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The Dambusters

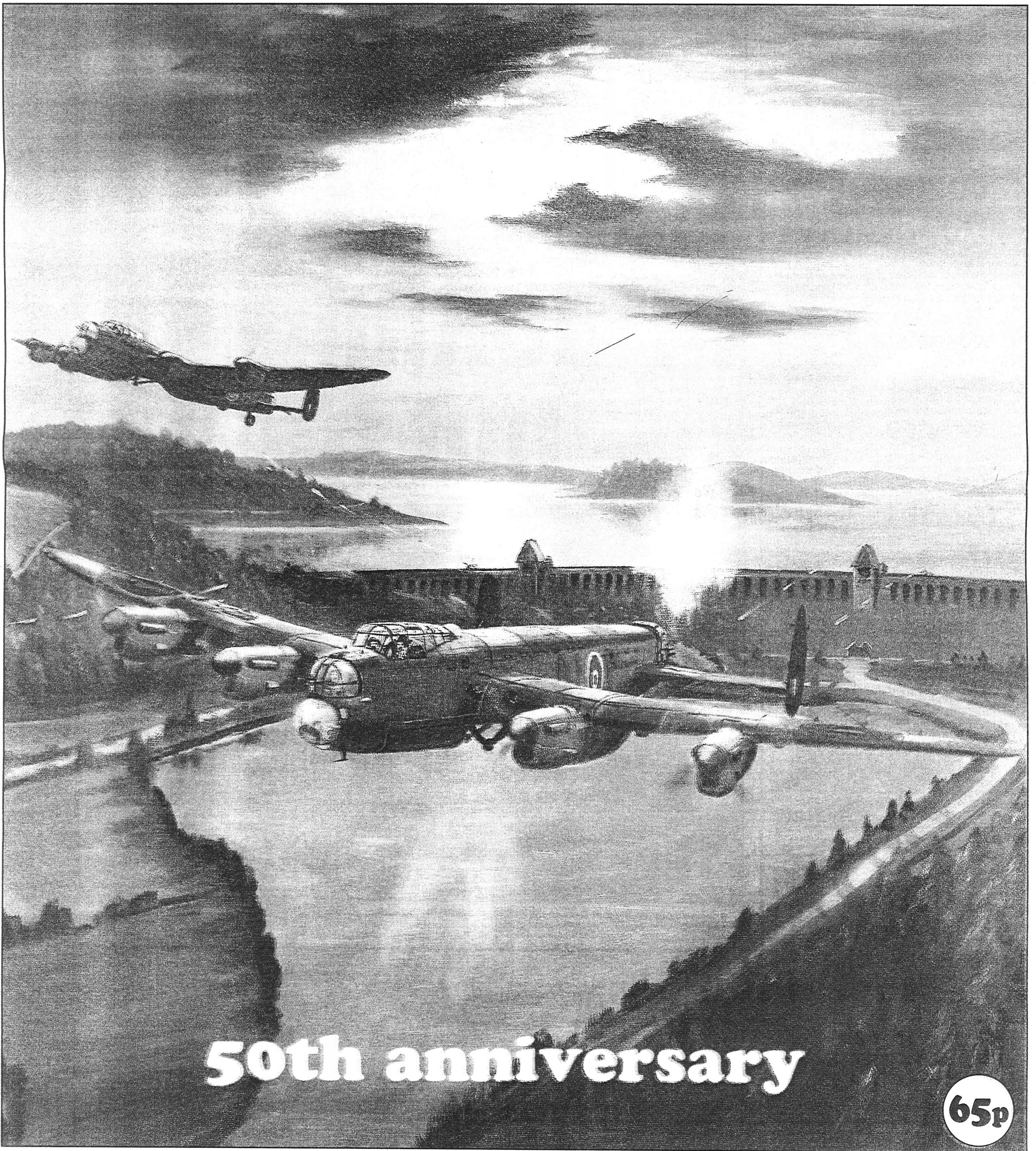
(Bouncing Bomb)



The

Dambusters

A tribute to 617 Squadron Royal Air Force



50th anniversary

65p



Saluting two milestones in RAF history

THIS year marks two major events in the history of the Royal Air Force. Firstly, it is the 75th anniversary since its formation and, secondly, 1993 celebrates the 50th anniversary of the formation of one of its most famous squadrons — 'The Dambusters.'

On the night of May 16/17, 1943 the Squadron, led by Wing Commander Guy Gibson, attacked the dams in the heart of industrial Germany. This special publication looks at the raid which made number 617 Squadron 'The Dambusters' a household name, and which brought the award of the Victoria Cross to Gibson.

Fifty years on, crews from the 'Dambusters' still lead the way in the role for which it had originally formed — precision bombing. Yet the targets today no longer lie in the industrial Ruhr, but in the desert of the Gulf.

This special publication 'The Dambusters' serves as a fitting tribute to the men of 617 Squadron, both past and present.

Acknowledgements

THIS publication would not have been possible without the help of many people. Special thanks to the Officer Commanding 617 Squadron, Wing Commander Bob Iveson, and his Executive Officers, Squadron leaders Bobby Anderson, Steve Hillier and Phil Osborne. As ever, thanks to Graham Day at the Air Historical Branch, for his co-operation during hours of endless research, and Andrew Cormack at the RAF Museum, Hendon.

Many books and articles have been written about the 'Dambusters' over the years which will give those interested a greater depth of knowledge. Of the many books, I have found none better than 'The Dambusters Raid' by John Sweetman. For details and history of the Avro Lancaster, I recommend the superb book 'The Avro Lancaster' by Francis K. Mason. For the life and experiences of Guy Gibson, the enthusiast should read 'Enemy Coast Ahead' by Guy Gibson VC DSO DFC and 'For Valour — The Air VCs' by Chaz Bowyer. For a general understanding of Bomber Command many works are available including the recently published 'The Six Year Offensive,' by myself and Ken Delve, and 'The Bomber Command War Diaries' by Martin Middlebrook and Chris Everitt.

This publication is for the men of 617 Squadron.

PETER JACOBS

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Front cover: "Operation Chastise" by John Larder (See Page 22). Back: Aircraft currently serving with 617 Squadron carry the code on the tail of one of the aircraft which flew on the Dams' Raid, in this case ZA407 carries the code AJ-G of Wing Commander Guy Gibson proudly carried by Flt Lts "Archie" Brown and Bill Williams, seen about to vacate their aircraft.

Design and lay-out by Peter Reynolds, Deputy Chief sub-editor Lincolnshire Echo. Paste-up, Nigel Clare. Graphics production, Shane Alexander.



• The author at the Mohne Dam.

About the author Squadron Leader Peter Jacobs

BORN in 1958, and educated near Southampton, Peter joined the RAF in 1977 as a Technician Apprentice at RAF Halton. On completion of training, he was posted to Brize Norton before being accepted for officer training at the RAF College Cranwell.

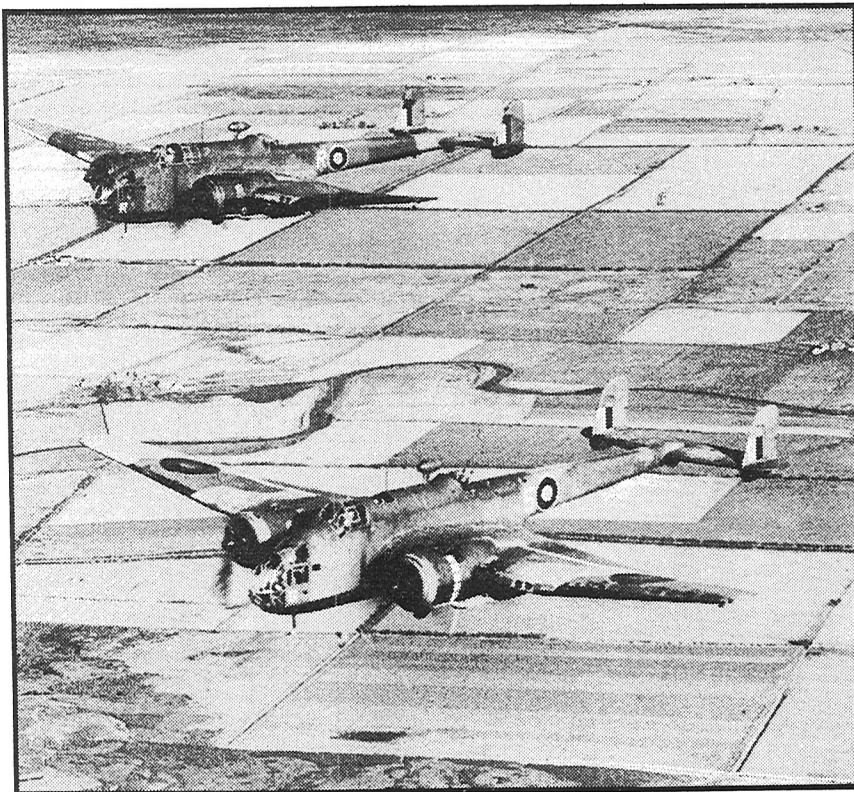
Commissioned in 1981, he completed his navigator training at Finningley before being posted to the F-4 Phantom at Coningsby in 1983. Having completed a tour with 29 Squadron, during which he served with 23 Squadron in the Falkland Islands, Peter was posted back to Finningley as a navigator instructor.

Specialist

In 1990, he returned again to Coningsby to serve as an instructor with the Tornado F3 Operational Conversion Unit. Having recently completed his tour with 56 Squadron, Peter is now serving as an Air Defence Specialist at the Defence Research Agency at Farnborough.

Married with two young children, Peter has numerous articles to his credit and has recently had his first book 'The Six Year Offensive' published.

Early ideas on attacking Ruhr — but how?



• Mainstay of the bomber force at the outbreak of war, the Hampden, above, and Wellington, below, both were inadequate for a mission like the Dams Raid.

THE PROBABILITY of attacking industrial targets in the Ruhr had been addressed as early as 1937 as Britain began its preparation for war against Germany.

Under a series of discussions and plans, known as the Western Air (WA) Plans drawn up by the Air Staff, it was decided to attack the German war industry in the heart of its industrial areas including the Ruhr valley.

Under a Sub-Committee, plans were devised to neutralise some 50 industrial plants of the Ruhr, but these would prove difficult and, above all, costly in proposed losses. As an alternative, it was proposed that the same results could be achieved by destroying just two targets — the Mohne and Sorpe dams.

Error

From this original idea, dams and reservoirs were studied in great depth as likely targets, long before the outbreak of war. But as early as 1938 it was decided that the main problems were in designing a suitable weapon and delivering it accurately.

From several early bombing trials it was realised that from a medium altitude attack of 10,000ft or above, the average bombing error was in excess of over 100 yards — in wartime conditions this could be expected to be worse. And so it was decided that should such an attack be made against these targets then it would have to be carried out from a low altitude to achieve the required accuracy.

Pilotless

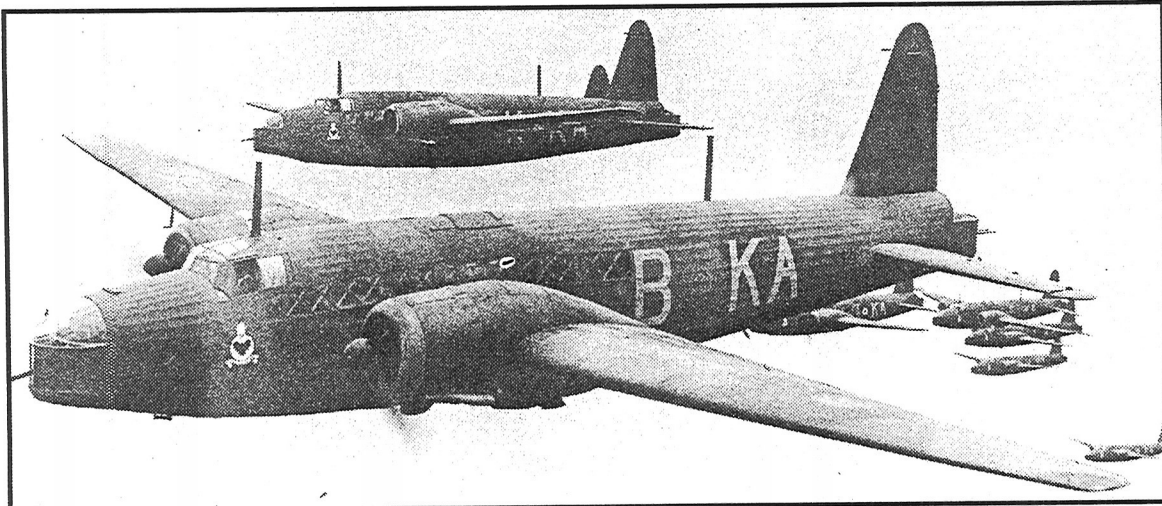
It was quite clear that standard bombs used by the RAF during the late 1930s would make no realistic impression on a target such as a dam and so several options were considered when trying to determine what the best weapon for the attack would be.

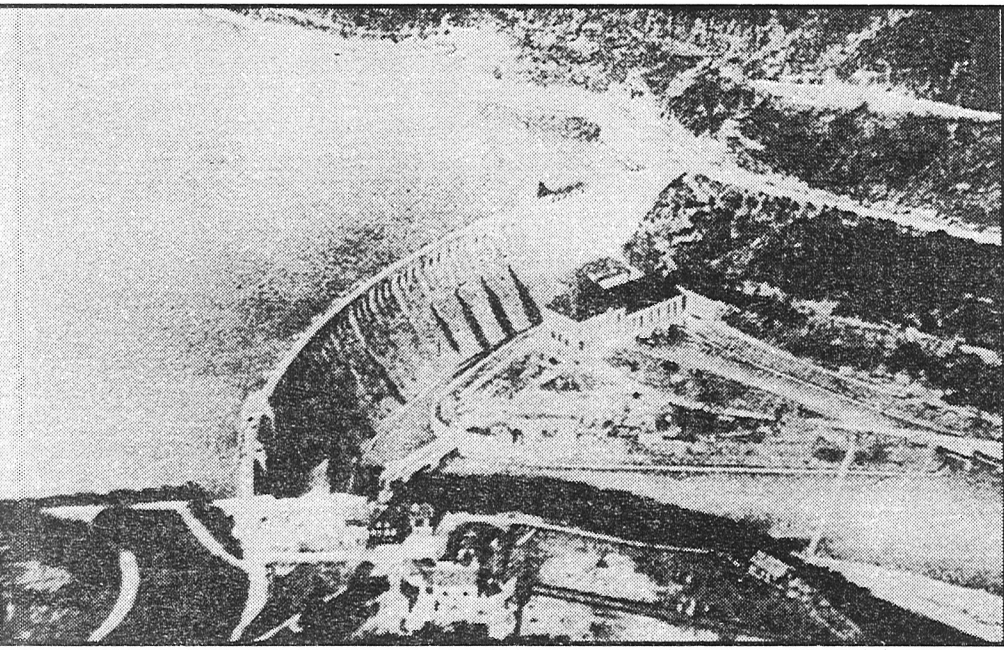
These ideas varied from dropping large bombs against either side of the dam, to pilotless radio-controlled vehicles packed with explosive, to gliding or propelled torpedos or missiles.

Then there was the question of which aircraft was capable of flying deep into the Ruhr valley to carry out such an attack? At the end of 1939, the main RAF bomber force consisted of the Vickers Wellington and the Handley Page Hampden.

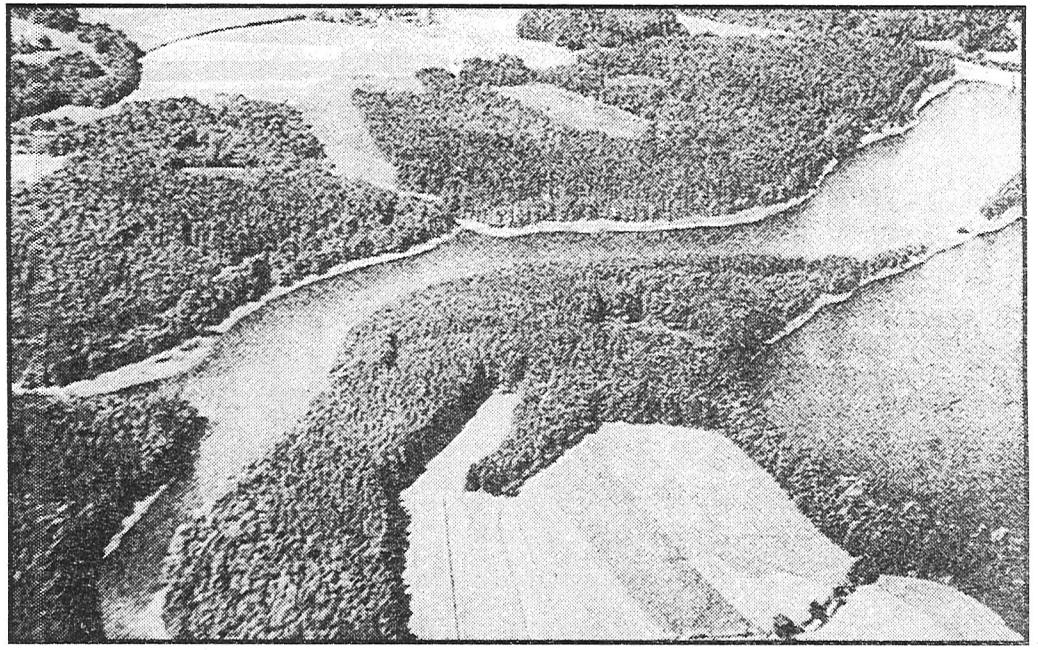
During early Bomber Command raids, the aircraft had suffered heavy losses, particularly in daylight and at low altitude.

And so the question still remained unanswered and, for the early part of the war, the Dams became low on the list of priorities.





