where the unavoidable work ultimately reveals and then threatens Singapore's archaeological heritage.

Fig 8.4a – The recovery of artefacts took place almost as soon as the fighting finished. This picture was taken in early March 1942 and reputedly shows an Australian POW work party salvaging equipment from the battlefield around Jurong Road and Choa Chu Kang.

Fig 8.4b – Still today artefacts from the war are being found a few centimetres under the surface. In this case Mike Ng reveals a hat badge from the front garden of 18 Adam Park.

Conclusion

The aim of this document was two fold; to assess the potential for battlefield archaeology on the Bukit Brown Cemetery and to provide a 'one stop shop' for planners, builders and heritage representatives when they set about deciding if and how they should build the new Lornie Road Bypass.

The scope has therefore been limited by time and location in order to meet this aim. It is therefore not to be thought of as a complete history of the Singapore Campaign, a definitive catalogue of arms and equipment of WW2 or an A to Z of battlefield archaeology. The document has précised the various accounts of the fighting and described the organisation, arms and equipment of the protagonists. It has then gone onto discuss in detail aspects of the fighting that would most likely leave an archaeological trace. The final chapter is an assessment of the likelihood of finding artefacts on site and their typology.

It is hoped that the publication proves to be a stimulating and encouraging initial review of the sites heritage potential and can be used as the basis for any future archaeological work. However this does not mean we would close the door to further research. We are confident that once the very tangible and visual signs of archaeological 'dig' appear on site the public and academic interest into the project will increase and this will stimulate more research and reveal more information.

Bukit Brown Cemetery is a remarkable heritage site set in a peaceful and serene setting with stunning wildlife and landscapes. That in itself makes it worthy of preservation. But the cemetery is also the location of a more tragic and epic tale. What happened there on the night of the 14th February is a turning point in Singapore's history. It should not be forgotten.

The planned road improvement scheme for Bukit Brown will come at a price. Singapore's archaeological record and social heritage will be destroyed. Whether this is a price worth paying is up to others to decide. It is hoped this document will ensure that any decision will be made with the full knowledge of the sites important WW2 heritage.

Appendix A – Maps and Plans

1. Sketches and Illustrations Relating to the Bukit Brown Action

Amongst the notes and pages of the Cambridge Archive is the war diary for the 1st Battalion Cambridgeshires written retrospectively by its serving officers. It is a very comprehensive written account but it also includes two sketch maps that add more detail to the text.

The first sketch shows the disposition of the battalion on the 13th February. It is annotated with notes that give an insight into its compilation:

'The sketch has been altered in pencil. Unfortunately it has been made from a very old and inaccurate motor map and from memory. The cross roads at Hellfire Corner are put in [unreadable] as the motor map fails to record them. They are however the first crossroads north of Bukit Timah. [Rest is unreadable]'

The sketch shows the main geographic features; Hellfire Corner, Hill 95, Water Tower Hill, the 'Adam Estate' and the 'RASC Hutted Camp' as well as the line of the roads, paths and drainage ditches. A Company's platoon positions have also been added along with the positions occupied by the Battalion HQ and D Coy. C and B Coy and the Carrier Platoon positions are shown north of Hellfire Corner. The Suffolks lines are also shown on the sketch (See Appendix A).

This information can then be transferred onto the 1950 aerial photograph of the same area in order to fix the features in the landscape (See Appendix B). Finally with the relationship between troop positions and terrain features understood it is possible to overlay this information onto a more modern aerial photograph.

