

GROUP CAPTAIN GEORGE GRANT, BEAM HUNTER AND PATHFINDER

George Grant, a Canadian in the RAF, flew over 100 sorties with four squadrons in WWII. While with 109 Sqn, he was involved with the development of OBOE to locate targets and the sites of German electronic guidance systems. With 156 Sqn, he flew Lancasters equipped with OBOE to locate and bomb targets. He later commanded 109 Sqn, a PFF Squadron flying Mosquitos. He also commanded RAF Station Graveley.

INTRODUCTION



Group Captain (G/C) (RAF #42216) George Francis Grant, DSO and Bar, DFC, was born in Ottawa on May 31, 1916. He attended Lisgar Collegiate Institute in Ottawa. After high school, George worked building roads in Ontario, Quebec and New Brunswick. As George was not eligible to join the RCAF, he and a friend decided in March 1939, to sail from Montreal to England to become pilots in the RAF in England. He attended pre-course training at No. 4 Elementary and Reserve Flying Training School. This was followed by elementary flying training on Magister aircraft and then more training at RAF Uxbridge. He trained on Oxford aircraft at No. 8 FTS Montrose, Scotland. He received a short service commission the summer of 1939. He was promoted to Acting P/O on December 1939 and the promotion was confirmed on 1 May, 1940.

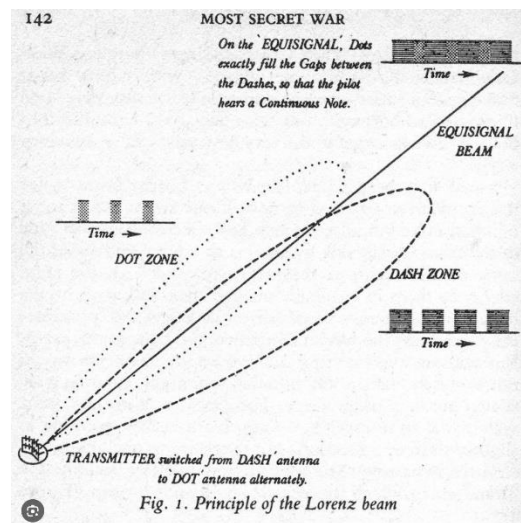
In early 1940, he was on a Coastal Command training course at RAF Station Thorney Island. He then flew maritime reconnaissance patrols over the North Sea in Avro Ansons with 612 Sqn of Coastal Command based at RAF Station Dyce in northeastern Scotland.

WIRELESS INTELLIGENCE DEVELOPMENT UNIT

During the month of July 1940, or shortly after, he and a number of other pilots were transferred to a new unit at the Wireless Intelligence Development Unit (WIDU) of No. 80 Signals Wing located at Boscombe Down. According to Joe Northrup, a navigator transferred there from 17 Sqn, most were unaware of why they were there. The one commonality was most of them had passed through the Blind Approach Training and Development Unit set-up at Boscombe Down shortly before the war started.

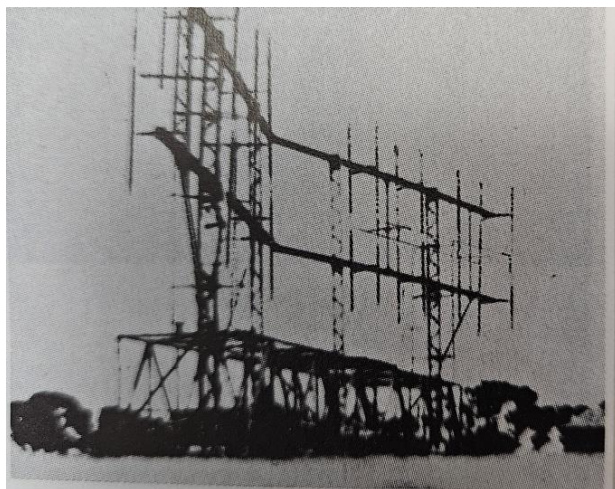
According to Bill Baguley, a fitter at Boscombe Down, Grant and three of his friends would take their 22 calibre rifles to their aircraft in the evening. They put the windows up and took positions. Grant would fly about six inches above the ground so they could shoot rabbits. To sneak up on the rabbits, Grant would get some speed up to float and then throttle back to creep up on the rabbits without making noise. Baguley did not mention how successful they were with their hunt. If he was flying that low, Grant had to be a highly skilled pilot and also very lucky with this pastime.

The WIDU had become involved in the investigations into Germany's use of radio navigation and radar in their aircraft for attacks on England. In June 1940, Reginald Victor Jones, a scientist and Assistant Director of Intelligence (Science) at the Air

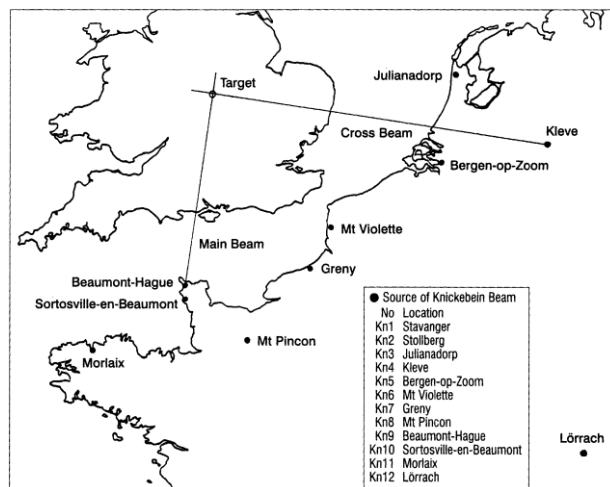


Ministry, discovered from questioning a German aircrew prisoner, that the German bombers were using radio beams to locate their targets. Jones urged Winston Churchill to authorize a special flight to investigate. On June 21 1940, Flight Lieutenant (F/L) H.E. Bufton, pilot and Corporal D. Mackey, Special Wireless Operator, flew and discovered two radio beams (called Knickebein) radiating in almost the same directions with a slight overlap to guide the aircraft to the target. This lead led to the development of equipment to bend the German radio beams so the German aircraft few off their intended target course.

Knickebein Beam



Small Knickebein



Sample map of Knickebein Beams

FORMATION OF 109 SQUADRON

On December 10, 1940, WIDU became 109 Sqn at Boscombe Down. On December 28, 1940, Wing Commander (W/C) W.S. Hebden arrived from 80 Wing as Commanding Officer of 109 Sqn to replace Squadron Leader (S/L) H.E. Bufton who took over command of B Flight.