● The Eder Dam (via Ken Delve).



● The Ennepe Dam — note the tree-covered spit obstructing the approach. (Via Ken Delve).

Mighty Mohne is the primary target

ALTHOUGH the German industrial war machine of the Ruhr did not rely totally on water from the dams for the generation of electricity, it was estimated that the Ruhr consumed some 25 percent of Germany's water.

The two most important reservoirs, one on the Mohne, a north bank tributary of the Ruhr river and the other on the Sorpe, a south bank tributary between them hold back some 76% of the total water available in the Ruhr valley.

A third reservoir is situated on the Eder, a tributary of the Fulda, which flows northwards.

After discussions, the Mohne dam was to become the primary target. Not only would its destruction affect the hydro-electricity generation but mass destruction would occur through flooding of vital areas and industrial assets. Any additional destruction of other dams within the surrounding area would obviously increase such destruction.

One of the many factors about the dams being considered as targets was that they were not all of the same construction and, therefore, provided different problems.

Triangular

The Mohne dam situated at Gunne, for example, was constructed over four years and completed in 1912. Over 100ft high, 850 yards long, up to 140ft thick and holding back 140 million tons of water, it was designed as a gravity dam i.e. of large masonry construction with a board base and essentially held in place by its own weight. In cross-section, the dam is almost triangular therefore being "thicker" with depth. To illustrate this fact, at a point 40ft in depth the dam is 40ft thick.

Spillage of water over the top of the dam is normal and, through

various machinery, water could still be taken from below any breach to

continue producing electricity. Any breach could then be repaired reasonably quickly. For any attack to be successful it was not just a case of trying to knock a hole in the top of the dam. A simple breach would not cause permanent damage. The best way of causing long-term damage to the dam was by destroying the machinery which controlled the operation of the dam and its production.

By contrast, the Sorpe dam at Korbekke was an earth dam completed in 1934. It was shorter but higher (190ft) than the Mohne dam and designed having a solid wall stabilised by banks of earth on either side. The construction of earth on the water side of the wall is of a high stone content with a stone facing.

Excess water is taken away through a sluice and therefore does not allow water to pass over the top of the dam and erode the earth construction on the air side of the dam. The dam is not susceptible to shock waves and has no major machinery within its construction. For any attack to be successful an accurate strike at the top of the dam would have to take place in order to get

the water to pass over the top and cause maximum erosion of the earth construction.

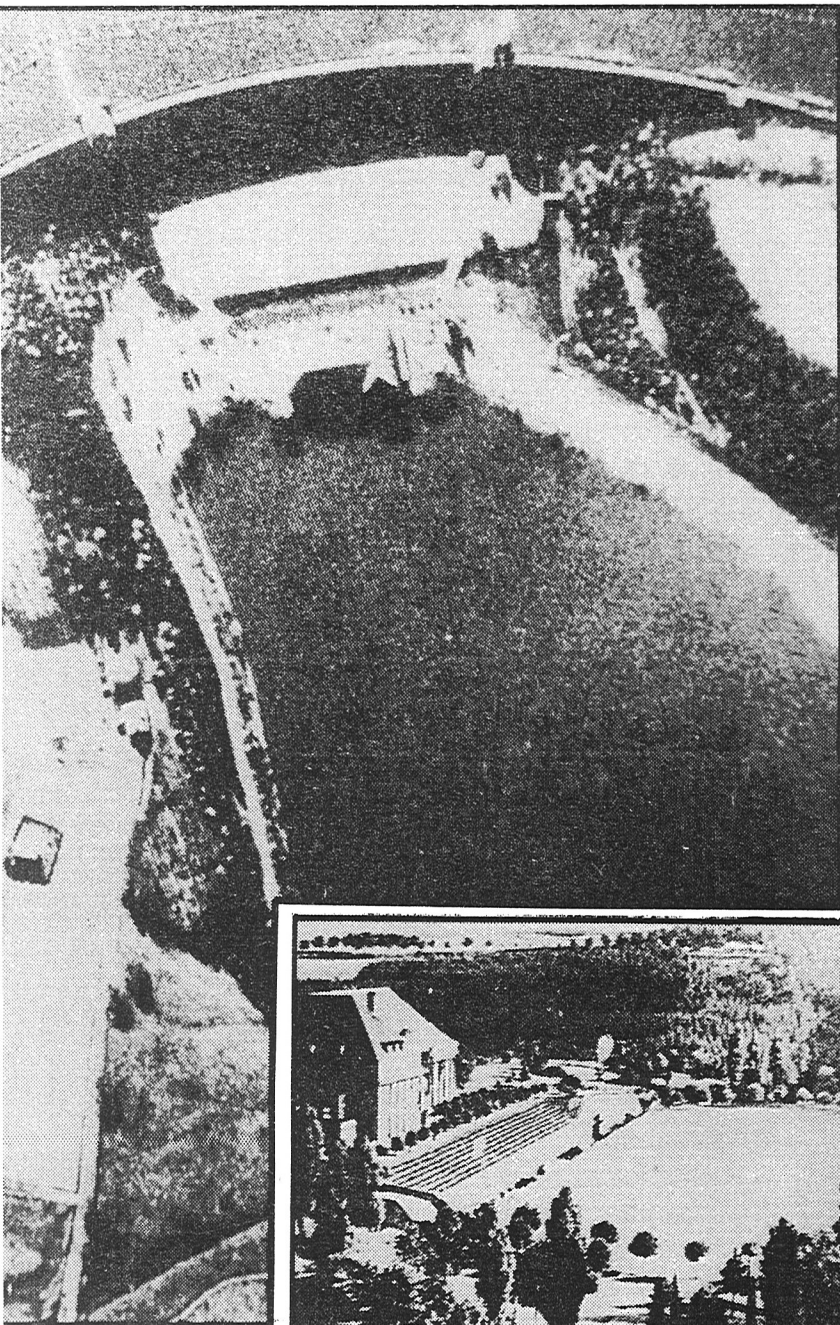
An additional problem with attacking the Sorpe dam would be the narrow and steep-sided valley in which it was located.

Built in 1914, the Eder dam at Hemfurth was the largest of the three and also a gravity dam, similar in construction to the Mohne dam. Located in a valley some 60 miles to the south-east of the Mohne, the Eder dam holds back over 200 million tons of water. It does not serve the same industrial area but flows to the industrial town of Kassel well to the east of the industrial Ruhr.

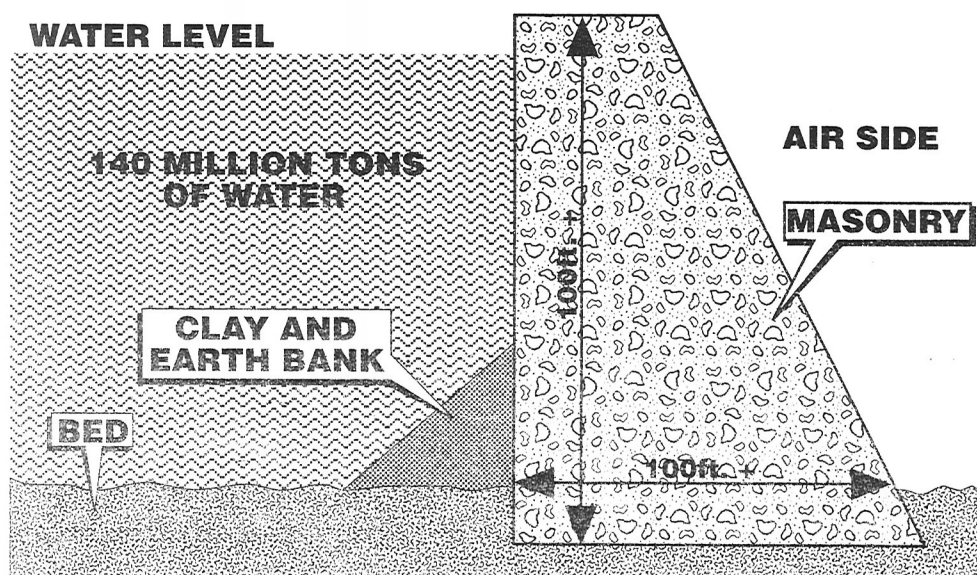
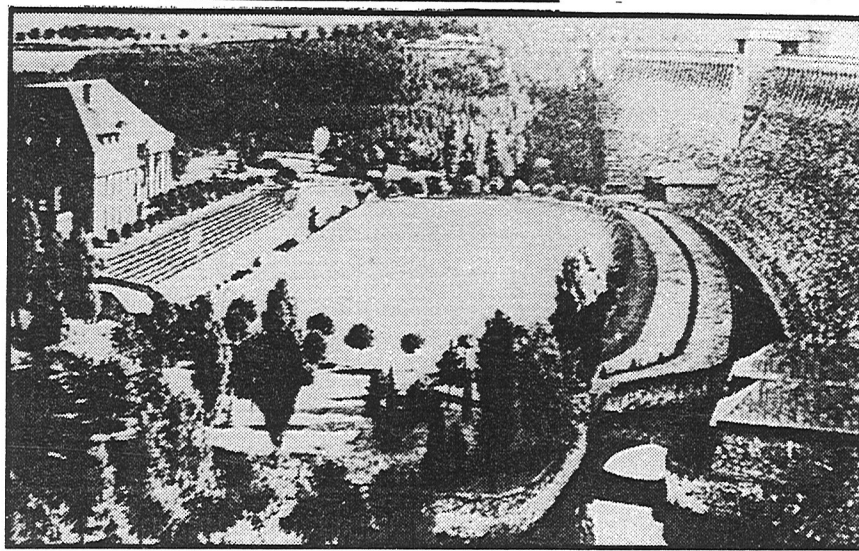
Reservoirs

Other dams in the target area were also considered for attack, but in the end only three detailed as potential targets — the Ennepe dam to the south-west of the Mohne, the Lister dam to the south of the Sorpe and the Diemel dam to the north-west of the Eder.

Through the study of German records it was apparent that the water level in the reservoirs would be at the highest in mid-May. It was also decided that the best moon conditions for a raid would be on the night of the 16th/17th.

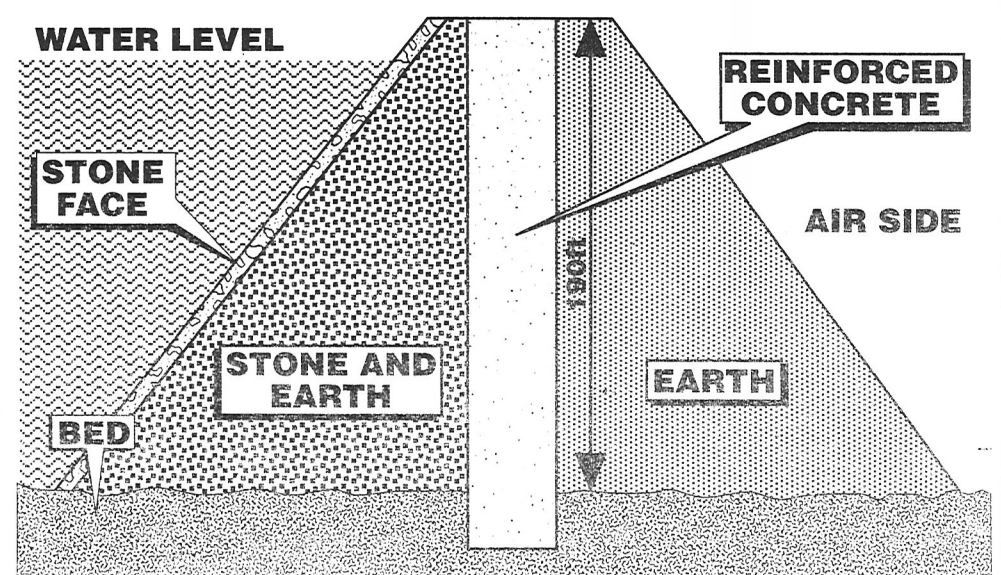


● Constructed as a gravity dam, the Mohne was completed in 1912 (via Ken Delve).



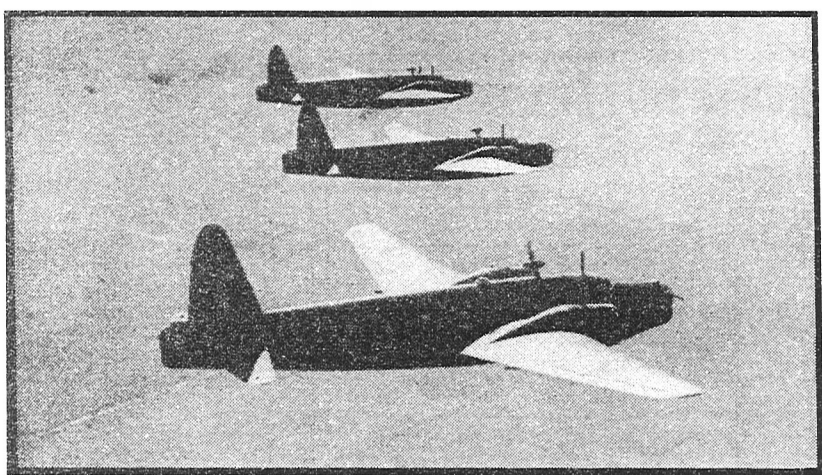
CONSTRUCTION OF A GRAVITY DAM

MEASUREMENTS SHOWN ARE APPROX FOR MOHNE DAM



CONSTRUCTION OF AN EARTH DAM

MEASUREMENT SHOWN IS APPROX FOR SORPE DAM



● The Wellington bomber: Another Wallis design innovation.

Impossible . . . until a genius cracks problem

FOR some considerable time a civilian engineer Barnes Wallis had worked on the idea that by breaching the Ruhr dams, production of industry, oil and coal would be brought to a halt.

As war in Europe began, Wallis was the Assistant Chief Designer at the Vickers Armstrong Aviation Section at Weybridge in Surrey. Aged 51, he was a designer of great reputation having already been at the centre of design of the R100 airship and the Wellesley and Wellington bombers.

Weight

Using his own initiative (without a request from the Air Ministry), Wallis started to consider the destruction of natural sources of energy which led him to the study of reservoirs and dams, and a further study of explosives.

However, destruction of these targets was impossible with the aircraft and weapons available during the early part of the war.



● Barnes Wallis.

Initial idea is for 70,000lb bomb!

Even with the introduction into RAF service of the new Avro Lancaster heavy bomber, Wallis calculated that a bomb of some 70,000lb would be required to destroy such targets — 10,000lb above the gross weight of the Lancaster.

It was also impractical, even if such a bomb could be carried, to expect such a weapon to be so accurately dropped from height.

Nevertheless, his initial ideas were still very much along the lines of designing a 'massive bomb' dropped from very high which, by creating shock waves underground, would cause massive destruction to large areas within which a vital target was located (an idea he would return to later in the war with the design of 'Tallboy' and 'Grand Slam' bombs).

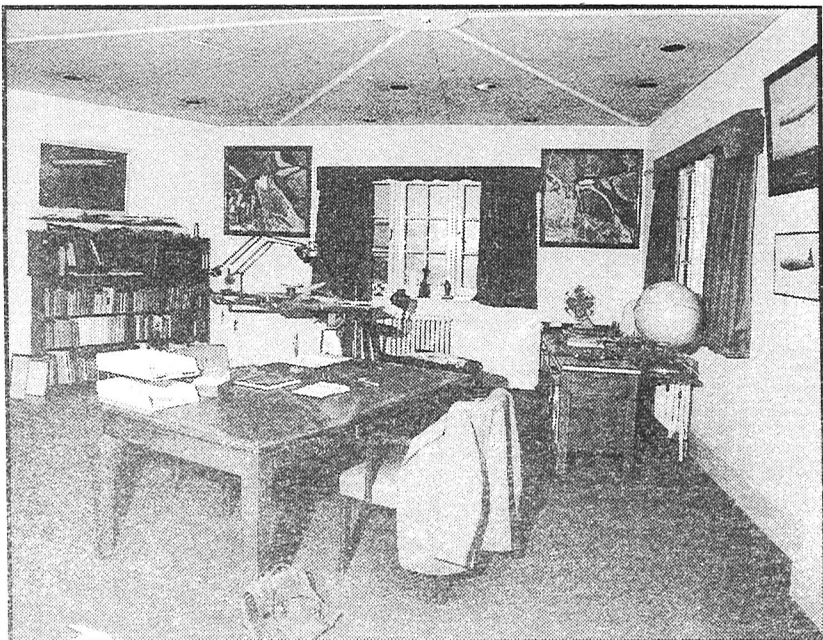
Understandably, the Air Ministry refused to sanction any design of such a large bomb and so Wallis turned his thoughts to other methods of breaching the dams.

Countless

During 1941, Wallis continued with new ideas but, at that stage, it appears that his ideas were still along the lines of exploding a large weapon at some distance away from a dam and measuring the extent of damage it would cause.

It was probably only in 1942 that he considered exploding a weapon against the surface of the dam.

After countless experiments, he worked out that a charge detonated against the dam would cause a shock-wave capable of weakening the structure, and successive detonations would breach the dam.



● Reconstruction of Barnes Wallis's study displayed at the RAF Museum Hendon (RAF Museum).

UPKEEP

BARNES Wallis realised that the only solution to the breaching of the dams was to detonate an explosive charge against the face of the dam wall and rely on the shock waves produced by the explosion, combined with the pressure of the water, to cause a weakness within the dam structure.

Successive detonations would cause the breach of the dam. According to his calculations that if it could be done, an explosive charge of just 6,000lb of RDX explosive would be required.

Initially, Wallis put his latest idea to scientific officers in Whitehall but without success. Early in 1942 he had the idea that a bomb or missile dropped on the water at a considerable distance from the dam would reach the target after a series of 'ricochets' across the water and after impact with the top of the dam would sink in close proximity to the face.