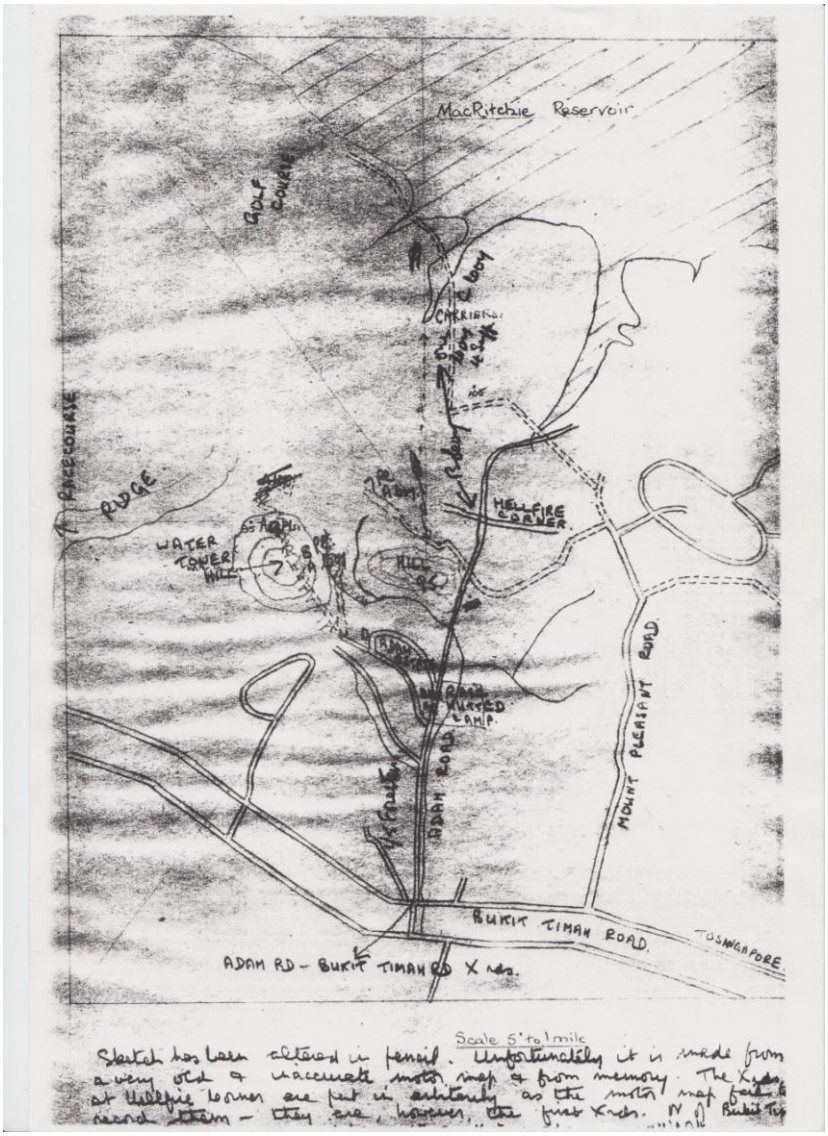


Fig A1.1 - This sketch map shows the disposition of troops in front of Cemetery Hill on the 13th February 1942. In particular it shows the presence of D Company 4th Suffolks in the defensive line

2. Maps and Aerial Photos

In 2007 the National Heritage Board published an invaluable collection of aerial photographs taken by the Royal Air Force after the war. Amongst the collection is a number of images of the environs of Bukit Brown. The images provided a detailed snapshot of the battlefield terrain.

Fig A1.2This aerial photograph shows clearly the nature of the terrain immediately after the war and therefore provides and interesting insight into the terrain and landscape over which the battle was fought. Note the lack of forestation around the sit

Three maps and one aerial photograph were used during the research stage. These were obtained from the National Library in Canberra Australia. However it soon became clear that it was essential to understand the history of the document in order to interpret it correctly. The following information was provided my map historian Mok Ly Yng

1. 1950 Photomap (~1:6,336)

Map source:

The digital copy of this map was obtained from the National Library of Australia in Canberra.

The map sections are extracted from the Singapore Photomap series, scale: 10 inches to the mile or 1:6,336 (approximately). The Singapore Photomap series was compiled by the No. 2 Air Survey Liaison Section, Royal Engineers. The photographs used were taken by No. 81 (Photo Recon) Squadron, RAF in January 1950.

