



The Hill 105 Report

Metal Detector Survey Report No.1



**Impounding Hill East, MacRitchie Reservoir.
19th – 25th February 2015, April 24th 2016, November
14th 2016.**



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Introduction

The battle site at Hill 105 is located on the eastern end of the MacRitchie reservoir catchment. This site hosted an active battle zone and heavy bombardment from the 12th to the 15th February 1942, involving the units, that included a considerable section of the Bedfordshire and Hertfordshire 5th Battalion, comprising of 'C' Company and the majority of 'HQ' Company, as well as two platoons of Searchlights, known as 'Wells Force' under the command of Major Tom Wells, 'HQ' Company commander. Artillery support provided by the 118th Field Regiment under Lt Crawley and Captain Pickersgill, Royal Engineers, supplemented 120 sappers in support of the infantry. In addition to this there were two platoons of Punjabis and Ghurkhas who were randomly attached to the force during the hostilities as they had withdrawn down Thompson's road.

At the time of the battle a black and white government house stood on the summit of the Hill and became a significant feature. Firstly as the 55 IB HQ, then as the Battalion 'HQ', before 'HQ' withdrew to Hill 80. Secondly the house became the site of a Japanese war crime in which five members of the 5th Bedford's were interrogated and murdered (bayoneted) after being taken prisoner, a ghastly affair that is recorded with the 'JAG' as JM/12, Thompsons Village. The house withstood the battle as a 'HQ', a Japanese machine gun post and heavy bombardment from the air and opposing field artillery fire.



Fig 1 – After the surrender of Singapore, the Japanese went about building sacred Shrines to honour their dead during the battle of Malaya. One of which was a POW built Obelisk in the gardens of the house.

The opening ceremony of the monument (a simple translation)

During the invasion of Singapore, the Japanese royal army fought in the northern outskirts of the city on the eastern side of the reservoir Heights, established glorious military achievement. The authority has erected a monument on this hill which is named Chiyoda Hill (Tiyoda Hill or Chiyoda Hill or Chiyodayama) to commemorate the bravery of the royal armed forces, which is hereby completed on August 15, 1942 at 11am, six months after the occupation of Singapore. The Swawmura Commander with his army, held a solemn opening of the Memorial ceremony.



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Original Text in Chinese

当攻略新加坡战时，官兵团奋战于本市北郊蓄水池之东侧高地，树立赫赫武勋，军当局现为永久纪念当时将兵之勇战力斗之光辉精神，特将高地命为千代田山，并于该处建立纪念碑，兹该顷工程已告完成，于昨日攻略新加坡半周年纪念日（十五日）午前十一时，由泽村部队长以下将兵多数参列，举行庄严之纪念之揭幕礼。

So far there have four on- site feasibility studies of the potential for significant finds of WW11 artefacts. The first was a walk over the hill (February 2015) and surrounding terrain with Jon Cooper in which two fragments of British mortar fuse was discovered on the surface of the NW slopes, bringing consistency to the reports of British artillery (118th R.A.) pounding the Hill on the evening of the 14th February. Jon cooper (TAPP) carried out a subsequent Metal detector search of the ground on (December 12th) adjacent to the kayak sheds and made significant discoveries with an array of artefacts, including, gas mask eye pieces, webbing buckles, electrical components, mortar fuse and driving band fragments.

Since this time I have also carried out two more preliminary metal detector searches of the site, one on April 24th 2016 and 14th November, again unearthing some significant discoveries of mortar fuse fragments, bomb casing joiner, Arisaka bullet casings and what appears to be an ammunition box brace.

These initial visits not only revealed new information about the history of the house but also consistency with the war dairy reports and individual accounts of the events that took place on and around the site.

It is therefore decided that a full survey is carried out with formal permissions from National Parks as soon as possible in order to recover as much of the surface material as possible and assess the full extent of the archaeological record on the site. This work is intended to be conducted in conjunction with expertise of Jon Cooper (TAPP) and Cheryl Yap of the Raffles institute, where all the artefacts are to be preserved and formally displayed.



Fig 2a & b – Images taken of mortar fuse found close to the Kayak sheds and Arisaka rounds retrieved from the northern face of the Hill.



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The Hill 105 battlefield

The distribution of the 55th Infantry Brigade from the area of Seletar occurred over the 9th to 12th of February 1942 to form a line of defence in the reservoir reserve sector.

First of the 55th IB to leave the northern sector was the 1st Cambridgeshire Battalion; they were first at the eastern end of Peirce reservoir in preparation for 'R' Company to carry out patrols to the west, with the main body taking their orders to occupy the areas of Hill 105 and Hill 80 in the rear at the eastern end of MacRitchie reservoir. The 5th Bedford's left in Seletar were 'C' Company Carriers and a skeleton force of Indian troops in defence of the airdrome, here, two platoons of Searchlights joined the newly formed 2/5th Bedford's under the command of Major Tom Wells, 'Wells Force' and were experiencing heavy mortar attacks on forward positions. The rest of 'C' Company and 'HQ' Company were in the area of Yeo Chu Kang village, 'A', 'B', 'D' and a small part of 'HQ' Company (including some Signals) had already been removed from 55 IB command and placed with Malayan command. The Battalion from this point never got to fight together as one unit, (most likely due to the loss of all their equipment in transit).

February 12th, the 2/5th Bedford's are warned of a large scale withdrawal due to continuous Japanese air and land pressure. Carriers move out at 14:00 Hrs with seven armoured cars of 3 Indian Cav., under the command of Major Lovat and to report to 55 IB now at Hill 105, eastern end of MacRitchie reservoir.

2/5th Bedford's arrive at Hill 105 at approximately 22:30 Hrs as 55 IB withdraw HQ's back to Singapore, although other accounts indicate it was placed one to two miles south of Braddell and Thompsons 'X' roads. Upon arrival the pioneers spent the night digging and wiring defences across the Hill and astride Thompson's road.

Their dispositions were: 2/5th 'HQ' in wooden buildings to the south of the Hill, 'C' and 'R' Company in defence of the Hill (forward positions astride the road, trenches on the Hill and forward patrols). 'HQ' Company in reserve on the forward slopes of Hill 80. (All Companies dig in overnight in the dark).

The next morning the carriers withdraw from Hill 105 to the line at Thompson and Braddell, with the special task of defending the right flank, which is under air attack. 'R' (reinforcements), and a Company of 1/5th Foresters now under command, join in the defence of the flank.

So this was the establishment of the battalion in the vicinity of Thompson village. The very next day they had their first taste of bombardment and machine gun attack. Most of the battalion continue to dig defences and patrols were starting to probe forwards to find enemy positions with much sniper activity. Low flying enemy assaults took place over 'HQ' positions (Hill 80) as many light A.A. gunners claimed the prize for bringing one down, strongly claimed by No. 6 platoon as their kill.

As the day progressed, enemy trench mortar fire intensified on the Bedford's positions, as well as menacing fairly low level air attacks on the reservoir dam without success. Heavy



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bombardment continued on the 'X' roads and forward trenches, an action in which 2/Lt Hall is severely wounded while diving between trenches and evacuated. Meanwhile, 2/Lt Glyn Star and two sections of carriers are sent forwards to Peirce reservoir to assist in the withdrawal of the remnants of the 53rd IB, (2nd Cambs) that are to take the positions on the right flank in order to fill the gap.

More devastating news to the Battalion is received on the evening of the 13th, when eight personal are called away to Brigade HQ for news they are to be on an official evacuation party that night. What was most damaging is this occurred at a most critical time of the battle as it had intensified from all quarters. The battalion was about to lose three key officers in this process, that included, Captain Hugh Freddie Sladen ('C' Company commander), Major Richard Thomas ("C" Company) and 2/Lt Andrew West, ('R' Company commander). They were evacuated that evening on an official evacuation party to Sumatra, in order to report on the deteriorating situation at Malaya.

What was most apparent now was the constant erosion of leadership compounded with the continuous loss of communication lines, which was now more reliant on runners more than ever before, although this came at great risk of sniper, air and 5th colonist infiltrated attacks.

Owing to the successful withdrawal of the 53rd IB and constant flow of Indian and Australian troops falling back through the lines, the Bedford's at Hill 105 soon realised they had become the front line, to bear the brunt and full force of the advance of the 1/5th and 3/3rd Japanese Imperial guards.

The situation, however, on the 14th deteriorated further as the Bn 'HQ's' are heavily mortared and forward positions were heavily engaged with enemy automatic weapons, leading to a withdrawal from the Hill to form a line at Braddell and Thompsons 'X' roads. Whilst this message had got to most of the forward positions, some were over looked and found themselves thinly held amidst a heavy enemy advance. Essentially what went drastically wrong was the lack of communications and leadership, which became apparent with the loss of Sergeant Thompson party and the devastating loss of Lt Alan Oakley's party. Their plight and demise was recorded in a report prepared by Oakley to the quartermaster, Captain Phillips at Changi, following the capitulation.

The report details described are as follow:

Statement by Lt A.F. Oakley of the 5th Battalion of the Bedfordshire and Hertfordshire Regiment, concerning the capture of himself and the under-mentioned men by the Japanese on HILL 105 (M.R. O.S." to 1 mile, Singapore and Johor – 836115) on the 14th **February 1942.**

No. 5956407. Cpl Young R.

No. 5956263. Pte Dean H.



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No. 5953030. Pte Combs S.



No. 5950688. Pte Austin A.J.



No. 5955678. Pte Winup T.



**No. 5989441. Pte Parles B.¹
SURVIVOR.**

Fig 3a to e – all the victims are buried in a collective grave at Kanji war cemetery, (Collective Gr. - 14.D, 4 -11.). At this point, the NOK are not known.

All men of the 5th Battalion, The Bedford and Hertfordshire Regiment,

¹Private Bertram Parles (5989441) survived the ordeal and it is not known if this is because he escaped or was spared and released. He did provide an affidavit as evidence, whereabouts is not known. He went on to Thailand in Letter Party 'Q' and worked in Group 4. He was repatriated to the UK on the SS Indrapoera, Departed Rangoon, Burma, 23/09/45 - Arrived Southampton, 18/10/45



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I command, No. 13 Platoon of 'C' Company. On the morning of the 14th February 1942 I was holding a position on the forward slopes of Hill 105 (836115) just West of Thompson Rd before it joins Braddell Rd.