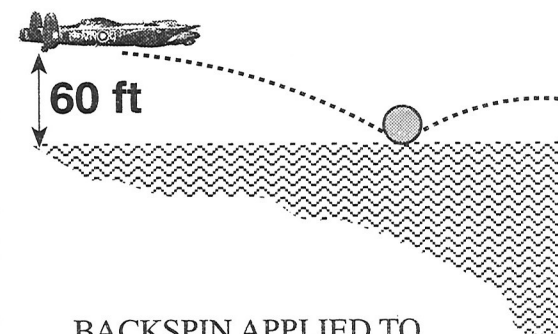
This idea was not particularly new as naval gunners had used the same principle years before when increasing range against surface target.

In April, Wallis commenced trials in his garden using marbles fired from a catapult to ricochet from water in a tub and land on a table where recordings were made. By the end of April he had collected sufficient data and the following month

Wallis begins trials with catapult and marbles!

permission was given to go ahead with further trials.

For the next important phase of trials, Wallis was



BACKSPIN APPLIED TO
UPKEEP APPROX 500rpm.
POINT OF RELEASE :
400 - 450 YARDS.
APPROX 220mph.

given use of a water tank at the William Froude Laboratory at Teddington. The tank was 640ft in length, 23ft wide and 9ft deep, decreasing to 2ft over the final 200ft.

Other trials were taking place and so only limited time was made available to Wallis. These trials, concerned with just the delivery of a suitable weapon, began at Teddington on June 9 and lasted over three months.

Strengthen

In the meantime, tests were carried out at the Road Research Laboratory where 1/10 models of the Nant-y-Gro dam in Wales were constructed and detailed explosions carried out at various distances.

On May 1 the first test at the real Nant-y-Gro dam on the Rhayader Lake took place, without success. Following further calculations a second test was carried out on the dam on July 24, this time successful.

Many more tests were carried out during August to determine the amount of explosive required. As a result of these successful tests, authority was eventually given for six half-size prototype bombs to be made and dropped from a Wellington bomber.

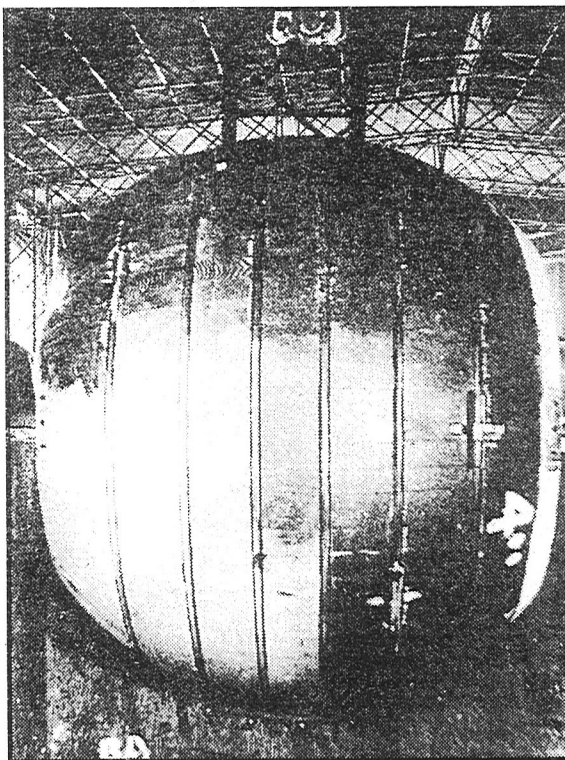
The bombs were initially spherical in shape. The idea was that the bomb should be dropped from a very low altitude across the water and designed such that it 'bounced' across the water until it reached the target.

Further results confirmed that more success was gained by applying a certain amount of backspin to the bomb prior to release from the aircraft. The design of the bomb meant that on reaching the dam, the bomb would roll down the dam wall until it reached a pre-set depth of 30 feet.

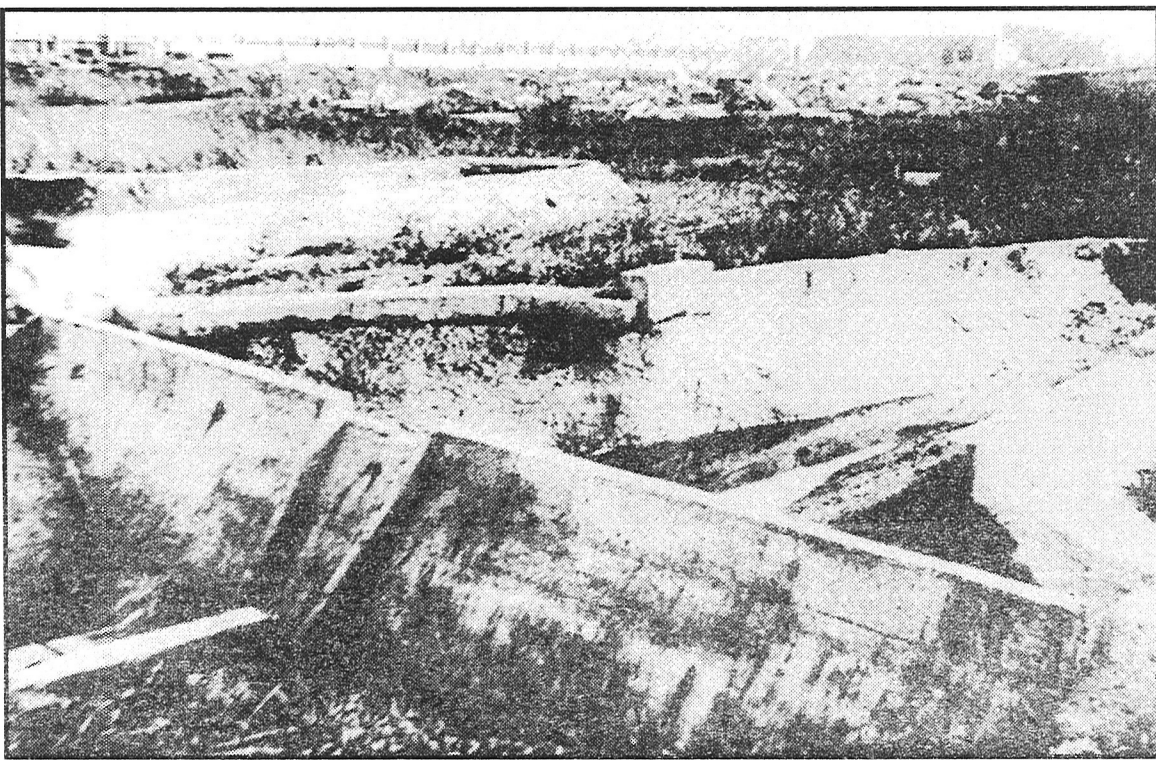
Five dropping tests, using a modified Wellington, were carried out low over the sea off Chesil Bank between December 5 and 15, 1942 by the Vickers Chief Test Pilot 'Mutt' Summers and during which Wallis flew as the bomb aimer. After a few tests the weapon was strengthened to withstand the impact with the water.

The decision to instal the weapon into the Lancaster bomber was made in February 1943. This meant a complete modification of the Lancaster bomb bay.

The designing of the final weapon was carried out by the Vickers company. It was decided that the weapon would be a cylindrical con-

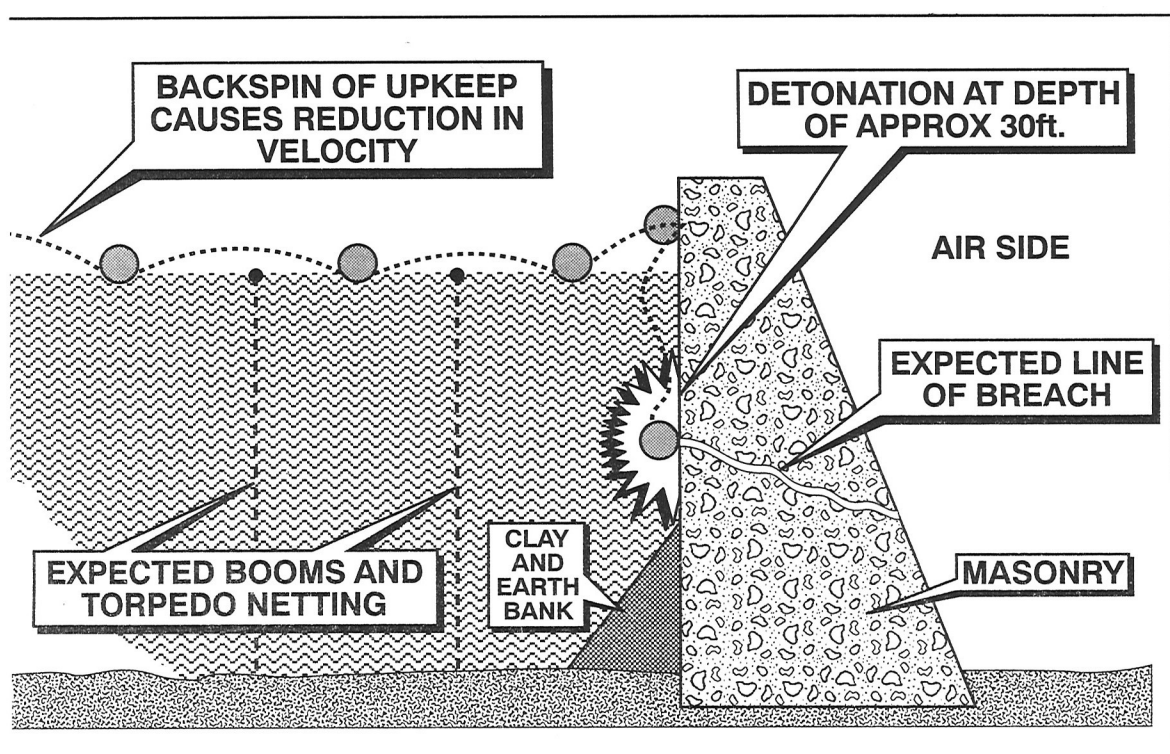


● Experimental 'Upkeep' in initial spherical form, April 1943. (BAC via Ken Delve).



● Model of the Nant-Y-Gro dam in Wales which was used during early trials on the Wallis theory. (Via Ken Delve).

THEORY



Bouncing bomb and exact flying

tainer approximately five feet long by just over four feet in diameter. Three hydrostatic pistols were set to detonate the explosive charge at a depth of 30 feet. The gross weight of the weapon was 9,250lb of which 6,600lb was the main explosive charge RDX.

The bomb was designed to be carried beneath the Lancaster by two V-shaped arms. Each end of the bomb casing had a hollow circular track of 20 inches diameter mating with disc wheels on the aircraft's arms. The apparatus was belt-driven by a hydraulic motor in the aircraft fuselage providing the pre-release backspin of some 500rpm to the bomb from about ten minutes prior to release.

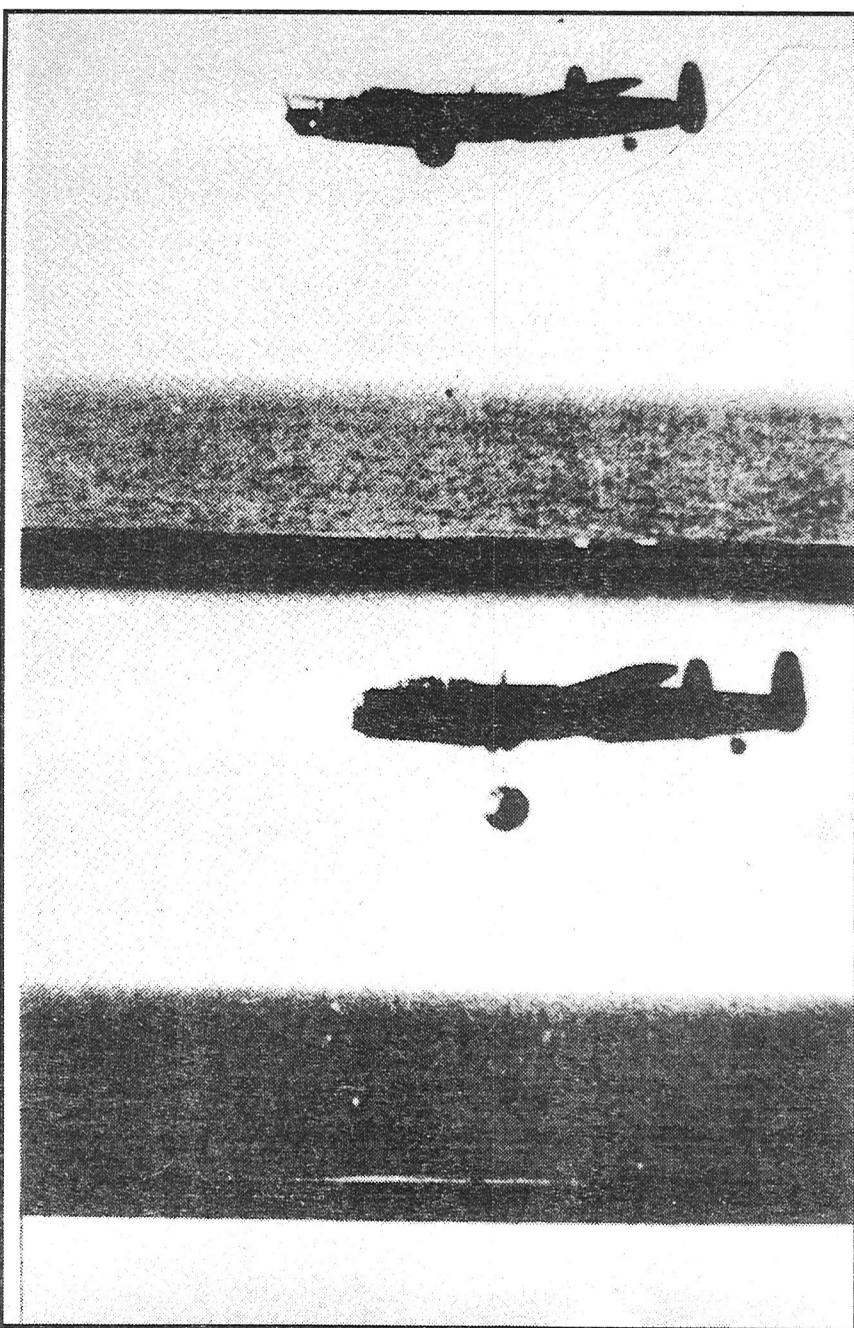
Rotating the weapon backwards meant that on impact with the water, the weapon would begin a decelerating process. It would continue 'bouncing' forward but all the time continuing to decelerate.

By expertly calculating the rate of deceleration, Wallis was able to determine at what point the weapon would lose all forward speed and sink. This calculated distance would be the exact point from the dam at which the weapon must be released, between 400-450 yards.

To ensure the vital accuracy required for such a weapon to work, the delivery aircraft would have to fly at an exact height of 60 feet and an exact groundspeed of 220mph.

It was decided that 50 'Upkeep' weapons would be made and delivered to Scampton including ten inert weapons for training. The practice weapons were painted grey and the operational weapons painted green.

The weapons arrived at Scampton on the night of May 13/14 and were loaded on to the Lancasters the following day...



● 'Upkeep' trial, April 1943. (BAC via Ken Delve).



● Wing Commander Guy Gibson.

Gibson asked to form new squadron for secret task

GUY Penrose Gibson was born on August 12, 1918 at Simla in India. At a very early age he had been brought to England and educated in Folkestone and Oxford. It had always been an ambition to fly and so he joined the RAF in 1936.

Gibson was commissioned on January 31, 1937 and following pilot training he was posted to 83 Squadron, Scampton, to fly the Hawker Hind. These biplane bombers were replaced by the Handley Page Hampdens from November 1938 and by the following January the Squadron was fully re-equipped.

Throughout 1939, Gibson was involved with the RAF's build up to war. When hostilities broke out on September 3, Gibson flew one of six Hampdens of 83 Squadron which took part in the first sorties of the war detailed to attack the German battleships lying at the entrance to the Kiel Canal. Due to bad weather, no enemy ships were sighted, bombs were jettisoned in the sea and all aircraft returned to base.

Beaufighters

Following the period of the 'Phoney War', Gibson had to wait until April 11, 1940 for his next operational sortie, dropping sea mines in German waters and carrying out an area reconnaissance of Kiel.

Throughout the summer of 1940, during the period of the Battle of Britain, Gibson flew a total of 29 operation sorties with 83 Squadron during which he was awarded the Distinguished Flying Cross (DFC) on July 8.

With his first tour complete, he was posted on September 16 as a flying instructor, firstly to 14 Operational Training Unit (OTU) and then to 16 OTU on October 11.

Gibson constantly requested for a return to operations and November 11,

he was posted to command 'A' Flight of 29 Squadron, Digby, a night-fighter unit equipped with Bristol Beaufighters. Gibson flew his first operational patrol on December 10 without any success.

It was the night of March 12, 1941 that he scored his first success when he destroyed a Heinkel bomber off Skegness. Gibson flew his last patrol with 29 Squadron on December 15, 1941. During his tour, he had flown 99 operational sorties in Beaufighters (with a victory tally of three aircraft destroyed, one probable and four damaged), had been promoted to Squadron Leader and gained bar to his DFC.

Although having enjoyed his tour as a night-fighter Gibson was keen to return to bombing duties having described himself as 'not a very good shot!'

Special

Following his tour with 29 Squadron, Gibson was posted as Chief Flying Instructor to 51 OTU, Cranfield.

He constantly requested a return to operation flying and on April 13, 1942 he was posted to 106 Squadron at Coningsby equipped initially with Avro Manchesters and then Lancasters.

Gibson served with 106 Squadron until March 1943. By the time that he flew his last raid with the Squadron (March 15), Gibson was commanding the Squadron and had been awarded the Distinguished Service Order (DSO) with bar.