The 81 (Photo Recon) Squadron of the RAF was the only PR squadron in Malaya and Singapore. The squadron was based at RAF Seletar in 1950. The No 2 Air Survey Liaison Section of the Royal Engineers was the only military mapping unit in Malaya and Singapore in 1950.

Map history:

After the Malayan Emergency started in June 1948, civilian and military surveys and mapping resources in Malaya were focused on producing updated maps for the

military. At the same time, the Rehabilitation from WWII was still in progress and maps were urgently required for the planning and reconstruction activities in Singapore. As an interim effort, the Royal Air Force took a series of air photos covering the town area of Singapore in early 1950. These air photos were used to produce a series of black and white 'Confidential' photomaps for the civilian and military authorities.

These photomaps were printed at a relatively large scale of approximately 10 inches to 1 mile (1:6,360) and filled with very simple details. The series was cast on the operational military grid (i.e. Johore Grid). Grid lines were superimposed on the photomaps.

Map details:

Adam Park and Bukit Brown are shown very clearly in this series of Photomaps. The air photo base of map is printed in black and white. Major road and place names are added, e.g. Adam Road and Adam Park. No other interpretations nor details are included. The Operational military map grid (Johore Grid) is overprinted on the photomaps.

Usefulness:

This photomap series is useful for the interpretation and extraction of terrain and building information. The actual configuration of the building and structures can be seen very clearly.

In the Adam Park area, features which can be seen include: roads and tracks; individual trees and houses; drainage canals. However, due to the minimum amount of interpretation, this photomap series is useful only for those who are very familiar with the area. If one is not well versed with air photo interpretation techniques, incorrect or inaccurate information could be extracted from these photomaps.

As there are no elevation contours or spot heights present, 3-dimensional terrain information cannot be gleaned from these photomaps.

The presence of the military grid makes it possible to overlay details obtained from this photomap onto other details with compatible military grid references.

2. 1941 Topographic map (1:63,360)

Map source:

The digital copy of this map was obtained from the National Library of Australia in Canberra.

This coloured topographical map of Singapore Island is a combination of sheets no. 3L/11, 3L/12, 3L/15 and 3L/16. The sheet numbers refer to the layout of the Standard Topographical Map series of Malaya. The map scale is one inch to one mile (1:63,360).

The map series number is Geographical Section, General Staff, No. 4203. This First Edition was published by the War Office in 1941. The imprint code is 12/41/G.S.G.S., indicating that the map was printed in December of 1941.

Map history:

This 1941 map was copied from a 1939 map by the Federated Malay States' Survey Department. It was heliographed by the British Ordnance Survey in 1941. The survey details present in the original 1939 map were revised in 1937.

After WWII started in Europe in 1939, the Surveyor-General of the FMS & SS Survey Department started a contingency plan for map support in Malaya in case of war. In 1941, it was agreed that reproduction materials for all of Malaya's (including Singapore) topographical maps would be supplied to the Survey of India. This was duly completed before war came to Malaya at the end of 1941.

Concurrently, printed maps of Malaya were deposited in various map libraries in the UK. The last pre-war edition of the 1 inch to 1 mile topographic map of Singapore Island was published in 1939. It was this 1939 edition that this GSGS 4203 First Edition was reprinted from by the War Office in December 1941.

Map contents:

Adam Park is covered by this map as it shows the entire island of Singapore.

The map is printed in full colour as per all pre-war topographic maps of Malaya. The general colour scheme used is as follows:

- Green: vegetation
- Blue: streams, canals, water
- Red: buildings
- Brown: contours, roads.
- Black: transportation and communications.

Elevation is shown by contours and spot heights. The vertical interval is 25 feet.

Adam Park is named on this map.

The map is overprinted with the operational military map grid.