At approximately, 0715 hours. I discovered on sending message to Coy. HQ's. That out positions except the trenches occupied by my own Platoons HQ's. , Cpl McQuade's section and Cpl Young's A/T. Riflemen had been evacuated.

Private Austin, who had taken the message to Company HQ., and that HQ's trenches also told me that there been no sign of the "Reinforcement Companies" sections which had been the nearest to our Coy's HQ's the previous evening.

While I was attempting a quick appreciation of this surprising situation our own artillery – I judged it to be 25 pounders – opened fire on a line approximately 200 yards in front of our positions. I concluded they were firing what I knew to be the S.O.S. task, and that that our original line must still be partly held. Accordingly I held my position and told the men to be ready to move immediately I could be sure our artillery was not covering a counter attack by our troops. Instead of lifting our guns shortened range for the next twenty minutes, (it may have been less but seemed more) the battery was firing a concentration in our area. Cpl McQuade has already moved his section back towards Coy HQ's, when the concentration began and immediately afterwards (about 0750- 0800 hr.), followed with the remainder of my platoon.

Sergeant Thompson, I had ordered to take his half of the men along the eastern side of the hedge which ran North –South between "C" and "R" Coy's areas, while I moved parallel to him on the western side. Accordingly when the first lull came in the shelling, I began to move towards the hedge where I knew there was a gap. With me were Privates, Austin, Winup and Parles. We had to take cover again as the artillery traversed back, and when we were again able to move the shelling had ceased altogether. Sergeant Thompson was not in view so I concluded that he was ahead of me. I broke through the gap which was full of wire and came into a sunken lane on its eastern side. As I broke through three enemies came from cover about ten yards away and covered me with their riffles. I shouted a warning to the men behind me but three had also come through the hedge, and since were other enemy close on our left I ordered my three men to lay down their arms, hoping the remainder would get away under the cover of the hedge which was very thick. They failed to realise what was happening however and Cpl Young came through followed by Privates, Dean, and Combs. Cpl Young at first tried to dodge back but was fired at by the nearest enemy and slightly wounded in the head.

Taken prisoner with me were therefore Privates, Austin, Winup, Parles Dean and Combs with Cpl Young. We were taken to this enemy section to a white building near the top of Hill 105. Here we were first searched and then bound. In searching us the enemy showed little intelligence. They emptied our shirt pockets, taking wallets and similar items of personal property, but tearing up and throwing on the floor all money, photographs and papers which apparently they could not read. Our haversacks and ammunition pouches were emptied and most of our equipment, arms and ammunition were thrown away. They did not think of searching the pockets of our shorts and left Private Winup with a small knife, which we intended to use in an effort to escape when darkness fell. The search was carried out by three



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or four Japanese soldiers, of whom there were usually six or a dozen in or near to the building.

After the search we were bound. Each man had his wrists tied up behind his back and was linked to the next man who was tied with the same piece of rope. There was about a foot or 9 inches of rope between each man, and we were bound by this means in two groups of four and three respectively.

We were kept together in this building which was apparently a Japanese platoon HQ's throughout the day. During this time we were treated with varying degrees of consideration and cruelty. When we were first bound one of the Japanese soldiers gave cigarettes to two of the men. Later in the morning when our hands and wrists were swollen through a lack of circulation, our hands were untied for a short period.

When we were first taken prisoner several of us were hit in the face and kicked. Later in the morning when we were bound one Japanese soldier hit Private Winup on the head with the edge of his bayonet, sufficiently hard enough to draw blood. I believe there would have been other acts of cruelty but those Japanese soldiers who appeared viciously inclined were restrained by the presence of their platoon commander (equivalent rank – Lieut) Who spoke a little English and acted in a friendly manner, both that day and later, when I was taken back behind the lines with his platoon.

I believe we would have been given water for which we asked, but the Japanese appeared to have none themselves. We were made to sit on the floor or on packing cases of wireless equipment, which littered the two of the rooms on the ground floor.

Once during the morning there was an alarm, caused, I gathered, from the sounds of firing and the attitude of the enemy, from the appearance of some of our troops in the neighbourhood. There was a Japanese heavy machine gun mounted in the room next to us, but it was not fired while we were there. Two Japanese soldiers with serious wounds were brought into the building during the morning and received first aid from a Japanese S.B.

At about 1800 Hours the Japanese Platoon commander ordered me to be cut free from the rope which bound us together and led me away with an escort of two men. I was taken in a North –Easterly direction from the white building, into a wood at the base of the Hill and up to a slope rising beyond a small lake, where Japanese troops, probably a company, were dug in. Here I was interrogated with the aid of an interpreter, by the Japanese commander, who wanted to know my unit and the number of troops who had been on Hill 105. I pretended not to understand the questions and these were, unfortunately for me, not pressed. Early next morning I was taken back with an enemy S.B. (stretcher bearer) party to a rear HQ, so that I knew nothing of what happened to the men who were with me or to Sgt Thompson and three men in his trench.

CERTIFIED that this statement was made on 18 June 1942

H.E.I Phillips.

Captain,

Adjutant, 5th Battalion, the Bedfordshire and Hertfordshire Regiment.



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In Brief:

All the members of this party were from 13 platoon of "C" Company, Five of which were killed (Austin, Dean, Combs, Winup and Young) all with the same entry against their fate recorded by CSM Marchant in his hand written nominal roll (Attached below) and as "Body not recovered" in the BRE (bureau of record enquiry, open public file) file WO361/2111 held at the National Archives Kew (Attached below)

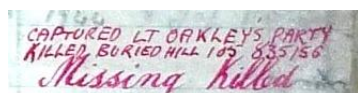


Fig 4a – Entry made in CSM Marchant's hand written roll.

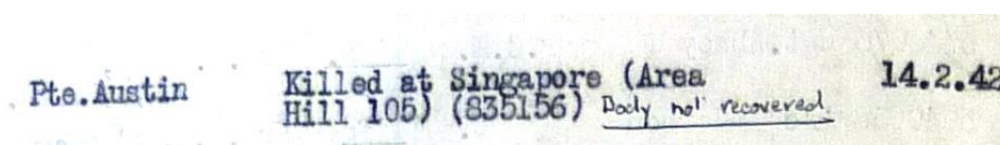
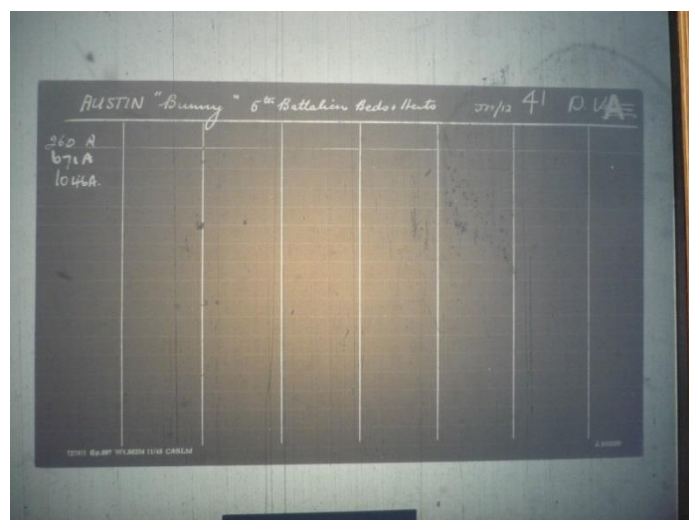


Fig 4b - Entry files WO361/2111 The incident took place on Hill 105 Thompson Village; the Hill 105 Thompson Village case is JAG file JM12.

War crime reference files WO356:

War Office: Judge Advocate General's Office, Military Deputy's Department: War Crimes, South East Asia, Card Indexes, and Second World War This series contains five separate card indexes concerning war crimes in South East Asia during the Second World War. Each of:

- Collection: Records created or inherited by the War Office, Armed Forces, Judge Advocate General, and related bodies
- Date range: 1940 - 1957
- Reference: WO 356
- Subjects: Armed Forces (General) | Asia | Crime | Army | Operations, battles and campaigns





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Fig 5 – Extract from file WO356. There is a JAG Card (WO356) for each of Austin, Combs, Dean, Winup and Young. All the cards carry the same inscriptions, JM/12 referencing the Hill 105 Thompson Village case and the Numbers: 260A, 671A and 1046A, relating to Affidavits.

Lt Oakley also makes a mention in his statement of Sergeant Thompson and the fate of his three men:

“Early next morning I was taken back with an enemy S.B. (stretcher bearer) party to a rear HQ, so that I knew nothing of what happened to the men who were with me or to Sgt Thompson and three men in his trench”.

Three men are named in CSM Marchant’s Roll attached to Sergeant Thompson’s party as missing in action and missing in file WO361/2111

60242472, Private Chamming’s. G.

5950973, Private Foley H.

5953090, Private Irons C.

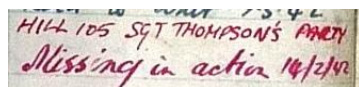


Fig 6a – Extract from CSM Marchant’s Roll (handwritten excersie book) file Entry in CSM Marchant’s Roll, none of these men were ever found and are remembered today on the wall of remembrance at Kanji.

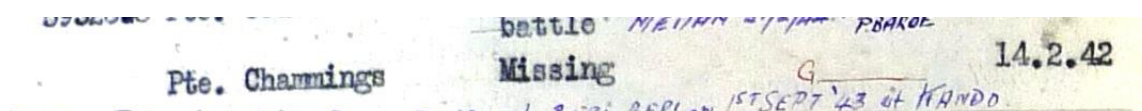


Fig 6b - Entry files WO361/2111

All Three men are discovered at the end of hostilities as casualties and it is not known if they had also been captured by the Japanese or Killed in action.

There are only two known survivors from Lt Oakley’s and Sergeant Thompsons parties, Lt Oakley and (5984991) Private Parles.

Affidavits.

Lt Oakley made an affidavit number 671A in late March 1946, the location of which is not known, yet.

Pte Parles made an affidavit number 1046A at the end of April 1946, and, again, its location is not known and it is not known yet who made affidavit 260A. They should all be on file JM/12ⁱ, provided it still exists.



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CSM Marchant does not have a WO356 card. If he did fill out a "Q" form the intelligence staff did not find it interesting. This happened to approximately 22,000 out of 35,000 "Q" forms.

All three made liberation questionnaires. Oakley's had a statement attached to his but it is not on the file. It must have been sent to M.I.9? None of the LQ's is exceptional. Below is a short insight, by fellow researcher John Cox, into unravelling how the JAG cases worked and can be accessed on microfilm at Kew and cross referencing to 'Q' forms to their respective referenced Affidavits, not infallible by any means.

