

Operations Buffalo & Grapple



The newly re-formed 49 Squadron was the unit chosen to participate in Britain's atomic weapon tests. In February 1956, 1321 Flt became 'C' Flt of 138 Squadron (the squadron had moved to RAF Wittering) and on 1st May this Flight became 49 Squadron. The squadron (initially three Valiant B1 aircraft and crews) was commanded by S/Ldr Roberts and from September by W/Cmdr Hubbard.

It was tasked with the continuation of trials leading to a live drop of 'Blue Danube' (Operation Buffalo) and trials of Britain's thermo-nuclear megaton weapon (Operation Grapple).

The two 49 Squadron Valiants designated for Operation Buffalo (WZ366 and WZ367) left Wittering early in August 1956 for the Maralinga Range in Australia.

'Blue Danube' was similar in size and shape to the 'Tallboy' HE weapon of WW2, but had an operational explosive yield of 40 kilotons. The original plan was to use a standard bomb, fused to detonate at 1,200 feet. However, should the fusing system fail, a surface burst of 40 kilotons was unacceptable so the bomb was modified to give a three kiloton yield with a burst altitude of 500 feet.

Following two tower-mounted warhead tests, the first British nuclear weapon was dropped from WZ366 on 11 October 1956. Captained by S/Ldr Flavell, the aircraft dropped the weapon from 30,000 feet, visually aimed after a radar controlled run-up. Telemetry confirmed a burst height between 500/600 feet, 100 yards to port and 60 yards short of the target. Both S/Ldr Flavell and his bomb aimer, F/Lt Stacey, were awarded the AFC.

The Pacific programme of British thermo-nuclear tests, Operation 'Grapple', began in 1957. The testing of a large megaton-yield weapon had dictated that a new site be found and Christmas Island, a remote coral atoll 2 deg. north of the Equator, was chosen. The tri-Service and civilian task force for 'Grapple' was commanded initially by Air Vice-Marshal W.E. Oulton and later by Air Vice-Marshal (later Marshal of the RAF), Sir John Grandy. The Scientific Director was Mr (later Sir William) Cook. Each Service had its own Task group; No. 160 Wing was commanded by Air/Comdr C.T. Weir.

Although inhabited, with an economy based on the export of coconut products, the island had been largely neglected since WW2. Preparations had started the previous year to construct the support facilities and a 7,000 feet runway, 25 miles of roads, a control tower, buildings for weapon assembly and sea water distillation plant were some of the building works needed.

The domestic accommodation (for personnel and the indigenous gerboa rats!) was tented but more substantial buildings were provided for recreation purposes. Most of these works were carried out by the Army Task Group (Royal Engineers) which included a detachment of Fijian troops. To provide some relief from the somewhat primitive living conditions, the RAF contingent was entertained regularly on the light aircraft carrier HMS 'Warrior'.

For Operation Grapple, 49 Squadron received eight Valiant B(K)1 aircraft... the definitive bomber version of the type, equipped for air-refuelling tanker/receiver operation. The first (XD818), resplendent in 'all white' anti-flash finish, arrived at Wittering in November 1956. In addition to the heat-reflecting finish, metal anti-flash screens were fitted to windows serving the flight deck, crew and bomb aiming positions. Cameras were fitted in a new tail cone and on mountings within the bomb bay, and the control surfaces were reinforced.

A lot of automatic strain and pressure detecting devices were fitted to the airframe and many vents and drains baffled or sealed off. The V-force standard radar navigational bombing system was replaced by a special scientific panel.

The bombs to be tested during Operation Grapple were trial warheads for a proposed range of British thermo-nuclear weapons: `Short Granite`, `Orange Herald` and `Purple Granite`.

For carriage on the aircraft, these trial assemblies were fitted within `Blue Danube' casing. The weapons would be released from 45,000 feet and set to explode at 8,000 feet, thus avoiding the fireball touching the surface and causing excessive radiation.

The dropping point was off Malden Island, an uninhabited atoll some 400 miles south of Christmas Island. By dusk on 14 May, scientists had made the final checks on the apparatus sited on Malden, that was designed to measure the air blast, heat and radiation levels. They withdrew and embarked on HMS `Narvik`, `Warrior` and `Messina`.

SHOT 1

The hours prior to the release of the bomb were tense and dramatic. Long before dawn on the 15 May, the Shackletons of 204 and 206 Squadrons and Canberras of 76 and 100 Squadrons had thundered off from Christmas Island on weather reconnaissance and sampling sorties - with the added duty for the Shackletons of searching the danger area to ensure that it was free of shipping.

At first light, Hastings of 24 Squadron and Dakotas of 1325 Flight had left for the target area laden with observers. 'All clear' messages flashed between the task Force Commander on HMS `Narvik` and the operations room on Christmas Island, culminating in the order for XD818 to take-off. Piloted by W/Comdr K.G. Hubbard (O/C 49 Sqn), the gleaming white Valiant taxied out onto the runway. For the few who watched it leave, the graceful rise and climb into the morning sky was so nonchalant as to be an anti-climax. The pilot's commentary was clear and unhurried as the Valiant made its run-in at 45,000 feet, at a speed of 0.82M. 'Bomb gone' came the brief announcement from bomb aimer F/Lt Eric Washbrook, as the 'Short Granite' round fell away.

