

## White Lea, Alfold: Secret Site

Research Department, Shrewsbury, 19th May 1942.

### Transfer of Langhurst to P.W.D.

*It is to be regretted that this decision was taken without consulting me. The work being done there involves not only the War Office, but also the Admiralty and Air Ministry to whom the Ministry of Supply owe certain obligations. It is not clear that these have been sufficiently discharged. Langhurst Experimental Station is an integral part of my Department and includes amongst other things a workshop in which are housed machine tools salvaged from destroyed workshops at Woolwich. This workshop is required to do work for other parts of the Department as well as for Langhurst, and in particular for **the Low Pressure Ballistics section at White Lea**. Machine tools are extremely hard to obtain, and I cannot agree to release this workshop to P.W.D. who doubtless have workshops of their own which would do whatever machining they require. To avoid a quite unwarrantable hold up in urgent and important ballistic work for the other Services **I must therefore request that a new shop be constructed at White Lea, and that the Research Department machines be transferred there, together with the fitters to work them.** Other administrative matters connected with the transfer will be dealt with separately, but immediate action regarding the Workshop is necessary to avoid delay to Admiralty and Air Ministry investigations.*

*Chief Superintendent Research Department*

*Posted on Sussex History Forum website May 27, 2011. Langhurst is the parent location near Horsham, where secret research into petroleum warfare was undertaken.*

We venture just outside the parish and county along the A281 to White Lea towards Alfold Crossways, near the 50mph sign, or if you prefer to walk, along Hook Street. The reason is a secret, but I think enough time has elapsed to reveal it here. Not quite in the Bletchley Park league, this is a story of wartime secret experiments, and the buildings for them which stood until recently.

### **Location and background**

White's Farm was much like any other local farm until it was bought by Bermondsey tanner, Jonah Oastler, in 1865. He built up an estate centred on the farm which became one of the largest, certainly in Alfold. It included over 300 acres in Rudgwick, as the estate included Upper Hillhouse, which later became Pallinghurst, and now is Rikkyo School. Rather than build a big house at White's, Jonah moved into the grander Loxwood House, presumably renting from the King family who had owned it for centuries.

A few years after Jonah's estate was sold in 1890, White's was burnt to the ground. A timber-framed barn survives, now a Listed building. Mrs Edith Cammell the next owner re-named it Whites Lea, building a new larger house with internal fittings borrowed from a liner's re-fit. Mrs Cammell was widow of Minard Cammell whose Sheffield steel company became one

half of Cammell-Laird shipbuilders, and built many Cunard ships. Edith lived there until her death in 1934.

The next owner, a Mr Rose, had his house requisitioned in the Second World War, primarily for accommodating land girls. More significantly, in 1942, 10 acres around the farm buildings became a Ministry of Supply secret facility, solid permanent structures (sadly no longer standing) for the express purpose of developing the technology for an ejector seat for a jet fighter plane. That is the secret.

- The parachute laundering and drying room was perhaps the strangest building, enormous both in height and length, well-lit by high windows, to accommodate large parachutes. Attached was a 100m<sup>2</sup> parachute packing building.
- The assembly and technical shops were where the complete seats were put together. They had an associated gantry firing platform and underground observation room.
- The 2-storey explosive store had blast walls and a chamber cut into the ground for preparing potentially unstable rockets for propulsion.
- The design and engineering buildings were where components were developed and made.
- The chemical store was a secret unto itself, with thick brick walls and no windows.
- The guardroom, ammunition store, fire station and emergency above-ground reservoir completed the cluster of buildings and structures – all linked by proper kerbed roads, hot water and steam pipes, a drainage system and sewage works.

Not just secret, but potentially hazardous, and guarded night and day by uniformed and armed soldiers, both at the A281 entrance and the Hook Street byway. Not even the land girls could get in. After the war the buildings came in handy for disposal of surplus military hardware.

Returning to Mr Rose, he sold up in 1947. The survival of these buildings owes much to their strong and durable construction. Farming in the vicinity has been impossible as even the fields around have obstacles to ploughing. A planning application for an industrial estate was refused as long ago as 1950. A succession of owners (there is also a former gardener's cottage) attempted to make use of the site, now called White Lea South – the Redfords, the Morleys, the Stallards and then the Halls, who lived there 1977-2006, lastly the de la Bedoyeres (see below).

So, was the work at Alfold a success? Reading a few articles on the internet, this site played its part in the development of the post-war ejector seat: "Sir James Martin discovered that the most effective means of ejection was by an explosive charge that forced the pilot's seat up into the air. Following an intensive period of testing and research his ejection seat went into production in the late 1940s. The first life saved was that of test pilot John Lancaster in 1949.

Since then over 70,000 seats have been supplied and over 7,000 lives saved." - *BBC primary schools history page*. Pre-war efforts, notably by Heinkel and Saab, had experimented with bungee-style catapults, springs and in the war with compressed air, and explosive cartridges

(Heinkel). Martin was from N. Ireland and was one half of the Martin-Baker aircraft company, which sold seats to the USAF and RAF. His design used a solid propellant which ignited a charge in a telescopic tube, and was ready for commercial application to military fighters in 1946. Was this what was developed at White Lea on the border of Rudgwick?