The day following his last raid with the Squadron, Gibson was ordered to report to 5 Group Headquarters when he was asked to fly one more 'special' operation. Having agreed, he was told to form a new squadron especially for the task ahead although at that time he did not know what the task would be.

The result was the formation of 617 Squadron formed on March 21, 1943 under the command of Wing Commander Guy Gibson.

The Manchester



● Designer Roy Chadwick (617 Sqn records).

THE origins of the Lancaster date back to 1936 when the Air Ministry issued specification P.13/36 which highlighted the need for a twin-engine bomber as a successor to the Vickers Wellington, which was still in the design stage.

From the original specification Avro, under the design leadership of Roy Chadwick, built the Avro Type 679 Manchester.

Immediately two prototypes, to be powered by two Rolls-Royce Vulture engines, were ordered. The first prototype, L7246, was built 'unarmed' and first flew from Ringway, Manchester, on July 25, 1939. Although capable of speeds of around 250mph, the early Vulture I

engines suffered from losses in power. It was decided, therefore, to modify the engines for the second prototype, L7247, which was nearing completion.

The second prototype's first flight took place on May 26, 1940. With more power and larger wings, this second prototype seemed more successful although problems with directional stability were

Filling gap until 'heavies' arrive

still evident and so it was decided to fit a central fin to L7247.

Soon after the Vulture II engines were fitted and several further tests carried out before the aircraft was cleared to enter operational service.

The first two production Manchesters, L7276 and L7277, were delivered to Boscombe Down for trials later in 1940 and the third production aircraft delivered to Shawbury for the installation of service equipment.

The Manchester entered RAF service with No 5 Group Bomber Command in November 1940. The first squadron to accept delivery was No 207 Squadron at Waddington, Lincoln, when the Squadron was re-formed in November 1 with the task of accepting the new aircraft and to bring them up to operational standard.

The first aircraft, L7279, arrived on the 6th followed by the second aircraft on the 10th. By the end of the year eleven aircraft had been delivered to the Squadron.

On February 25, 1941, No 97 Squadron re-formed at Waddington, from a nucleus



● F/O Leslie Manser, the only member of a Manchester crew to be awarded the Victoria Cross — posthumously following the first 'Thousand Bomber Raid' on Cologne in May 1942 (Author).

was a significant date for the Manchester and was considered successful for the new aircraft. No losses were encountered but one aircraft crash-landed at base following a hydraulic failure. The aircraft was subsequently repaired.

The last operational raid during which Manchesters took part was the night of June 25/26, 1942 when 20 Manchesters participated in the 'Thousand Bomber' force against the Folke-Wulf factory at Bremen. One aircraft from 50 Squadron (L7289) was lost and therefore the last Manchester to be lost on operations.

Complicated

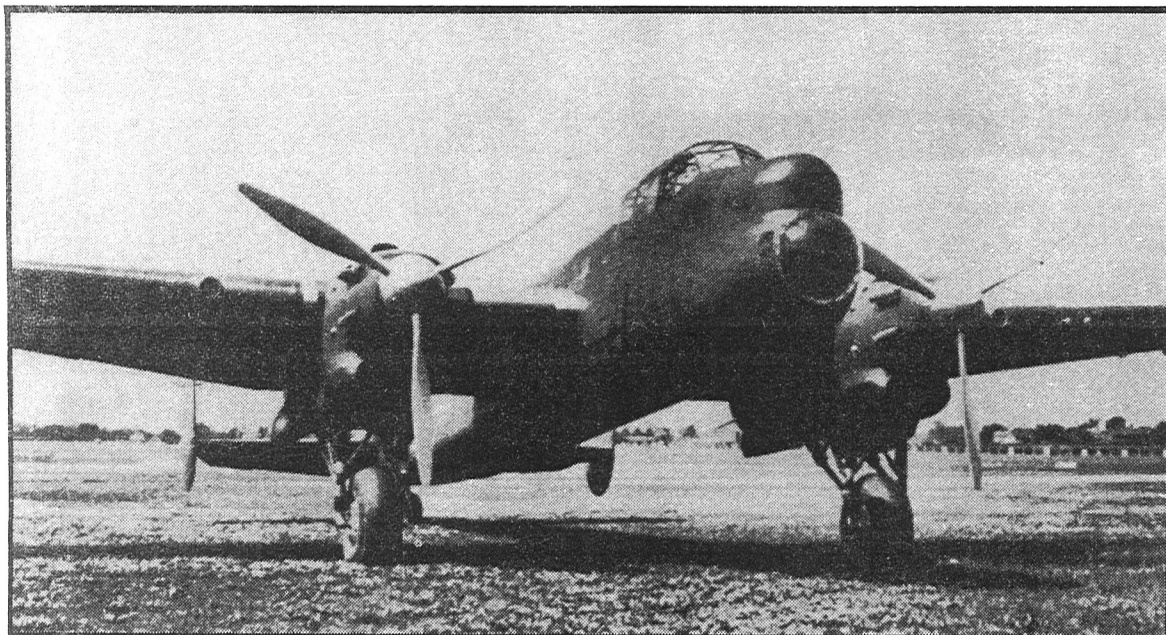
By the end of the month the last Manchesters were withdrawn from service as the new 'heavies' had already entered operational service. Yet the Manchester continued in service with various Conversion Units to help complete the work-up to operational strength of the Lancaster squadrons until new aircraft could be spared to fill this role.

Throughout its short service the Manchester suffered several problems, not least technical problems from the Vulture engines which had proved complicated, insufficiently powered and prone to overheating. Crashes due to engine failures and other technical defects were, sadly, all too frequent.

Altogether about 200 Manchesters were completed and flew over 1,250 operational sorties before being withdrawn from service in June 1942.

Nevertheless it had fulfilled its aim, that of a 'stop-gap' bomber until the entering into service of the new heavy four-engined bombers, the Stirling, Halifax and Lancaster.

Yet without the Manchester its successor, the Lancaster, may never have materialised.

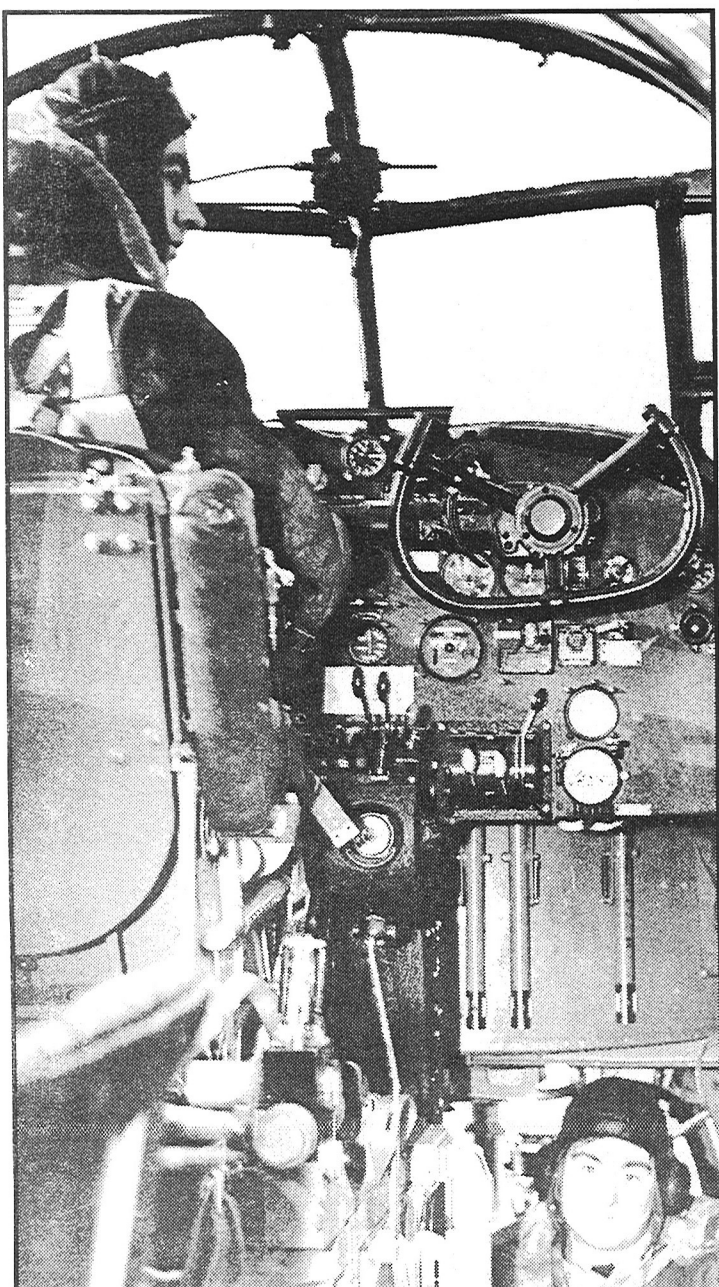


● Top: The first prototype Manchester, L7476 (RAF Museum).

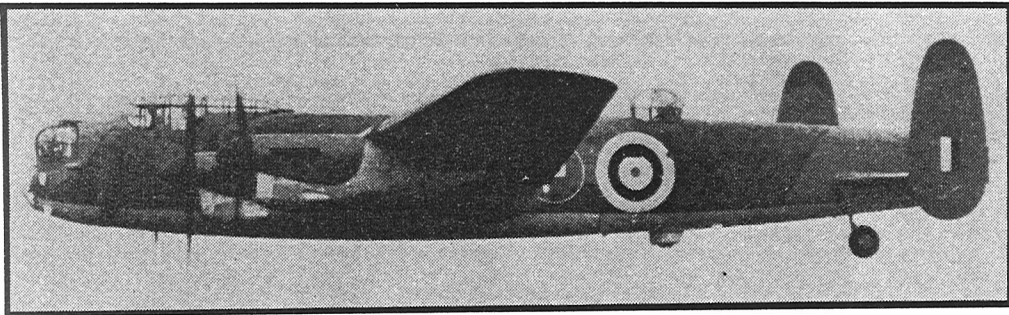
● Above: Manchester of 207 Squadron (RAF Museum).

● Left: Manchester cockpit (Ken Delve).

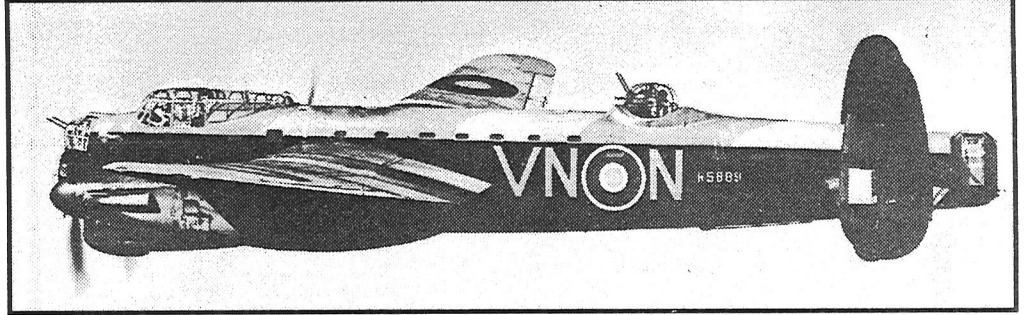
● Right: Manchester crew positions (Ken Delve).



Avro Lancaster



● Second Lancaster prototype DG595 taken in mid-1941. (RAF Museum).



● Lancaster VN-N of 50 Squadron. (50 Sqn records).



Sergeant Leslie Jones, 97 Squadron, survived the famous but costly Augsburg Raid in April 1942 but failed to return just five months later. (Author).

Most significant aircraft in Bomber Command offensive

THROUGHOUT the development of the Manchester, Roy Chadwick and his designers at Avro had already considered further developments of the aircraft.

This mainly came about due to the weakening confidence in the Vulture engines and so other power plants were considered, including two Bristol Centaurus radial engines, two Napier Sabre engines or two Bristol Hercules engines.

These projects, had they have been developed further, would have led to the production of the Manchester Mark II. But it was in 1939 that the possible use of the already proven Merlin engine (as equipped in the Spitfire and Hurricane fighters as well as the Whitley bomber) was considered for an improved Mark III Manchester prototype.

It was also decided to increase the number of engines to four. It was at this point, with these significant changes to the original aircraft, that a change of aircraft name was required. And so the Lancaster was born, although security initially precluded the new name from being publicly known.

Late in 1940 a standard Manchester airframe was taken from the production line and modified with a lengthened wingspan to accommodate the four Merlin X engines. The Mark III prototype, BT308, first flew from Ringway, Manchester on January 9, 1941.

The second prototype, DG595, first flew on May 13, 1941 and differed in many ways. It was powered by improved Merlin XX engines (1,280hp) and stressed for an all-up weight of 60,000lb. The central fin had been removed and a dorsal turret and small ventral turret added.

The third prototype, DT810, equipped with four Bristol Hercules VI radial engines, first flew on November 26, 1941. This sudden change in power plant is probably best explained by the possible future shortage of Merlin engines as the demand increased, although this never actually became a problem.

The first production Lancaster Mark I, L7527, made its first flight from Woodford on October 31, 1941. By the end of the year several more had flown and delivery to the squadrons had begun.

The first squadron to equip with the new aircraft was No 44 Squadron based at Waddington, Lincoln, under the command of Wing Commander Rod Learoyd VC. Delivery of the first three Lancasters took place on December 24 followed by four further aircraft on the 28th. Soon after, No 97 Squadron at nearby Coningsby (one of the early Manchester squadrons) became the second squadron to accept the Lancaster.

marked the first occasion that the Lancaster took part in daylight operations.

Just four nights later, March 24/25, the first Lancaster was lost on operations when 'KM-M' of 44 Squadron, captained by Flight Sergeant Warren-Smith, failed to return with the loss of its crew.

Being the first two squadrons to equip with the Lancaster, 44 and 97 shared common friendship and rivalry. For the next few weeks, Lancasters were used somewhat 'sparingly' during operations and news of the new aircraft to the nation was still relatively unknown.

All this was to change, however, when it was decided to hit a target deep in Germany, at low-level and in daylight, to warn the Germans that Bomber Command had added a new dimension in bombing capability. For this daring operation 12 Lancasters (six from each squadron) were detailed to attack the MAN diesel engine factory at Augsburg in Southern Bavaria — a round-trip of 1,000 miles. The attack took place on April 17 and was led by Squadron Leader John Nettleton of 44 Squadron for which he was awarded the Victoria Cross.

Whether or not the attack was considered successful can be debated (five of Nettleton's six aircraft from 44 Squadron, along with two from 97 Squadron, failed to return). Of the 85 men who took part in the raid, 37 were killed and 12 taken prisoners-of-war.

Nevertheless, it proved the capability of the Lancaster in terms of range and forced the Germans to spread its defences. The Lancaster had

arrived. The following day the entire nation knew of the Lancaster.

Throughout the remainder of the war the Lancaster helped take the war to Germany, day after day, night after night. By early 1945 there were 56 squadrons of Lancasters making it the most significant aircraft in Bomber Command, not only in terms of numbers but also of bomb load.

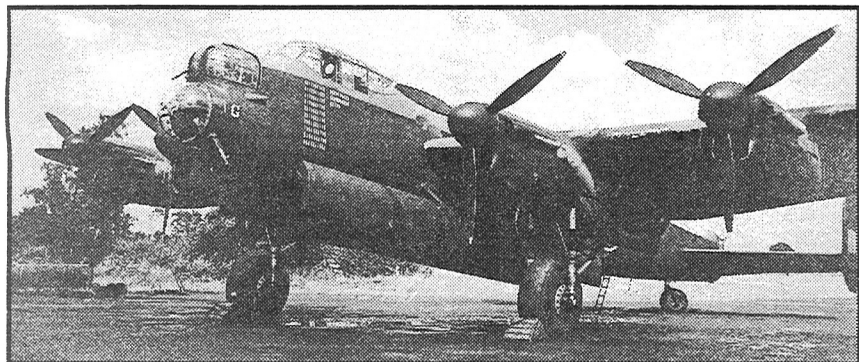
One of the aircraft's most notable features was the expansion of its bomb capacity from small 250lb bombs to the 22,400lb deep-penetration bomb known as 'Grand Slam'.



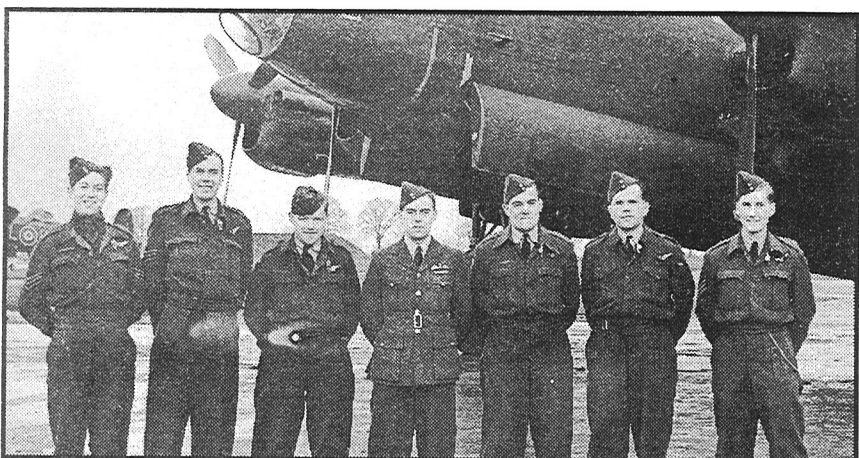
In almost all aspects of operations, the Lancaster played a key and often crucial role, e.g. special operations (the Dams Raid), Pathfinder techniques, Special Duties (radar counter-measures, jamming and spoofing) and many more.

