

PATHFINDER



AIR POWER DEVELOPMENT CENTRE BULLETIN

Issue 33, October 2005

DEFEATING GERMANY'S WEAPONS OF MASS DESTRUCTION

The search for weapons of mass destruction is not a new phenomenon. Some of the most important individual targets attacked during the strategic bombing offensive of World War II were those associated with the German V-weapons program. This program included the German Army's V-2 rocket (known initially as the A-4) and the Luftwaffe's V-1 Flying Bomb. The V stood for *Vergeltungswaffe* or retaliation weapon—a somewhat hypocritical title considering that design work on the V-2 first started in 1936, well before the war. The V-2 was capable of being launched from a mobile platform from any hard surface, and had a maximum speed of 3600 mph (or Mach 4) and a range in excess of 220 miles. The rocket had greater destructive potential than the V-1, due to its speed on impact and the effect of its bow wave.

Unlike their modern-day counterparts, British Intelligence had irrefutable evidence that German scientists were carrying out developmental and research work on these weapons. In May 1943 Flight Officer Constance Babington-Smith, a Women's Auxiliary Air Force photo interpreter, noticed a black shadow on a photograph of



A Spitfire snapped from the ground while tipping a V-1 into a dive.

Peenemunde on the German Baltic coast. She interpreted the shadow as a ramp with a cockpitless airplane on it. Agents in France had also confirmed the existence of launching sites at Watten in the Pas de Calais. As if any further proof was required, on 15 June 1943 the Germans launched a flying bomb offensive in earnest, with London as the main target. Of 244 missiles fired, 45 exploded on or just after take-off destroying nine of the launching sites; however, 73 got through to Greater London. On 2 August 1943, the Germans launched their heaviest attack with 97 flying bombs exploding in the London area. Plans were in hand for the production of 2000 V-1s per month by the end of 1943.

After the attacks began, radar stations were used to track the flying bombs and for controlling intercepts by Tempests and Spitfire XIV fighters. On 1 July 1944, Flying Officer G.P. Armstrong, an Australian airman in 165 Squadron, RAF, closed on a flying bomb after his fire appeared to be without effect. He was at a distance of only 50 yards when the missile suddenly exploded, covering his Spitfire with a sooty substance and partly burning away its elevators and rudder. Analysis of successful intercepts showed that damage from a flying bomb exploding in mid-air was negligible at ranges over 150 yards, and at least 638 V-1s were shot down by fighter intercepts. Australian fighter pilots Flight Sergeant H.J. Bailey and Flight Sergeant D.J. Mackerras serving with No 3 (Tempest) Squadron each accounted for 11 missiles.

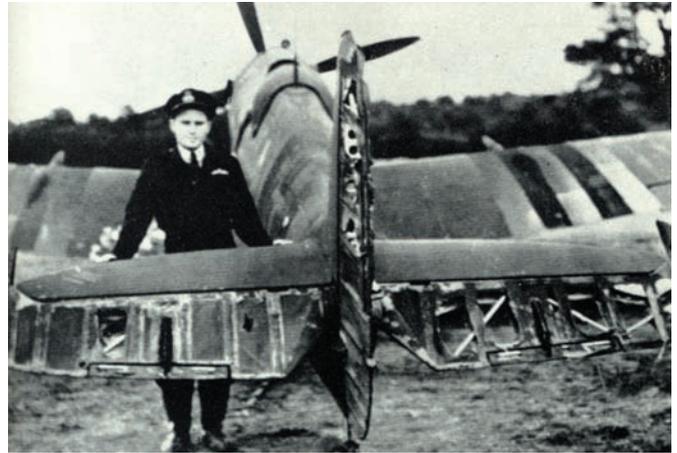
Another intercept method known as 'Tip and Run' was based on the premise that the V-1 could be upset by the airflow over the top of the wing. The method involved a fighter forming alongside and sliding the wing tip of the aircraft underneath that of the missile. Understandably, pilots had to have nerves of steel to crab towards the flying bomb while maintaining speeds of 380 mph until the wing of the V-1 lifted and it heeled over in a dive earthwards.

Until the attacks started, the expected speed and heights of the bombs were a matter of speculation. Speeds were obtained by analysing film and plotting pictures taken at a time interval of 20 seconds, making corrections for changes in azimuth and the wind. Heights were more difficult to obtain. Radar gave no measurements, as the flying bombs were too low, so the bulk of information on heights came from the Royal Observer Corps. The tracks of flying bombs were also analysed to determine their points of origin in occupied France. Photo-reconnaissance was also carried out, and if launching sites were detected they were put on a list of targets to be attacked by heavy bombers.

A force of 597 heavy bombers from RAF Bomber Command took off on the evening of 17 August 1943 to attack Peenemunde. Two Australian Squadrons participated in the attack, with No 460 Squadron contributing 24 Lancasters and No 467 Squadron ten Lancasters. The operation set back the V-2 experimental program and resulted in a reduction in the scale of production of the V-1s. Ten days later, on 27 August 1943, the US 8th Air Force mounted the first of more than a dozen attacks on Watten. On 19 June, Bomber Command attacked Watten for the first time. This was followed up with round-the-clock attacks on a number of V-sites in northern France during the following months.

In all, 2340 V-1 flying bombs reached London and 5475 people were killed. Fortunately, the development of V-2 rockets was curtailed by the bombing raids on launching sites by the RAF and the US 8th Air Force. Nonetheless, between 8 September 1944 and 17 March 1945, 1054 rockets fell on British soil, about half of these in the London region. The worst attack occurred on 26 January 1945 when 13 rockets landed. The destructive power of a single V-2 was evidenced by an attack on 8 March 1945 when 173 houses were destroyed in a housing estate in Ilford. The suffering of those made homeless was made worse by the harsh winter of 1944–45. Despite these setbacks, Londoners were still able to enjoy

themselves under fire. On 29 July 1944, the RAF and Army were playing cricket at Lord's when a flying bomb cut out overhead, dived and threatened to land near the pitch. Fortunately, it carried on a little further and exploded on a nearby road. The players and umpires picked themselves up and play resumed. The last attack was carried out on 30 March 1945.



F/O Grahame Armstrong's damaged Spitfire after brushing with a V-1.

The targets were chiefly in enemy occupied territory and it was essential that precision bombing was carried out so that bombs did not scatter among surrounding houses. The success of the bombing raids and fighter intercepts kept production of the flying bombs and rockets to a minimum and hampered further scientific research. Planning and execution was enhanced by sourcing reliable and accurate intelligence and making sound analytical decisions based on fact and not speculation. Indeed, it is not too much to argue that good intelligence was the key to success in the campaign to destroy these first weapons of mass destruction.

From now on, nations will have to learn to be very polite to one another.

- comment by Operations Officer at RAF Gravesend after observing one of the first V-1 attacks on London.



Air Power Development Centre
Level 3, 205 Anketell Street
TUGGERANONG ACT 2900

Ph: 02 6266 1355 Fax: 02 6266 1041
Email: airpower@defence.gov.au
Web: www.raaf.gov.au/airpower

