

Sheriffs Lench Observatory History.

(By kind permission of Peter Knight, former site owner)

In the early years of the Second World War 2.25 acres of land, at O.S. field number 2943, Sheriffs Lench, were requisitioned by the Air Ministry and a small Very High Frequency [VHF] ground wireless station for the RAF station at Pershore was established on that site.

These communication sites required aerial masts situated on high ground, a feature which the Observatory at Sheriffs Lench, located to the East of the airfield, could provide. The erection of a 60ft aerial mast and timber buildings did not impose upon any flying operation at this site either. The mast was removed in 1952 although the metal stanchions, which supported the tower, still remain in situ.

In 1954 the Secretary of State for air leased the site and during 1955/6 the construction of the plinth and housing by the Royal Radar Establishment (RRE) Malvern began for the building of a Ballistic Camera. It was mounted on a massive concrete base structure with a military barrack style wooden hut, requisitioned from RAF Pershore, erected over it.

Above the flat mirror, lens and photographic plate holder was an aperture in the North side of the huts roof. This opened when the camera was ready and exposed the mirror to the night sky. The accuracy of radar data for the tracking of aircrafts could be checked against photographic evidence.

During 1957, amid great secrecy, construction of two brick built, single story buildings began. Two 70ft high wooden towers were erected on a concrete foundation either side of the main transmitter hall. These foundations are still visible today.

The quarter wavelength aerial was strung between these two towers spanning the hall. The transmitter hall was divided into 2 areas by a brick partition wall with an interconnecting door. The VHF operations side was windowless and had minimal ventilation, through wall mounted grills, whereas the administration area had windows to all rooms.

A chemical toilet occupied a small room and washing facilities are evident in another area. The smaller of the two buildings housed a diesel electricity generator at its associated water cooling tanks.

By the end of the 1950's both of the Soviet and American satellite launch vehicles were available. The Soviets put the Sputnik 1 into earth's orbit on the 7th OCT 1957 and 84 days later after a degree of panic by the Americans, Jupiter C; with Explorer 1 on board, was launched from Cape Canaveral.

On the British scene, a dedicated satellite camera designed and built by RRE was progressing. All this activity finally led to the installation of what became known internationally as a 'Hewitt camera' at Sheriff's Lench in 1962. The original purpose of this project was to track the Blue Streak missile [a British medium range ballistic nuclear deterrent], however, when this project was cancelled in the early 1960's it was decided that the Hewitt design could be used to track satellites for geodetic analysis.

An interesting feature of these observatories and of later construction was the double-skinned run-off hut which protected the camera. Sensors monitored the temperature inside and out and as evening approached, the mirror was automatically cooled to the outside temperature. Observing could thus begin without delay as soon as the hut was rolled back on railway tracks.

From 1965 to 1966 Joe Hewitt and his team co-operated with the Smithsonian Astrophysical observatory in a programme of routine simultaneous observations of the Midas 4 and 1963-3OD satellites with American Baker - Nunn camera stations in Florida, Spain, Norway and Iran. The Lye Vailets (Valleys) camera was moved to the Royal Observatory Edinburgh in 1964 where it remained operational until the cancellation of the ROE satellite project in 1975.

In 1967 the project was passed over to the Ordnance Survey. In 1978 a team of 11 people from Aston University took over the running of the camera and the analysis of the plates and a decision was taken to re-commission the ROE camera to Siding Spring Mountain in New South Wales, Australia.

The Malvern camera was never travelled as much as its twin. However, in 1982, when it was decided to close Sheriffs Lench due to leasing and safety problems, a space was found for it at the Royal Greenwich Observatory at Herstmonceux. This location also enabled it to share resources and expertise with the Satellite Laser Ranger System. After a brief commissioning period, during which time it was overhauled, its productivity continued unabated.

At the closure of the RGO site, Herstmonceux, in 1990 it was decided that no further plates should be taken either in the UK or in Australia and that the Archives should be closed. The British Astronomical Association took over the project and the Hewitt Camera Archive at Crayford Manor House Astronomical Society became custodians of the plates, records and measuring equipment and made them accessible as a historical resource to assist amateur and professional astronomers.