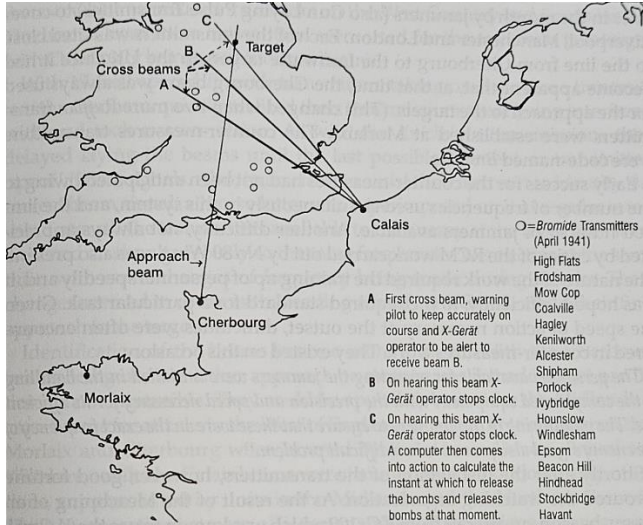
The work of 109 Sqn was classified so the Operational Record Books (ORB) have few details about their flights. Many were listed as 'Special Duty' or 'Operational Flight' and sometimes with a code name. Most flights had departure and landing times which gave an idea of the duration of the flight. Some flights were noted as successful, unsuccessful, cancelled or in some cases 'bombed in formation'. Some flights indicated a target, identified only as 'W', was approached by a flight of four Wellingtons each on a different bearing.

GRANT'S FIRST TOUR WITH 109 SQUADRON

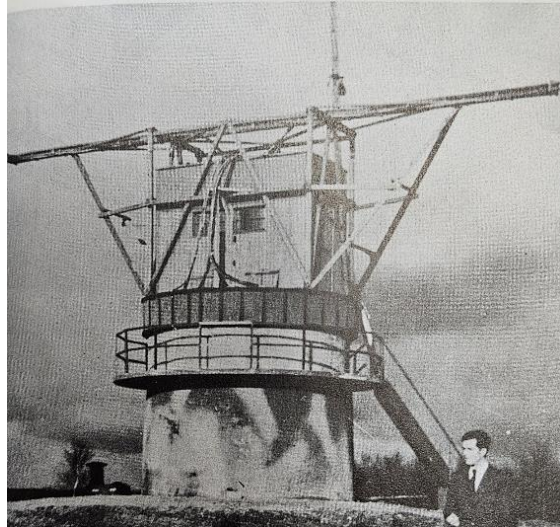
George was promoted to F/O on 9 Dec 1940, but the ORB did not list him as F/O until his second sortie on February 23, 1941. He flew 68 times during his first tour with 109 Sqn. Some trips were bombing missions on German transmitters. Many others involved investigating German radio or radar beams or checking British countermeasures. The flights were often led by S/L H.E. Bufton, the B flight commander.

George had 25 flights less than two hours, 26 flights between two and three hours, seven flights between three and four hours and seven flights over four hours. Flight durations were not available for three flights. A number of his flights are described in the following paragraphs. It appears from the ORBs that Grant's crew was not always the same. The three most frequent crew members were Sgts Thornhill, Blacker and Adam.

Grant's first operational flight with 109 Sqn was on February 20, 1941. It was a 3-hour 40-minute flight led by S/L Bufton with pilots F/O Cundall and P/O Bull. The four Wellingtons bombed the X-Gerät (code named RUFFIAN) German transmitter site near Cherbourg, France.



Map of X-Gerät Beams



X-Gerät beam Transmitter

March 11, 1941 - S/L Bufton led a flight of four Wellingtons including F/O Grant, F/O Cundall and P/O Bull on a fairly successful operation. The STARFISH part of the operation was cancelled due to poor weather. The ORB noted 'BEACON HILL bombed' which is strange as a countermeasures station was near Beacon Hill which was in close proximity to 109 Sqn's airfield at Boscombe Down. STARFISH was the code name for decoy sites in Britain to divert German bombers from attacking cities or sites in Britain cities or military targets. These sites were quite large and had highly flammable structures to simulate buildings and even locomotives in a burning town. These sites were manned at all times and staff would activate the lights and start the fires when directed.

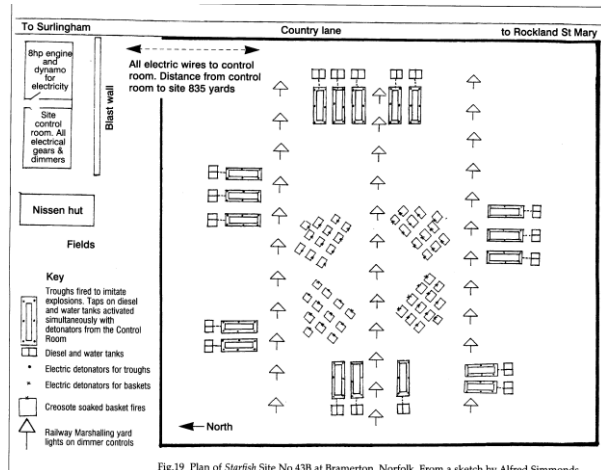


Fig.19 Plan of Starfish Site No.43B at Bramerton, Norfolk. From a sketch by Alfred Simmonds

STARFISH Site Plan

May 11, 1941 - F/O Grant flew with S/L Bufton, F/O Sommerville and F/O Cundall on a successful operation on RUFFIAN transmitters at Morlaix, France, with each pilot approaching the target while flying their Wellingtons on different bearings namely 180°, 360°, 060° and 315°. The flights lasted 4 hours and 20 minutes except for Bufton and Cundall who flew about one hour less. The operation was noted as successful.

May 17, 1941 - Grant, Bufton and Cundall attacked an installation near Barfleur, a small fishing village in northern France. They each approached the target on different bearings of 270°, 210° and 140°. The attack was reported as successful.

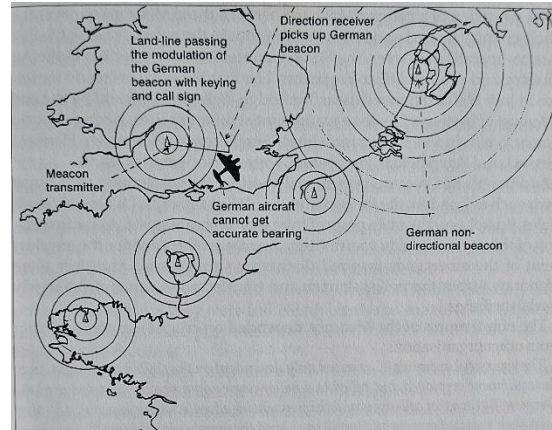
July 4, 1941 - F/O Grant carried out an OBOE flight with W/C Hancock and five other crew members in his Wellington. The night flight lasted almost 4 hours with departure at 2255 hrs and landing at 0230 hrs. There was no indication of where they went. OBOE was a system of radar and radio transponders to track bombers to their target. The aircraft flew a predetermined arc near the target and when reaching an intersecting arc from another station indicating the target, the aircraft was sent a signal to drop the bombs.



July 7, 1941 - F/O Grant carried out a SPECIAL W/T flight with S/L Bufton and Sgts Blacker, Adam, Thornhill, Snape and White in his Wellington. The Detail of Work (DOW) in the ORB noted it was an OBOE flight. The night flight departed at 2304 hrs returning at 0245 hrs, almost 4 hours. Again, there was no indication of where they went.

