



Hitler's secret weapon

In 1944, the Nazis unleashed a barrage of flying bombs and rockets on London. **Joe Maiolo** explains how Britain managed to mitigate disaster

Londoners never forget the sound of Hitler's revenge. First came that hideous burping noise of the approaching pulsejet. Next was the nerve-racking silence after the motor cut out and the robot plane dived to Earth. Finally, there was an ear-shattering explosion.


The noise of a V1 flying bomb was haunting, but the deadly silence of the V2 ballistic rocket was even worse. Plunging to Earth at almost four times the speed of sound, the first you knew of an attack was the sound of the warhead detonating

– unless of course you happened to be too close to the point of impact, in which case you never heard a thing.

The Nazi's propaganda minister Joseph Goebbels dubbed the V1s and V2s the *Vergeltungswaffen* – or retaliation weapons. From June 1944 to March 1945, these weapons tormented Londoners. Some 2419 V1 flying bombs hit the city, claiming 6184 lives and injuring 18,000 people. A total of 517 V2 rockets killed a further 2700 people and injured more than 6500 others. Although London was the main British

target of the V weapons, other cities including Portsmouth, Manchester and Norwich also suffered.

Aside from the cost in lives and injuries, the V weapons struck at British morale in the final stage of the war. As Allied forces began to squeeze the life out of the Third Reich from East and West, Londoners started to feel that victory was theirs. Then, literally out of the blue, Hitler's high-tech revenge appeared.

The German army began experimenting with small rockets in the early 1930s, 

1944: RAF pilots would try to 'tip the wings' of V1 rockets to send them off course

▷ with large-scale research and development getting underway by 1936. The strategy of using mass attacks with big rockets to win wars first caught Hitler's enthusiasm in August 1941. The army showed him a film of early tests conducted by their top rocket engineer, Wernher von Braun. Impressed by the footage and by von Braun's presentation, Hitler declared the rocket a revolutionary development in the conduct of warfare. He told the army chiefs that he did not wish to waste the technological breakthrough in small pinprick attacks. Instead, he wanted to defeat his foes with surprise attacks of thousands of rockets. However, setbacks to the army's development programme

Luftwaffe believed that it could knock Britain out by hitting London with 1500 flying bombs in only ten days.

Both weapons received Hitler's backing and by the summer of 1944, Germany had two long-range bombardment systems primed and ready for an all-out attack on the British capital.

Secret intelligence

Despite German efforts to conceal V weapons, secret intelligence revealed their existence to the British long before the first one struck London. Rumours of the rockets first reached London in 1939, and then again in 1942. However, the breakthrough came in March 1943, when

The Luftwaffe hoped to knock Britain out of the war with 1500 flying bombs in ten days

and more urgent demands on the Reich's limited industrial and scientific resources delayed the move to full-scale production until March 1943.

The army's head of rocketry believed that he could force the British out of the war with a barrage on London of about 900 V2s each month for five months. Not to be outdone by the army in the race to win the war for Hitler, however, the Luftwaffe built a rival weapon: a jet-propelled flying bomb – the V1. This had an edge over the rocket because it was much cheaper and easier to build. The

two captured German generals mentioned heavy rockets in a conversation secretly recorded by British intelligence. Not long after that, the British deceived a third captured German general into revealing the secret when they allowed him to obtain a specially printed one-off copy of the *Daily Herald* reporting false news from Sweden about German rockets.

From here on the British pondered the threat of a rocket attack with anxiety. Early forecasts of the damage from a sustained rocket strike on London presented the government with the terrifying prospect



Wernher von Braun with a model of the V2 rocket he helped design for the Nazis

of tens of thousands killed and many more wounded, as well as the full-scale evacuation of London. In response, the British chiefs of staff ordered that the intelligence effort should be stepped up – including photographic reconnaissance flights over the suspected German rocket research establishment at Peenemünde on the Baltic coast. Prime Minister Winston Churchill appointed Duncan Sandys, his son-in-law and Permanent Secretary to the Ministry of Supply, to head an investigation of the threat and to recommend countermeasures.

Conflicting theories

Sandys' inquiry prompted a heated debate among the government's top scientific advisors. RV Jones, a senior scientific intelligence official at the Air Ministry, considered the threat to be very real. However, Churchill's chief scientific advisor, Lord Cherwell (Professor



German censors removed the background from this photo of V1 flying bombs at a launch site



A policeman offers tea and sympathy to a Londoner who lost his wife and home in a V1 attack



BLITZKREIG

THE STORY OF AERIAL BOMBARDMENT IN EUROPE

Besides bombing industrial or military targets during the war, both German and Allied planes carried out 'terror bombing' of civilians, specifically designed to destroy morale and often in direct retaliation for previous attacks.

Feb 1942

In Britain, a new 'area bombing' policy targets 58 major German industrial cities, aiming for the first time to destroy the homes of war workers in order to undermine "the morale of the enemy civil population and in particular, of the industrial workers".