Site Assessment - History (English Heritage)

(English Heritage - 31st January 2014 Wayne Cocroft MIfA FSA).

On the English Heritage National Heritage Record for England (NHRE) the position of a First World War Radio Telegraphy Station (SP 04 NW 53) is noted within the current site boundary.

On historic mapping within the English Heritage DeskGIS no site is shown on available post-First World War mapping. There may be a number of reasons why a site wasn't shown, the location may be mistaken, the site might still have been in military use, it may have been cleared before the map was revised, or the building may have been small and temporary thereby falling outside of the OS's mapping criteria.

If a telegraphy station was on this site there is the potential for burial pits containing obsolescent or damaged wireless components. Relatively little work has been carried on early wireless stations and archaeologically recovered components might reveal the type of equipment in use.

The station is likely to have been housed in wooden huts, faint archaeological traces might remain.

Historic imagery on GoogleEarth dated 1945 shows the area as apparently open fields with no trace of a wartime wireless station. This apparent lack of evidence should be used with caution until properly referenced historic air photographs can be consulted either through the county council or English Heritage Archives.

The post-war history of the site is the most significant and is reflected in the good archaeological survival of its two recognised phases; a pair of mast bases erected in the early 1950s and the slightly later satellite tracking camera. To the west the site uses the line of a historic footpath as its boundary and to the north the boundary is new. Within the site boundary all of the most significant features remain legible either as standing buildings or footings.

Structurally, the buildings are a common late 1950s type, although the configuration of the control room is probably unique to this site, and in the absence of contemporary building drawings may shed some light on the operation of this facility.

The concept of the moving shelter set on rails is one commonly found associated with rocket and space related sites. One of the earliest examples was at Kummersdorf, Germany, where a rail mounted frame was used in the 1930s to move rocket stands. In the late 1950s, similar but larger, shelters were used to cover the US supplied Thor intermediate range missiles, deployed on 20 sites in England – two sites are listed. A similar system was experimented with at N Coates, Lincs, for Bloodhound missiles, but was never taken beyond prototype stage.

The camera was designed by J Hewitt of the Royal Radar Establishment Malvern and was initially designed to assist in the development of the Blue Streak missile. This programme was one of the UK's most ambitious Cold War defence programmes with the intention of constructing a British built intermediate range missile capable of reaching Moscow.

Elaborate test stands for the missile were built at Spadeadam in Cumbria and have recently been protected as a scheduled monument. To support this programme the Black Knight rocket was developed on the Isle of Wight, and its test beds are now cared for by the National Trust. The purpose of this rocket was to launch prototype warhead shapes from Woomera in Australia.

It may have been in this context that the camera was installed at Sheriff's Lench to track these models as they passed over the UK.

Blue Streak was cancelled as a missile project in 1960, but it was then adopted as the first stage of a proposed European satellite launcher until it was cancelled in 1971.

It may also be the case that Sheriffs Lench camera was retained to assist in the British satellite programme. The precise role of the camera has still to be teased out, and although histories of the British rocket and space programme are appearing some of its more specialised aspects have yet to receive attention.

In the history of technology piecing together the story of abandoned projects can be particularly challenging. As one of only two such sites in England, the site at Sheriffs Lench is a rare relic of 1950s British aspirations to possess the most up-to-date defence technology and also to exploit its civil potential.

In the late 1950s the analysis of satellite orbits was an area where British scientists made a major contribution to space science. The study of the orbit of satellites may, for example, be used to obtain new information about atmospheric density, temperature, atmospheric winds and the figure of the earth (Massey and Robins 1986, 260-263).

Locally, it reflects Worcestershire's leading pioneering involvement in high-tech electronics centred on Malvern, an expertise that continues today. Massey, H and Robins, M O 1986 History of British Space Science Cambridge: Cambridge CUL.

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