

South Site Evolution

by Peter Stone

I have access to three partial maps of the South Site. These are dated 1894, 1923 and 1972. From these I have tried to glean some of the history of the buildings that were present when I worked there. I have to say that my copies of the maps are rather indistinct. Any errors in that which follows are mainly due to this and to my failing memory.

I was unaware at the time I worked at Waltham that some of the buildings used by my Section (P1) may well have been the core of the first Cordite Factory. It seems to me, comparing the 1894 and 1972 maps, that some of the original Victorian Cordite factory buildings were still in use in 1972. The buildings used as laboratories and main offices by the Cast Double Base (CDB) Section for instance. The photograph of Ron Ayhurst's retirement (page 17) shows what looks to me like Victorian windows in N562/3. There is evidence of bricked up of holes high in this wall. Might it be that pipework had been removed from when the building was used for Cordite manufacture? Some of the buildings, in the cluster south and west of N562 in the 1972 map (page 16), appear to correspond to those in the 1894 and 1923 maps. These buildings are those, designated with "N" numbers in 1972, shown in the table on page 13.

On the 1894 map (page 14) a "Proof Range" is shown. This had been repurposed by 1972, the Butts becoming the mounding for M350. There was a building that we called the Box and Tray store, this is possibly M349? It maybe the Acetone Store marked on the 1894 map. When I visited it with the Foreman, Len Health, it was full of 2 inch aircraft rocket bodies of WWII vintage plus a large quantity of beeswax. This was presumably for adding to High Explosives for shell filling in WWII.

I commented to Len that my mother in law had an original Mrs Beaton's, which had a recipe for furniture polish made of beeswax. Len was very keen to get a copy and I obliged. Thereafter I got preferential treatment when I needed his assistance!

I have written before about derelict buildings from the original Cordite Factory (Touchpaper Autmun 2022). There were the two light weight sunken round buildings designed by Col Majendie after the explosion in 1894 (483 and 484 in 1923). Also, an old two storey double building marked "N Ho No1" and "N Ho No2" in 1894, which must have been the original nitrating buildings for making Nitroglycerine. These could have been the buildings used later by ICI and seem to have developed into a larger group by 1923; but only N Ho No1 survived to 1923 and this was derelict by 1972. Adjacent to them to the north east Building N542 (1972) was 476? in 1923. The Glycerine Store was 572? in 1923 and N540 in 1923. The three Acetone Stores were 480, 481 and 482 in 1923 but possibly only one N550 was left in 1972.

The Water Tower (1894 map and 478 in 1923), now dismantled and rotting on the North Site, which supplied the original Cordite Factory survived until the closure of the site. The Guncotton Stove G.C. 2 from 1894 Map still had tram lines going into the entrance in 1984. Note the tram lines shown over the whole site on the 1894 plan. These were derelict, but still present in 1972.

There was an Explosives Storehouse (N547) used by CDB shown on the 1923 Map. I remember that the Gritless asphalt floor was particularly plastic. Heavy boxes would sink into it and leave an imprint; however, unlike some of the later gritless asphalt floors there was no cracking. It is present on the 1923 map as 491. Although not used by P1, N545 (474 1923 map) was the feature marked "Magazine" on the 1894 map. I believe that this may have been the building that had an elephant hide covered floor. Also, M348 (492 in 1923) was probably the blending house from 1894.

The two gaps north and south in the mound, where the tram line came through, are shown on the 1972 map. There is a “Dining and Shifting House” (1894) shown in approximately the position as the building used for the same purpose (P701) in 1972. Although my recollection is that it did not look Victorian.

Ponds are marked on the 1894 plan. We had a settling pond as the last trap to collect any Nitroglycerine from the process of mixing it with Nitrocellulose. It was blown with a small charge periodically to ensure explosives did not build up in it. It was in a slightly different location I think, possibly where N580 is shown.