Jan to Mar 1945

V2 rocket attacks on Britain become less frequent as Germany faces defeat. Some 517 of them had hit London alone, but their military and psychological impact didn't fulfil the hopes of the Nazi regime.



14 May 1940

The German air force, the Luftwaffe, bombs the Dutch city of Rotterdam, resulting in 814 civilian casualties. There is a massive outcry from neutral countries. The next night, Britain's RAF Bomber Command is ordered to bomb Germany for the first time, aiming for industrial targets in the Ruhr.



7 Sep 1940-10 May 1941

The Luftwaffe carries out 'the Blitz' – the heavy bombing of industrial targets as well as civilian centres in Britain to destroy morale. London is bombed for 76 consecutive nights, as well as raids on many other cities across the UK. In one raid on the city of Coventry, 560 people are killed and half the city's homes are destroyed.

21 Jan 1943

The Combined Chiefs of Staff decide to combine RAF and USAAF strategic bomber forces in one air arm to crush the German industrial, military and economic system. As this strategy is carried out, whole German cities are destroyed and huge numbers of civilians are killed.



5 Sep 1944

Allied armies overrun the last of the V1 launch ramps. Some 2419 V1s had hit London since June. Germany's first V2 raid is launched three days later from the Netherlands and lands in London within five minutes.

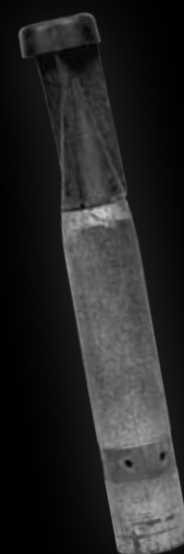
13 Jun 1944

London is attacked for the first time by V1 flying bombs, launched from sites in and around Pas de Calais, France. Nicknamed Doodlebugs in the UK, the V weapons are known in German as *Vergeltungswaffen* – retaliatory or reprisal weapons. These long-range artillery weapons were especially designed for aerial terror bombing of cities.



24-25 Aug 1940

German bombs fall on Central London for the first time. The following night, 43 aircraft from Britain directly retaliate by bombing Berlin.



GETTY, CORBIS X2, ALAMY X3, THE ART ARCHIVE, IMPERIAL WAR MUSEUM X2

▷ Frederick Lindemann), believed that the incoming intelligence about long-range rockets was just a German deception to cover some other secret weapon.

The debate revolved around a technical issue. Lord Cherwell argued that a big rocket propelled by the burning of cordite would need to contain the combustion in a body of steel, making it too heavy to take off. Other scientists, including Jones, countered that a rocket that burned liquid fuel could be built light enough to make it a practical weapon.

As in so many intelligence disputes, both sides had a point. Cherwell doubted that the Germans would invest scarce scientific and industrial resources in long-range rocketry to deliver a relatively small explosive payload when fleets of bombers or flying bombs could do the job cheaply and efficiently.

Yet his critics were also right. Cherwell underestimated the German scientists' ability to solve the immense technical difficulties of propelling a rocket by burning alcohol and liquid oxygen, which was precisely what Wernher von Braun and his ingenious colleagues at Peenemünde were doing in 1942-43.

Meanwhile, the British intelligence machine searched for fresh evidence.

Jones found persuasive clues from decoded German military radio traffic, such as the deployment of radar units near Peenemünde, which he correctly assumed were there to track flight tests. Aerial photographs of Peenemünde taken by fast Mosquito aircraft showed that the station was being expanded. But it wasn't until 23 June 1943 that conclusive evidence arrived. Analysis of photos taken of Peenemünde that day by the Royal Air Force's photographic intelligence unit clearly showed rockets.

Ski ramps

Over the next six months the evidence mounted. Photo-reconnaissance found a facility near Calais that a French secret agent claimed was a rocket site. Intelligence over Northern France soon found that the Germans were building dozens of odd looking ski ramp-like structures, all alarmingly pointing at London. In November 1943, Flight Officer Constance Babington-Smith, a brilliant photo interpreter at RAF Medmenham, spotted a peculiar small plane on a ski ramp at Peenemünde. Further study confirmed it to be a flying bomb.

This development added urgency to Operation Crossbow, the Allies' campaign



German-born scientist and British government advisory Lord Cherwell was unconvinced by Allied intelligence about the V weapons

against the V weapons. The Sandys inquiry suggested defensive measures including preparations to evacuate London, the building of additional shelters, plans to warn the press and to control the news to prevent panic, and some inventive ways to deceive the Germans about the accuracy of their aim once the attacks began.