Immediately the aircraft swung in a 60-degree bank turn to port; this escape manoeuvre would take the aircraft to a position some six miles distant in the 30 seconds before detonation. A stark, blinding flash at 8,000 feet in the Pacific sky signalled Britain's emergence as a top-ranking nuclear power. It was 10.36hrs local time, on Wednesday 15 May 1957 -six years almost to the day since the first flight of the Valiant prototype. No one saw it! No human eye could survive the hellish glare of white-hot air brought to incandescence by the fantastic heat. But those present on this historic morning, backs turned to the 'mushroom' some 30 miles away, could sense the brilliant intensity of the flash through closed eyelids. Even through thick clothing a flush of warmth penetrated the body.

SHOTS 2 AND 3

Second and third drops of weapons in the megaton yield range took place at the same location in May and June, the aircraft being captained by S/Ldr Arthur Steele and S/Ldr David Roberts (XD822 and XD823). 49 Squadron returned to the UK in June. Seven AFC's were awarded to squadron personnel in the 1957 Queen's Birthday Honours. The remainder of the Grapple tests (X, Y and Z) were conducted over Christmas Island, with an aiming point on the south-east tip of the island only 20 miles from the airfield:

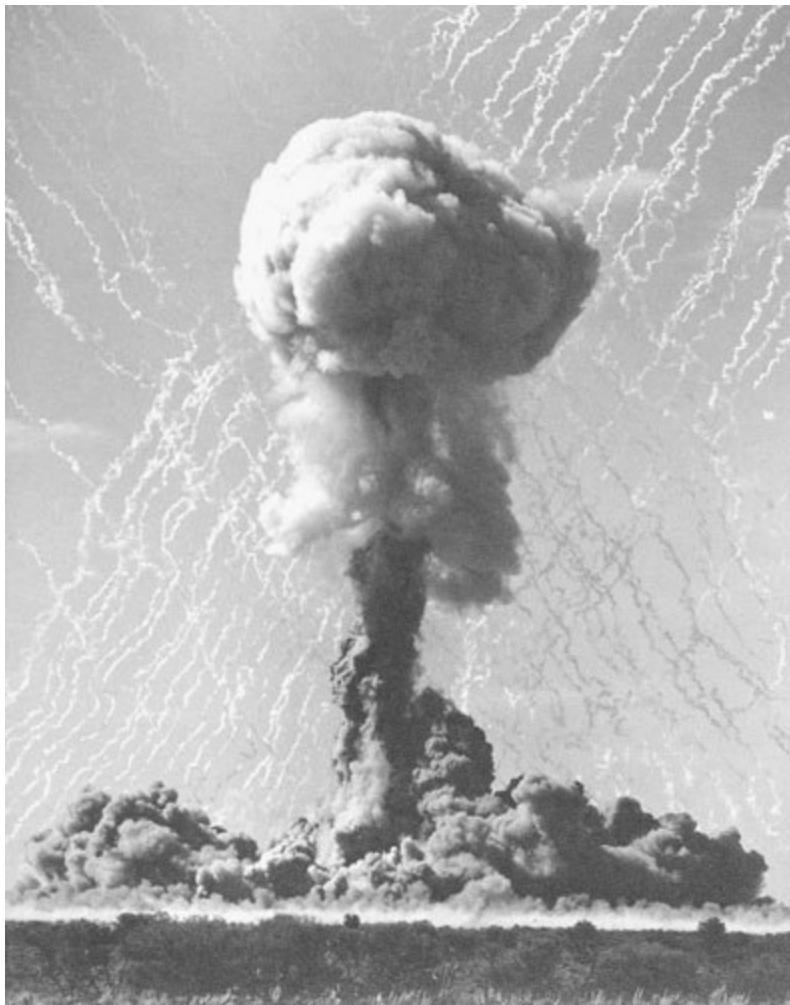
GRAPPLE X 8 November 1957:

S/Ldr Barney T. Millett (XD824) and crew carried out an air burst test over the ocean near Christmas Island. The height of the burst was 7,260 feet with a yield of 1.8 Megatons.

GRAPPLE Y 24 April 1958:

S/Ldr Bates (XD825) and crew carried out an air burst test over the ocean near Christmas Island. The height of the burst was 8,250 feet with a yield of 3.0 Megatons.

GRAPPLE Z 2 September 1958: S/Ldr Bailey (XD822) and crew carried out an air burst test over the ocean (by ground radar) near Christmas Island. The height of the burst was 9,240 feet with a yield of 1.0 Megatons.



11 September 1958,
S/Ldr O'Connor (XD827) and crew carried out an air burst test over the ocean near Christmas Island. The height of the burst was 8,580 feet with a yield of 0.8 Megatons.