Usefulness:

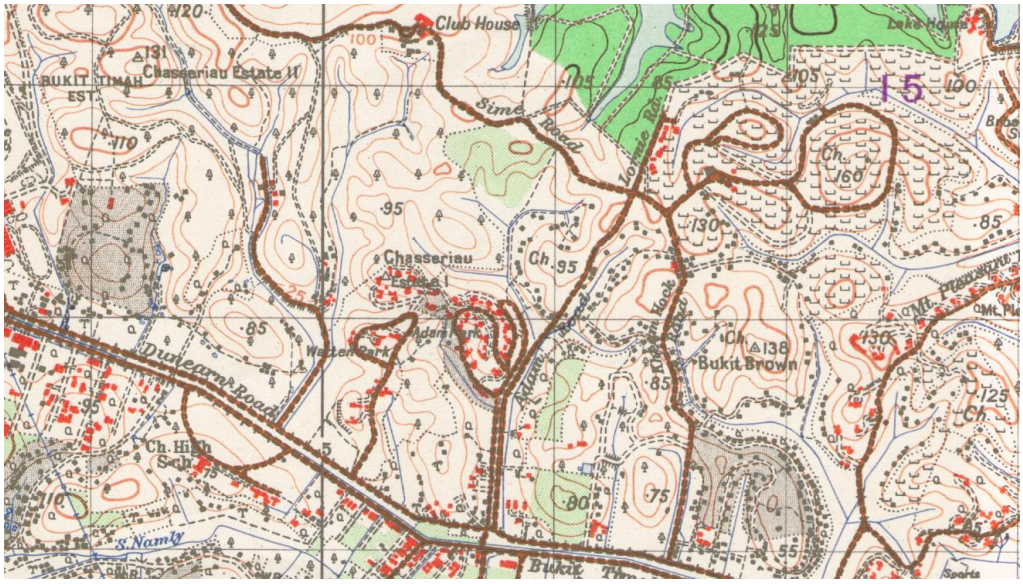
The relatively small scale of this map renders it of limited use for the identification of smaller features in and around Adam Park and environs.

The contours are greatly simplified and minute critical topographical details are thus lost through the generalisation. However, spot heights such as Hill 95 are reflected so it is still useful for the general visualisation of the area of interest.

The small print used in this map makes reading the place names a little challenging.

The presence of the military map grid allows for the mathematical registration of features extracted from this map to other similarly gridded maps.

3. 1938 Topographic map (1:25,000)



Map source:

The digital copy of this map was obtained from the National Library of Australia in Canberra.

This is sheet 3L/12c of the Johore and Singapore 1:25,000 topographical map series. It was published under the direction of the Surveyor General F.M.S. and S.S. The imprint code of this map is F.M.S. Surveys No. 86-1938, indicating that it was requisition no. 86 of the year 1938.

Details of Singapore Town & Environs were drawn from the 8 Chain (1:6,336) Singapore Town Map (which was published in 1938 too). Singapore and other Islands were drawn from the 4" to 1 Mile (1:15,840) revision Survey of the Survey Department, F.M.S. & S.S., 1937.

Hydrographic details were obtained from Admiralty Charts. The map was drawn and printed by the Survey Department, F.M.S. & S.S. in Kuala Lumpur.

Map history:

In 1932, the topographical branch of the Survey Department, FMS & SS was retrenched due to the impact of the Great Depression. By 1935, the situation had improved and the topographic branch was reinstated. Singapore was resurveyed shortly after and it was realised that Singapore had changed so much that the entire island had to be remapped. The existing map in use by the Survey Department was the 4" to 1 mile (1:15,840) series, which was published in 1924. The military had printed a corresponding series at 1:25,000 scale from the same survey back in the late 1920s.

For the revision survey in the mid 1930s, it was agreed that the published map would be standardised at 1:25,000 for both the civilian and military editions. After the Johore part of the map was revised in 1937, the civilian edition was published in 1938. This map is part of the 1938 civilian edition of the 1:25,000 topographic map of Singapore. The military edition would be published in 1939 under the series GSGS 3772, 2nd Edition, by the War Office.

Map contents:

Adam Park is covered and named in this map.