"The Far East indices are available on microfilm; these cards will tell you which returning service person made a statement in a 'Q' form which was of interest to the Judge Advocate General. The 'Q' forms from the Far East were numbered from A to M and 1 to 1000, making some 13,000 in all. About 35,000 Q forms were filled in. If a POW fills in a form which is of interest, his name (service numbers often missing) and regiment will go on to a card, with rank. Two numbers usually appear. The identification for the "Q" form: say C123, Then another number, for example, JC63. JC63 will be a reference to a Japanese Camp. If an affidavit is sought from the returned soldier the index card for the POW will tell us this, in great detail; however, allegations contained in the Q form are not given".

"Also on microfilm are the names or nicknames of the captors. If the POW allegations name Japanese or Korean guard, then the 'Q' form identifying number will appear against the captor's card index. There are about 8,000 names of captors, also containing a JC, JM or JT number. JM stands for Japanese Massacre and JT stands for Japanese Transport. There were not 8,000 defendants in War Crimes cases, more like 1100; this provides a valuable insight into how the JAG worked. Instead of JC, JM, and JT codes they used regular file references with numbers to represent countries, but later just used long numbers. 'Q' forms were numbered "Q100", "Q101" and sometimes written on cards in pencil.

"A greater level of description than that used for the 5th B&H war crime (JM/12) committed in similar circumstances, that is, following on from a recent open warfare conflict when the victims had only just surrendered. All the Far East case says is "JM12 Thompson Village, Hill 105". The JM12 file is not in WO311.

Extract from Corporal Allen's diary:

Changi, February 1942.

"After we had been there several days, we had an officer (Lt Oakley) literally return from the dead, as he had been reported killed by the Japanese, when he and his platoon were ambushed by them. His entire platoon except one man, were tied up and bayoneted, but for some reason he was spared. Anyway, it surprised us all when he arrived safely".

These events further added to the confusion not only at the line at Thompson road, but also, vital information was not getting back to Command at Fort Canning, who were only able to make decisions based on the information they had at hand. Certainly the Hill at 105 had been



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lost to the Japanese on the 14th, leaving the last vital water supply to the city vulnerable, however. What took place over the following 24 hours could have made a difference, although the Japanese push on the South coast and closing the city appeared to be unstoppable, therefore, conjecture was the persuasion towards the well-being of the people of Singapore and the potential scale of civilian losses.

Further to the confusion, lack of leadership due to unforeseen circumstances with the evacuation party and to make matters worse once more, Major Tom Wells was killed in action during this counter attack on the Hill and forward positions. This action involved the 2/5th Bedford's advancing a counter attack in an aim to dislodge the newly formed machine gun post in the house on the summit. Both Wells and Lt Thewles were killed in the attempted to retake the Hill, following which, HQ made the decision that the Hill was no longer tenable and the line at Braddell and Thompson X Roads was to be consolidated, as there was a risk that shells from their own guns were firing off the map along the line of the road.

By the evening of the 14th February 1942 the Japanese advance from Bukit Timah had stalled along the Adam Road / Lornie Road stop line set up by elements of the British 18th Division. The Imperial Guards Division was facing stiffer opposition along the Braddell Road front (Hill 105 and on its Right Flank). A breakthrough was required and tanks massed on the Singapore Island Country Club golf course in preparation for a night time attack on Bukit Brown.

Casualties continued with the loss of 2/ Lt Glyn Star, the officer who had assisted part of the successful withdrawal of the 53rd IB down from Peirce reservoir, also Captain Sale suffered shrapnel to his back and was evacuated to hospital. By 10:00 Hrs. the line at Braddell road is consolidated. Returning patrols were already reporting that further attacks on the Hill were untenable and reinforcements were urgently needed. The patrols had been ordered in by 17:30 Hrs. and a recce patrol had been sent down to 55 IB to request reinforcements, located in a magnificent house some 2 miles further to the south of their current positions. It is from this point forward that the tide starts to turn with the arrival of the 118th R.A. who concentrates their continuous barrage of 25 pounders into the direction of the Hill up until dark, accompanied by Captain Pickersgill and 120 sappers of the Royal Engineers as a welcomed supplement, when also two platoons of Ghurkhas and Punjabis arrive out of nowhere and attach themselves to command, by all reports a very brave bunch of fighting lads.

Overnight, the line becomes relatively quiet with only the odd sporadic enemy mortar fire, not aimed at anything in particular. At dawn a commando style patrol is established to inspect the damage done to the Hill by our own artillery that night before. Lt Shields the Brigade Mot. C.O. and Captain Wormleighton, who had bestowed command of the 2/5th Bedford's following the death of their leader, Major Wells, advised that the Hill was clear of the enemy as was the undergrowth for some distance around, allowing the patrols to reoccupy their original positions. As the day progressed the enemy became more portable with strength and 55 IB is called upon once more for reinforcements, to which the answer was none were available, preceded with the order to withdraw from the Hill once more as the small force was untenable to defend the Hill effectively once darkness had fallen. Then the unexpected happened, the cease fire was called and orders made to disarm!



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Further to these events, Sergeant William Henry White (594917), 'C' Company, 13, Platoon made the following entries in his diary, parallel in the sequence of events detailed in the war diary:

12th February 1942

"Forced 12 mile march to Thompson Village take up positions on new front during night in Paya Lebar Road. See my cousin Wally²."

13th February 1942

"0200hrs Dig in. I take a patrol forward of the bridge. Send a patrol out to locate the enemy. Patrol returns safe. 13 Platoon make contact with the enemy. Australians withdraw I retire further up Hill 105 and RE (sic. Royal Engineers) blow the bridge and our position is completed. Last 5 hours direct hits on my position by shell fire, many casualties they have our positions taped 1850hrs. Direct hit, shrapnel and splinters in my hands. My officer, Lt Halls face blown off. My lads lying out in the open take some stick. My Cpl and party at the bridge were lost as were some of my men. Who had been on the patrol? During the night they must have had a forward OP as we got plastered with 4" mortar bombs. My Platoon sustains 4 casualties. Total for the company is 20 other ranks and 3 officers."

Saturday 14th February 1942

"After the rifle fire and shelling throughout the night 0630hrs and the attack is on they come bullets flying, machine guns rattling, grenades exploding chaos, my rifle goes hot as I fire. They are on top of us now. It is us or them. They bring a heavy machine gun into action off goes my section Cpls arm³. I get a direct burst into my trench how it missed me god only knows. Load fire, load again. We fire, bayonets and charge once, twice, three times. They go back but still they come, a company marches up in fives to the wire."

"Digger voice⁴(5953175) opens up with the twin Browning they are mown down like standing corn. The tanks come up big green wicked looking monsters they cannot get across the bridge (Thompson Village) which we blow up. They thicken up the fire. The coy withdraw my Platoon HQ hold on to the last – they have all gone. We fire as fast as we can the hand grenades come over thicker now the next one will surely get us. Our casualties are heavy and we have lost three more officers. I am left in a sticky position. Col solves the problem; we get out".

"I giver orders to withdraw the enemy are on top of us. Slowly we go firing all the way. Down comes our own barrage – friend or foe caught by it. Inferno of fire at last we are out across the road in new positions. They shell us back. We bayonet attack the hill they have a

² Private Walter White (5952635) of 'HQ' 5 Platoon, Pioneers, Sergeant Whites Cousin, died In Thailand, dysentery, 26th June 1943. Index card available WO 345.

³ Corporal Charles Frederick King (2201254), 'C' Company, arm amputated and remained at Changi for the remainder of the war, event also described in Private Ken Porters (5955487) book 'Britons Never Never', 1993, ISBN 0 – 473- 02190-0, Index Card (WO 345) and Liberation (WO 344) Questionnaire available

⁴ Private Harold Frederick Charles Voice (5953175) 'C' Company, Went on to work on the Thailand to Burma Railway in Group 4 and repatriated to the UK on the Orduna (SS) Departed Rangoon, Burma, 21/09/45 - Arrived Liverpool, 09/10/45.



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heavy machine gun up there it causes havoc amongst our ranks. 118 Field Regt is plastering us and Hill 105 with a 100 round gunfire (per gun). Good Officers and men killed where they stand. At last the Hill is ours again. We consolidate our position. Night falls. Odd shots and a dog howling. In the camp a woman is screaming and a baby crying”.

15th February 1942

“After a day of desultory fighting and xxx from both sides the Order arrives to capitulate come through at 1800hrs from Higher Command. We were beaten; it was hard to believe it. What will happen to us? To our right flank, fighting continues as night falls and occasional gunfire. Quiet falls.

16th February 1942

“All arms are placed in a central dump. Destroy all that I can. I throw what grenades I can find down a well. One of our own is shot and fatally wounded by a loaded rifle that was on the pile cocked.”

17th February 1942

“Ordered to be in a contained area at Changi by 1800 hrs. had marched some 18 miles to Changi. After gruelling march of 17 miles we arrive at Changi (Gaol) at 2000 hrs. After a meal of two hard biscuits we lie down anywhere to sleep. I have not got a blanket and a net to stop the dive bombing attack of mosquitoes. Slept where I fell down”

In relation to the information of the events taken from four different sources, War diary, Ken Porters book and Cpl Allen’s and Sergeant William Whites diaries, the time line of battle is consistent with the Bedford’s holding the Hill from the 12th to the night of the 13th/14th , before retaking in an artillery barrage assisted counter attack, 14th /15th . With this in mind, there are certainly two passages of attack, the Japanese from the North, along Thompson’s road and through St Theresa Convent grounds and advancing up the Hill from the dog- arm in the reservoir. Consequently, the British positions are clearly defined as being in trenches on the top of the Hill, in defence of the house, as well as astride the Thompsons road. Lt Oakley’s party gave their positions as M.R 836115, on the scale of the Singapore and Johor maps of the era (O.S.” to 1 mile). This position is today built out with residential housing.



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Fig 7a & b – A Google Earth image and RAF aerial photo showing the layout of the area of Hill 105 and Hill 80, from a modern day and war time perspective. You will notice that were part of the battle site is now built upon and developed (Westlake drive area), however, there is a large area of pristine National Parks where the house stood and where the Japanese attack and British defence occurred. Photo Right, held at the National Archives Singapore.