August 12, 1941 - F/O Grant and his crew of five did their longest flight of 9 hours and 40 minutes on what the ORB noted was a trip on 'ELECTRA'. He departed Boscombe Down at 1330 hrs and returned at 2310 hrs. R.V. Jones notes in his book that the Germans were setting up a station known as 'Electra Sonne' near Lugo near the north west coast of Spain to transmit beams out over the Atlantic to intersect with similar beams from a station near Brest, France. This would help U-boats and aircraft determine their positions. As the Wellington had a range of about 2500 miles and the distance from Boscombe Down to Lugo and return is about 1500 miles, Lugo may have been Grant's destination. Later, S/L Bufton also flew similar long flights such as a 7-hour 35-minute flight with six crew (including a Mr. Reeves) in his Wellington on April 23 and again on April 24 where he flew for 8 hours and 35 minutes with five crew in his Wellington. Both flights were annotated only 'Special Duty' without code names to provide a clue about their possible destination.

August 24, 1941 - Grant had a flight of 5 hours and 25 minutes. He and his Wellington crew of eight departed alone at 1430 hrs on a MEACON test during daylight. They landed at 1945 hrs. Since Grant normally had a crew of five, it is likely the extra three individuals had functions relating to MEACON. MEACON was a system of receivers and transmitters which picked up the enemy aircraft ranging signal and the modulation was superimposed on a transmitter tuned to the radio frequency of the German ground range station. This confused the range indications for the ground stations. The official abbreviation for this system was 'meaconing' based on the words 'masking beacon'. Such a station was installed at Beacon Hill near Boscombe Down (109 Sqn's home station) about eight miles north of Salisbury. The height of Beacon Hill was an asset for the MEACON system but the hill on an approach line to the airfield also posed a flight hazard.



Example map of 'Meaconing'

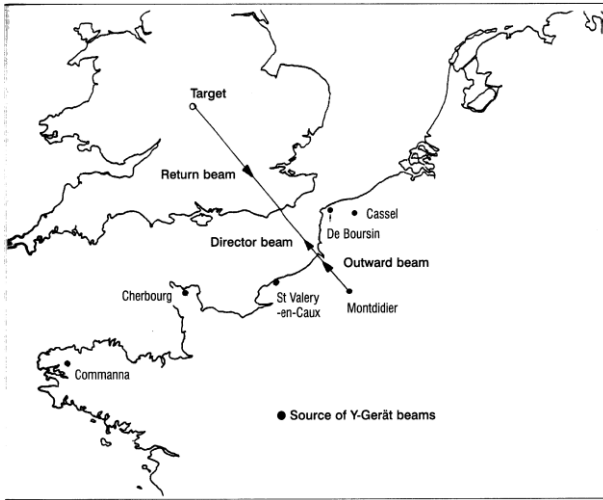
September 28, 1941 - Grant did two 'SPECIAL W/T' flights with his Wellington. His was the only aircraft on the sortie. The first flight was from 1440 hrs to 1555 hrs with only him, two Sgts and Mr. Bates. He flew again from 2025 hrs to 0040 hrs with five crew and Mr. Bates again. There was no clue about the possible destination. It is unusual for civilians to be on such flights. There were several flights where civilians such as Misters Bates, Blanchard and Rawlinson flew with Grant and also with other pilots in the squadron.

October 3, 1941 - Grant did another 'SPECIAL W/T' flight for almost 7 hours with his Wellington. Without a code name, there was no indication of their possible destination. His was the only aircraft on the sortie. The flight lasted from 1120 hrs to 1805 hrs with only him, four crew members and Mr. Bates.

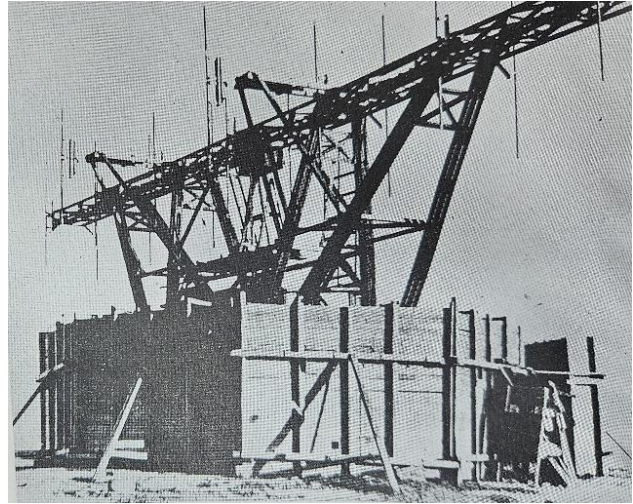
R.V. Jones, in his book 'Most Secret War', describes the efforts to detect and counteract the German radar and transmitters in great and interesting detail as he was involved first hand in this work. The book 'Beam Benders' by Laurie Brettingham describes in the different systems and countermeasures used by 80 Wing including 109 Sqn. The Bomber Command Museum of Canada also has a description of the various technologies used by the bombers to locate targets at the following web site: <https://bombercommandmuseumarchives.ca/commandtechnology.html>

October 10, 1941 - George did a 'Y SERVICE' flight of over 5 hours departing at 1940 hrs. He and his Wellington crew of seven returned at 0110 hrs. This may have been a

Y-Gerät site in France. This transmitter sent a single beam to a receiver transmitter on board the aircraft which provided the ground station with the position of the aircraft along the beam.



Map of Y-Gerät beam



Y-Gerät beam Transmitter

October 15, 1941 – George Grant was appointed acting F/L. On October 30, he, F/Sgt Blacker, F/Sgt Stewart, Sgt Adam, Sgt Hall and Sgt Thornhill were attached to RAF Hurn, which was primarily a transport and fighter base. No details of what they did there. He returned to Boscombe Down and flew a SPECIAL W/T flight on November 11.

The ORBs after January 1942 contained only operational details. Unlike the previous ORBs, there was no administrative information such as posting, promotions awards, etc.

January 19, 1942 - the Headquarters and the Wireless Development Flights, of which Grant was a member, moved to Tempsford. The Wireless Reconnaissance Flight, except for the Wyton detachment, moved to Upper Hayford. The Wireless Investigation Flight stayed at Boscombe Down. RAF Tempsford in Bedfordshire was a secret RAF base during the Second World War. 138 and 161 Squadrons were located there. They specialized in top secret activities such as the dropping off and supporting secret agents and assisting the resistance forces operating in occupied Europe.

January 26, 1942 - F/L Grant flew his Wellington 3.5 hours at night from Tempsford. This Special Duty flight had three crew plus Mr. Roberts. Most of his 17 other flights in 1942 were about two hours or less. Some of code names for these Special Duties flights were 50/70, 70's, BENITO, Homing Receiving and Homing,

February 2, 1942 - Grant carried out two SPECIAL DUTY OBOE flights with four crew and Mr. Roberts. The first flight was from 1035 hrs to 1330 hrs and the second from 1530 hrs to 1710 hrs.