The major production versions used by Bomber Command were the Marks I and III, the main difference being the mark of Merlin engine used. In all there were 7,377 Lancasters built (including 430 built in Canada), the last being delivered in February 1946.

The last RAF Lancaster bomber squadron re-equipped with Lincolns (a follow-on from the Lancaster) in 1950. However, the 'Lanc' served in a number of other roles, the most notable being Maritime Reconnaissance, in which capacity the last aircraft (RF325) was not retired until October 1956.



● Many Lancasters completed a staggering number of 'ops'. ED588 'VN-G' flew at least 126 of which 116 were with 50 Squadron at Skellingthorpe. (50 Sqn records).

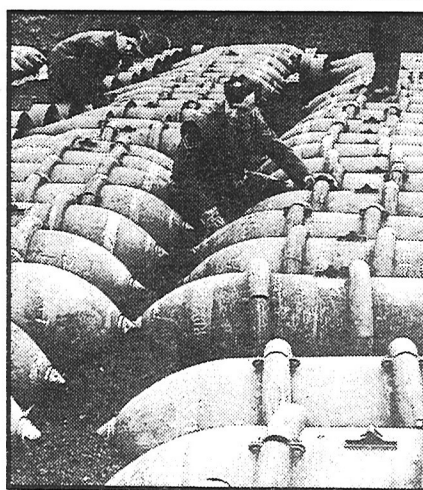


● F/O Alan Rowe and his crew flew two ops in one day against Duisburg on October 14, 1944 during Operation Hurricane. (Author).

Bombing up



● The Lancaster bomb load varied — shown here is an 8,000lb 'Blast Bomb'. (83 Sqn records)



● The intensity of the bombing campaign keeps armourers busy. (RAF Scampton).



● Armourers 'bombing up' Lancasters for another night of operations. (Via Ken Delve).



Scampton



Early history

SCAMPTON first opened as an airfield in 1916 and served as a training station between 1917 and 1919. In addition to the training units, a flight of 33 Squadron was based at Scampton in the Home Defence role.

During those early days, 33 Squadron was equipped with FE2s and a few Bristol Fighters.

Following modernisation in August 1918, the Squadron received Avro 504Ks adapted as night-fighters. Despite numerous patrols, no successful interceptions were made.

Flying ceased at Scampton in early 1919 and in the following year the Station closed down and the land reverted to agricultural use.

Bomber station

IN August 1936 Scampton reopened as a bomber airfield in No.3 Group.

By the outbreak of the Second World War the Station had transferred to the control of No.5 Group and was operating Hampdens of 49 and 83 Squadrons. For 49 Squadron, conversion to the Hampden bomber had begun in September 1938 and was the first unit to do so. 83 Squadron

received its first Hampden soon after and re-equipment was complete by January 1939.

During the very early part of the war, the squadrons were involved in reconnaissance, minelaying and leaflet dropping as well as sweeps over the North Sea in the hope of catching enemy ships. Bombing began in earnest in April 1940 following the German attack on Norway.

ON the night of August 12, 1940 eleven Hampdens from Scampton were detailed to attack the Dortmund-Ems Canal, a heavily defended and vital waterway in Germany.

Flight Lieutenant Rod Learoyd, a 27-year-old Pilot with 49 Squadron, took-off in Hampden P4403 'EA-M' at 2000 hours.

Four Hampdens carried out diversionary raids and two failed to locate the target. This left five aircraft to bomb the target, the aqueduct carrying the canal over the river Ems. Learoyd was the last aircraft to attack and during the final run-in to the target, at a height of just 150 feet, his aircraft was hit twice by shells through the starboard wing and by machine gun fire along the underside of the aircraft.

Despite this, he held the aircraft steady to complete the attack. Having pulled away from the target, he

Two VCs won within month

quickly assessed the damage to his aircraft — a ruptured hydraulic system. Having carefully nursed the bomber home, Learoyd landed at Scampton just before 0500 hours.

Bale out

Learoyd's attack against a well-alerted and heavily defended target had been probably the most hazardous of the operation. For his outstanding bravery and skill in pressing home his attack, Rod Learoyd was awarded the Victoria Cross.

A month later, Scampton was home to a second award of the Victoria Cross.

A young eighteen year-old wireless operator/air gunner, Sergeant John Hannah, had been with 83 Squadron just one month when he took part in a raid against German barges in the port of Antwerp on the night of September 15/16, 1940.

In Hampden P1355, flown by Pilot Officer Connor, they set off for their target at 2230 hours. Over the target at 2,000 feet, the bomber was hit repeatedly by flak. Just at the time the bombs were released the aircraft was hit in the bomb bay by a shell. Immediately, the fuselage was enveloped in fire causing unbearable heat and damage.

Hannah saw the floor melting beneath his feet and all around him spare ammunition started exploding.

Horrific

Unaware that two of his crew had baled out, Connor set about avoiding the remainder of the German defences in order to get the bomber far enough away to bale out to safety. Behind him, Hannah was busy trying to extinguish the fire.

He was becoming short of oxygen but continued to use every means of beating back the fire.

Eventually, he was

satisfied that the fire was out and crawled forward to report the damage to his captain. Hannah's face and hands were burned black, his eyes badly swollen and the remains of his flying clothing charred. Hannah helped his pilot navigate the bomber home and just after 0300 hours they landed safely back at Scampton.

The extent of Hannah's horrific injuries were then realised and he was quickly rushed to hospital. Soon after, came the official announcement of the Victoria Cross to Hannah, the youngest airman ever to receive the award.

In August 1942, 83 Squadron left Scampton and were replaced by 57 Squadron. This was followed soon after by the departure of 49 Squadron in January 1943.

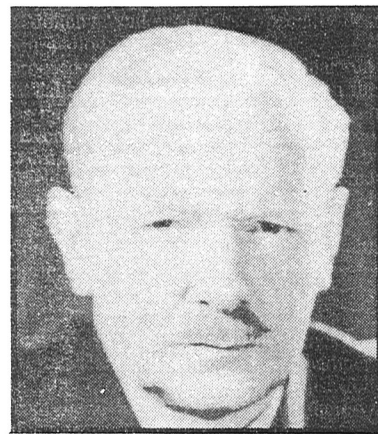
Under the command of Wing Commander Guy Gibson a new and very special unit, 617 Squadron, formed at Scampton on March 21, 1943.



● Sergeant John Hannah VC. (RAF Scampton).



● Flight Lieutenant Rod Learoyd VC. (AHB, MoD).



IT had been decided at Bomber Command Headquarters that a special squadron would be formed for the attack on the dams.

This was mainly because of the precision flying required if the attack was to be successful. That is not to say that no other squadron within Bomber Command would have been capable of flying to the required standard but more of the reluctance by 'Bomber' Harris to take one of his most experienced squadrons from his Main Force for any period of time in order to carry out the extensive training required.

Quite clearly, due to the short time-scale available for any squadron to train for such a task, the 'New Squadron' would have to be made up of, where possible, some of the best crews that Bomber Command could spare. This would mean taking experienced pilots and crews from operational squadrons, something not always taken favourably by the squadron commanders.

Harris turned to the Air Officer commanding No.5 Group, Air Vice-Marshal the Honourable Ralph Cochrane, for the formation of the 'New Squadron'.

One of the first decisions to be made was to appoint Wing Com-

● From left: Air Chief Marshal Sir Arthur Harris; Air Vice-Marshal The Hon Ralph Cochrane; Group Captain 'Charles' Whitworth; Flt Lt David Maltby from 97 Squadron and Australian Flt Lt 'Micky' Martin.

Formation of 617

mander Guy Gibson as its new commanding officer. By that time Gibson had commanded great respect as a leader (DSO and bar, DFC and bar) and had already completed 174 'Ops'. He was still just 24 years of age.

Gibson completed his tour of operations with 106 Squadron at Coningsby on March 15 and was looking forward to taking his wife on a few days leave to Cornwall when he was summoned to Group Headquarters at Grantham.

The following day he reported to Cochrane and asked if he would fly just one more trip. Gibson agreed and three days later he returned to Group Headquarters when he had a meeting with Cochrane and Group Captain 'Charles' Whitworth, the Station Commander at Scampton. Gibson was told to form a new squadron,

Squadron X as it was then known, based at Scampton but all he knew initially was that the 'job' would be in just two months time and so time was short.

Untypically for that time, Gibson was allowed to choose his crews and so set about picking his aircraft captains. However, it should be pointed out at this stage, not every member of the new squadron would be experienced. Some of the rear-crew members, for example some of the flight engineers and air gunners, were very inexperienced. But generally, the 'key' positions of the crews (i.e.) pilot, navigator and bomb-aimer were all experienced airmen.

Naturally, having just completed his tour with 106 Squadron, he picked some of his personal colleagues. He had later been told that

the 'job' would involve flying at low-level at night and so picked some of the best pilots he knew were capable of carrying out such flying.

Of the 21 pilots who joined Gibson to originally form 617 Squadron, 12 were from the RAF (including one Australian), five from the Royal Canadian Air Force (including one American), three from the Royal Australian Air Force and one from the Royal New Zealand Air Force.

Squadron Leader Melvyn 'Dinghy' Young DFC and bar arrived from 57 Squadron based at Scampton and had completed 65 'Ops'. A former Oxford 'Blue' and married to a Californian. Called 'Dinghy' because he had previously ditched twice. Appointed as the 'A' Flight Com-

mander and deputy to Gibson for the raid.

Squadron Leader Henry Maudslay DFC arrived from 50 Squadron. An old 'Etonian' he had been a champion runner. Appointed as the 'B' Flight Commander.

And into Scampton followed Flt Lt Bill Astell DFC from 57 Squadron; Flt Lt R. Barlow DFC, an Australian, from 61 Squadron; Flt Lt John 'Hoppy' Hoggood DFC and bar from 106 Squadron; Flt Lt D. Maltby DFC from 97 Squadron; Flt Lt 'Micky' Martin DFC, an Australian from 50 Squadron and 1654 HCU with a brilliant reputation for low-flying; Flt Lt Joe McCarthy DFC, an American from Brooklyn who had volunteered to join the RCAF before the USA entered the war. Arrived from 97 Squadron; Flt Lt

Les Munro, the only New Zealander, from 97 Squadron; Flt Lt Dave Shannon DFC, an Australian from 106 Squadron; Flt Lt H. Wilson; P O L. Burpee DFM, a Canadian from 106 Squadron; P O Byers, a Canadian; P O Les Knight, an Australian, from 50 Squadron; P O W. Otley DFC, from 207 Squadron; P O G. Rice, from 57 Squadron; Flt Sgt C. Anderson, from 49 Squadron; Flt Sgt K. Brown, a Canadian from 44 Squadron; Flt Sgt G. Lanchester, a Canadian.

No.617 Squadron officially formed at Scampton on March 21, 1943. Immediately the crews began to arrive and within hours rumours had started to spread as to why this special squadron, made up of many of the finest crews in Bomber Command, had formed. Initially many rumours were that the Squadron would be deployed to Russia in order to attack the German battleship 'Tirpitz' (ironically that was to come later).

Probably never before had so many gallantry decorations been seen worn on members of one squadron. In all, 22 crews (157 aircrew) plus engineers and support personnel made up 617 Squadron.

617 Squadron complement

Commanding Officer — Wing Commander G. P. Gibson DSO and Bar, DFC and Bar

Officer Commanding "A" Flight — Squadron Leader H. M. Young DFC and Bar
Officer Commanding "B" Flight — Squadron Leader H. E. Maudslay DFC

Squadron Navigation Officer — Flight Lieutenant J. F. Leggo DFC
Squadron Bombing Leader — Flight Lieutenant R. C. Hay DFC
Squadron Signals Leader — Flight Lieutenant R. E. G. Hutchison DFC
Squadron Gunnery Leader — Flight Lieutenant R. D. Trevor-Roper DFM
Flight Engineer Leader — Sergeant Johnson

"A" Flight Navigation Officer — Flying Officer R. MacFarlane
"A" Flight Bombing Leader — Pilot Officer J. Fort
"A" Flight Gunnery Leader — Flying Officer H. S. Glinz
"B" Flight Navigation Officer — Flying Officer R. A. Urquhart DFC
"B" Flight Bombing Leader — Flying Officer E. C. Johnson
"B" Flight Gunnery Leader — Flying Officer W. J. Tytherleigh DFC

Crew List

"A" Flight

ED932 "AJ-G"

Captain — Wing Commander G. P. Gibson DSO and Bar, DFC and Bar
Navigator — Pilot Officer H. T. Taerum
Flight Engineer — Sergeant J. Pulford
Bomb Aimer — Pilot Officer F. M. Spafford DFM
Wireless Operator — Flight Lieutenant R. G. Hutchison DFC
Front Gunner — Flight Sergeant G. A. Deering
Rear Gunner — Flight Lieutenant R. D. Trevor-Roper DFM

ED887 "AJ-A"

Captain — Squadron Leader H. M. Young DFC and Bar
Navigator — Flight Sergeant C. W. Roberts
Flight Engineer — Sergeant D. T. Horsfall
Bomb Aimer — Flying Officer V. C. MacCausland
Wireless Operator — Sergeant L. W. Nichols
Front Gunner — Sergeant G. A. Yeo
Rear Gunner — Sergeant W. Ibbotson

ED864 "AJ-B"

Captain — Flight Lieutenant W. Astell DFC
Navigator — Pilot Officer F. A. Wile
Flight Engineer — Sergeant J. Kinnear
Bomb Aimer — Flying Officer D. Hopkinson
Wireless Operator — Warrant Officer A. A. Garshowitz
Front Gunner — Flight Sergeant F. A. Garbas
Rear Gunner — Sergeant R. Bolitho

ED906 "AJ-J"

Captain — Flight Lieutenant D. H. Maltby DFC
Navigator — Sergeant V. Nicholson
Flight Engineer — Sergeant W. Hatton
Bomb Aimer — Pilot Officer J. Fort
Wireless Operator — Sergeant A. J. B. Stone
Front Gunner — Sergeant V. Hill
Rear Gunner — Sergeant H. T. Simmonds

ED929 "AJ-L"

Captain — Flight Lieutenant D. J. Shannon DFC
Navigator — Flying Officer D. R. Walker DFC
Flight Engineer — Sergeant R. J. Henderson
Bomb Aimer — Flight Sergeant L. J. Sumpter
Wireless Operator — Flying Officer B. Goodale DFC
Front Gunner — Sergeant B. Jagger
Rear Gunner — Flying Officer J. Buckley

ED927 "AJ-E"

Captain — Flight Lieutenant R. N. G. Barlow DFC
Navigator — Flying Officer P. S. Burgess
Flight Engineer — Pilot Officer S. L. Whillis
Bomb Aimer — Pilot Officer A. Gillespie DFM
Wireless Operator — Flying Officer C. R. Williams DFC
Front Gunner — Flying Officer H. S. Glinz
Rear Gunner — Sergeant J. R. G. Liddell

ED936 "AJ-H"

Captain — Pilot Officer G. Rice
Navigator — Flying Officer R. McFarlane
Flight Engineer — Sergeant E. C. Smith
Bomb Aimer — Warrant Officer J. W. Thrasher
Wireless Operator — Warrant Officer C. B. Gowrie
Front Gunner — Sergeant T. W. Maynard
Rear Gunner — Sergeant S. Burns

Captain — Pilot Officer W. G. Divall
Navigator — Flying Officer D. R. Warwick
Flight Engineer — Sergeant E. C. A. Blake
Bomb Aimer — Sergeant R. McArthur
Wireless Operator — Sergeant J. S. Simpson
Front Gunner — Sergeant D. Allatson
Rear Gunner — Sergeant Murray

ED934 "AJ-K"

Captain — Pilot Officer V. W. Byers
Navigator — Flying Officer J. H. Warner
Flight Engineer — Sergeant A. J. Taylor
Bomb Aimer — Pilot Officer A. N. Whittaker
Wireless Operator — Sergeant J. Wilkinson
Front Gunner — Sergeant C. McA. Jarvie
Rear Gunner — Flight Sergeant J. McDowell

ED910 "AJ-C"

Captain — Pilot Officer W. H. T. Otley DFC
Navigator — Flying Officer J. K. Barrett DFC
Flight Engineer — Sergeant R. Marsden DFM
Bomb Aimer — Flight Sergeant T. B. Johnston
Wireless Operator — Sergeant J. Guterman DFM
Front Gunner — Sergeant H. J. Strange
Rear Gunner — Sergeant F. Tees

ED918 "AJ-F"

Captain — Flight Sergeant K. W. Brown
Navigator — Sergeant D. P. Heal
Flight Engineer — Sergeant H. B. Feneron
Bomb Aimer — Sergeant S. Oancia
Wireless Operator — Sergeant H. W. Hewstone
Front Gunner — Sergeant Buntaine
Rear Gunner — Flight Sergeant G. S. MacDonald

"B" Flight

ED937 "AJ-Z"

Captain — Squadron Leader H. E. Maudslay DFC
Navigator — Flying Officer R. A. Urquhart DFC
Flight Engineer — Sergeant J. Marriott DFM
Bomb Aimer — Pilot Officer M. J. D. Fuller
Wireless Operator — Warrant Officer A. P. Cottam
Front Gunner — Flying Officer W. J. Tytherleigh DFC
Rear Gunner — Sergeant N. R. Burrows

ED925 "AJ-M"

Captain — Flight Lieutenant J. V. Hopgood DFC and Bar
Navigator — Flying Officer K. Earnshaw
Flight Engineer — Sergeant C. Brennan
Bomb Aimer — Pilot Officer J. W. Fraser DFM
Wireless Operator — Sergeant J. W. Minchin
Front Gunner — Pilot Officer G. H. F. G. Gregory DFM
Rear Gunner — Pilot Officer A. F. Burcher DFM

ED909 "AJ-P"