The River Stoves are shown on the 1923 map. I had no idea that they dated from as early as that. They were numbered from R601 to R607 when I used them. We used them as Explosives Storehouses. We always had trouble with keeping the temperature down because, as Stoves, they were designed to run at 60 degrees Centigrade. Each building had a wood shelf with a cover (these had been painted red at some time in the past) near to the door. We often debated what they were for. One theory was they were for recording the building temperature, in the book provided for that purpose, when it was raining! It was only when I joined Safety Services that I saw my first copy of the MoD(PE) Explosives Safety Regulations and I discovered that they were Unheading Shelves. According to these Regulations it was not permitted to open boxes of explosives inside Storehouses. It had clearly been intended that they should be taken outside and put on the shelf prior to removing the lid. This had been completely forgotten by the P1 group and so we happily opened boxes inside the buildings. And since the only copy of the Regulations was held by the Safety officer we never knew.

In our defence we did have some buildings where we kept unboxed explosives (strictly speaking called Magazines), and this is an unusual occurrence. Some, such as dry Nitrocellulose (this is particularly sensitive to friction), were kept in bags and we wore socks rather than shoes in this building.

We did in fact have an ignition of a small quantity of dry NC on one occasion. A bag of it was being moved across the floor when there was a small bang. It was decided that there must have been a small pocket of it in an indent on the floor. Fortunately, it did not communicate to the bag!

I was given to understand that the River Stoves were constructed so that the relatively weak board and felt roof would fail so as to relieve the pressure should there be an accidental ignition of the contents. After I left Waltham there was indeed an initiation in R607 and an eye witness (an MoD Police officer) confirmed that there was a jet of flame of over 100 foot height. I wonder if it was a sample of propellant that I had made that had ignited? Cordite needs to be tested regularly for stability. When I joined Safety Services I discovered that most of the MoD had forgotten this fact. I spent a good deal of my time educating people in the MoD about this. Regular testing had even been abolished by the Army, as they thought proof firing (a check on performance in the gun) was all that was needed.

We have, in previous copies of Touchpaper discussed the possibility of Gun Powder having been made on the South site. Apart from the small scale manufacture carried out in the recent past (Mike Evans *The Last of the Powdermen* - Summer and Autumn 2019), I believe that it was manufactured on a large scale somewhere in the north west of the site around 1894. There is a feature described as a "Powder Wharf" on the 1894 map. Also, I recall one, or possibly two, Gunpowder accidents in facilities close to that feature being mentioned in old Board of Inquiry reports. The elephant hide floor of N545 might indicate that this building was used for handling Gun Powder.

My copy of the 1923 map only shows three buildings, 608, 609 and 610 south of the Black Ditch and in to the east. I was fascinated to see these as they correspond to the positions of P703, P704 and P705. I worked in all these three.