On March 13, 1942, F/L George Grant was awarded the DFC while serving with 109 Sqn. The Public Records Office 2/9262 had a recommendation dated 9 January 1942 stating he had flown 33 sorties (100 hours 25 minutes) as a member of 'Trinity' Flight. Trinity seems to have been a code word for operational trials of 'OBOE'

"Trinity Flight Lieutenant Grant has been a member of this unit for the past 18 months. During this time, he has carried 100 flights under all conditions of weather in connection with Radio Counter Measures. In addition, he has done the 33 operational flights, some of which involved attacking along a beam in the face of heavy anti-aircraft oppositions. He has displayed considerable courage and his keenness to attack at all times has been most commendable."

To the above, the Commanding Officer of 80 Wing, G/C E.B. Addison, added the following:

"This officer has set a very fine example by the courageous and enthusiastic manner in which he has performed the difficult task of 'beam-edge' flying during the recent Trinity offensive. This task, demanding as it does intense application, he successfully carried out in the face of very accurate and intense gun fire. During the past 18 months, he has been a leading spirit in the difficult and often dangerous task of investigating from the air, the enemy's radio activities, and he has carried out a number of attacks on the beam transmitting stations used by the enemy for raids on this country. His highly developed and unselfish sense of duty coupled with high courage in the face of danger have enabled his technical abilities to be put to very valuable use in his work connected with certain vitally important radio counter-measure operations.

The preceding recommendations were combined into a citation to the Air Ministry Honours and Awards Committee. A memo dated 11 March 1942 explicitly described the citation as 'most secret and must not be published under any circumstances. The RAF Air Ministry Bulletin 6484 noted his DFC was awarded 'for gallantry and devotion to duty in the execution of air operations'. The citation, which was later unclassified, read as follows:

"During past 18 months, this officer has carried 100 flights in all conditions of weather in connection with radio counter-measures and other operational sorties. Flight Lieutenant Grant has set a very fine

example by the courageous and enthusiastic manner in which he has performed the difficult task of 'beam-edge' flying during the recent 'Trinity' operations. This task, demanding intense application, he carried out successfully in the face of accurate and intense enemy gun-fire. Flight Lieutenant Grant has taken a leading part in the difficult and often dangerous task of investigating, from the air, the enemy's radio activities; he has also carried out attacks on the beam transmitting stations used for raids on this country. His services in connection with certain vitally important radio counter-measure operations have been of the highest value."

April 26, 1942 - George did a 'SPECIAL DUTY BENITO' flight of 1 hour departing Upper Hayford at 2030 hrs. BENITO was a code for a Y-Gerät site at Stavanger in southern Norway. Due to the distance from RAF Station Upper Hayford to Stavanger, Norway, it is likely Grant was searching for the signal rather than attacking the site. An excerpt from the ORB for this flight is below.

26th.	WALL'N. R 1534.	F/LT GRANT. P/O RUSSELL. P/O MCLLROD. P/O MACHENIE. SOT. SUTHERLAND. SOT. KYLIE.	Captain.	2030	2130.	Special Duty BENITO.
			Captain.	1130	1030.	Attempted to carry out a

George Grant's last recorded flight with 109 Sqn was on June 24, 1942. He carried out a Special Duty Homing flight with three crew on his Wellington from 1425 hrs to 1610 hrs.

There are no entries in the 109 Sqn ORBs after June 1942 for George Grant. The March 24, 1943 ORB for 156 Sqn notes, he was attached to 156 Sqn from RAF Gransden Lodge which was part of 8 Group, the Pathfinders. It is highly probable he had been with one of the units there after leaving 109 Sqn. 192 Sqn, a night training squadron, was at Gransden Lodge from 4 January 1943 to 5 April 1943 and trained pilots on Lancasters and Mosquitos. There was also the Bomb Development Unit and 1474 flight (later 192 Sqn) who were involved in secret work related to development of radar and counter-measures to the German radar.

20 December, 1942 - Six Mosquitos from 109 Sqn, led by S/L H.E. Bufton and his navigator F/L E.L. Ifould, did the first OBOE trial to bomb the power station at Lutterade, Belgium. This was the first calibration test of OBOE which was a navigation and bombing radar aid with range-measurement station indicating when bombs to be released. The OBOE equipment malfunctioned in three of the aircraft so they bombed elsewhere. A local report indicated nine bombs fell in open ground about 2 km from the power station.

On the evening of December 31, 1942, 8 Group did a trial raid on Dusseldorf with two OBOE equipped Mosquitos from 109 Sqn marking the target for eight Lancasters. S/L H.E. Bufton and his navigator F/L E.L. Ifould and P/O F.M. Griggs and his navigator P/O A. O'Hara flew the 109 Sqn Mosquitos in this raid. Out of nine recorded bombing incidents, six were industrial targets but no serious damage was done. 53 people were either killed, injured or missing. Later that night, three OBOE Mosquitos attacked the fighter control room at the Florennes airfield in Belgium. They dropped six high explosive bombs from 28,000 feet. Due to 10/10ths cloud, the results were unknown.

109 SQUADRON LOSSES

Although 109 Sqn did not often have flights of long duration over enemy territory during Grant's first tour, they did incur some losses.

November 5, 1941 - The 109 Sqn RAF crew of Wellington T2565 was doing a Y Service Flight checking German radar when an engine failed over Lorient, France. The crew bailed out and most evaded capture for several days before becoming prisoners of war (POW). F/O Leslie George Bull, Pilot; F/L William Jack Grisman, Observer; F/Sgt John Gannon, WOp/Gnr; F/Sgt William George Stathan, WOp/Gnr; Sgt Oscar Albert Sheffield, Air Gnr; Sgt Norman Wallace Mackenzie, Second Pilot; and P/O Howard Gooding Cundall, Radar Specialist and Telecommunications Research Establishment (TRE) representative. Cundall was a civilian who was given the rank of P/O and a service number in the RAFVR in case he was captured. Bull and Grisman were later shot in 1944 by the Gestapo for taking part in the Great Escape. Cundall also escaped but was later captured. MacKenzie evaded capture and returned to England. The remaining crew were repatriated after the war.

November 21, 1941 - Wellington T2552 was on a training flight and crashed on its approach when returning to Oakington. The all RAF and mostly 109 Sqn crew aboard all died and consisted of F/L B.P. Hennessey, Pilot; P/O R.M. Lewin, Pilot and a George Cross recipient; Sgt .A. Bates, Observer; F/Sgt J.W. Cornforth. WOp/AG; F/Sgt T.D. Snape, WOp/AG; Sgt D.J. MacKay, AG; Sgt R.G. Archer, 7 Sqn passenger; Sgt A. Grant, 7 Sqn passenger and Mr. G.G. Samson, TRE passenger from Oakington.

March 28/29, 1942 - Wellington X9913 of 109 Sqn took part in a night raid by 234 bombers on Lubeck. The aircraft was not involved in the bombing but was either testing Gee equipment or checking German night fighter frequencies as part of 109 Sqn's electronic counter measures to assist the bombers. The crew consisted P/O G.J. Maygothling, RAF, Pilot and Captain; Sgt F.G. Bower, RAAF, WOp/AG; Sgt F.J. Cassells, RAAF, Pilot; P/O L.J. Convey, RCAF from Arnprior, ON, Observer; P/O R.J. Cussen, RAF, WOp/AG; LAC R.F.Rendell, RAF, Special Duties Operator; P/O B.E.P. Sadler, RAF, Special Duties Operator and F/Sgt R.A. Walker, RAF, AG.