Captain — Flight Lieutenant H. B. Martin DFC
Navigator — Flight Lieutenant J. F. Leggo DFC
Flight Engineer — Pilot Officer I. Whittaker
Bomb Aimer — Flight Lieutenant R. C. Hay DFC
Wireless Operator — Flying Officer L. Chambers
Front Gunner — Pilot Officer T. B. Foxlee DFM
Rear Gunner — Flight Sergeant T. D. Simpson

ED921 "AJ-W"

Captain — Flight Lieutenant J. L. Munro
Navigator — Flying Officer F. G. Rumbles
Flight Engineer — Sergeant F. E. Appleby
Bomb Aimer — Sergeant J. H. Clay
Wireless Operator — Warrant Officer P. E. Pigeon
Front Gunner — Sergeant W. Howarth
Rear Gunner — Flight Sergeant H. A. Weeks

ED923

Captain — Flight Lieutenant J. C. McCarthy DFC
Navigator — Flight Sergeant D. A. MacLean
Flight Engineer — Sergeant W. D. Radcliffe
Bomb Aimer — Sergeant G. L. Johnson
Wireless Operator — Flight Sergeant L. Eaton
Front Gunner — Sergeant R. Batson
Rear Gunner — Flying Officer D. Rodger

Captain — Flight Lieutenant H. S. Wilson
Navigator — Flying Officer Rodger
Flight Engineer — Sergeant Johnson
Bomb Aimer — Pilot Officer Coles
Wireless Operator — Sergeant Miettette
Front Gunner — Sergeant Payne
Rear Gunner — Sergeant Hornsby

ED865 "AJ-S"

Captain — Pilot Officer L. J. Burpee DFM
Navigator — Sergeant T. Jaye
Flight Engineer — Sergeant G. Pegler
Bomb Aimer — Flight Sergeant J. L. Arthur
Wireless Operator — Pilot Officer L. G. Weller
Front Gunner — Sergeant W. C. A. Long
Rear Gunner — Warrant officer J. G. Brady

ED912 "AJ-N"

Captain — Pilot Officer L. G. Knight
Navigator — Flying Officer H. S. Hobday
Flight Engineer — Sergeant R. E. Graystone
Bomb Aimer — Flying Officer E. C. Johnson
Wireless Operator — Flight Sergeant R. G. T. Kellow
Front Gunner — Sergeant F. E. Sutherland
Rear Gunner — Sergeant H. E. O'Brien

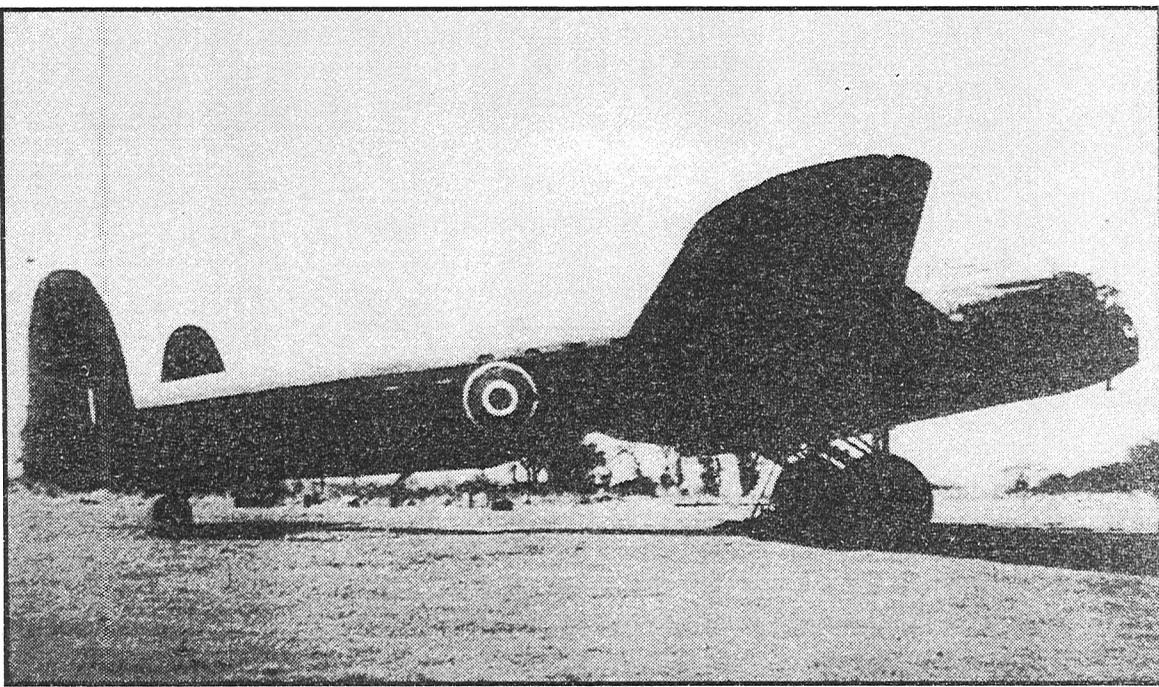
ED886 "AJ-O"

Captain — Flight Sergeant W. C. Townsend
Navigator — Pilot Officer C. L. Howard
Flight Engineer — Sergeant D. J. D. Powell
Bomb Aimer — Sergeant C. E. Franklin DFM
Wireless Operator — Flight Sergeant G. A. Chalmers
Front Gunner — Sergeant D. E. Webb
Rear Gunner — Sergeant R. Wilkinson

ED914 "AJ-Y"

Captain — Flight Sergeant C. T. Anderson
Navigator — Sergeant J. P. Nugent
Flight Engineer — Sergeant R. C. Paterson
Bomb Aimer — Sergeant G. J. Green
Wireless Operator — Sergeant W. D. Bickle
Front Gunner — Sergeant E. Ewan
Rear Gunner — Sergeant A. W. Buck

First trial weapon breaks up on impact



AS 617 Squadron was forming at Scampton, work had already begun at Avro's to modify a Lancaster to carry the new weapon.

Modifications basically included the removal of the bomb doors (to mount the gear for the rotating weapon) and omitting the dorsal turret to save weight. Additionally a small hydraulic motor to drive the rotating gear was installed in the middle section of the cabin.

The result of the modifications was an increase in aircraft weight of about 1,000lb with the weight of the "Upkeep" still to be added.

Known as the "Type 464 Provisioning Lancaster" an original order was made for 30 aircraft although this was later reduced to 23.

The first prototype, ED765/G ("G" for "Guard" denoting special security), was delivered to the Royal Aircraft Establishment at Farnborough on April 8.

On the 10th the aircraft was moved to Manston for dropping trials. The first release was carried out on the 16th off the north Kent coast, at Reculver, using a non-explosive "Upkeep" which broke up on hitting the water. A second, strengthened weapon was then dropped with not much more success. It was then decided that the speed and height of the aircraft for weapon release had to be most accurate — 220 mph groundspeed at a height of just 60 feet.

Accuracy

To fly at an exact groundspeed would not cause the pilots too much of a problem, but to fly at exactly 60 feet over water at night would be very difficult. How to determine an exact height of 60 feet was more the problem, particularly as the Lancaster's wingspan is just over 100 feet! It would leave no margin for error.

The normal pressure altimeter was out of the question in terms of accuracy and even the radio altimeter was considered too inaccurate.

The method decided on to determine the exact height was by fitting two Aldis lamps to the aircraft, one in the nose and the other at the rear of the bomb compartment. The lamps were angled such that the beams converged on the water at exactly 60 feet below the aircraft. This idea was not exactly new at the time but

had been employed by Coastal Command for some time when attacking German U-boats at night.

Of course, however, there was the major problem of having to use lamps at night when trying to use darkness to

conceal the attack but in the circumstances there was no other alternative.

The first successful release of "Upkeep" was carried out on April 29 at Reculver. By that time, several new modified Lancasters had arrived at Scampton.

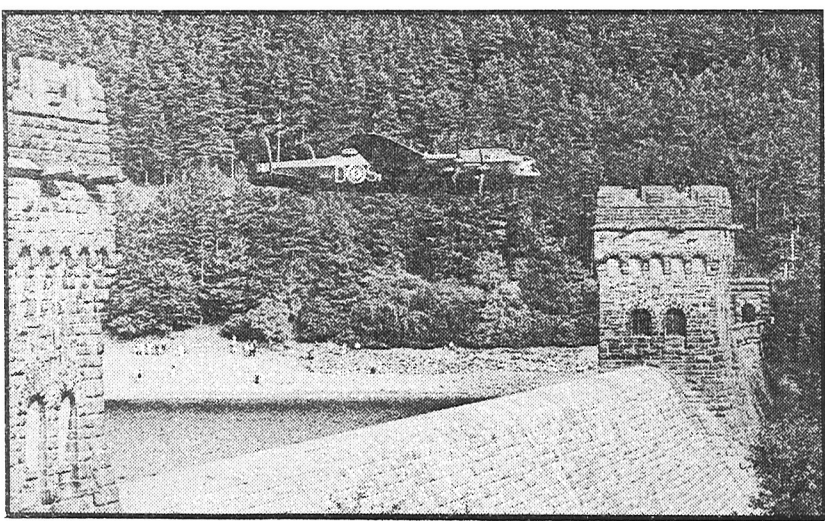
On May 8 Gibson, along with Martin and Hopgood, made successful practice drops in the new aircraft at Reculver.

Details of the 23 Type 464 Provisioning Lancasters.

Serial	Code	Captain	Details	Further Information
ED765/G			1st Prototype	Crashed during training 5/8/43
ED817/G			2nd Prototype	SOC 23/9/46
ED825/G	'AJ-T'	F/L J. McCarthy	Returned safely	Missing France 10/12/43
ED864/G	'AJ-B'	F/L W. Astell	Crashed/shot down outbound — Crew killed	
ED865/G	'AJ-S'	P/O L. Burpee	Shot down outbound — Crew killed	
ED886/G	'AJ-O'	F/S W. Townsend	Returned safely	Missing France 10/12/43
ED887/G	'AJ-A'	S/L H. Young	Shot down inbound — Crew killed	
ED906/G	'AJ-J'	F/L D. Maltby	Returned safely	SOC 29/7/47
ED909/G	'AJ-P'	F/L H. Martin	Returned safely	SOC 29/7/47
ED910/G	'AJ-C'	P/O W. Otley	Hit by flak outbound — 6 killed, 1 POW	
ED912/G	'AJ-N'	P/O L. Knight	Returned safely	SOC 26/9/46
ED915/G			Did not participate in Chastise	SOC 8/10/46
ED918/G	'AJ-F'	F/S K. Brown	Returned safely	Crashed into sea 20/1/44
ED921/G	'AJ-W'	F/L J. Munro	Damaged by flak outbound RTB	SOC 26/9/46
ED923/G	'AJ-Q'		A/C u/s, Did not participate in Chastise	SOC 7/10/46
ED924/G	'AJ-Y'	F/S C. Anderson	A/C u/s and RTB	SOC 23/9/46
ED925/g	'AJ-M'	F/L J. Hopgood	Hit by flak during attack on Mohne dam — 5 killed, 2 POW	
ED927/G	'AJ-E'	F/L R. Barlow	Returned safely	SOC 7/10/46
ED929/G	'AJ-L'	F/L D. Shannon	Returned safely	SOC 29/7/47
ED932/G	'AJ-G'	W/C G. Gibson	Returned safely	
ED934/G	'AJ-K'	P/O V. Byers	Shot down by flak outbound — Crew killed	
ED936/G	'AJ-H'	P/O G. Rice	Upkeep torn off by sea outbound and RTB	SOC 28/7/44
ED937/G	'AJ-Z'	S/L H. Maudslay	Crashed after attacking Eder dam — Crew killed	

SOC = Struck off charge POW = Prisoner of war RTB = Returned to base A/C u/s = Aircraft unserviceable

Lancasters are modified: Now how to fly at 60 feet in dark?



• A reconstruction of practice runs over the Derwent reservoir in Derbyshire.

Intensive training then it's time for final dress rehearsal

INITIALLY 617 Squadron had just 10 Lancasters (loaned from other squadrons) available for flying training. Other equipment had to be "begged, stolen or borrowed" from wherever possible — excursions across the airfield to 57 Squadron were all too common!

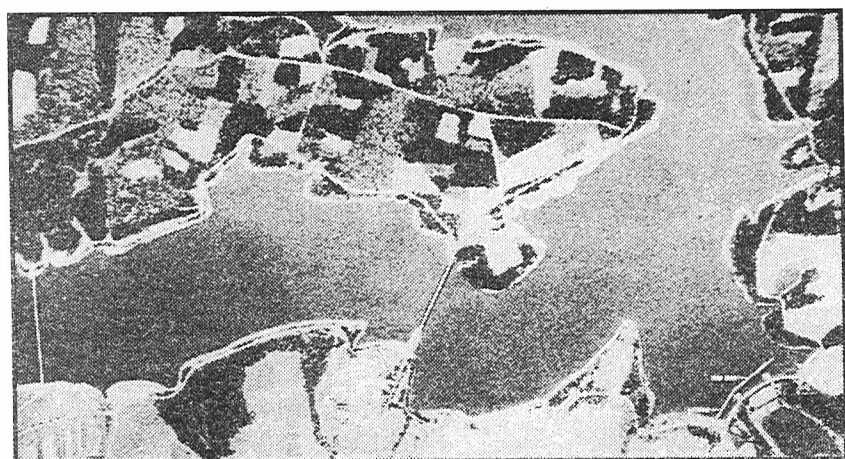
One of the first tasks carried out by the Squadron was to photograph several lakes around the country. The crews were told that this was for the benefit of the Operational Conversion Units to give training crews practice in navigation. Later it would prove that this study of lakes was for more obvious training purposes.

Target

Within a few days of the Squadron forming, Gibson was called to Weybridge when he was given a "general" briefing on what the operation would involve from Barnes Wallis. He was shown films of the new weapon during trials and told that the operation would involve flying very low and very accurately.

On March 28, Gibson flew a Lancaster down Derwent reservoir, near Sheffield in the Peak District, to try out flying very accurately at low-level. Although during daytime this proved to be no problem, it caused much more concern when tried again at dusk!

The following day, Gibson was called to Group Headquarters when Cochrane



• Briefing models of the Sorpe Dam, top and the Mohne, above (617 Sqn records).

gave him a more detailed briefing including details of the targets — the Mohne and Sorpe dams.

By mid-April the Squadron had been reduced to 21 crews due to the demanding training being too much for some. Pilot Officer Divall replaced Sergeant Lovell, followed soon after by Flight Sergeant Lanchester and his crew being withdrawn. By the end of April, training was consolidated to the Uppingham reservoir and a dam on the Colchester reservoir and from early May, low-level flying taken down from 150ft to just 60ft.

Additional training was carried out at Wainfleet bombing range on the Wash where two boards were erected some 700ft apart to simulate towers on the dams. A simple sight was developed using a piece of wood with an eyesight and two nails, the idea being that the bomb aimer would look through the sight and when the nails were lined up with the two towers the aircraft was at the correct distance from the dam to release the weapon.

However, when tried by the crews in the air the new sight proved difficult to use, particularly as one hand was needed for the bomb release and so many of the bomb aimers set about designing their own personal method.

Tribute

Various methods were used to simulate night-flying, including covering the windscreen with celluloid and the wearing of goggles, followed soon after by trialling the Aldis lamps at night, first over the airfield runway and later over water.

As problems were met, they were soon overcome using all resources and individual initiative. The fact that the Squadron was ready to operate by early May was a tribute to all.

On the night of May 14, the crews carried out yet another night practice on Uppingham and Colchester reservoirs but this time, although the crews did not realise, it had been special. For it had been the full dress rehearsal for Operation Chastise — now just 48 hours away.

Bomb aimers devise their own methods

Take-off

First Wave

1 W/C G. P. Gibson
DSO DFC ED932/G "AJ-G"
2 F/L J. V. Hopgood
DFC ED925/G "AJ-M"
3 F/L H. B. Martin
DFC ED909/G "AJ-P"

4 S/L H. M. Young
DFC ED887/G "AJ-A"
5 F/L D. J. H. Maltby
DFC ED906/G "AJ-J"
6 F/L D. J. Shannon
DFC ED929/G "AH-L"

7 S/L H. E. Maudslay
DFC ED937/G "AJ-Z"
8 F/L W. Astell
DFC ED864/G "AJ-B"
9 P/O L. G. Knight
ED912/G "AJ-N"

Second Wave

1 F/L J. C. McCarthy
DFC ED923/G "AJ-Q"
2 F/L R. N. G. Barlow
DFC ED927/G "AJ-E"
3 F/L J. L. Munro
ED921/G "AJ-W"
4 P/O V. W. Byers
ED934/G "AJ-K"
5 P/O G. Rice
ED936/G "AJ-H"

Third Wave

1 P/O W. H. T. Otley
DFC ED910/G "AJ-C"
2 P/O L. J. Burpee
DFM ED865/G "AJ-S"
3 F/S K. W. Brown
ED918/G "AJ-F"
4 F/S W. C. Townsend
DFM ED886/G "AJ-O"
5 F/S C. T. Anderson
ED924/G "AJ-Y"



• Gibson and his crew about to depart for the Dams (617 Sqn records).

THE PLAN of the attack, code-named 'Operation Chastise', was that 19 aircraft would attack in three waves.

The first wave of nine aircraft, led by Gibson, was to attack the Mohne dam and, if successful, would fly on to attack the Eder.

The second wave of five aircraft would attack the Sorpe, and the third wave of five aircraft would act as a mobile reserve, briefed to attack last resort targets or any of the primary targets had the dams not been breached.

No other major operations were planned for Bomber Command that night, although some

minor operations were carried out. The plan of attack was as follows:

At 2139hrs on May 16, the first section of the first wave, led by Gibson, took-off from Scampton.