This map is printed in full colours. The general scheme adopted is as follows:

- Blue: water features, streams, rivers, canals
- Green: vegetation, forested areas
- Red: Permanent buildings
- Brown: roads, contours, sand, mud
- Black: transportation and telecommunications

Elevation is shown by contours and spot heights. The vertical interval is 25 feet with every 100 feet accentuated.

The map is overprinted with the operational military map grid.

Usefulness:

This is the most useful of all the available maps covered here. The map scale of 1:25,000 allows for much the required terrain and many of the built features around Adam Park to be included and shown.

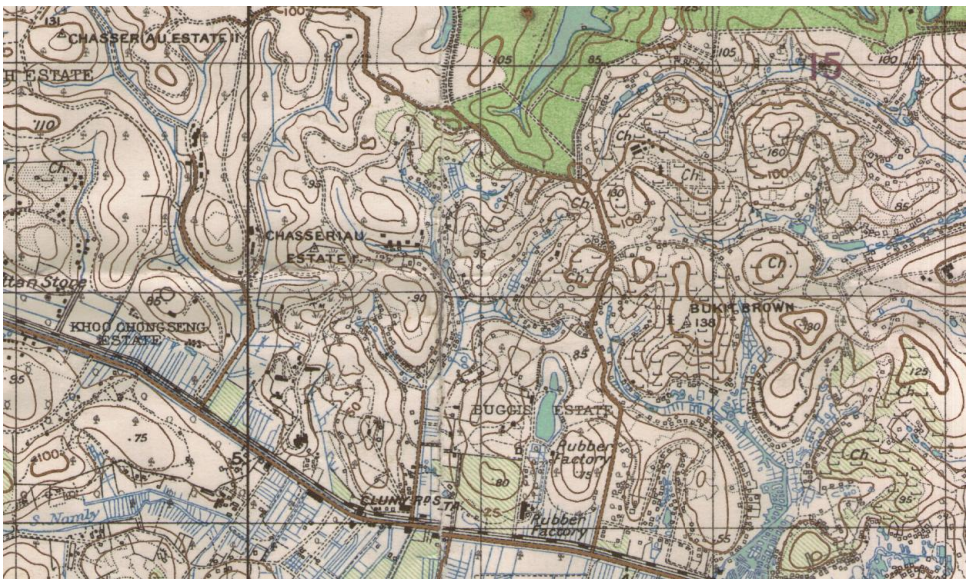
This map was produced closest to the date of the Battle of Singapore in 1942. Many of the details present in 1942 are shown in this map.

The colours are fresh, sharp and clear. The texts are large enough and sufficient space is available for text placements. The spot heights are easily found and located.

The contour lines are uniform and at an appropriate scale for details to be detected.

The presence of the military map grid allows for the mathematical registration of features extracted from this map to other similarly gridded maps.

4. 1928 Topographic map (1:25,000)



Map source:

The digital copy of this map was obtained from the National Library of Australia in Canberra.

This is sheet 3L/12c of the Johore and Singapore 1:25,000 scale topographical map series. Its series number is Geographical Section, General Staff, No. 3772. This is the first edition of GSGS 3772. This map was drawn and reproduced by the Geographical Section, General Staff, in Sept 1928.

Details of Singapore and other Islands were redrawn from the 4" to 1 Mile (1:15,840) map of the Federated Malay States Survey, 1924. Hydrographical details were supplied by the Hydrographic Department of the British Admiralty.

Map history:

In 1924, the Survey Department, Federated Malay States & Straits Settlements, published a 16-sheet topographical map of Singapore at a scale of 4” to 1 mile

(1:15,840). This was the first large scale properly surveyed topographical map series of Singapore. The details in this series were surveyed until October 1923.

In 1923, the British War Office despatched a Colonial Survey Section, Royal Engineers to survey the south-eastern area of Johore State. This was in preparation for the construction of the Naval Base in Sembawang, north of Singapore Island.