Identifying the House on the Hill

Without doubt, the most prominent feature of the Hill was the Black and White house that stood on its summit, in short, this is its historical time-line:

- 1867:- Philanthropist, Tan Kim Seng made the reservoir possible with a very generous donation to the project of, \$13,000, enabling engineer, James MacRitchie to proceed with the works.
- 1907:- The reservoir was enlarged and renamed, the Thompson Road Reservoir.
- 1922:- The Reservoir was renamed the MacRitchie Reservoir in honour of the municipal engineer, James MacRitchie, designer and builder of the Reservoir.
- 1942:- The house became a centre piece of one of the Japanese strategic objectives during WW11, for one of the final water supplies to the city of Singapore, defended resolutely by a section of the 5th Bedfordshire and Hertfordshire Battalion.
- 1942:- Following the capitulation, in August, the Japanese engineered an Obelisk Shrine in the front gardens of the house to honour their fallen in the battle for Singapore. The work was carried out by POW labour and was just one of the many Shrines built in Singapore to honour their brave warriors who had fought for the Emperor and the freedom of S.E Asia from its Imperial British and European rule.



The first images of the Hill that included the house appear to be around 1900 and are held by the National Singapore Archives, accessible through their online service. The house no longer stands on the site; however, there is a great deal of evidence remaining that identifies its location and surrounding features.



Fig 8a to c – Picture a, is dated 1900, b, is 1955 and c, is during the 1960's after which it seems to no longer exist in photos taken after this time. Photos held at the National Archives Singapore.

The house stood facing west over the magnificent back drop of the MacRitchie Reservoir with a view that reached as far as the golf course. Hill 105 was a prominent feature of relatively high grounds, on Singapore standards, that was in direct view of the reservoir dam wall and pumping station. To the right ran a large drainage ditch, which is still there today and further to the right ran Thompsons road, the scene of intense fighting and war carnage of burnt out car wrecks, twisted telephone lines and large bomb crater holes strewn across the road. Between the drainage ditch and road was the area where Lt Oakley's patrol was cut off and captured by the patrolling Japanese, M.R. 836115. Today this area is now largely redeveloped with housing circa 1950's, and the widening of Thompsons road, reclaiming just about all of this battle field area. Due to the area west of the drainage ditch/Channel, being managed by National Parks, the site is very well preserved, apart from a degree of 20th century rubbish, distributed about the Hill, but very intact from a war time point of view maintaining its historical archaeological integrity.

The features of the house that remain today include the original road winding up the Hill, although the original access road, up from Thompsons road has been re-routed and the original road is now under housing. On approach to the house, the original garden concrete steps can still be seen and as you follow the road all the way up you can find the turning circle running past the pore cohere where supplies would have been delivered to the residence. The turning circle provides a perfect reference point to identify the plan of the house as well as the path that ran from the south of the house, leading to where 2/5th HQ would have been. Today the vegetation on the Hill has been allowed to grow and has created a thick jungle canopy that in places is difficult to navigate, other than the trodden tracks and paths, cut by local residents.



Fig 9 - An RAF Aerial Photo of the site taken by 81 Squadron in 1950, so just eight years after when the battle had taken place. Photo held at the National Archives Singapore.



Fig 10a to c – Picture a, shows a view of the front steps on the edge of the road to the garden. Picture b, shows a view standing on the site of the house looking to the west. Picture c, shows the remains of outbuildings that are directly on the adjacent side of the turning circle on the northern side of the house.



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Battle casualties

Not a lot has previously been written about the Beds and Herts involvement in the battle of Singapore, perhaps because they were denied the chance to fight together as one unit and split into two sections, one with 55th Brigade command and the other transferred to Malayan command. Despite this, the section remaining with 55 IB were sent to the reserve area on MacRitchie reservoir and encountered three days of heavy enemy engagement and became frontline over the night of the 13th/14th, resulting in the loss of 26 members of the battalion on Hill 105 and 80, five of which were never recovered by the post war grave parties. What isn't accounted for in this report is the loss of lives from the accompanying units of Indian platoons, 1/5th Foresters (R' Coy). Royal Engineers, 118th R.A. and Searchlights.

Surname:	First Name(s):	Rank:	Service No:	Company:
AUSTIN	Albert James	Private	5950688	C-13 Plt
BILLING	Edmund Michael	Private	5949374	HQ-6a-Plt
BRIGHTMAN	Arthur Charles	Private	5952642	HQ-4 Plt (Carriers)
CHAMMINGS	George Harold.	Private	6024272	C-13 Plt
COLLINGRLDGE	Ralph	Lance Sergeant	5957372	C
COOMBS	Stanley Herbert	Private	5953030	C-13 Plt
DARCH	Henry	Private	5953037	C
DEAN	Harry	Private	5956263	C-13 Plt
FOLEY	Henry Charles	Private	5950973	C-13 Plt
FORD	L.	Private	5955554	C
FULFORD	Ernest John	Private	5950602	HQ-6a-Plt
HALL	Frank	2nd Lieutenant	156326	C
HARRIS	Leonard. Henry	Private	5953071	C
IRONS	William Charles Alfred	Private	5953090	C-13 Plt
RACKLEY	Ernest	Private	5952010	HQ -1 Plt (Signals)
ROLPH	Edward	Private	5945933	HQ-4 Plt (Carriers)
STAR	Glyn Withorpe	2nd Lieutenant	164528	HQ-4 Plt (Carriers)
STUBBS	Robert	Corporal	5950934	C
THEWLES	William Edmund	Lieutenant	89982	D
THOMPSON	William Henry	Sergeant	5947983	C-13 Plt
THURSTON	Arthur John	Private	5946540	HQ-6a-Plt
WALKER	Geoffrey	Private	5952667	C
WELLS	Thomas Capper	Major	63949	HQ Company Commander
WHITBREAD	Henry	Private	5944175	C
WINUP	Thomas	Private	5955678	C-13 Plt
YOUNG	Richard	Corporal	5956407	C-13 Plt



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In addition to the listed Beds and Herts casualties in the Hill 105/80 area, a further 47 members of the battalion sustained injuries during the battle giving a total casualty number of 73. The 26 men in the table above are all buried today in the Kanji war cemetery.

Surname:	First Name(s):	Rank:	Service No:	Company:
CHAMMINGS	George Harold.	Private	6024272	C-13 Plt
FOLEY	Henry Charles	Private	5950973	C-13 Plt
IRONS	William Charles Alfred	Private	5953090	C-13 Plt
ROLPH	Edward	Private	5945935	HQ-4 Plt
THOMPSON	William Henry	Sergeant	5947983	C-13 Plt

The 5 men listed above were also killed at Hill 105 and their bodies were never recovered. It could be speculated that they were captured by the Japanese and disposed of prior to the surrender and are similar victims to that of the soles who perished in War Crime JM/12 (Thompsons Village, otherwise if killed in action, perhaps buried by the Japanese without a record. What we do know is Sergeant Thompson's party was close to Lt Oakley when they split into opposite directions and could also have been captured, interrogated and killed.

The men that were first buried or recovered from Hill's 105/80 include:

- Private Leonard Harris, 5953071 at M.R. 836156
- Private Jack Ford, 5955554 at M.R. 835154
- Private Henry Darch 5953037 at M.R. 837154
- 2/Lt Glyn Star 164258 at M.R. 836153
- Major Tom Wells at M.R. 837153 (as well as a battalion drawing of the grave location)
- Victims of JM/12 at M.R. 835156, Privates, Austin (5950688), Coombs (5953030), Dean (5956263), Winup (5955678) and Cpl. Young (5956407).
- Private Ralph Collingridge (5957372) at M.R. 834156, Front garden of the house. (Grave site yet to be located).



Preliminary survey Hill 105 report 1

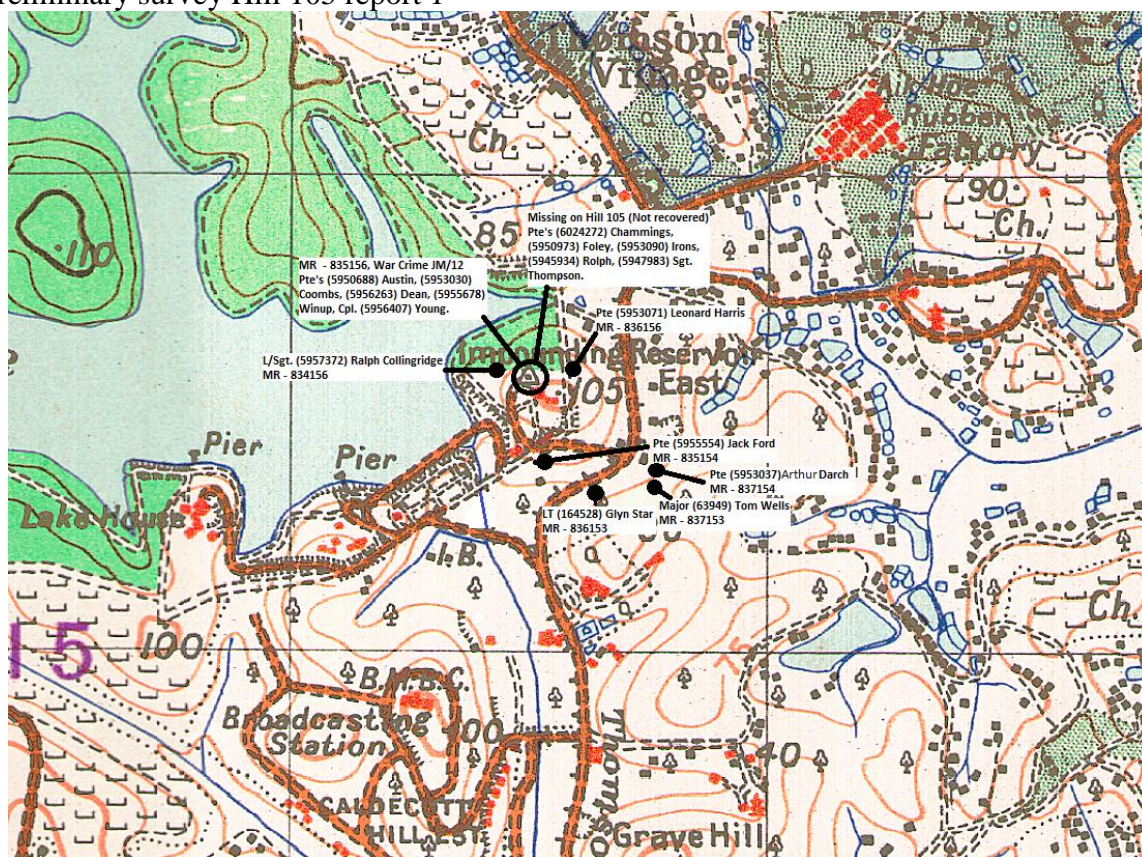


Fig 11 – 1938 Map of Johore and Singapore with burial map references for members of the 5th Beds and Herts.