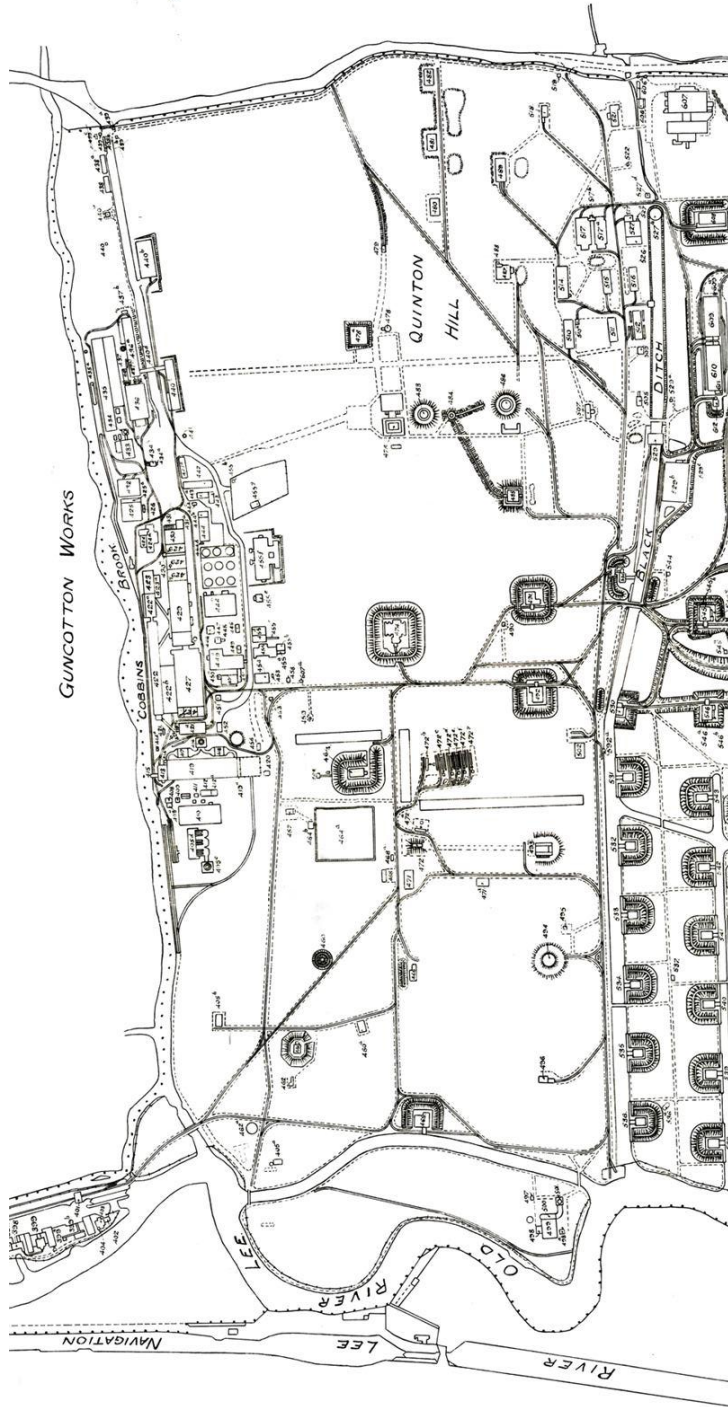
P703, a mounded building, was the Cordite Stove for drying solvents from gun propellants and casting powder. P704 was Combustible Cartridge cases research and laboratories. P705 was Cordite Rolling, where mixed Cordite ingredients were passed between heated rolls to gelatinise them. I had always assumed that these buildings were constructed in WWII or shortly afterwards when the Research group were moved to Waltham from Woolwich.

It is interesting to note that there are some stables marked on the north east of the site in 1894. Also of note is the empty mound between R608 and R610. Clearly there had been a previous incident in the River Stoves. I have not commented in detail on the area north of the South Site. This is partly because I was never involved with this area. It was the domain of the Chemical Engineers and other strange groups and I rarely visited it. Also, the Stores were there and the Site Maintenance and General Engineering. In 1894 there was the very large Guncotton Works. These buildings seem to have survived and been added to by 1923; they seem to have been completely rebuilt by 1972.