Martin claims to have had his idea in 1944. The seat, he said in Flight Global magazine in 1952, was first tested on an inclined ramp using a single explosive cartridge using dummies. The damage done to one of the first test subject's vertebrae led to the development of a double cartridge which spread the load of acceleration force. Was this at Alfold? The company says the development of ejection technology was the responsibility of the Ministry of Aircraft Production, so we cannot be sure, especially as there was another British company in the field, ML Aviation, whose seat was also used by the RAF, until one failed badly, killing Hawker test pilot, Sqdn Lr Wade, in 1951.

Significantly, in 1942, work was transferred from Langhurst (a better-known secret wartime location in use to 1978, near Horsham) by the Ministry of Supply to a Petroleum Warfare Department. The Chief Superintendent at MoS Research Dept at Shrewsbury complained strongly at not being consulted and demanded that because work was being done for the "Low Pressure Ballistics Section" at White Lea, the Langhurst workshop should be moved to White Lea, "to avoid a quite unwarrantable hold up in urgent and important ballistic work for the other Services....Immediate action regarding the Workshop is necessary to avoid delay to Admiralty and Air Ministry investigations". Is it possible it was this Low Pressure Ballistics Section that undertook the ejector experiments from 1944? It would be interesting to hear from anyone who knows anything about this site.

*Acknowledgement - Building History magazine, September 2009, and [sussexhistoryforum.co.uk](http://sussexhistoryforum.co.uk).*

### **Mike Bell by email**

"As for the wartime use of the site, you have not mentioned Mr Perry, as a boy he lived with his parents in White Lea South. His father was in the RAF and employed on site, his mother was the canteen cook.

He has recounted to us how he used to sit out on the grass next to the house and watch the seats launched, with the men running across the field to recover the parachute.

He also told of, boys being boys, exploring the buildings after the workforce left at night and collecting the shells and shell cases from the firing range. This was located in the field to the east of the driveway, the firing pit being a horseshoe shaped enclosure made of 55 gallon drums and soil, this was still in existence located next to the public footpath that runs diagonally across the field.

He described the guns being tested as large calibre rapid firing."

## **White Lea South Buildings Post 1939**

*Source: Sally de la Bedoyere, 2009 (resident at White Lea South at the time)*

Before WWII there were four buildings on the site now known as White Lea South. These were the farm manager's cottage, the annexe, the original Sussex threshing barn and an implements barn. In 1942 the War Department constructed a secret experimental station here, primarily for the early development of the ejector-seat. These consisted of substantial buildings almost all of which survive today, as can be seen by comparing aerial photo's from 1945 with today. These buildings are connected by a network of tar macadam roads with deep concrete kerbs.

### **Principal WWII Buildings**

#### **1. Parachute Packing Building**

Distinctive 100 sq metre cube, double heighted and extensively glazed. Used for the repacking of parachutes.

Post War Use: Raising piglets and later, coffin building.

Use in 2014 : Domestic storage associated with adjacent dwelling White Lea South

#### **2. Assembly & Technical Shops**

Single row of workrooms accessed by an external corridor which included offices, a film processing laboratory and final assembly shops for complete ejector-seat assemblies. At the western end a ramp leads down to the gantry firing platform and to an underground observation room.

Post War Use : Horse stabling & hearse maintenance

Use in 2014: Domestic Storage

#### **3. Explosive Store.**

Very large, double heighted, surrounded on two sides by massive earth-filled blast walls. Originally a deep circular chamber was cut into the ground, occupying most of the floor. In this chamber were stored prepared and therefore unstable rockets, the whole design being such that the force of an accidental combustion would be directed vertically.

Post War Use: Equipment shed, embalming.

Use in 2014 : Domestic storage associated with adjacent dwelling White Lea South

#### **4. Design & Engineering Buildings**

Two good-sized workshops with an adjoining end-wall and a shared pitch-roof. Used for the manufacture of components and at the eastern end, for the assembly of the seats.

Post War Use: Pig keeping, and later, hearse garaging and servicing.

Use in 2014: Domestic storage associated with adjacent dwelling White Lea South

#### **5. Parachute Laundering & Drying House.**

Vast barn-like structure, double heighted and elongated to form a tall, narrow rectangle.

Unlike a barn constructed around a substantial steel frame, the upper storey was completely

glazed on both sides, a single pair of sliding doors at one end and a drainage channel running the length of the building. In here used parachutes were hung, steam-cleaned and air-dried.

Post War Use: Large automated battery chicken unit, subsequently pig housing.

Use in 2014: Domestic storage associated with adjacent dwelling White Lea South

## **Secondary Buildings**

### **6. Chemicals Storeroom**

Small, windowless building divided into two storerooms with double-thick brick walls and a low, concrete slab roof. Used for the safe storage of volatile chemicals.

### **7. Guardroom**

Small brick building at the side of the road and entrance to the secret site. It housed an armed guard providing additional security to the guard positioned at the A281 entrance. Prevented unauthorised entry during test-cycles from other occupants of White Lea, e.g. the Land Army girls.

Post War Use: Cold storage of cadavers

Use in 2014: Domestic storage associated with adjacent dwelling White Lea South

### **8. Fire Station**

Small brick building with concealed door housing the fire-tender and other fire-fighting equipment.

Post War Use: None

Use in 2014: Domestic bantam chicken house associated with adjacent dwelling White Lea South

### **9. Emergency Reservoir.**

Above ground reservoir with four foot brick walls, the standard military design.

### **10. Ammunition Store.**

Small building positioned at the far south eastern corner of the site, closely protected by a high barbed-wire fence.



*A surviving building photographed about 2011.*