Although the sea was calm, winds were stronger than forecast resulting in the wave arriving over the enemy coast starboard of their intended track and also late, although this caused no problems. The intended track took the wave due east between the enemy occupied airfields of Gilze-Rijen (north of track) and Eindhoven (to the south) although no enemy opposition was encountered.

The wave crossed the Rhine to the north-west of Wesel and soon after encountered searchlights and flak to the north-west of

Dorsten. Passing to the north of the heavily defended town of Hamm, Gibson led his section south for the final leg to the Mohne dam.

The second section of three aircraft, led by Young, had left Scampton at 2147hrs and followed the same route. Although briefly encountering flak enroute, the section continued unscathed.

The third section, led by Maudslay, had taken off at 2159hrs. The section had crossed the Rhine without incident but soon after encountered the same flak that Gibson and his section had met earlier.

One aircraft, that flown by Astell, was hit by crossfire from two flak positions. The aircraft was seen to fly on for several miles before suddenly becoming engulfed in flames and crashing. There were no survivors.

Explosion

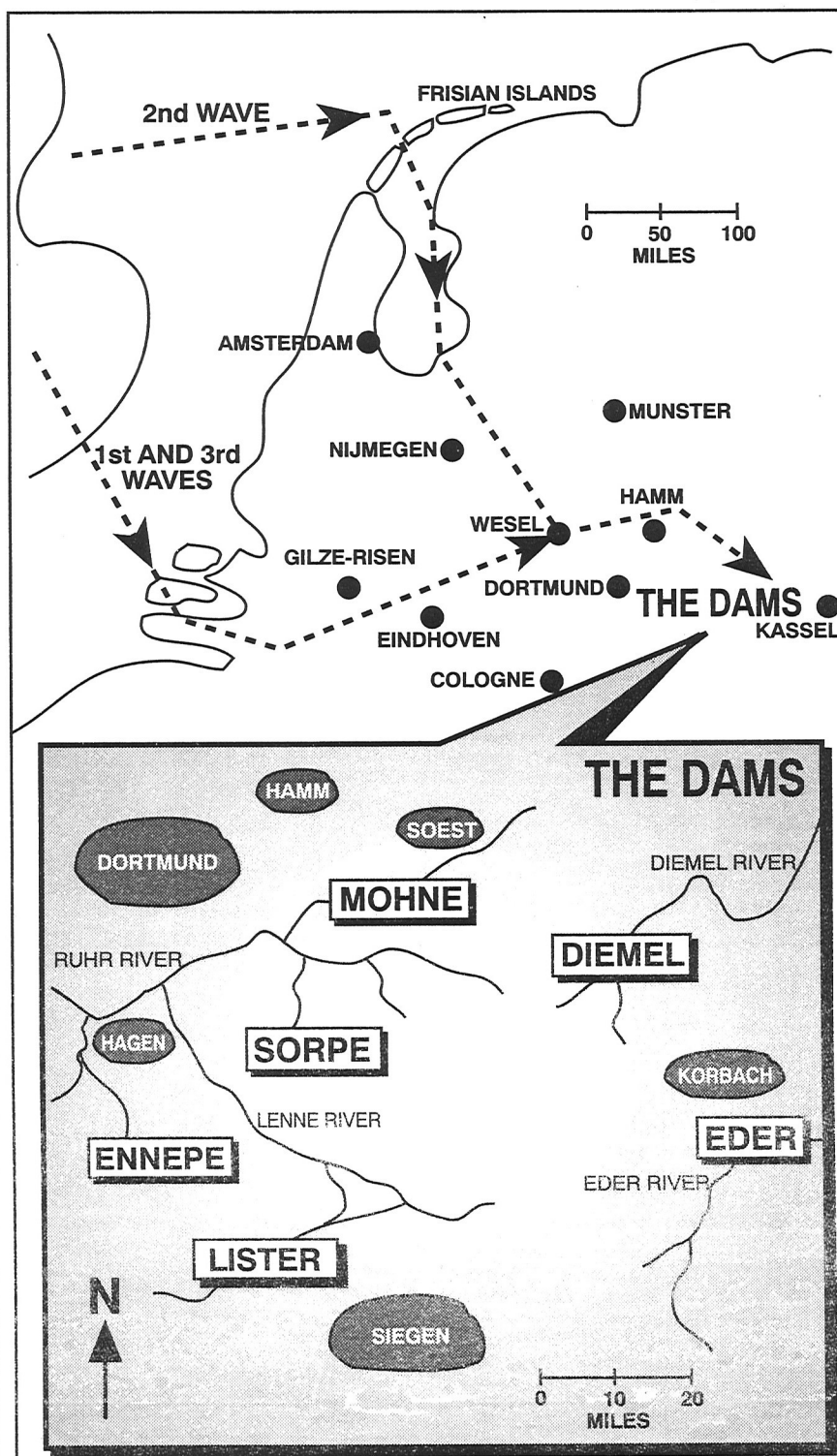
Shortly after midnight, Gibson leading the first section arrived over the Mohne. There was no cloud, a bright moon and good visibility.

After spending a few moments for the crews to take in the scene, Gibson carried out a simulated attack of the dam as a reconnaissance and to observe the defences. There were no searchlights and no balloons but already light flak had made them unwelcome.

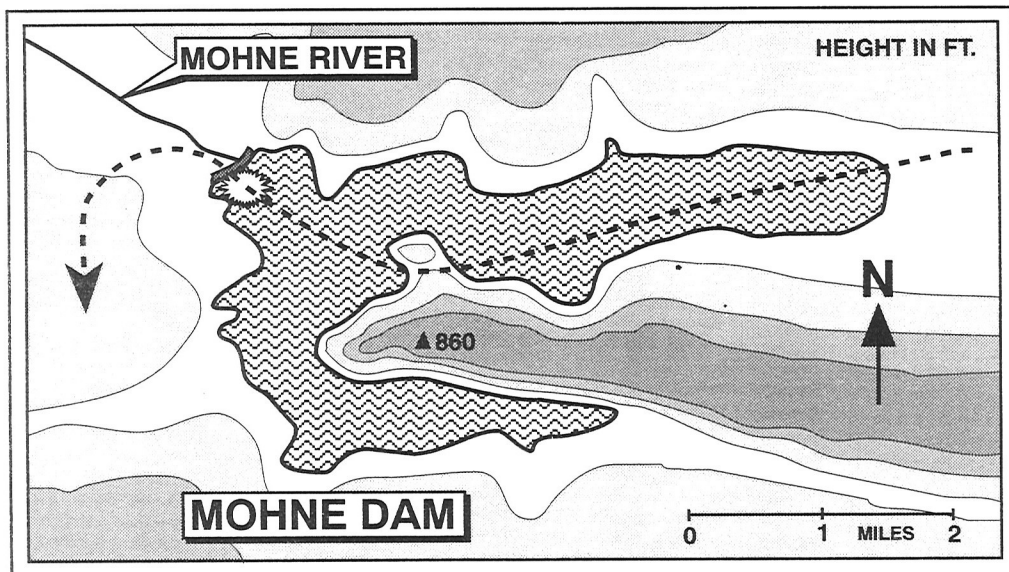
At the time he was completing the simulated attack the second section arrived overhead the Mohne. Under the leadership and control of Gibson, the plan was to attack the dam individually.

About 0025hrs Gibson commenced his attack first, releasing his 'Upkeep' almost perfectly. Whether his weapon hit the target exactly right is unclear. There was an explosion and plenty of water rising, but the dam remained intact.

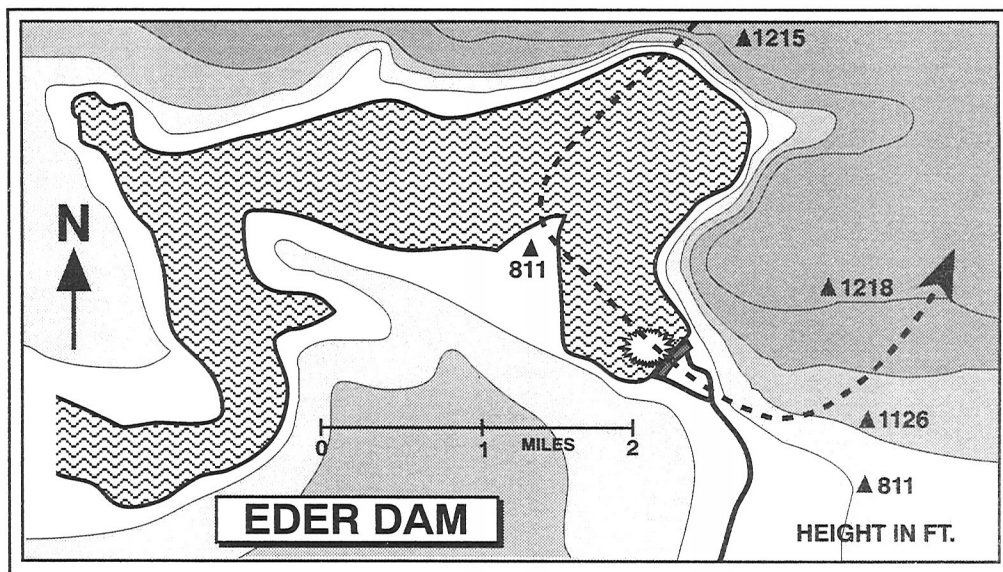
Soon after, the third section of two remaining aircraft arrived. Allowing five minutes for the water to settle, Hopgood commenced his attack. This time the defences were more ready.



Operation Chastise



● Line of attack on Mohne Dam.



● Line of attack on Eder Dam.

Upkeep released with devastating accuracy

During the run-in, Hopgood's aircraft was repeatedly hit by ground fire causing the 'Upkeep' to be released late resulting in the weapon bouncing over the dam and exploding beyond. The aircraft was seen staggering away from the target and then blew up. It was later discovered that two of the crew, Fraser and Burcher, amazingly survived and made prisoners-of-war.

Confusion

Realising that the Lancasters were vulnerable to ground-fire, Gibson escorted the third aircraft, flown by Martin, into the attack.

Although hit by flak, Martin held the aircraft steady throughout the attack. However his 'Upkeep' exploded short of the dam. The fourth to attack was Young, escorted by Martin, with Gibson drawing fire away from the two attacking aircraft to the north. The weapon was released with devastating accuracy. The bomb was seen to strike the dam causing cascades of water over the parapet, but still no breach.

As the fifth aircraft, flown by Maltby, released his 'Upkeep', the dam began to collapse. The previous attack by Young had caused the vital breach of the dam.

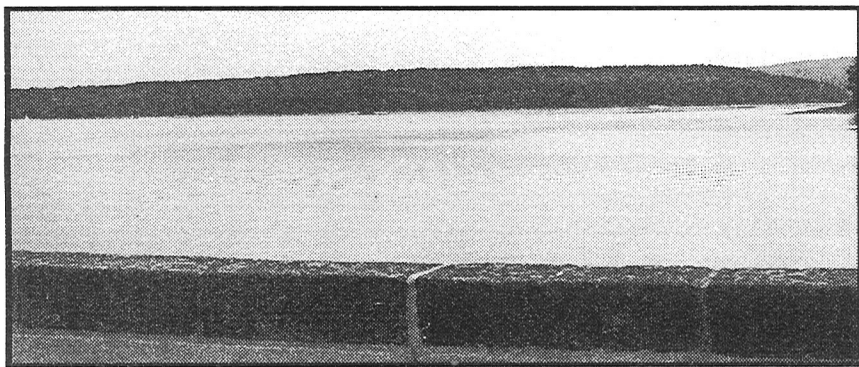
At first there was confusion among the crews witnessing the event. There was so much water that it was only after the water began to settle after the explosion of Maltby's weapon that they could be sure the dam had been breached.

At 0056hrs Gibson's wireless operator, Hutchison, transmitted the vital message back to Group Headquarters — "Nigger" (after Gibson's dog) to confirm the breach of the Mohne dam.

The seven surviving Lancasters circled the target to watch the spectacular sight of thousands of tons of water bursting into the valley below. Gibson ordered Maltby and Martin to return home. The remaining five aircraft flew on to the Eder.

After difficulty in finding the Eder, due to the terrain and early mist over the water, the crews found the dam undefended.

Three of the Lancasters still had their weapons, Gibson



● View from the Mohne Dam looking back up the Mohnese towards the direction of attack.

was to continue the lead with Young acting as deputy should anything happen to Gibson. As expected, the degree of skill in the approach to and recovery from the target was somewhat greater than that of the Mohne.

The first to attack was Shannon at about 0130hrs. Several times he attacked the dam but did not release his weapon due to problems in establishing the exact height. This problem came about by having to start the attack high, due to the terrain, then dive down to the lake and take a sharp left turn for the dam.

Shannon then took a rest letting Maudslay try but he also found similar problems. After two attempts by Maudslay, Shannon tried again.

Following two more unsuccessful runs, Shannon fin-

ally released his 'Upkeep', hitting the target and causing a slight breach. Maudslay then carried out his third attack on the dam. His weapon was seen to fall late, hitting the dam without bouncing. It exploded catching the Lancaster in full blast. Several other crew members thought they heard a faint transmission from Maudslay's aircraft but nothing was heard of the crew again.

Return

From evidence collated years later, it was found that Maudslay's aircraft had survived the explosion but was in fact shot down by flak near the German-Dutch border on the way home. There were no survivors.

The last to attack was Knight. Following one unsuccessful run, his 'Upkeep'

was released hitting the dam with devastating accuracy.

Watched by the remaining crews, the breach rapidly widened and a great tidal wave swept down the Eder valley. At 0154hrs Hutchison transmitted "Dinghy", the successful breach of the Eder dam. The four aircraft then turned for home.

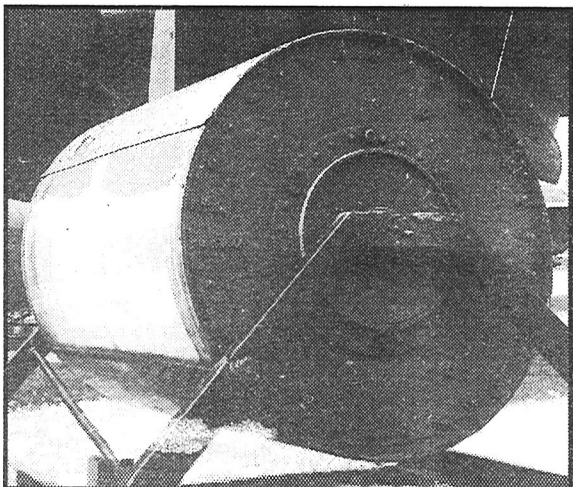
The first two of the attacking aircraft to return to Scampton were Maltby at 0311hrs, followed soon after by Martin at 0318hrs. Neither of these aircraft had proceeded to the Eder, nor had they encountered any problems during the return journey.

Shannon arrived back at Scampton at 0406hrs. He had followed the same return route and had no problems.

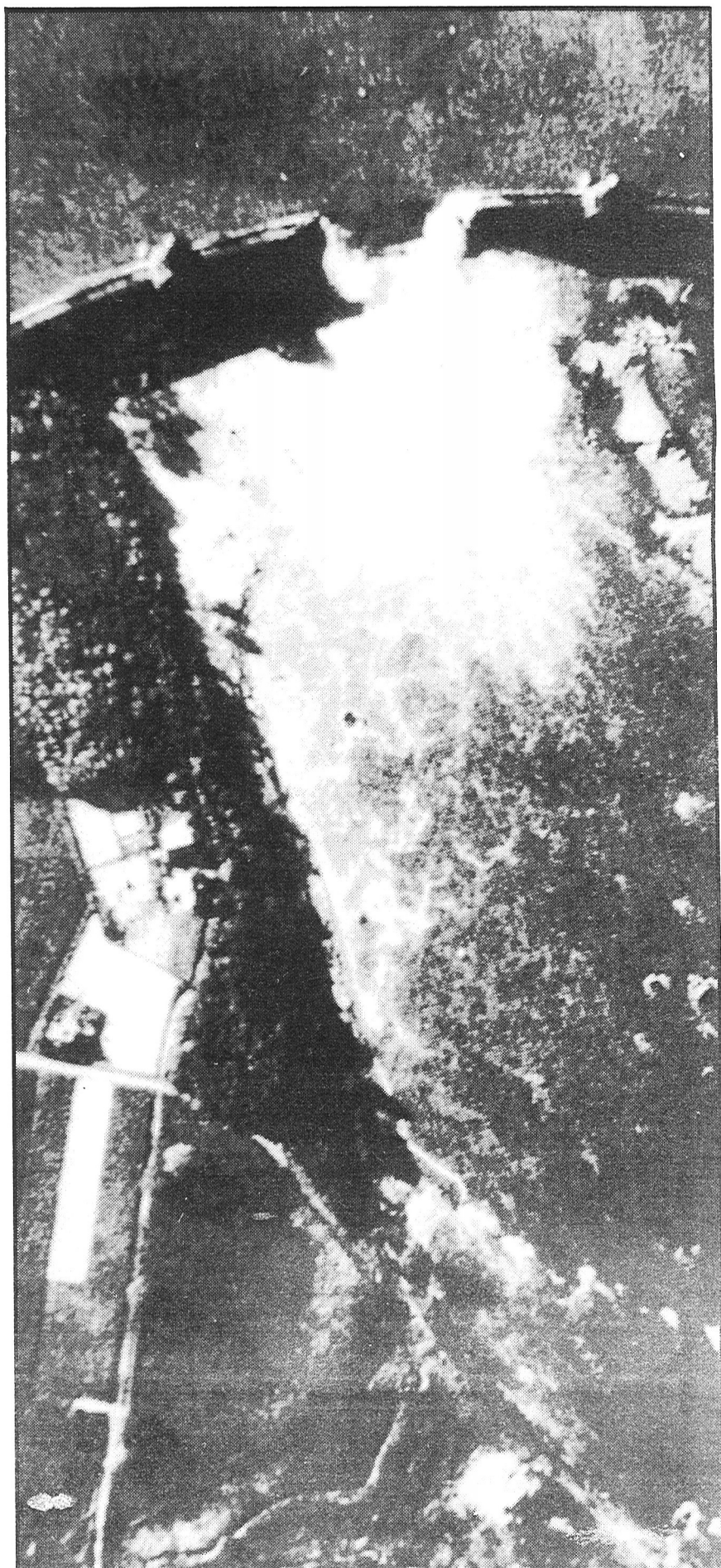
Gibson landed soon after, 0415hrs and Knight at 0420hrs. However, 'Dinghy' Young failed to return. From later evidence, it appears that a German coastal flak battery shot down Young's aircraft about 0300hrs at the enemy coast, the final 'hurdle' before the safety of the North Sea, with the loss of the entire crew.