It was decided that a series of topographical maps was to be published based on the Johore survey and the 1924 4" to 1 mile map of Singapore. The series was published over a few years by the War Office from 1925 until 1928. It was designated series GSGS 3772. The area covering Singapore was reduced from the 1924 4" to 1 mile (1:15,840) topographical maps of Singapore.

Map contents:

The area over Adam Park is covered in this map. However, Adam Park per se was not constructed yet in 1928 when this map was published or in 1923 when the survey was completed.

The map is printed in full colour. The general colour scheme used is as follows:

- Blue: rivers, streams, canals
- Green: forest, vegetation
- Brown: roads, contours
- Black: buildings, transportation and communications

Elevation is shown by contours and spot heights. The contour interval is 25 feet with every 100 feet accentuated.

The map is overprinted with the operational military map grid in black.

Usefulness:

This map is most useful for visualising the original terrain of the Adam Park area before construction started.

However, its usefulness is rather limited as Adam Park itself was still absent. The area surrounding Adam Park underwent significant changes between the publication of this map (1928) and 1942. It was such changes that prompted the Survey Department and the War Office to publish a new edition of series GSGS 3772 in the late 1930s.

The presence of the military map grid allows for the mathematical registration of features extracted from this map to other similarly gridded maps.

Bibliography

Primary Sources

GHQ Home Forces
1943 *Home Guard Instructions No.51 Battlecraft and Battle Drill for the Home Guard Part IV – The Organisation of Home Guard Defence*. GHQ Home Forces

Hutt
2009 *Unpublished War Diary*. Cambridge Archives

Kataoka, S
1980 Fukuyama Sentaishi (History of the Fukuyama Regiment)

Onda, S
1988 *Ningen no Kiroku Marei sen (The Human Documentary Malayan Campaign) Vol 1 and 2*

War Diary
1947 *1st Battalion Cambridgeshire Regiment – War Diary 1 Feb 1942 – 15th Feb 1942* – Cambridge Archives

War Office
1939 *Field Service Pocket Book – Pamphlet No. 4 – 1939 Field Engineering*. GS Publications. War Office

AWM54
3553/1/3
1946 *Japanese Studies in World War II – 25th Army operations in Malaya: November 1941 to March 1942*. Australian War Memorial.

Secondary Sources consulted for this report

Baynes, L.L.
1984 *Kept – The Other Side of Tenko*. The Book Guild Limited. Lewes.

Bose, R.
2005 *Secrets of the Battlebox – The History and Role of Briatin's Command HQ in the Malayan Campaign*. Marshall Cavendish Editions

Bose, R. et Al
2005 *Fortress Singapore – The Battlefield Guide*. Time Editions Marshall Cavendish

Brayley, M.J.
2002 *The British Army 1939 – 45 (3) The Far East*. Osprey Publications. Oxford.

Brooke, G.
2003 *Singapore's Dunkirk – The Aftermath of the Fall*. Leo Cooper. Barnsley

Boyle, J.
1990 *Railroad to Burma*. Allen & Unwin. N Sydney

Cosford, J S
1988 *Line of Lost Lives*. Gryphon Books

Ewen, M.
2003 *Colour Patch 2/4th Australian Machine Gun Battalion*. Victoria Park, W.A. Hesperian Press

Farrell, B.P.
2006 *The Defence and Fall of Singapore 1940 – 1942*. Tempus Publishing Limited. Stroud.

Frei, H.
2004 *Guns of February – Ordinary Japanese Soldiers' Views of the Malayan Campaign & the Fall of Singapore 1941 – 1942*. Singapore University Press. National University of Singapore.

Forty, G.
1998 *British Army Handbook 1939 – 1945*. Sutton Publishing. Frome

Forty, G.
1999 *The Japanese Army Handbook 1939 – 1945*. Sutton Publishing. Frome.

Hewitt, M.
2002 *Uniforms and Equipment of the Japanese Army in World War Two* Schiffer Military History. Atglen

Hogg, I.V.
1977 *The Encyclopedia of Infantry Weapons of World War II* Regent Books. London.