The untimely death of Major Tom Wells could not have come at a more crucial time. Already leadership was dissolving all around the line, first with the evacuation parties then with the deaths of many key personal, causing descents in the ranks. This was more apparent with the Beds and Herts attached to the other section under Malay command with a series of poor decisions and men deserting their posts in the disarray, however, this was not the case at Hill 105, where the sections was engaged with the enemy and held the line at the 'X' roads throughout the battle.

There is also conjecture over when Major Wells was actually killed, but what is certain it was during a counter attack he led from the southern side of the Hill with aim of dislodging the Japanese machine gun post now firmly established at the house on the top of the Hill. The attack was a reported to be a bayonet charge led by Wells in which he received a bullet to the head killing him instantly. Realising that the attack was futile the withdrawal was ordered and at that point Brigade decided the Hill was no longer tenable, this is the point reinforcements were called upon from the 118th R.A. The body of Wells was recovered the following day and taken back to the lower slopes of Hill 80, where he was given an honourable burial for his gallantry in action. With the loss of Wells the command of the 2/5th Bedford's was now bestowed upon Captain Wormleighton. C.S.M. Bennett and his platoon, reset their bayonets in preparation for a further counter attack on the Hill, however, was called off as the situation still remained untenable for one platoon to risk.

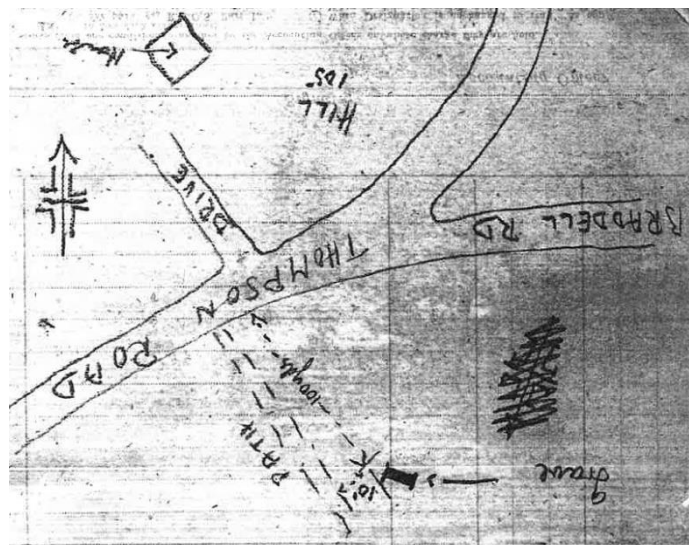


Fig 12 – Battalion hand drawn map of Major Tom Well's File x/550, Bedford and Luton Archives.

The Survey Criteria and Area of Interest

Other than a number of random cursory recce of the site by myself and battlefield archaeologist, Jon Cooper, the site has not been assessed, as yet, with a formal survey. The aim of the informal survey's to date was to establish the viability of the site for future consideration and inclusion of the appropriate authorities in Singapore with formal permissions. The evidence found to date is quite compelling, supporting much of written history in the Beds and Herts war diary, by battalion members and supporting local history.

The scale of the material found to date on the surface as well as below has aroused a great deal of interest, both locally as well as with Far East WW11 enthusiasts. On a local perspective, the site is very close to the Raffles Institute and provides a perfect education platform for the students to learn a great deal more about their local history during the war. Cheryl Yap, Curator of the Museum and Archives has been closely associated with the work ad programme so far, that included an educational field study of the Hill with 14 boys from the museum club on their annual camp. The event was a huge success with the boys voting the morning on the Hill the highlight of their camp

In terms of the archaeology discovered so far, there have been three exploration surveys we are aware of, carried out by myself and Jon Cooper. These have occurred over the past three years and each has been successful in making new discoveries of war related artefact items.

The Items found to date are being held by me and Cheryl Yap of the Raffles Institute with the intent of all artefacts being displayed with the Peck San Associate Committee at the "Becoming Bishan" exhibition. Mr Jeffery Sum, current president is open to the idea of displaying additional artefacts together with the rest of the "Becoming Bishan" exhibition. They are in the midst of improving their gallery area and open to collaborating and having



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visitors see the exhibits. Currently this arrangement is still under negotiation and yet to be confirmed.

Prospect area one: An area of interest close to the location of the Kayak sheds that has produced some interesting finds to date. Jon Cooper has carried out a preliminary small scale excavation of this location, indicating that it was close to 2/5th Battalion 'HQ' and access to and from the reservoir precinct.

Prospect area two: is the area directly around the front garden of the house, leading to the road heading south. Here some discoveries have been made of varying ferrous materials, a mix of 20th century rubbish and fragments of interest. There is a large amount of building debris and water pipes in this location, however, fragments of what appears to be smouldered bomb and shell casing has been found 2 to 3 inches under the surface.

Prospect area three: is on the north face, consistent with the advance of the Japanese 1/5th and 3/3rd Imperial Guards attack from a line and cover from Saint Theresa's convent, past the dog arm in the reservoir to a direct line up the hill towards the house and where the defence trenches where and are yet to be located. This area is densely overgrown with jungle canopy and has produced some Japanese bullet casings and mortar fragment.

Prospect area four: as yet, has not produced any conclusive evidence of the counter attack by the 2/5th Bedford's, in which Major Tom Wells was killed in action. So far this area has produced nothing but 20th century rubbish, other than an interesting feature resembling a dugout. Due to thick jungle and rains this exploration had to be abandoned.



Fig 12 – The Google Earth image of the site showing the location of the four areas of interest covered in these preliminary surveys to date.



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Fig 13a & b. – Prospect area three - Picture a is standing above the discovery of a single Arisaka round looking north and back down the slope towards the dog arm in the reservoir with St Theresa's convent. Picture b, is looking to the south and back up the Hill towards the house and defences.



Fig 13a & b – Picture a, is locating the aforementioned round with the use of a MINELAB PRO-FIND 25. Picture b, is the discovery of the find.

Each of these prospecting surveys have been carried out on individually by Jon and I, apart from our first walkover of the site in 2014 with the discovery of two fragments of British mortar fragments lying on the surface of the NW slope. This find was supporting of the barrage of British shelling on the Hill by the 118th R.A. on the evening of the 14th February 1942.

The prospecting survey carried out by Jon in 'area one' has produced the largest number of artefacts so far. The site is on the southern side of the Hill and consistent with the proposed location of the HQ, Supported with various items personal equipment's and electronic and radio transmission type components, such as switches. The site also produced type three gas mask eye pieces and some further mortar fuse fragments.

Area two produces multiple metal detector hits of varying types, some of which are certainly worthy of further investigation, however, the site in the area is littered with building debris



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containing metal wire, water piping and square box tube, causing many masked and corrupt readings, however, this site is worthy of a full survey to fully identify its full potential.

‘Area three’ is the latest prospect area to have been surveyed. This has included going over some ground previously prospect surveyed in 2015, that produced some positive metal detector hits on the lower reaches closed to the reservoir dog arm. Found on this occasion was Japanese mortar fragment, Bomb joiner casing and a single .303 casing round. The latest preliminary survey of this area has been carried out further up the hill on a line from the very end of the reservoir dog arm, on a direct line towards the site of the house, consistent with a line of attack with cover. Running the metal detector over this area, predominantly in an east west pattern produced a number of positive metal hits. What is reassuring on this side of the Hill is there is very little in the way of 20th century rubbish until you get close the remnants of the out buildings close to the turning circle for the house. Concentrated into approximately 10 square meters was the most significant find of eight bullet casings, seven Arisaka and one .303. The area has been photographed in the photographs in Fig 13a and b and with Lat long, as well as observed land marks.

The drawback of this methodology is that the location of the artefacts recovered is not accurately recorded and only the approximate coordinates are taken. However, the prospecting led to the discovery of a scattering of viable ‘hits’ across certain stretches of the entire Hill and is, however, encouraging to prompt and seek full permissions for more comprehensive surveys of those areas.

The Metal Detectors

My assumption, like previous surveys, Jon used a White’s Prizm Mk 6T metal detector and set to maximum sensitivity but the discrimination function was set to exclude ferrous materials (the first two settings muted). The operators had difficulty discerning between the many non-ferrous and ferrous hits in lying in such close proximity to one another. Tonal ID was not used as the constant pitch changes across a small area confused and annoyed the operators. Depth indicator was checked against the first isolated finds but as most artefacts were found in the unstable topsoil and interference by abundant ferrous material meant that the depth readings became inaccurate. Large ferrous items lying deeper in the earth tended to return a cluster of ‘non-ferrous’ readings or masked the returns from smaller non-ferrous material on the surface.

The detector I use is a Dues XP, wireless, 9" coil. Light weight and collapsible, very suitable for easy carriage and travel to remote areas. The settings menu is relatively complex and I prefer to use reactivity setting 0 to 5, on setting of 2, for “General use, and mineralised soils contaminated with Irons”. Depending on the reactivity level, one will notice that the length of the audible signal varies when it passes over the target. Low reactivity (0, 1) = long sound. High reactivity (3, 4, 5,) = short sound.

Once a hit was identified, the use of the Pro- lab pin pointer was most advantageous in locating the dug up article in the earthen clay soil, at times scattered in the spoil, or identified as being deeper in the dig, either way, extremely productive in locating the artefact.



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Survey Methodology

The soil on the Hill is predominantly clay based, heavier on the top around the site of the former house with a covering of 'tropical broad leaved grass' which was easy to uproot, however, contains a large amount of ferrous and Nonferrous debris material from the demolition of the house. There was substantial ingress of roots from neighbouring plants and trees hampering digging and aided with a steel garden planter for gentle persuasion.

Digging on the north facing slope proved to be much easier with a higher concentrate of organic foliage matter in the more dense jungle areas, providing a richer darker soil consistency that broke down better than the clay at the top of the hill. Mostly the finds in this area were 10 to 15 cm under the surface and easy to retrieve.