June 8/9, 1942 - Wellington Z1048 was one of 17 aircraft that went missing during a night raid on Essen by 170 bombers. It reportedly crashed at Burdinne, Belgium. P/O M.D. MacKenzie, RCAF, Pilot, from Pictou, NS; Sgts A. Bentham, RAF, D.M. Brown, RAF; A.R.V. Matthissen. RAF, A.R. Pain, RAF, and F/Sgt R. Hunt, RAF, were also killed. P/O MacKenzie's Record of Service notes the aircraft was carrying special wireless material.

GRANT'S TOUR WITH 156 SQUADRON

According to the March 1943 ORB for 156 Pathfinder Sqn, F/O Grant was transferred from RAF Gransden Lodge to Warboys on March 24. The ORB for April 10 notes S/L Grant reported for flying duties that date. There was no indication in the ORBs when he was promoted to S/L. He made 23 flights with the squadron. Various levels of flack were encountered over the targets. On a number of sorties, some of the squadron's Lancasters failed to return. His Lancaster crew usually consisted of F/O W. Walker, Sgts R.F.A. Dobson, A.J. Irwin, F.J. Love, T.V. McCarthy and V.F. Salter.

April 18/19, 1943 – S/L Grant flew his first sortie with 156 Sqn on Lancaster W4924, along with 12 other Lancasters from 156 Sqn to mark and bomb the dock yards at Spezia, Italy. Grant's Lancaster and a few others only had a bomb load of 3 X 2,000 AP but no markers. This was a 9 hour 40-minute flight and part of a raid by a total of 173 Lancasters and five Halifaxes. This was his longest flight during his tour with 156 Sqn. His aircraft was hit by light flak after the attack while it was near Orleans. In his profile in the book 'Critical Moments', Grant notes that searchlights and anti-aircraft fire suddenly came up on all sides of the Lancaster. He called for full power and gave the right rudder a hard kick. His right leg went numb and he thought he had been hit. The smell of cordite in the aircraft was very strong so he thought his gunners were firing at the searchlights. When they were clear, George asked how many lights they shot and they replied they hadn't fired a shot. Grant's "wound" turned out to be a stiff leg for a few days when he over extended his leg when he hit the rudder hard. The 156 Sqn Lancaster W4849 flown by Sgt Godfrey Storian Cooper with six crew was presumed lost off the French coast. F/Sgt Neil Owen Robinson, RCAF, Air Gunner, from Sunny Brae, NB, was one of the crew who was not RAF.

The chart below summarizes some of the night sorties by Grant during his tour in 1943 with 156 Sqn that are not described in more detail in the later paragraphs.

Date	Target	156 A/C	Mark	Bomb	Total A/C in Raid	A/C Missing
April 20	Stettin	13	Yes	Yes	339	22
May 23	Dortmund	22	Yes	Yes	826	38
May 25	Dusseldorf	21	Yes	Yes	759	27
June 12	Bochum	18	Yes	Yes	503	24

Date	Target	156 A/C	Mark	Bomb	Total A/C in Raid	A/C Missing
Sept 16	Modane	19	Yes	Yes	605	34
Sept 29	Bochum	10	Yes	Yes	352	7
Oct 3	Kassel	15	Yes	Yes	540	24

April 26/27, 1943 - Grant's crew was one of 15 Lancasters to mark and bomb Duisburg. They were backers-up for the seven OBOE Mosquitos that initially marked the target. On this raid by 557 bombers, 17 aircraft were missing as heavy flak was reported over the target at times. One of the missing 156 Sqn aircraft was Lancaster W4140 flown by F/Sgt Donald Herbert Waugh, RCAF, of Toronto and crew who crashed in the target area.

May 12/13 - Grant's crew was one of 18 Lancasters to bomb industrial targets in Duisburg again. Some had target indicators and were backers-up for the ten OBOE Mosquitos that initially marked the target. On this raid by 572 bombers, 34 aircraft were missing as heavy flak was reported over the target. Two of the missing aircraft were Lancasters from 156 Sqn. Lancaster ED857 was flown by S/L Lighton Verdon-Roe, DFC, RAFVR and crew who crashed in the target area. Lancaster ED837 flown by P/O William Murray Wendon, RAAF, and crew collided with another aircraft over the target area. Only F/Sgt Gordon Alexander Williams, WAG, survived the crash and became a POW at Stalg Luft 6.

May 13/14 - Grant and 15 other squadron Lancasters joined 152 other heavy bombers, for a raid on the Skoda Works at Pilsen, Czechoslovakia. On this raid, nine bombers failed to return with six shot down by enemy fighters. Below is an excerpt from the DOW for the ORB for May 13, 1943 for Grant and his crew.

DATE	AIRCRAFT TYPE & NUMBER	CREW	DUTY	TIME		DETAILS OF SORTIE OR FLIGHT	REF
				Up	Down		
13-5-43	LANCASTER 111 ED883	R/L G.P. Grant Sgt Deacon, R.F.A. P/O N. Williams Sgt Gilbert, V.P. Sgt McCarty, T.V. Sgt Irwin, Sgt Sgt Love, W.J.	Bombing Raid	2144	0642	Task Pilsen. On the run in target was visually identified by river, and works were clearly seen. Bombing pattern was pierced by flak on run in, but bombed at 0430 hrs from 15000 feet. It is thought that one bomb may have over-shot owing to the bomb-aimer being hit in the face by fractured parapet. We made two more runs over target and on the third made was obscuring results but some of the stores definitely fell on the SKODA WORKS. In the target area a 4/4 unidentified R/A was seen 1000 ft. below to 4/4 dodging light flak, no action. One photo taken. Bomb Loads: 5 X A. Flares (White) 2 T.L.Red, 2 T.L.Red 1/2, 1 X 4000 H.C. and 3 X 5000 G.	

June 11/12 - Grant's crew was one of 21 Lancasters from 156 Sqn to mark and bomb Munster. They were part of 72 aircraft from 8 Group on a mass H2S trial which was very successful. The damage was extensive considering the small number of aircraft. Five aircraft were missing as the flak was reported as heavy over the target at times. One of the five missing bombers was 156 Sqn Lancaster ED935 flown by F/Sgt Kenneth Laurence William Lay, RAAF, and seven crew which crashed into Ijsselmeer Lake, Netherlands.

July 24/25 - Grant's crew was one of 24 Lancasters from 156 Sqn to bomb Hamburg as part of 791 bombers detailed for the raid. 12 aircraft were lost. The 156 Sqn bombers only carried bombs but no target indicators. In addition to his bomb load of 1 X 4000 HC and 4 X 1000 MC, Grant and others also dropped "Window" which was small strips of aluminum foil to simulate aircraft on German radar screens to confuse the enemy.

