BAWDSEY RADAR
A world first

Douglas Myhill - Laboratory Assistant, Bawdsey 1938

In particular I recall the day when we joined the personnel of the permanent When I was seventeen, having passed the University Entrance Exams, I left School. No celebrations in those days, in fact I spent my last day as a schoolboy putting up cricket nets. I joined the British Thompson Houston Co at their switchgear plant as a student and after about a year there, one of the engineers that I worked with told me that he was leaving to join a Government Research Laboratory and advised me to apply.

I attended a Royal Engineer and Signals Board interview in the fall of 1938. The Board was responsible for Army research including Radio Direction Finding (RDF) – the acronym Radar had not yet been coined.) As a result of the interview, chaired by H.W.Forshaw, the Principal Scientific Officer in charge of the Army "cell" at Bawdsey, I was sent to the Air Ministry Research Establishment at Bawdsey in late 1938 as a Laboratory Assistant. There were two Military teams there, one, which was headed by P.E.Pollard, was concerned with the development of the Anti-Aircraft Gun Laying equipment (GL). The other, which I joined, was headed by W.S.Butement (later Chief Scientist to the Australian Government) and was engaged in the development of the Coast Defence radar (CD).

In January of 1931, Pollard and Butement had submitted a Proposal for a "Coast Defence Apparatus". It was recorded in the Inventions Book of the Royal Engineer Board and was, I believe the genesis of single station radar. Bawdsey lay on the far side of the River Deben from Felixstowe which was on the east coast on the North Sea and most of the staff lived there. On my first morning I caught the R.A.F. launch to Bawdsey and walked through the Rose Garden, past the cricket field which was the pride and joy of A.P.Rowe (the Superintendent of the Research Establishment), to the Manor House. The motto, in French, above the imposing entrance door meant "Rather Die than Change" which was rather odd considering that we were engaged in changing warfare for ever.

Shortly after my arrival there, I was stopped by R.A.F. Police who were looking for "a young man wearing a 'pork- pie' hat". I had apparently failed to make myself known to Charlie Brinkley, the ferryman with a metal hook where his right hand once was, who had been warned of my arrival. I was assigned to work on the 1.5 metre Coast Defence Transmitter with D.R.Chick, a Junior Scientific Officer. The design had basically been completed but the broadside aerial array was still under development and I well remember climbing the array in a freezing North Sea wind and "tuning" the dipoles using a neon bulb. When I arrived at the labs, the Receiver was still a box on a table with a hand-made Yagi on the roof directed by hand (guess whose hand!).

By the middle of 1939, the Transmitter and Receiver were remounted (separately) in cabins on 4.5 inch gun pedestals. With this arrangement we were able to observe echoes from sailing vessels at ranges of about 10 miles. The Naze tower 11 miles away was used as a marker. During the trials it was found possible to obtain the range and bearing of a ship sailing into the river mouth towards Harwich after it had passed out of sight behind the Felixstowe headland. In July 1939, just before the visit of Winston Churchill, and quite by chance, we were able to observe the echoes from the columns of water raised by 9.2 inch shells from the Brackenbury battery of the Harwich defences striking the water some five miles from the set. Of far greater importance was the realisation that the equipment was able to detect and track aircraft flying at low levels even better than with shipping. The CHAIN stations were not able to detect low flying aircraft. The equipment was subsequently designated CD/CHL (Chain,Home,Low). A seaplane, flying at 500 feet was followed with accurate azimuth up to about 20 miles and this trial was followed up using a Sunderland flying boat with even greater success. In the meantime, sea trials continued and, as the junior member of the team, it was my lot to crouch in the scuppers of a borrowed MTB (Motor Torpedo Boat) in the middle of the North Sea working the Wireless Set No.7 (I think) and conveying directions from the team to the skipper. The exercise

was not a total success as the stink of diesel oil in the bilges combined with the very rough seas brought on an attack of mal de mer. This made communication with the shore somewhat difficult!

The work of the Research establishment had not escaped the notice of our political masters and we were visited by Lord Chatfield, the Minister for the Co-ordination of Defence who seemed to be intrigued by the red lights showing on our power-packs! This visit was followed by that of Winston Churchill in June 1939. . The great day arrived and Churchill climbed into the Receiver cabin and prompted by Butement looked into the observation telescope. He could not see the aircraft which was flying down the coast – great consternation – until it was found that , on that particular day, the azimuth accuracy was so great that the cross-hairs of the telescope actually covered the target aircraft ! At the conclusion of his visit Churchill informed us that although he was impressed, we were on the wrong track. The Germans, using infra-red were ahead of us! I fear that he was reflecting the (often erroneous) opinions of his Scientific Advisor, Professor Lindemann.

The Army cell's time at Bawdsey was rapidly drawing to a close. We were vulnerable to bombing there and the war was coming. At the end of August 1939 our labs were dismantled and on September 1st, I climbed aboard an enormous Scammell truck next to the driver, loaded with our gear and set off for Christchurch on the south coast. We were sad to leave Bawdsey and the somewhat benevolent direction of the Engineer Board. Our practice of pursuing an experiment regardless of time of day, and without a thought of overtime pay was restricted when we came within the purview of the Ministry of Supply at Christchurch. The name of the establishment changed from ADEE (Air Defence Experimental Establishment) to ADRDE (Air Defence Research and Development Establishment). Soon after our arrival we were joined by staff from Biggin Hill and also by Professor John Cockcroft and his team from the Cavendish Labs, Cambridge. Cockroft later took over as Superintendent of ADRDE.

We were housed in a rather dilapidated large house named "Bure Homage" which was also our temporary headquarters. We began unpacking on September 3rd while listening to Chamberlain's speech announcing a state of war with Germany. The following day the CD cell set off for Steamer Point on the Solent in the grounds of Highcliffe Castle. Highcliffe Castle was the former home of Gordon Selfridge, the department store magnate who squandered his fortune on the Dolly Sisters and died penniless in 1947. We had our first brush with the current Lady of the Manor the next day when manhandling a 15 kW diesel generator through the grounds. Typical of those times, our team leader, W.S.Butement was pushing with the rest of us. Her Ladyship approached me rather crossly and asked where "the foreman" was. What could I do but point to Butement!

Disaster struck in the winter of 1939. Chick and I were returning from lunch when we learned that the Transmitter Hut was on fire. All of our notes and personal effects were destroyed and the trials on the Transmitter were delayed. Security was soon on the scene and by following footmarks in the snow (yes – snow) were initially convinced that intruders had scaled the cliffs. This was found to be false and rumour had it that they had been following their own footsteps in the snow! The spring of 1940 was spent on experiments leading to a common aerial system .We were somewhat distracted by the noise of an aircraft constantly diving over a nearby tower. Butement had begun work on the proximity fuse.

At the beginning of June 1940, after lunch at "Betties" in Bournemouth I watched the arrival of some of the survivors of Dunkirk. They were in bad shape, grey with exhaustion. You may remember that the small British Expeditionary Force (B.E.F.) had been outflanked and outgunned after the breakout of the German Army through Belgian lines. The BEF retreated to the port of Dunkirk. Every small boat was pressed into service to assist in the evacuation of the British and French soldiers to England. In addition to British and Dutch Naval vessels, 372 of these little ships took part and of the 693 vessels involved, 226 were sunk. However, in the event, more than 338,000 men were evacuated and lived to fight another day.

On a perhaps quixotic impulse I returned to the labs and, as I was in a 'reserved occupation', requested permission to enlist. This was eventually granted and I joined the Royal Artillery three weeks later.

If you spent time at Bawdsey Radar Station or have stories to tell about events in and around the station please do get in touch with us!