The weather was mostly fine except for the morning of November 14, 2016 when there was full cloud cover, causing poor visibility under the jungle canopy and latter increasing with rain to a point that the ground became wet clay clinging to all the equipment's and digging aids. Exploration on this day started at 9.00 am and concluded at 1.30 pm due to constant down pouring of rain.

Distributions of Artefacts

This report will identify the distribution of artefacts found so far from the prospect areas one to three. To date prospect area four has not been prospect surveyed on any scale and is yet the most probable path of the 2/5th Bedford's counter attack. I am not able to account for discovery of the artefacts found by Jon in prospect area one, other than their general location and identification of the items by photographs taken by Cheryl Yap and transferred to me by webmail.

Undoubtedly the most significant area of battle activity has been located in prospect area three, the Japanese line of attack on the house and strong hold on the top of the Hill, with the discovery of eight bullet casings, four in one location. We are yet to discover the defence trenches that have been described in many accounts of the battle however, I am sure, will be discovered over the course of time with the conclusion of a more comprehensive survey.

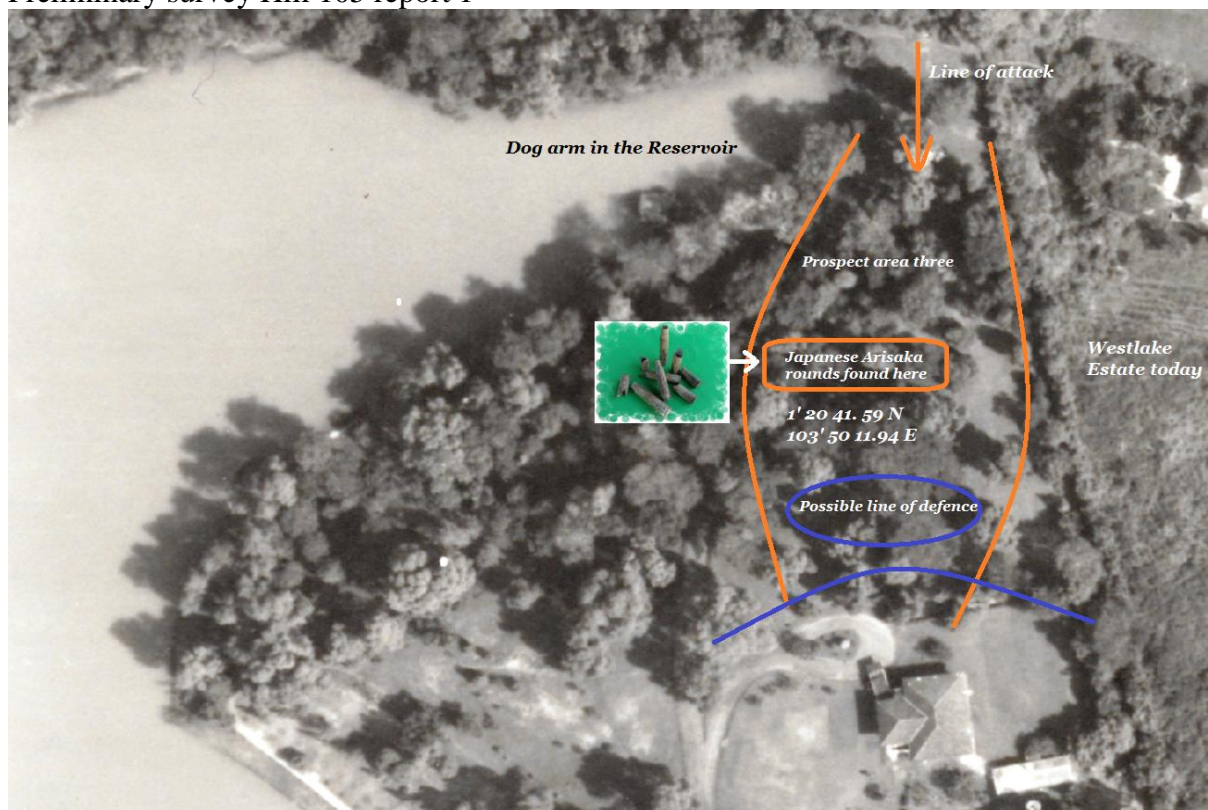


Fig 14 - Aerial RAF photograph of the Hill (21/12/1954), demonstrating the Japanese advance through prospect area three. Photo held at the National Archives Singapore.

On the whole each of the artefacts in this zone were clearly defined by the metal detector and lay between 15 to 20 cm below the surface, mainly due to the unspoilt preserved locations of the national park and seasonal drop of foliage and matter breakdown progressively over the past seventy four years.

The majority of the artefacts found to date have occurred in the prospect areas one and three, area one being close to Battalion “HQ” and prospect area three a very unspoilt north facing slope that has not been over populated or trodden over time.

Working alone is most disadvantageous, however, has proven productive in the respect of identification and the marking of prospective sites for future survey’s to be conducted. My work alone has been primarily due to my limited amount of access time due to living in Perth Western Australia and flying in and out of Singapore on short visits, however, has not presented an obstacle and prevented my work from slowly progressively continuing on.



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Artefact Catalogue

Firstly I will concentrate on the artefacts found in “Prospect Area One” by Jon Cooper of “TAPP”, 12th December 2015, followed with area two and three.





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Fig 15 - Aerial RAF photograph of the Hill (21/12/1954), showing Prospect Areas one two and three.⁵ Photo held at the National Archives Singapore.

Prospect area one (P.A. 1);

The vast majority proportion of the relevant finds in area one was either, a small number of spent cartridges, shell fragments, gas mask eye pieces, electrical fittings, 10 cent coins, mortar fuse fragment or webbing accoutrements. Other items which may have seemed unrelated when excavated have proven to be of passing interest. So far in total, approximately 60 WW11 artefacts have been recovered from the Hill across the four prospect areas. There follows a summary table of the relevant items revealed.

Number	Location	Name	Code	Location - Prospect Area One	Description
1	Hill 105	MkIII Gas Mask Eyepieces x2	105 / PS / 001	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Eye pieces from British Gas- Mask, Possibly a MK.111.
2	Hill 105	Shell fragment	105 / PS / 002	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment. Green tarnishes indicating elements of copper.
3	Hill 105	Shell fragment driving band	105 / PS / 003	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.
4	Hill 105	Unable to be found			
5	Hill 105	Metal tubing	105 / PS / 005	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Metal tubing of some description.
6	Hill 105	Electrical fitting	105 / PS / 006	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Electrical fitting of some description
7	Hill 105	10 cents coins	105 / PS / 007	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Local coins, period to be identified.
8	Hill 105	Shell fragment	105 / PS / 008	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment, possible shell threaded band, or fragment of mortar fuse.
9	Hill 105	Shell fragment	105 / PS / 009	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment. Possible aircraft deployed or Mortar/Field gun.
10	Hill 105	Shell fragment	105 / PS / 010	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment. Possible aircraft deployed or Mortar/Field gun.
11	Hill 105	Shell fragment driving band	105 / PS / 011	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.
12	Hill 105	Shell fragment	105 / PS / 012	1,20' 36.84" N 103, 50' 08.25" E	Shell fragment, possible shell threaded band, or fragment of mortar fuse.
13	Hill 105	Unable to be found			

⁵ From this point, the Prospect Areas will be referenced as P.A. 1, P.A. 2a & b and P.A. 3.



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14	Hill 105	Webbing buckle	105 / PS / 014	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	20 mm Webbing adjustment buckles, used to lengthen or shorten harness.
15	Hill 105	Cartridge	105 / PS / 015	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Appears consistent with a British .303 bullet casing cartridge, base measurement of 13.27 mm. (Ref: http://www.adamparkproject.com/virtual-museum/riflelite.html)
16	Hill 105	Shell fragment	105 / PS / 016	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment. Possible aircraft deployed or Mortar/Field gun shell
17	Hill 105	Shell fragment	105 / PS / 017		Shell fragment. Possible aircraft deployed or Mortar/Field gun shell
18	Hill 105	Shell fragment	105 / PS / 018		Shell fragment, possible shell threaded band, or fragment of mortar fuse.
19	Hill 105	Webbing buckle 50 mm	105 / PS / 019	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	50mm Webbing buckle consistent with main waist harness strap adjustment
20	Hill 105	Mechanical electrical tubing	105 / PS / 020	1,20' 36.84" N 103, 50' 08.25" E	Mechanical electrical fittings were widely used on military equipment, such as radio communications and weaponry.
21	Hill 105	Shell fragment driving band	105 / PS / 021	1,20' 36.84" N 103, 50' 08.25" E	Shell fragment - Driving band.
22	Hill 105	Unable to be found			
23	Hill 105	Unable to be found			
24	Hill 105	Shell fragment driving band	105 / PS / 024	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.
25	Hill 105	Electrical fitting	105 / PS / 025	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Electrical fitting possible field radio
26	Hill 105	Unable to be found			
27	Hill 105	Shell fragment	105 / PS / 027	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment. Possible aircraft deployed or Mortar/Field gun shell
28	Hill 105	Shell fragment	105 / PS / 028	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Possible Shell threaded band, or fragment of mortar fuse.
29	Hill 105	Electrical fittings	105 / PS / 029	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Electrical componentry, possible radio set/solenoid.
30	Hill 105	Shell fragment driving band	105 / PS / 030	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.
31	Hill 105	Iron fragment	105 / PS / 031	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment, appears to be bomb casing Iron construction.
32	Hill 105	Lead fragment	105 / PS / 032	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	The middle of the shell, typically made of gilding metal,[1] copper or lead.
33	Hill 105	Shell fragment	105 / PS / 033	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
34	Hill 105	Shell fragment driving band	105 / PS / 034	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.



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35	Hill 105	Shell fragment	105 / PS / 035	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
36	Hill 105	Shell fragment driving band	105 / PS / 036	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Shell fragment - Driving band.
37	Hill 105	Cartridge	105 / PS / 037	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	Appears consistent with a British .303 bullet casing cartridge, base measurement of 13.27 mm. (Ref: http://www.adamparkproject.com/virtual-museum/riflelite.html)
38	Hill 105	Unable to be found			
39	Hill 105	Fuse	105 / PS / 039	1,20' 36.84" N 103, 50' 08.25" E	Possible British mortar fuse No. 119 - AMI/C, striker cover and safety catch
40	Hill 105	Unable to be found			
41	Hill 105	British fuse	105 / PS / 041	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	British mortar fuse No. 119 - AMI/C - (1/41 = Month and year of Filling) Data sheet attached >
?	Hill 105	"Wood" found with?? ?? Pieces	?		