July 25/26 - Grant's crew was one of 13 Lancasters from 156 Sqn to bomb the Krupp Works in Essen. They were part of 705 bombers detailed for the raid. 23 aircraft were lost due to heavy flak, fighters and other reasons. 156 Sqn Lancaster ED734 flown by F/O John Melvill Hudson, RAFVR, and crew of six was badly shot up by a night fighter in the target area and again over Holland. It crashed at Oss, Netherlands. There were no survivors.

July 29/30 - Grant's crew was one of 20 Lancasters from 156 Sqn to bomb Hamburg again. In addition to their bomb load and target indicators, they also dropped "Window". They were part of 777 bombers detailed for this raid. 27 aircraft were lost due to heavy flak, fighters and other reasons. F/L Basil Francis Smith, RAFVR, DFC, in Lancaster ED598 and F/Sgt Malcolm Thomas Tudor Hall, RAFVR, in Lancaster ED622 and their crews from 156 Sqn were both shot down by night fighters.

August 2/3 - Grant had to abandon this raid on Hamburg due to severe icing and 10/10 clouds. He made three attempts to break through the clouds. At the turning point about 25 miles west of the target, the bombs were jettisoned. Eight other Lancasters had problems with icing and other weather issues and two had mechanical or equipment problems. Ten of the squadron's Lancasters dropped their markers and bombs on Hamburg. This raid involved a total of 740 bombers from all Bomber Command Groups except 2 Group. 30 aircraft were missing on this raid.

7/8 August - Grant and his crew departed Warboys and marked and bombed Turin, Italy at 0057 hrs and Genoa, Italy at 0119 hrs. This was a 6-hour 51-minute flight. Eight other Lancasters from the squadron took part in marking and bombing on both Turin and Genoa while one Lancaster flown by S/L White was only to mark Turin. Fourteen other Lancasters from other squadrons in 8 Group were also tasked to mark and bomb both locations. Turin was also bombed by 50 Lancasters from 1 Group. In addition, Genoa was also attacked by 22 Lancasters from 1 Group and 28 Lancasters from 5 Group. All aircraft returned safely.

August 9/10 - Grant and 22 other squadron Lancasters marked and bombed while taking part in a raid on Mannheim by 457 heavy bombers. He and others observed one aircraft blow up over the target and another over Boulogne, France. Nine aircraft failed to return.

August 23/24 - S/L Grant's first raid on Berlin was just over a 7-hour flight. His Lancaster with markers and a bomb load of 7000 lb was part of a raid by 710 heavy bombers. He

also dropped "Window" along with other crews of the squadron. 56 aircraft were missing on this raid of which 33 were estimated to have been shot down by fighters.

On August 29, 1943 S/L George Grant was appointed acting W/C.

August 31/September 1 - W/C Grant and 20 other 156 Sqn Lancasters flew another raid on Berlin which was a 7 hr-17 min flight. This raid had 613 heavy bombers and nine Mosquitos. The fighters were very active over Berlin and it was estimated they shot down 33 of the 47 bombers that did not return.

September 5/6 - 20 Lancasters from 156 Sqn including Grant were to mark and bomb in a raid on Mannheim by 585 heavy bombers from squadrons from all Groups except 2 Group. This was a very successful mission using H2S. 34 bombers were lost but the destruction of 11 enemy fighters was claimed. 156 Sqn lost Lancaster JA858 flown by F/O John Charles Prichard which was shot down by a night fighter over Germany on its return home. Two Air Gunners, F/Sgt Harry James Simpson, RAAF, and Sgt Dennis Grout, RAFVR, were killed in the crash while the rest of the crew became POWs.

Below is an excerpt from the DOW for the ORB for September 5, 1943 for Grant and his crew.

DATE	AIRCRAFT TYPE & NUMBER	CREW	DUTY	TIME		DETAILS OF SORTIE OR FLIGHT	REFERENCE	
				UP	DOWN			
5.9.43.	LANCASTER III. JB186	W/C G.F. Grant. F/L A.J. Milligan. F/L W. Walker. Sgt Salter, V.P. F/O T.V. McCarthy. F/S Irwin, A.J. W/O Love, W.J.	Bombing Raid.	1938.	0150.	Task MANNHEIM. In ml cloud and only slight haze, target was identified visually by RIVER BURN, and built up area. Bombed at 2300 hrs from 19,000 ft, own bombs seen to burst. Raid was developing well, and TI's were mainly all well placed. Only two loads of bombs were scattered, and even THESE WERE ON THE BALL to area. Intense and very accurate heavy flak over MANNHEIM, with numerous S/L's trying to come. "Windows carried and dropped", one photo attempted. Bomb load left green, 1/2 TI yellow, 1/2 TI yellow, 1/2 TI white, 1/2, 1000 HC, 4000 GP, 1 F/R red, green stars.		

October 4/5 – Grant and 11 other squadron Lancasters were to mark and bomb Frankfurt with 329 bombers from other units. 10 aircraft were missing on this raid plus one of the three B-17s of the USAAF that participated in this raid. S/L Arthur Sydney Cook, RAAF, and RAF crew of 156 Sqn were one of the 10. Following is an excerpt from the DOW for the ORB for October 4, 1943 for Grant and his crew.

LANCASTER III JB 186.	W/C G.F. Grant. F/L A.J. Milligan. F/L Walker, F. F/S Salter, V.P. F/O T.V. McCarthy. F/S Irwin, A.J. W/O Love, W.J.	Bombing raid.	18.34.	00.18.	Task FRANKFURT. Target was identified by Red TI, and attacked at 21.35 hrs. from 19,800 ft, but own bombs not seen to burst. Yellow TIs were down on arrival, and although it was difficult to pick them out from the flares, it is believed that these were accurate. Some TI Reds were down, and covered an area of approx. 1-mile across. Only 1 x TI Green and 1 x 4000 HC were dropped by this aircraft, rest of load was brought back, owing to the A/P not being definitely identified. Slight to moderate heavy flak over target. S/L's were active from MANNHEIM to FRANKFURT, and very numerous. In the MANNHEIM area our aircraft was attacked by an E/A, but both Mid-Upper and Rear Gunners opened fire, and are confident that they damaged the attacker. "Windows carried and dropped" One photo attempted, without flash. Bomb Load:- 1 x 4 F/R. White 1 x TI Green 5 x L/B TI Red 5 x TI Red 1 x 4000 HC.		
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In September and October, Grant took part in six raids over Germany and France. The longest one was on September 16 which was a 7 hr-36 min flight to mark and bomb the

marshalling yards at Modane in southeast France. The 19 Lancasters of 156 Sqn were part of a raid by 340 bombers of which three went missing.

October 8/9 – W/C Grant's last operation with 156 Sqn was a bombing raid on Bremen, Germany. This 4 hr-52 min flight was with 20 other Lancasters of 156 Sqn plus 95 Stirlings from 3 Group. Three bombers were missing on this raid. On this night there was also a raid on Hanover by 496 bombers.

On October 28, 1943, the ORB notes Grant was awarded an immediate DSO for his actions with 156 Sqn. It was promulgated in the Gazette on November 12, 1943. The citation reads:

“Since being awarded the Distinguished Flying Cross, this officer has undertaken many sorties, covering a wide range of targets. His unswerving devotion to duty, fortitude and tenacity were apply demonstrated on one occasion when he attacked Bochum in the face of difficult circumstances. Wing Commander Grant is an outstanding leader whose fine qualities have impressed all”.