Anxious that the rockets might be used to disrupt D-Day or that they would take such a horrific toll on Londoners that the invading armies would be forced to divert their operations to the capture of the 'ski ramps', the government also considered offensive actions. If the bombardment became intolerable, Churchill even

OPERATION PAPERCLIP

How Nazi scientists put the United States on the Moon

In the aftermath of World War II, the Joint Intelligence Objectives Agency (JIOA) sought to bring German scientists to the US. However, President Harry Truman ordered that no scientist should be recruited who had been "a member of the Nazi Party, and more than a nominal participant in its activities, or an active supporter of Nazi militarism." The problem for the JIOA was that a number of key scientists had held high-ranking positions within the Third Reich – notably the architect of the V2 bombs, Werner von Braun. To bypass Truman's edict, the JIOA created new biographies for the scientists, the programme being dubbed Operation Paperclip from the paperclips used to attach the biographies to their files. The race to acquire the best German scientists was as much about securing knowledge and skills for the US as it was about denying their rivals – chiefly the Soviet Union – the Nazis' discoveries. As it would transpire, recruiting von Braun and his team proved decisive. Without von Braun, it's doubtful US astronauts would have walked on the Moon in 1969.



German scientists run test flights of a V2 rocket in the United States after the war had ended

The Germans were building dozens of 'ski ramp' structures, all pointing at London

spoke of retaliating with poison gas. His military chiefs, however, advised against the diversion of strategic bombers from the systematic destruction of the German war economy to a mere reprisal. Even so, the British decided to attack known production and launch sites to suppress the V weapons.

On the night of 17-18 August, RAF Bomber Command sent 596 aircraft to attack Peenemünde in a daring precision raid with 4000-pound blockbuster bombs. In December 1943, Anglo-American strategic and tactical air forces also began a campaign against the V1 launch sites, flattening most of them in the first phase.

By the summer of 1944, Operation Crossbow became a race between Allied air force efforts to locate and bomb V1 launch sites and German efforts to rebuild them and to find ever more clever ways to hide them. That cat-and-mouse game, which the Germans were beginning to win, continued until the autumn of 1944, by which time the Allied armies had destroyed all the V1 launch ramps, nullifying the threat.

Although senior air force commanders complained about the diversion of bombers to an increasingly ineffective campaign against the V1s, the bombing certainly helped to reduce the frequency of the launches. The first phase of Crossbow and the Peenemünde raid – which forced the

Germans to relocate their rocket scientists and to assemble the V2s in underground tunnels – also helped delay the start of the attacks by several crucial months.

Lack of capacity

However, even if Crossbow had been less successful, it is doubtful that the intensity of V attacks would have threatened the Allied war effort. After all, Hitler wanted more than revenge from his secret weapons – he wanted to knock Britain out of the war. To achieve that goal, his planners estimated that they needed to pummel London with thousands of V1s and V2s a day – but the actual strike rate never exceeded a few dozen. That was partly due to mechanical failures and British air defences, but the root cause was a lack of industrial capacity to mount the sort of massive surprise attack that Hitler had imagined in August 1941. Ultimately, Lord Cherwell was right. The V weapons were a very expensive way to deliver a one-tonne bomb, and would account for the equivalent of just 0.23 per cent of the total explosives dropped on the Reich by the Allied bomber forces.

From that perspective, the German V weapons programme takes on an air of desperation. It was no coincidence that Hitler ordered the V2 into mass production just after the debacle at Stalingrad. Rockets and flying bombs were the products of

an expiring German military-industrial complex. They served no purpose other than feeding Hitler's illusion that the war could still be won.

That the Allies won through vastly superior industrial and military resources, however, does not diminish Operation Crossbow's success. Early warning gave the British time to adjust to the new threat. Air superiority gave them a tool with which to suppress it.

In February 1944, only eight months after photographic intelligence discovered the V2s, Churchill said that he felt much easier about the rockets. Hitler would certainly try the weapon, but thanks to good intelligence and air power, Churchill told his top advisors, we should not become "the slave of our fears". History has shown him to be right. ☐

[A version of this article first appeared in BBC History magazine]

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FIND OUT MORE

► **Cry Havoc: the arms race and the second World War, 1931-41**

by Joe Maiolo (John Murray, 2010)

► **BBC** <http://bbc.in/vbombs>

First-hand account of the V weapons' effect in London

WHAT DO YOU THINK?

Can the bombing of civilian targets during wartime ever be justified?

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THE 3D-GLASSES THAT STOPPED HITLER

Using techniques similar to those used in today's 3D cinema, photographic interpreters (PIs) at RAF Medmenham in Buckinghamshire were able to determine the whereabouts of Hitler's secret weapons – the V1 and V2 missiles. Pilots from the Photographic Reconnaissance unit took tens of millions of photographs of the landscape of occupied Europe from unarmed planes. These were then interpreted by the PIs using a stereoscope (below) – whereby two images are offset separately to each eye, giving the effect of a three-dimensional image.



► An aerial view of the V2 rocket experimental area at Peenemünde in June 1944. (A) shows a V2 rocket on its side; (B) indicates a test stand; while (C) shows an assembly hall

◀ The photograph of Peenemünde from which, in November 1943, Constance Babington-Smith spotted a small plane on a ski ramp. This confirmed the existence of the V1