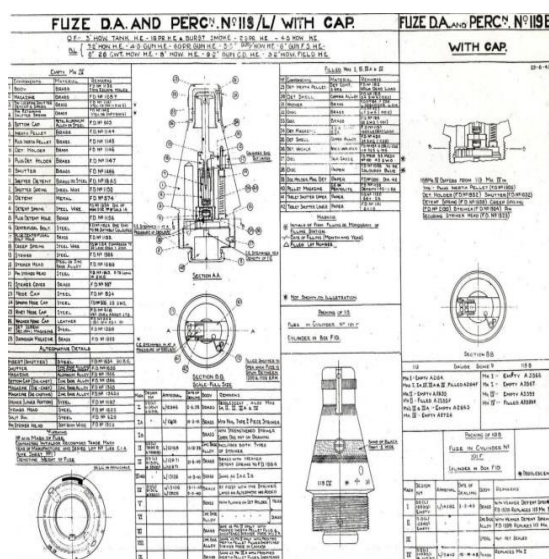
Fig 16a & b, – a, type three gas masks eye pieces, b, 6 x gas mask buckles.



Fig 17a, b & c, - 5th Bedford's donning their gas masks in training and photo, c, an example of a type three mask.



Fig 19a, b & c, - Electrical components, typical electrical type, possible radio set/solenoid commonly used in light tanks and transport, 1940 onwards.



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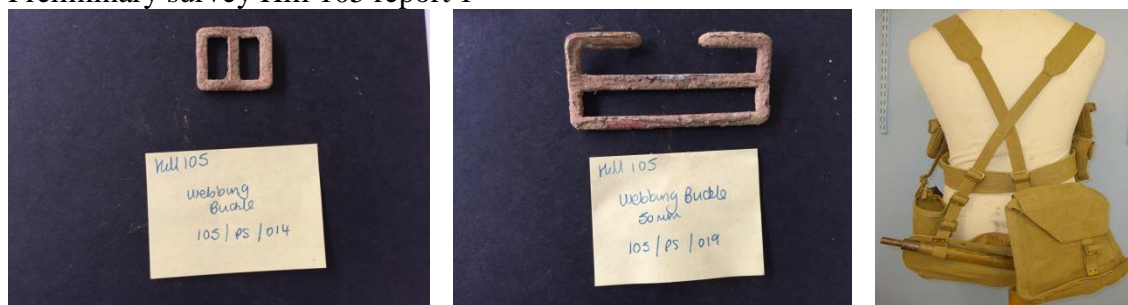


Fig 21a, b & c, - 20 mm and 50 mm Webbing adjustment buckles, used to lengthen or shorten harness. (105/PS/014, 20mm and 105/PS/019. 50 mm webbing buckles)

Prospect area two (P.A. 2a & b):

On Saturday November 12, 2016 a field study tour was conducted with Cheryl Yap and 14 boys from the Raffles Institute museum club, (directly around the front garden of the house). The object of the exercise was to educate the boys on their local war history for them to better understand what happened 75 years ago along Thompsons road and in the close vicinity of their school grounds at Hill 105.

So far on preliminary Prospecting surveys of the site we have turned up some small fragments of shell casing, a coin and some larger melted ferrous metal constant with bomb casing fragments, as well as what appears to be part of a tool or ammunition box. The garden area holds vast amounts of ferrous and non-ferrous objects and mild steel wire, providing plenty of metal detector activity. There are many unused steel water pipes about 30 cm below the surface and a large network of tree roots making digging difficult in various places.

Somewhere in the front garden is the first burial grave site of 5957372, Lance Sergeant Ralph Collingridge, Killing Action Hill 105, 14/02/1942 and recorded as, "Killed in action, buried front garden of private house, M.R. 835155", the site of the house is 835156. Further survey of the garden area would have the potential to formally locate the grave site. Today Lance Sergeant Collingridge is buried at the Kanji commonwealth war cemetery, Collective Grave.14.D. 4-11.



Fig 22 – Extract from the Beds and Herts B.R.E. Roll, WO361/2111, held at the National Archives, Kew Gardens.



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Fig 23 – View looking north in the front garden where the shell fragments were found and shown in Fig 24a & b.

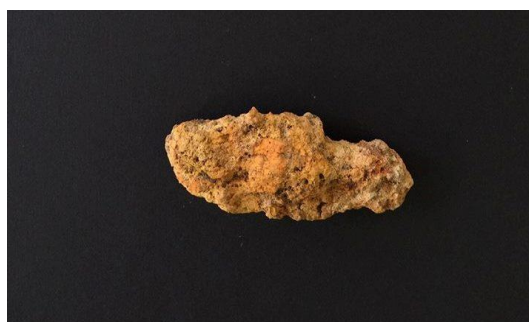


Fig 24a & b – two pieces of shell fragment found in P.A. 2a.



Fig 25 – Items found 12/11/2016, small coin and a piece of driving band shell fragment found close to the front garden area (P.A. 2b)



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Prospect area three:

The Typology of the used rounds

There were three types of used cartridges found at P.A.3, Hill 105; two of which were Arisaka 6.5mm and 7.7 mm rounds and two single standard issue British .303 rounds. In addition, four more rounds are yet to be formally identified found in P.A. 1, held with the collection of artefacts at the Raffles institute with Cheryl Yap. Total rounds discovered 13.

Item Number	Description	Location	Notes	Weight	Length	Type	Head stamp	Manufacture	Rim Dia	Base Dia
105 - 001	Bullet/fired	P.A. - 3	Japanese / notable/ Badly damaged	6g	26.5	British .303	K↑F 1941 VII	Kirkee	13.5	11.4
105 - 002	Bullet/fired	P.A. - 3	Japanese / notable	8g	35.9	British .303	K↑F 1941 VII	Kirkee	13.5	11.4
105 - 003	Bullet/fired	P.A. - 3	Japanese / notable	10g	56.5	Arisaka 7.7 mm	Not Marked	Not Known	13.4	11.5
105 - 004	Bullet/fired	P.A. - 3	Japanese / notable	12g	58	Arisaka 7.7 mm	Not Marked	Not Known	13.4	11.5
105 - 005	Bullet/fired	P.A. - 3	Japanese / notable	10g	57	Arisaka 7.7 mm	Not Marked	Not Known	13.4	11.5
105 - 006	Bullet/fired	P.A. - 3	Japanese / notable/ case intact	8g	38	Arisaka 7.7 mm	Not Marked	Not Known	13.4	11.5
105 - 007	Bullet/fired	P.A. - 3	Japanese / notable/ case intact	8g	50	Arisaka 6.5mm	three grooves	Not Known	12	11.2
105 - 008	Bullet/fired	P.A. - 3	Japanese / notable/ Badly damaged	6g	30	Arisaka 6.5mm	three grooves	Not Known	12	11.2
105 - 009	Bullet/fired	P.A. - 3	Japanese / notable/ Badly damaged	6g	23	Arisaka 6.5mm	three grooves	Not Known	12	11.2

The .303 Rounds fired on Hill 105

The standard British rifle round, the .303 used in the bolt action SMLE. The most common weapon carried by the British in Singapore was the .303in bolt action SMLE (Short Magazine Lee Enfield) Mk 3. This used a 10 round charge loaded detachable magazine, had an effective range of 600yds and a maximum range of 2000yds. It weighed 8lbs 14.5oz and was an unwieldy 3ft 8 1/2 inches long. When the No.1 Bayonet was added it extended to a length of 5ft 12 3/4 inches.

It is anticipated to find more .303 British rounds on a south face side of the Hill in future survey, adjacent to Hill 80, as well as in defence of the house on the summit.



Fig 26a & b, - a, The SMLE (Short Magazine Lee Enfield) Mk , b, New recruits parading with their Lee Enfield's at Kempston Barracks in 1939.

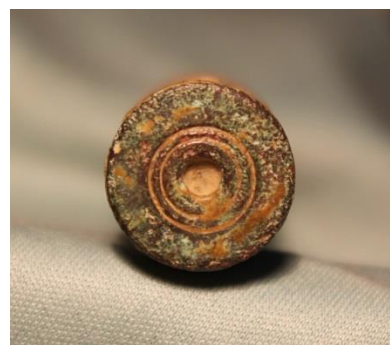


Fig 26a, b and c, - a, head stamp of .303 round(British), b, 6.5mm, three groove head stamp(Japanese) and c, 7.7 unmarked head stamp (Japanese).

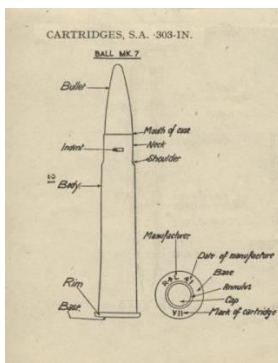


Fig27 a & b, - a, diagram of the Ball mark 7 cartridge, b, two fired examples, .303 British rounds



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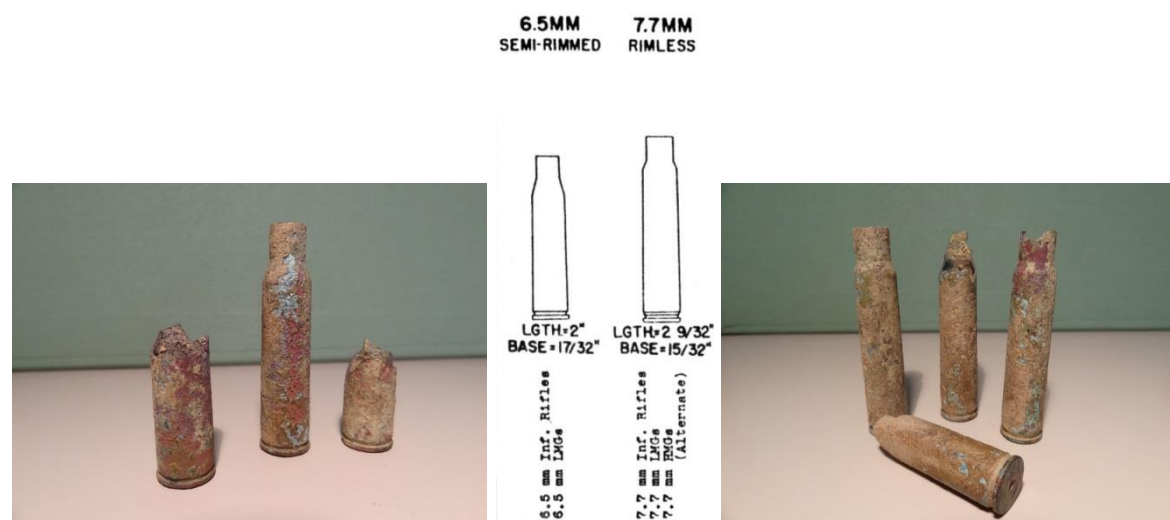


Fig 28 a and b, - a, Three 6.5mm Japanese Arisaka rounds, four 7.7 mm Japanese Arisaka rounds, all carefully cleaned and identified by base markings and dimensions compared to specifications.