On November 2, 1943, W/C Grant was posted to the Headquarters of 8 Group Pathfinder Force at RAF Wyton as Tactics Officer.

GRANT'S SECOND TOUR WITH 109 SQUADRON

The 109 Sqn ORB for May 27, 1944 notes S/L (Acting W/C) G.F. Grant is attached to 109 Sqn, now a PFF squadron at RAF Station Little Stoughton. The May ORB also notes F/O (Acting F/L) C.R.G. Grant, DFM, Pilot, also reported to the squadron. F/L Grant had been previously listed numerous times in the ORBs for 109 Sqn sorties. George Grant signed the May 1944 ORB as Commanding Officer of 109 Sqn. The entry in the June ORB for the 21st states “Acting W/C George Grant is posted to the unit with effective date of May 28, 1944”. The June ORB for the 12th notes that Acting W/C R.M. Cox, the previous Commanding Officer of 109 Sqn who signed the April 1944 ORB as Commanding Officer, was posted to 82 Operational Training Unit with an effective date of May 28, 1944. The June ORB is also very interesting as it mentions two RCAF navigators who flew about 100 sorties during the war. It notes navigator A/S/L J.V. Watts, DFC, attached to 105 Sqn from 25.6.44 to 20.7.44 and navigator F/O R.C. McClelland, DFC, is qualified and authorized to wear the RCAF Operational Wings.

July 6, 1944, W/C Grant flew his first mission of his second tour with 109 Sqn with S/L J.E. Jefferson as navigator in Mosquito MM112. He and S/L Buckland, in another Mosquito, departed Little Stoughton at about 2000 hrs to marked their target at Croixdalle, France from 22,000 ft. Two other pairs of Mosquitos were designated to mark Foret de Croc and Coquereau in France. They landed between 2155 hrs and

2215 hrs except for S/L Kay who returned early due to an engine failure. This was part of a raid by 551 aircraft on five V-Weapon sites. Only one Halifax was lost.

11 July - The first 'heavy OBOE' raid occurred when 26 Lancasters and six Mosquitos of 8 Group (four from 109 Sqn) made two separate raids on the flying bomb sites at Gapennes in northern France. W/C Grant was the Captain of an OBOE equipped 582 Sqn Lancaster with S/L R. Findlater as the OBOE Navigator. As the leader of a formation of six Lancasters, he directed the bombing. When Grant dropped his bombs, the other Lancaster dropped theirs. This allowed more bombs to be dropped on the OBOE signals. Grant has departed at 1935 hrs and landed at 2220 hrs. F/L J.B. Burt was in a Mosquito as a reserve aircraft in W/C Grant's formation. Burt returned to base with his bombs as the bomb release mechanism failed to operate over the target. Below is an excerpt from the DOW for the ORB for July 11, 1943 for Grant, Findlater and the 582 Sqn crew.

LANCASTER	W/C GRANT, G.F.	CAPTAIN	1935	2220	Target as detailed GAPENNES. Bombed from
	S/L. FINDLATER, R	OBOE NAVIGTR.			15,500' by A.R. 5513 as leader of formation
	& crew (582 Sqn.)				of six Lancasters. No defences 10/10 cloud.

July 29/30 – Grant, with F/L H.A. Scott as navigator, departed Little Stoughton with three other Mosquitos from the squadron to join five Mosquitos from other units in a small raid to bomb the airfield near St. Trond, France. Grant left at 2315 hrs and marked and bombed from 27,370 ft. Grant and two Mosquitos from another squadron were the only ones to attack the target. Three Mosquitos from 109 Sqn and two others aborted their attacks. One Mosquito diverted to attack Aachen. No defences were reported over the target. Grant returned at 0200 hrs.

August 9/10 – A very busy day for 109 Sqn. In the early afternoon, 12 Mosquitos from 109 Sqn marked various targets in France. W/C Grant with his navigator S/L R. Findlater and 12 other Mosquitos from the squadron departed at 2250 hrs to mark various targets in France. Grant's flight used OBOE to mark the ground target at Foret de Croc in France. In addition, 8 Group had two other Mosquitos and two Lancasters while 6 Group had 21 Halifaxes in the raid on Foret de Croc. In the early hours of August 10, three 109 Sqn Mosquitos marked the Dortmund-Ems Canal for a minelaying operation by 13 other Mosquitos from 8 Group. Some crews did more than one sortie during this period.

On August 14, W/C Grant, his navigator S/L Findlater and 19 other Mosquitos from the squadron, were detailed to mark targets in the general vicinity of 4879N, 0014W. Due to a technical failure, Grant was unable to complete the attack and brought his markers back. The other 109 Sqn Mosquitos marked the target from 22,000 or 32,000 ft. They had departed at 1341 hrs and returned at 1607 hrs. This target in north-east France

was near Flers which was liberated on August 16, 1944. This was part of a raid by 805 bombers on seven German positions which were delaying the advance on Falaise by the Third Canadian Division. Two Lancasters were lost in this raid. Unfortunately, the army used yellow flares to indicate their positions while the bomb markers also use yellow target indicators. This resulted in 13 fatalities and 53 injured along with damage to equipment. The bad luck of the army unit continued the next day when it was accidentally machine gunned by RAF and USAAF fighters.

August 25/26 - Grant and Findlater departed at 2325 hrs for a raid on the oil facilities at Hamburg along with three other Mosquitos from 109 Sqn and five from other squadrons. W/C Grant and F/L Crump both dropped their bombs on target from 32,000 ft but were each coned for five minutes. S/L Thelwell and F/L Sleep both had to jettison their bombs due to a technical failure. Thelwell was also coned for five minutes. All four aircraft landed safely at about 0210 hrs. No Mosquitos were lost on this raid. On this night, Bomber Command also had over 750 heavy bombers and Mosquitos bomb eight other targets plus some minelaying and diversionary sweeps. 24 aircraft were lost on these raids. Below is an excerpt from the DOW for the ORB for August 25, 1944 for Grant and Findlater.

DATE	AIRCRAFT TYPE & NUMBER	CREW	DUTY	TIME		DETAILS OF JOURNAL OR REPORT
				Up	Down	
25.8.44.	MOSQUITO IX	W/C. GRANT, C.P.	CAPTAIN	2325	0210	Target as detailed HEMBERG.
	LR. 511	S/L. FINDLATER, R.				Bombed from 32,000' by A.R. 5513.
						Cloud - nil in target area.
						Defences - coned by searchlights for 5 minutes.
						No flak.

September 6 - Grant and Findlater took part in the fifth of six ground marking attacks on Le Havre departing at 1800 hrs and returning at 2010 hrs. Attacks 1,3 and 5 consisted of three Mosquitos while attacks 2,4 and 6 only had two Mosquitos each. Attacks were approximately 20 minutes apart. Grant was the only pilot in his flight to mark the target from 30,000 ft through 10/10 clouds. The other two Mosquitos did not attack due to technical failures. In the five other attacks, six aircraft had technical failures which prevented them from attacking. There were three other Mosquitos from 109 Sqn which attacked other locations that evening. A total of 344 bombers were part of numerous raids by Bomber Command to attack German fortifications and transportation facilities to help the allied armies take the port at Le Harve.

