

## Obituary

## Reginald Victor Jones (1911–97)

Physicist who was instrumental in Britain's war effort

R. V. Jones, who died on 17 December 1997, was from 1940 to 1945 director of scientific intelligence for the Air Ministry and then for the British Intelligence Service. His grasp of physics enabled him to develop new systems and battle tactics that influenced the course of the Second World War, while his whimsical, sophisticated but highly intelligent 'double think' baffled the German High Command.

Jones was born on 29 September 1911. His father was a sergeant with long service in the Grenadier Guards, and after the First World War the family grew up at Aldershot. At Alleyn's School in south London, Jones was a member of the officer training unit, which reinforced his background in military tradition. Then, at Wadham College, Oxford, he gained first class honours in physics finals. After his doctorate in 1936–37, he was elected a Skynner Student in astronomy at Balliol College.

I first met Jones in 1937 when I started research on low-temperature physics in the old Clarendon Laboratory. I took over from George Pickard, who had just started working with Jones on research into infrared physics in the attics there. On several occasions they went together to the Royal Aircraft Establishment at Farnborough; on 27 April 1937, Jones managed to detect another aircraft in flight, probably the first time this was ever done with infrared radiation.

By a well-established custom, all the senior members and research students met for morning coffee and afternoon tea in the central area of the Clarendon, which was surrounded by large glass-fronted cabinets containing scientific equipment. These still exist in the new Clarendon Laboratory, to which we moved just as war broke out in September 1939. The head of the laboratory, F. A. Lindemann, was a close friend of Winston Churchill, becoming his chief scientific adviser in 1939 and continuing throughout the war. He was later ennobled as Viscount Cherwell.

Another well-known physicist at the laboratory was Derek Jackson, who measured the hyperfine structure of the caesium atom, and deduced its nuclear magnetic moment by estimating the distance of the electron from the nucleus.



Of this he said: "Sommerfeld did it by wave mechanics; I did it by arithmetic". In 1942 Jackson joined the Royal Air Force, becoming an observer and gunner on night fighters, and scoring many successes. Also at the Clarendon were A. H. Cooke (who later invented the 'T. R. Tube', which made possible single-aerial working for radar on aircraft), and J. H. E. Griffiths (who in 1945 discovered ferromagnetic resonance).

Jones had moved over to war work in 1937, and made many crucial contributions in the desperate times to come. After he had devised the airborne infrared set to detect the heat from aircraft engines, Henry Tizard, then chairman of the Aeronautical Research Committee, and rector of Imperial College, suggested that Jones should move to Imperial to continue his investigations into infrared detectors. They were thought of as an alternative to radar. The final verdict was to concentrate on radar, although Lindemann remained worried that the enemy might find a way of jamming it. His fears stemmed from a suggestion made by Jones that this could be done by dropping from aircraft metal strips of an appropriate size, a device that was later known by the code-name 'window' and was indeed used.

In the summer of 1940, evidence from various sources convinced Jones that the enemy were using radio beams ('Knickebein') to guide their aircraft. He put this to Lindemann, who took him to present the evidence to Churchill in person; countermeasures were introduced just in time. On another technological front, in 1942 the Germans introduced a device to detect metre-wave radar from British aircraft, giving their submarines time to escape attack by submerging.

When radar at centimetre waves was proposed for raids over Germany, Jones protested that its first use should be at sea. He reasoned that, when a bomber was shot down over land, the central and innovative component, a magnetron, would soon fall into enemy hands. His advice was not taken, but fortunately the Germans did not realize that a similar device was being used at sea.

At the end of hostilities, Jones became professor of natural philosophy at the University of Aberdeen, Scotland. His lectures were greatly appreciated by undergraduates for the numerous demonstrations, which took much time to prepare. On the research side, Jones investigated the limits of measurement through delicate instrument design. He also created a unit growing single crystals of magnetic materials, which he made freely available for experiments elsewhere, including the Clarendon.

From Aberdeen, he was recalled three times to reconstruct the British scientific intelligence service that he had created and headed during the war. His account of those times, *Most Secret War* (1978; published in the United States as *The Wizard War*), was a cool, detailed account of the secret technological battles in which he played a leading role. He struggled against disbelievers among the armed forces, "who rejected the logic of analysis", and against "the misdirection, misinterpretation and fragmentation of technical information". Jones described the importance of anticipating the enemy's use of science in warfare in his article "Scientific intelligence", published in *Research* (9, 347–352; 1956).

In 1982 General Doyle Larson, head of the Electronic Security Command of the United States Air Force, invited Jones to lecture to his command. Jones became an honorary member of the USAF and honorary mayor of San Antonio in Texas. Two years later, at the headquarters of the Central Intelligence Agency in Langley, Virginia, the first R. V. Jones Intelligence Award was presented, naturally enough, to Professor Reginald Victor Jones. In 1993, he became a Companion of Honour, one of the highest civilian distinctions in Britain.

Jones married Vera Cain in 1940; they lived together in Aberdeen until she died some 50 years later, just after the death of their eldest daughter, Susan. Jones stayed on in his university house after his retirement, even when the roof began to collapse.

**Brebis Bleaney**

Brebis Bleaney is at the Clarendon Laboratory, University of Oxford, Parks Road, Oxford OX1 3PU, UK.