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 rear sight, 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.



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Fig 29 – The Bren gun being demonstrated to new Beds and Herts recruits in Luton, 1939, and used in action on Hill 105. Photo source, Bedfordshire Times and Independent.

The Use of the Arisaka 6.5mm Round.

The standard issue rifle for the Japanese soldier in Singapore 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.

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



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Fig 30 - Japanese Arisaka Type 38 rifle, 6.5 mm calibre rifles.

Distribution of Ordnance

Notably the distribution of small arms ordnance in P.A 3 is supportive of the Japanese advance on the Hill from the north. Evidence of Japanese air and mortar attack is also present with the discovery of shell joining band and mortar fuse, with more to be expected with future survey.

From the point of view of the reported British bombardment, there has been evidence on the surface on the NW slopes, with the discovery of two pieces, as well as below the surface at P.A. 1. close to the kayak sheds. It is not expected to find any ammunition dumps, however, could hold small drops from returning patrols to the central area where arms were surrendered. This exact location is still under research, however, could have been anywhere south wards from Braddell and Thompson "X" roads.

Mortar fuse and Shell Fragments

Seven confirmed pieces of various mortar fuse fragments have been identified to date across the Prospect areas, P.A. 1 and 3. NW-s = North West slope.

Item Number	Description	Location		Date / Prospector	Notes
105 / PS / 039	Fuse end cap/ safety catch	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC	
105 / PS / 041	No. 119 Fuse (British)	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC	X2, Same Location.
105 / - / 013	No. 43 Fuse (British)	1,20' 42.24" N	103, 50' 08.45" E - NW-S	02/03/2015 ,JC/MF	
105 / - / 014	No. 119 Fuse (British)	1,20' 42.24" N	103, 50' 08.45" E - NW-S	02/03/2015 ,JC/MF	
105 / - / 015	Fuse end cap/ safety catch	1,20' 41.59" N	103, 50' 11.94" E - P.A. 3	24/04/2016, MF	
105 / - / 016	No 8 Japanese fuse?	1,20' 41.59" N	103, 50' 11.94" E - P.A. 3	24/04/2016, MF	
105 / - / 017	Shell joining band (883)	1,20' 41.59" N	103, 50' 11.94" E - P.A. 3	24/04/2016, MF	
105 / - / 018	Shell component	1,20' 41.59" N	103, 50' 11.94" E - P.A. 3	24/04/2016, MF	

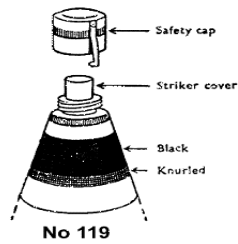


Fig 31 - Possible British mortar fuse No. 119 - AMI/C, striker cover and safety catch.



Fig 32a, b and c, - a, No. 119 mortar fuse fragment (see data sheet in Fig, 20 b), b, No. 43 mortar fuse fragment (both a & b are British fuse, located on the surface on the NW slope, c, What appears to be Japanese mortar fuse fragment, stamped with the Japanese symbol for No.8, (八), discovered in P.A. 3



Fig 33 – Appears to be a shell or Bomb casing joining band, stamped with the number 883 on the rim. Located, P.A. 3.



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Driving Bands

The amount of shell fragments found in P.A. 1 provides good examples of the typology of the items and suggests that more can be expected with future survey of the site. These examples show the distinctive offset grooving on one side and lateral grooves on the other, distinctive of the driving band found on many artillery shell types.

The driving band or rotating band is part of an artillery shell, a band of soft metal near the middle of the shell, typically made of gilding metal, [1] copper or lead. When the shell is fired the pressure of the propellant swages the metal into the rifling of the barrel, providing a seal preventing the gases from blowing past the shell and engaging with the rifling to spin-stabilize the shell. In a small-arms rifle, the entire bullet is typically covered in copper or a similarly soft alloy, so the entire bullet is its own driving band.

Description	Identification	Location - P.A. 1	Item
Shell fragment driving band	105 / PS / 003	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 011	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 021	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 022	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 024	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 030	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
Shell fragment driving band	105 / PS / 034	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	

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Shell fragment driving band	105 / PS / 036	1,20' 36.84" N 103, 50' 08.25" E Close to kayak sheds.	
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Fig 34 - One other piece of shell fragment with driving band was found by the RAM boys club, 12/11/2019, P.A. 2b

In total, 25 items relating to shell fragments have been discovered across Hill 105 and showing consistency with the bombardment from Japanese air and mortar attack, as well as the bombardment provided by the 118 field regiment on the night of the 14th February.

Item Number	Description	Location		Date / Prospector
105 / PS / 002	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 003	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 008	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 009	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 010	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 011	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 012	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 016	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 017	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 018	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 021	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 022	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 024	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 027	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 028	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 030	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 033	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 034	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 035	Shell fragment	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 036	Shell fragment driving band	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / PS / 38	Shell fragment (No marking)	1,20' 36.84" N	103, 50' 08.25" E - P.A. 1	12/07/2015, JC
105 / - / 010	Shell fragment	1,20' 38.92" N	103, 50' 10.48" E - P.A. 2a	11/11/2016, MF
105 / - / 011	Shell fragment	1,20' 38.92" N	103, 50' 10.48" E - P.A. 2a	11/11/2016, MF
105 / - / 012	Shell fragment driving band	1,20' 39.55" N	103, 50' 10.44" E - P.A. 2b	12/11/2016, RM-BC



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Webbing Buckles

There was only three items of webbing found on site P.A. 1 and shown in in Fig 21, a & b. Item 105/PS/014 is a single bar closed webbing buckle designed to take a 20mm strap. It is a buckle from a set of British Type 37 webbing. Items 105/ PS/013 and 105/ PS/019 is the strap end to a 50mm strap probably from the end of the shoulder strap or possibly from the waist belt.

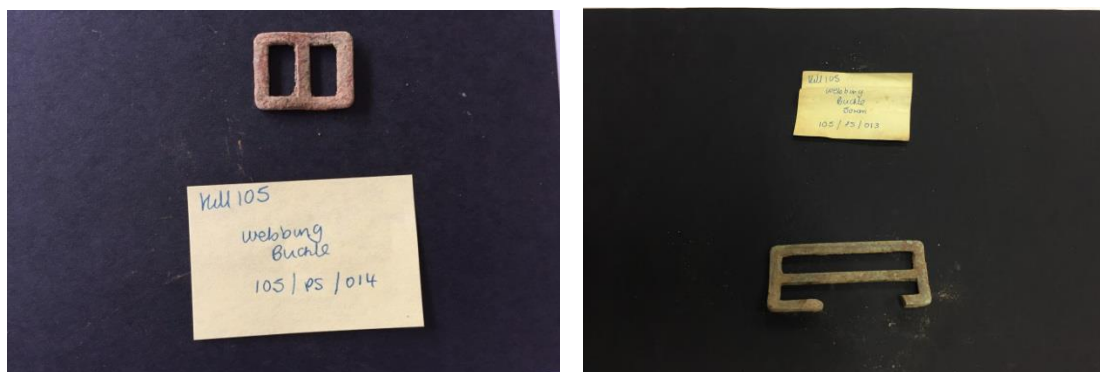


Fig 35a & b, - a, 20mm webbing buckle, b, 50mm webbing buckle.

It is not expected that there would have been a large dump of equipment on the site, there than perhaps the forward patrols. By the time the surrender was formally communicated, most of the Battalion had been withdrawn to the line at Braddel and Thompson “X” roads as well as Hill 80. Hill 80, prior to its hospital and residential redevelopment would have certainly provided some interesting evidence.

Coins

Two coins were discovered by the Raffles Museum Boys Club



Fig 36 – Coins yet to be identified.



Conclusion

With the best interests at heart for the memory of the allied personal that fought at Hill 105, I feel that it is imperative that the events that took place during the battle for Singapore on the eastern end of MacRitchie reservoir is preserved for future generations, in Singapore as well as for the families of the ones who were lost in battle.

So far we have only scratched the surface into the archaeology that supports the written history in war diaries and personal accounts. What is left to discover can only be determined with further panning and structured surveying of the site? The integrity of the site has been mostly preserved by the fact that it is national park and uninterrupted by 20th century infrastructure. While there is a large amount of general human useless waste that has accumulated over the past 75 years ago, since the surrender of Singapore, the war evidence still remains relatively intact, just under the surface.

Hill 105 presents an incredible opportunity as a significant recognised battle site in Singapore. Not only was it one of the last lines of defence, it was also the last line of defence for the water supply to Singapore city itself and perhaps, due the failings in the communication lines, was not clearly known to still be held just prior to the capitulation.

The next steps are clearly to engage the appropriate authorities in Singapore at National Parks and the Singapore Heritage board, to ensure the site is adequately preserved as a WW11 battle site. Secondly, what must not be over looked is the fact that the site and house is in fact a murder scene, where five prisoners of war were brutally murdered in cold blood (JM/12).

My aim, as a joint venture with Jon Cooper of “TAPP” and Cheryl Yap of the Raffles Institute, is to continue our work by approaching the local authorities in Singapore for official permissions to formally proceed with a structured survey of the whole site. From the point of a mutual respect for the men who lost their lives on the Hill, I would like to see heritage recognition for the well documented events of this report, during those fateful days on the Hill, over the 12th to 15th February 1942, and to honour the men that perished in vain, in an attempted to bring closure to their families.

As for the collection of artefacts, already cleaned and recorded. The intent is for these items to become an exhibit with the Peck San Theng Association, who are currently redesigning their gallery and agreed to exhibit the Hill 105 artefacts as well at the ones connected to the 2nd Cambridge battalion who fought on the grounds of the school.