Jeffreys, A.
2003 *British Infantryman in the Far East 1941 – 45*. Osprey Publishing Ltd. Wellingborough.

Jowett, P.
2002 *The Japanese Army 1931-1945 Part 2 1942 – 1945*. Osprey Publishing. Oxford.

Moffatt, J. and Holmes McCormick, A
2003 *Moon Over Malaya – A Tale of Argylls and Marines*. Tempus Publishing, Stroud. Gloucestershire

Moore, M
1988 *Battalion At War – Singapore 1942*. Gliddon Books. Norwich. Norfolk

Murffet, M. H., Miksic, J.N. Farrell, B.P. and Chiang, M. S.
1999 *Between Two Oceans – A Military History of Singapore from First Settlement to Final British Withdrawal*. Marshall Cavendish Academic.

Nicholson, W.N.
1947 *The History of the Suffolk Regiment 1928-1946*. Ipswich

Rottman, G.
2005 *The Japanese Army in World War II – Conquest of the Pacific 1941 – 42*. Osprey Publishing. Oxford

Shimada, T

1967 *The Pacific War- The Malayan Tank Regiment*
Kawade Shobo, Tokyo

Shores, C., Cull, B. with Izawa, Y.
1995 *A Bloody Shambles – The First Comprehensive Account of Air Operations Over South East Asia December 1941 – April 1942 – Volume 1 The Drift to War to the Fall of Singapore*. Grub Street.London.

Smith, C
2005 *Singapore Burning – Heroism and Surrender in World War II*. Penguin Books. London

Taylor, W.
1971 *With the Cambridgeshires at Singapore*. March. Cambridgeshire. Trevor Allen Bevis.

Tong, C.K.
2004 *Chinese Death Rituals in Singapore.* Routledge and Curzon London

Tsuji, M
2007 *Japan's Greatest Victory, Britain's Worst Defeat From The Japanese Perspective – The Capture of Singapore*. Ed H.V. Howe. Translated by M.E. Lake. Spellmount. Stroud

USWD
2005 *Handbook on Japanese Military Forces*. United States War Department Louisiana State University Press

Walker, A.S.
1953 *Clinical Problems of War – Middle East and Far East.* Canberra Australian War Memorial

Warren, A.
2007 *Singapore 1942 – Britain's Greatest Defeat*. Talisman

Websites

2/30 Batt
Viewed Jan 2010 http://www.230battalion.org.au

Adams, J.
Viewed July 2009 www.far-eastern-heroes.org.uk/alberts_war/html/the_road_to_singapore.htm

Cofepow
Viewed Sep 2009 *Royal Norfolks* http://www.cofepow.org.uk/pages/armedforces_r_norfolk.html

Ford, C.
Viewed: August 2009 *History of the 196th Field Ambulance.* http://www.roll-of-honour.org.uk/regiments/196_Field_Ambulance/

Kennedy, G.
Viewed September 2009 The Japanese Army http://www.bayonetstrength.150m.com/Japanese/japanese_army.htm

Saparudin. K
Viewed Sep 2009 *Bukit Brown Municipal Cemetery* http://infopedia.nl.sg/articles/SIP_1358_2009-07-13.html. National Library of Singapore

Mitchell, R.
Viewed Jan http://www.robertmitchellartist.com.au/index.html

2010

5th Division
Viewed March 2010 — *5th Division (Imperial Japanese Army)* http://en.wikipedia.org/wiki/IJA_5th_Division

41st Hist
Viewed November 2009 — History of the 41st Regiment http://ja.wikipedia.org/wiki/歩兵第41連隊

Kennedy, G.
Viewed September 2009 — The Japanese Army http://www.bayonetstrength.150m.com/Japanese/japanese_army.htm

Newspapers and Journals

The Strait Times
1942 — *The Strait Times – January - February 1942* – microfiche. National Library of Singapore