On September 11, the ORB noted S/L A/W/C Grant is granted Acting rank of Group Captain effective 28 August 1944.

September 12 - G/C Grant and S/L Findlater were the reserve aircraft to S/L Burt who marked the target at Dortmund from 34,000 ft so Grant was not required. Burt's aircraft was hit by the defences but the ORB did not indicate the extent the damage. P/O

Patrick, who was the other target marker with F/L Davis as reserve, was hit in the port wing but returned safely landing at 1945 hrs. They were part of a raid by 412 bombers on the synthetic oil plants at Dortmund, Scholten/Buer and Wanne-Eickel. Seven heavy bombers were lost on this raid. All 109 Sqn aircraft returned to Little Stoughton between 1940 hrs and 1955 hrs.

October 10 - Grant and Findlater departed at 1850 hrs for a precision bombing raid on Pforzheim along with four other 109 Sqn Mosquitos. Three other mosquitos bombed Duisburg and three others bombed Aschaffenburg. These small raids were expected to attract the enemy fighters away from the 49 Mosquitos detailed to bomb Cologne. It also distracted workers from the factories which made shells, fuses for bombs and parts for V-1 and V-2 rockets. Grant and three others dropped their 4,000 lb bombs from about 28,000 ft. One Mosquito did not attack due to a technical failure. All five 109 Sqn aircraft returned between 2220 hrs and 2250 hrs. All other Mosquitos returned safely to their bases.

October 28 - Grant and Findlater departed at 1350 hrs to sky and ground mark for a raid on Cologne along with seven other Mosquitos. This raid by 733 bombers occurred in two waves. Two heavy bombers were lost. The raid included 11 other Mosquitos from other squadrons. F/L Hodgson was the only pilot of 109 Sqn's eight Mosquitos to mark the target from 32,000 ft through 4/10 cloud. Grant and two other pilots (one was a reserve aircraft) had technical failures and brought their marker's back. Another Mosquito had a mechanical failure. Three reserve aircraft were not used.

October 29 - Grant and his navigator Findlater departed at 1200 hrs to ground mark for a raid on Walcheren, Holland along with 19 other Mosquitos from the squadron. This raid by 338 aircraft was to bomb 11 different enemy positions on the ground. Sixteen Mosquitos made two attacks to mark the targets. One Mosquito had a technical failure on its first marking attack but was successful on the second attack. Two other Mosquitos had complete technical failures and were unable to attack. Another could not attack due to a mechanical failure. In addition to the previous 16 Mosquitos, there were three other 109 Sqn Mosquitos who only had to attack once to mark the target from 22,000 ft. A sample page from the DOW in the ORB provides some further details of the raid.

29-10-44						Target: W CHEREN (cont.)
"	MOSQUITO XVI	S/L. BURT, J.B.	CAPTAIN	1110	1325	1st. Attack. Marked from 22,000' by A.R. 5513.
	MI. 171	S/L. CURTIS, R.E.				Cloud: nil..
						2nd. Attack. Marked from 22,000' by A.R. 5513.
						Cloud: nil.
"	MOSQUITO IX	S/L. DEWANT, J.	CAPTAIN	1155	1405	1st. Attack. Marked from 22,000' by A.R. 5513.
	NR. 498	P/L. BOND, G.				Cloud: 9/10 Stratus.
						2nd. Attack. Marked from 22,000' by A.R. 5513.
						Cloud: 8-9/10 Stratus.
"	MOSQUITO XVI	G/C. GRANT, B.F.	CAPTAIN	1200	1410	1st. Attack. Marked from 22,000' by A.R. 5513.
	M. 929	S/L. PINLATER.				Cloud: 6/10 Stratus.
						2nd. Attack. Marked from 22,000' by A.R. 5513.
						Cloud: 8/10 Stratus.
"	MOSQUITO XVI	F/O. BELL, T.	CAPTAIN	1220	1405	Marked from 22,000' by A.R. 5513.
	MI. 155	F/L. MAHLOD, J.A.				Cloud: nil over target.
"	MOSQUITO XVI	W/O. McHAY, R.S.	CAPTAIN	1210	1400	Marked from 22,000' by A.R. 5513.
	MI. 122	F/O. BACHELOR, A.W.				Cloud: 8/10. over target.
"	MOSQUITO IX	F/L. SHAW, J.W.	CAPTAIN	1210	1350	Marked from 22,000' by A.R. 5513.
	MI. 241	F/L. CAFFER, R.				Cloud: 2/10. St. Cl.

STATION COMMANDER RAF GRAVELEY

The ORB for December 26, 1944 notes Acting Group Captain Grant was posted to RAF Graveley as Station Commander effective 6 December, 1944. This was a Pathfinder Station with 35 Sqn flying Lancasters and 692 Sqn with Mosquitos.

On March 23, 1945, Acting Group Captain Grant was awarded the Bar to the DSO for his actions and leadership on many sorties with 109 Sqn. The citation reads

"Group Captain Grant has been in command of his squadron since May 1944. He has displayed great powers of leadership and had been largely responsible for the successful operations completed by his squadron. During his long operations career, this officer has displayed the greatest enthusiasm and determination and by his untiring efforts and splendid example, the squadron has attained a high standard of skill and accuracy."



No.109 Squadron RAF, group picture taken at the end of the war. George is in the middle, center 2nd row with his arms crossed. He was the CO of the Squadron up to and at the end of WWII.

In October 1945, his rank was reduced to W/C and he was posted from RAF Graveley to the Tactics Wing of the Central Bomber Establishment at Marham. He attended the RAF Staff College course at Bulstrode from October 1946 to March 1947. He then went to the Air Ministry Operational Training until December 1947 followed by a transfer to the Bomber Operations Unit of the Air Ministry. This was accompanied by a reduction in substantive rank to S/L on 1 January 1948. The reason given was he was not yet 32 years old.

RETIREMENT FROM THE RAF

George was very disappointed when the RAF decided he could not keep his rank of G/C due to his age of 29. He decided to retire early, effective 20 April 1949 and was given the rank of G/C for his retirement. He had 10 years service and received one days leave for every month he had been away from Canada. George, his wife Peggy, whom he met when she was a WAAF at Boscombe Down, and three children were repatriated to Canada. He then worked in heavy construction and in 1974 had a cattle farm and a gravel business in the Fraser Valley of British Columbia. The website 'Canada from Afar: The Daily Telegraph Book of Canadian Obituaries' notes George

died in Vancouver on August 3, 1990. He was survived by his wife Peggy, six sons and two daughters.

For his service during the war, George was awarded the Distinguished Service Order and Bar, Distinguished Flying Cross, 1939-45 Star with Bomber Command Bar, Aircrew Europe Star with Atlantic Bar, Italy Star Defence Medal and War Medal 1939-45.

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