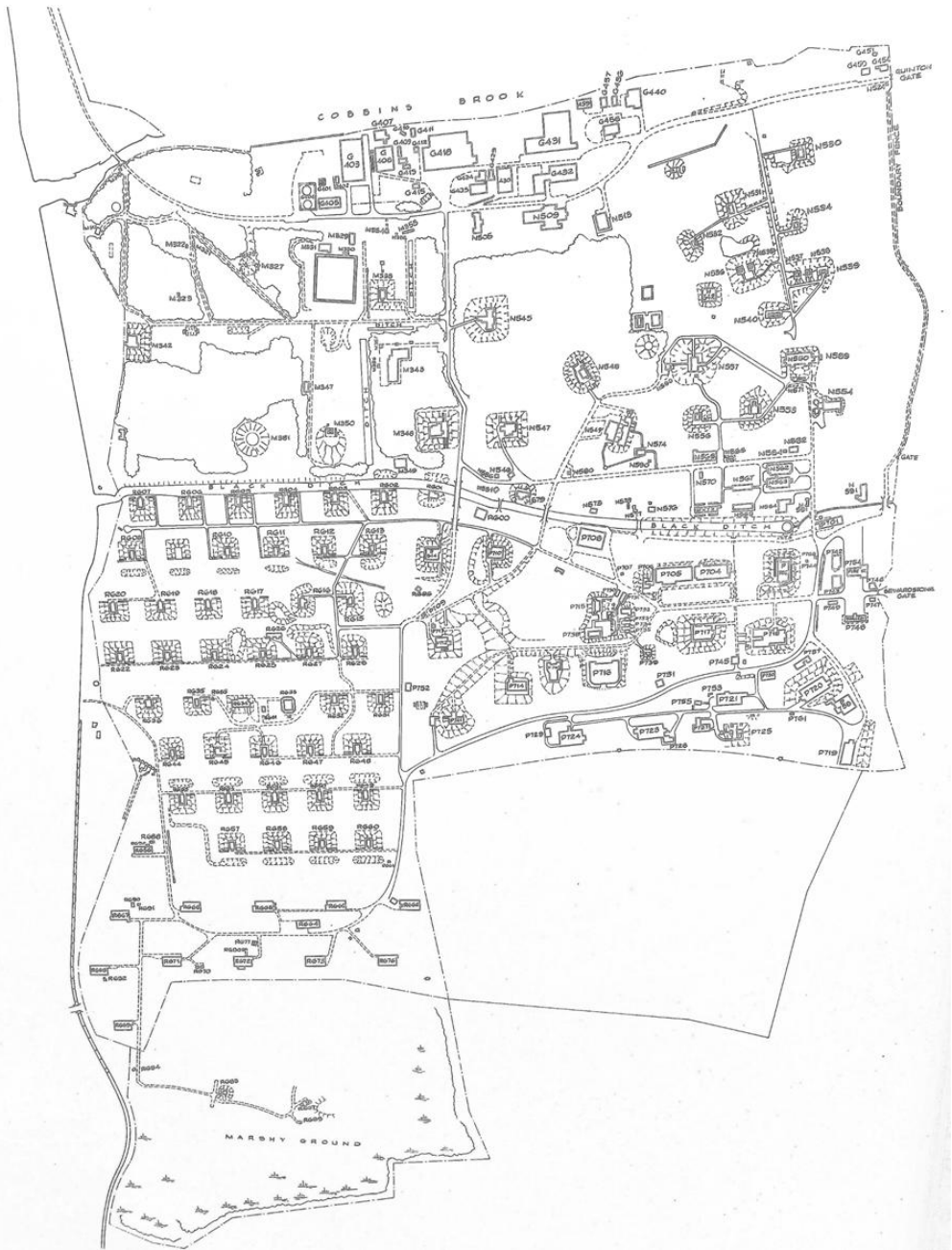
Waltham was a Research Establishment when I worked there, and in my mind, I had always regarded it as just that. But of course, it had been the main supplier of Cordite for the UK land forces from 1894 until around the start of WWII. Hence the large number of buildings present in 1923. The Bishopton Factory, together with ROFs Wrexham and Ranskill, were constructed as an emergency measure for WWII production. Being further from the Continent they were considered to be more difficult for the Luftwaffe to reach. Dr Colin Lawson, the onetime Superintendent of P1, used to say that we were an insurance policy. If there was another European war, he thought that we would form a core of staff who could open new Ordnance Factories. There is another European war but where are the Ordnance Factories let alone the people to open new ones?

1894	1923	1972
Press Ho 1	S17	N562/3
Reel Stove	483?	Not Present
Boiler Ho	S27	N564
Inc Ho	515	N567
Inc Ho (Adjacent Black Ditch)	512	N572
Ditto	516	N568
PH2	S14	Not Present
Reeling Ho	S10	Not Present
Not present	462	M326/7
GC Stove 3	Feature East of 462	Not Present
Cordite Magazine	465	M342
Glycerine Store	572?	N540
Not Present	476	N542
Acetone Store East of Water Tower	480	Possibly N550
Ditto	481	Not Present
Ditto	482	Not Present
Proof Range	493	M350
Acetone Store	502?	M349
Washing Ho	483	No number
NG Store	484	Unmapped
N Ho 1	476?	No number
N Ho 2	No Number	No Number
Water Tower	478	Small Circle
GC2	494	M351
Not Present	491	N547
Magazine	474	M545
Blending Ho	492	M348
Dining Shifting Room	605?	P701

Inc Ho is Incorporator House. GC is Gun Cotton.
N is Nitrating. NG is Nitroglycerine.
PH Press House perhaps



South Site Plan 1923 WAMP 85a



South Site Plan 1972