From the nine aircraft which had left Scampton on the first wave, just five had returned.

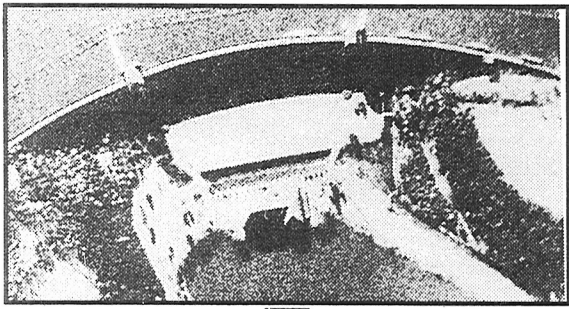
Maudslay and Young lost on way home



● Upkeep: Five dropped at Mohne Dam, three at Eder.

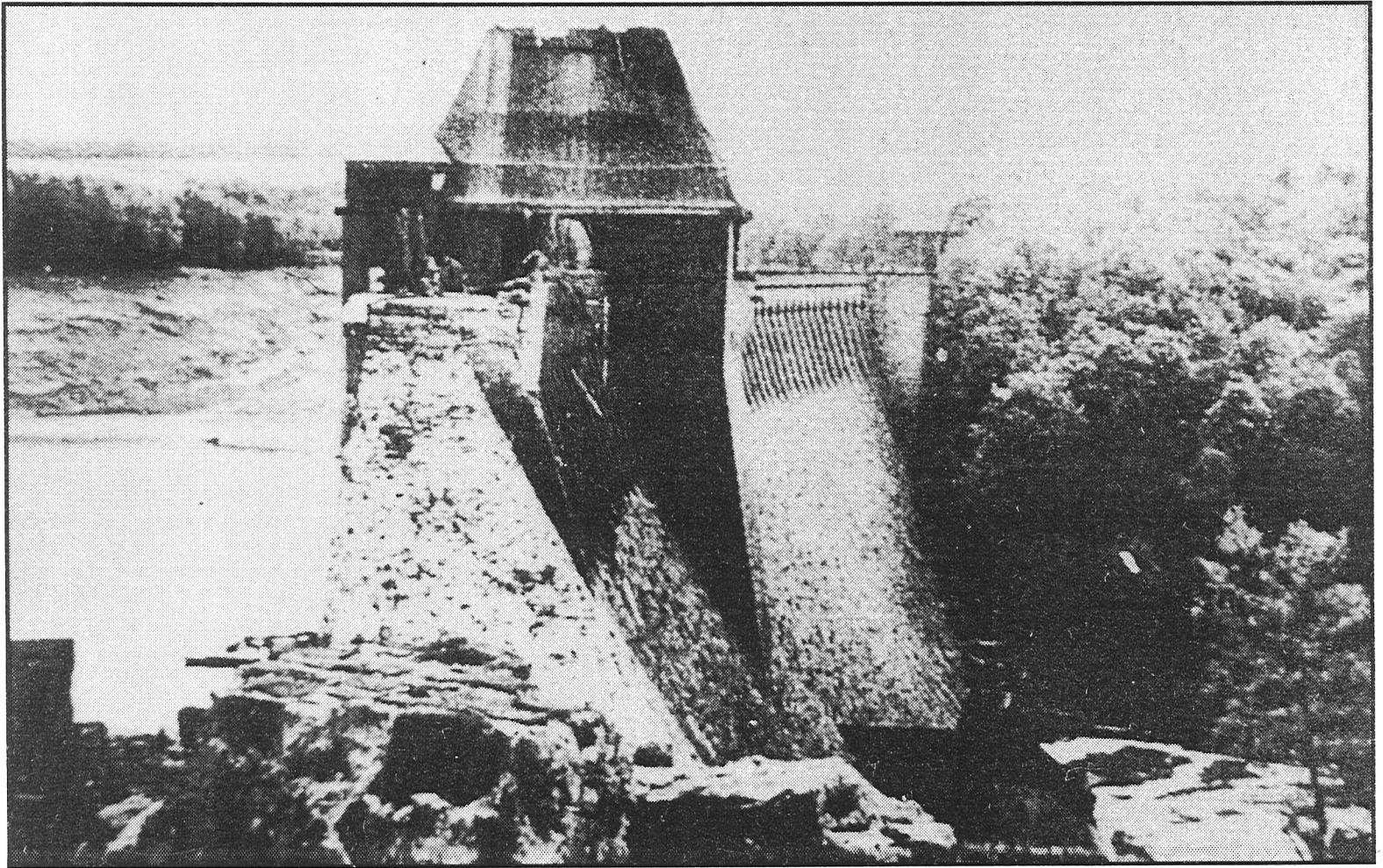


● Reconnaissance photograph, taken soon after the raid, showing the breach in the Mohne Dam. Gibson's signature can be made out between the breach. (617 Sqn records).

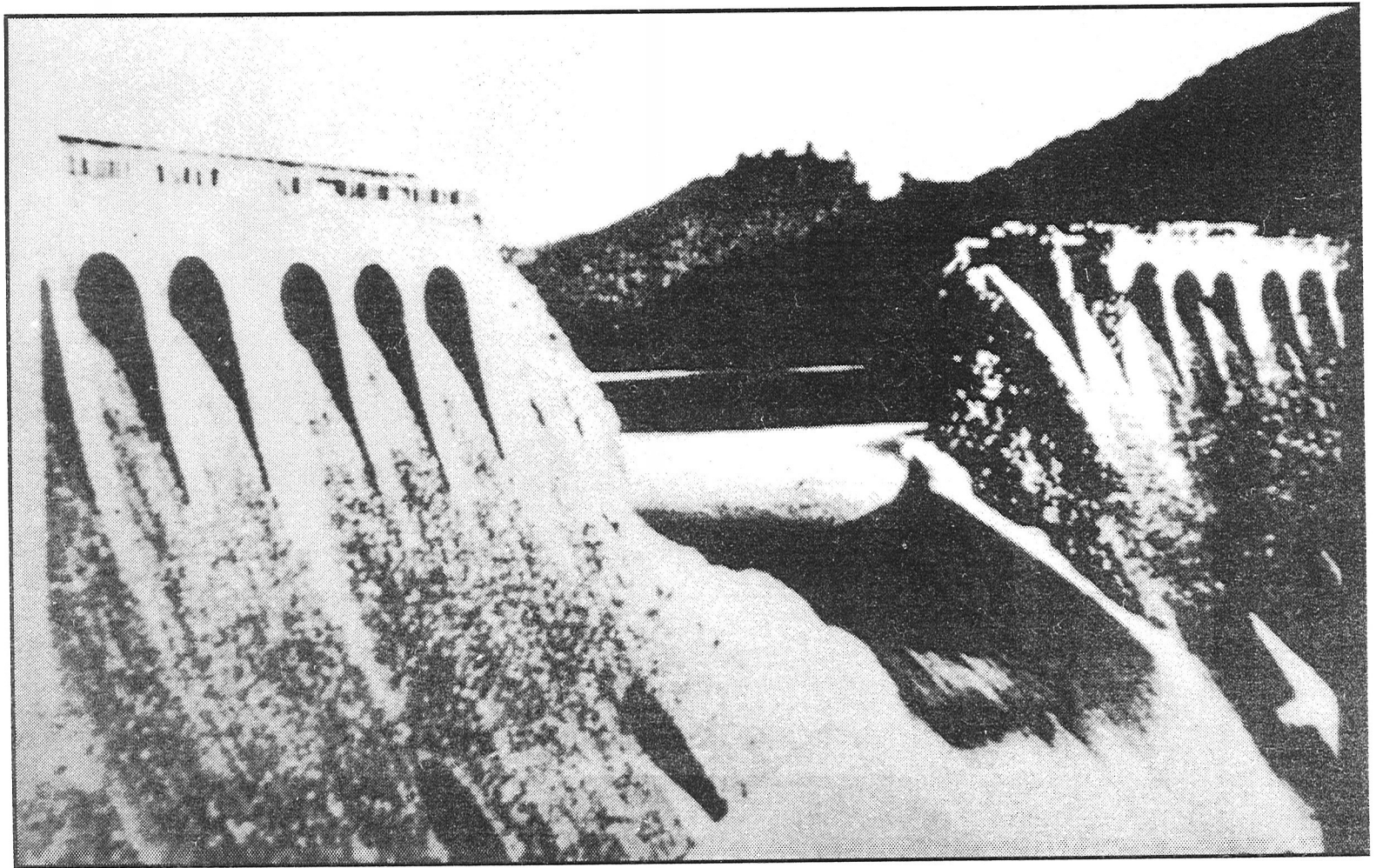


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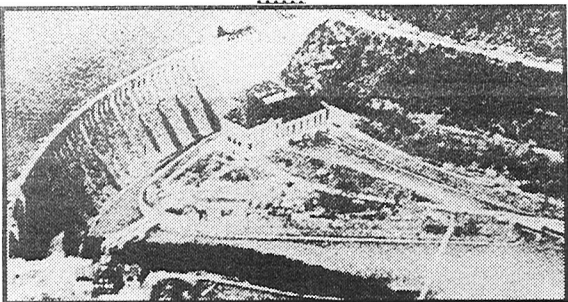
Codeword 'Nigger'



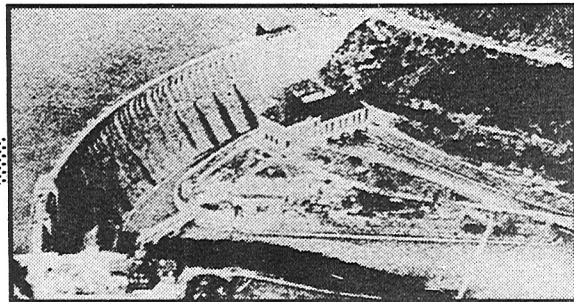
Breached: The Mohne Dam, above and right, and the Eder, below.



Codeword 'Dinghy'



estroyed



MOTTO — Apres
moi, le deluge
(After me the
flood).

Awarded for gallantry

Victoria Cross

A/Wg Cdr G. P. Gibson DSO and Bar,
DFC and Bar

Distinguished Service Order

Flt Lt J. C. McCarthy DFC
Flt Lt D. J. H. Maltby DFC
A/Flt Lt H. B. Martin DFC
A/Flt Lt D. J. Shannon DFC
Plt Off L. G. Knight

Bar to Distinguished Flying Cross

A/Flt Lt R. C. Hay DFC
A/Flt Lt R. E. G. Hutchison DFC
A/Flt Lt J. F. Leggo DFC
Fg Off D. R. Walker DFC

Distinguished Flying Cross

A/Flt Lt R. D. Trevor-Roper DFM
Fg Off J. Buckley
Fg Off L. Chambers
Fg Off H. S. Hobday
Fg Off E. C. Johnson
Plt Off G. A. Deering
Plt Off J. Fort
Plt Off C. L. Howard
Plt Off F. M. Spafford DFM
Plt Off H. T. Taerum

Conspicuous Gallantry Medal (Flying)

F/Sgt K. W. Brown
F/Sgt W. C. Townsend DFM

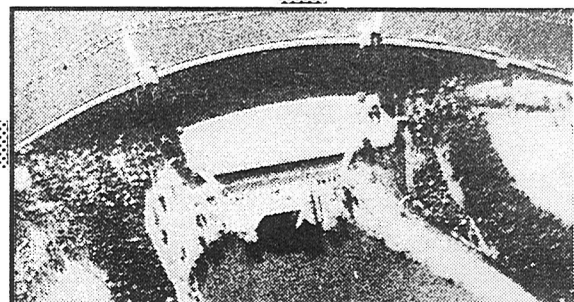
Bar to Distinguished Flying Medal

Sgt C. E. Franklin DFM

Distinguished Flying Medal

F/Sgt G. A. Chalmers
F/Sgt D. A. MacLean*
F/Sgt T. D. Simpson
F/Sgt L. J. Sumpter
Sgt D. P. Heal
Sgt G. L. Johnson
Sgt V. Nicholson
Sgt S. Oancia
Sgt J. Pulford
Sgt D. E. Webb
Sgt R. Wilkinson

A total of 133 aircrew took part in
Operation Chastise. 53 lost their lives
and three were taken Prisoner of War.



Second wave on to

McCarthy left alone but presses on to attack 10 times!

THE SECOND wave of five aircraft had left Scampton ahead of the first wave. The wave should have been led by McCarthy but problems with his aircraft meant that the first airborne for the entire operation was Barlow at 2128hrs.

Unlike the first wave which departed in sections of three, the aircraft of the second wave were planned to depart at one minute intervals.

Next airborne was Munro, followed by Byers and Rice. Eventually, at 2201hrs, McCarthy got airborne in the 'spare' aircraft ('AJ-T') which although bombed up had not been modified with spotlights.

The reason for this earlier departure was that the wave would fly the more northerly route over the North Sea and Frisian Islands before turning south-east for the dams. It was also intended that the second wave would cross the enemy coast at the same time as Gibson was leading the first wave across the enemy coast much further south. This would hopefully make the enemy believe that these were just minor intruder raids.

Of the second wave, two were forced to return early. Munro reluctantly returned to Scampton having been damaged by flak, landing at 0036 — the first Lancaster to return.

The other, flown by Rice, returned having lost its

'Upkeep' after clipping the sea while flying too low on the way to the target! He landed at 0047hrs.

The fate of two others is unclear as nothing was heard after take-off. Barlow crashed close to the German-Dutch border, but it is uncertain whether the aircraft was shot down or whether it hit power cables. There were no survivors.

The other, flown by Byers, was shot down by flak off the island of Texel, near the Dutch coast, with the loss of the entire crew.

This left just one aircraft from the wave to press on to the target.

McCarthy had encountered flak when crossing the enemy coast followed, soon after, by

the presence of night-fighters but by flying very low he managed to continue unscathed. Shortly after midnight, and with difficulty, McCarthy finally reached the Sorpe reservoir.

All alone, McCarthy attacked the Sorpe dam. Nine times he carried out attacks before finally, on his tenth run, his 'Upkeep' was released. Although hitting the target, the dam was not breached. Although encountering flak on the return journey, McCarthy returned safely to Scampton landing at 0323hrs.

Third wave

The third (reserve) wave of five aircraft was led by Ottley at 0009hrs followed two minutes later by Burpee, then Brown, then Townsend and finally Anderson at 0015hrs. The plan was that this wave would be in contact with Group Headquarters and would attack either of the primary targets, the Mohne and Eder, if not breached or if they had been successfully breached the wave would attack the alternate dams.

This wave had to, above all else, be particularly flexible as the moment they got airborne they did not know their target!

After crossing the Rhine, Ottley's aircraft encountered severe flak near Hamm and blew up. Amazingly the rear-gunner, Tees, survived when the rear turret, with Tees still inside, was thrown clear either when the aircraft exploded in the air or when the wreckage hit the ground. The second aircraft, flown by Burpee, was shot down by flak when it strayed fatally off-track and flew over Gilze-Rijen airfield. There were no survivors.

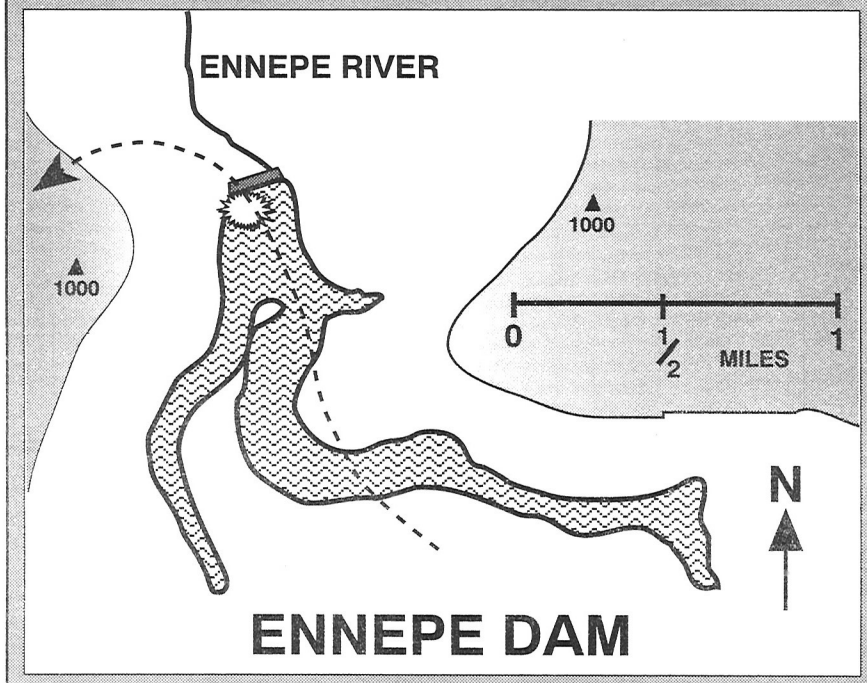
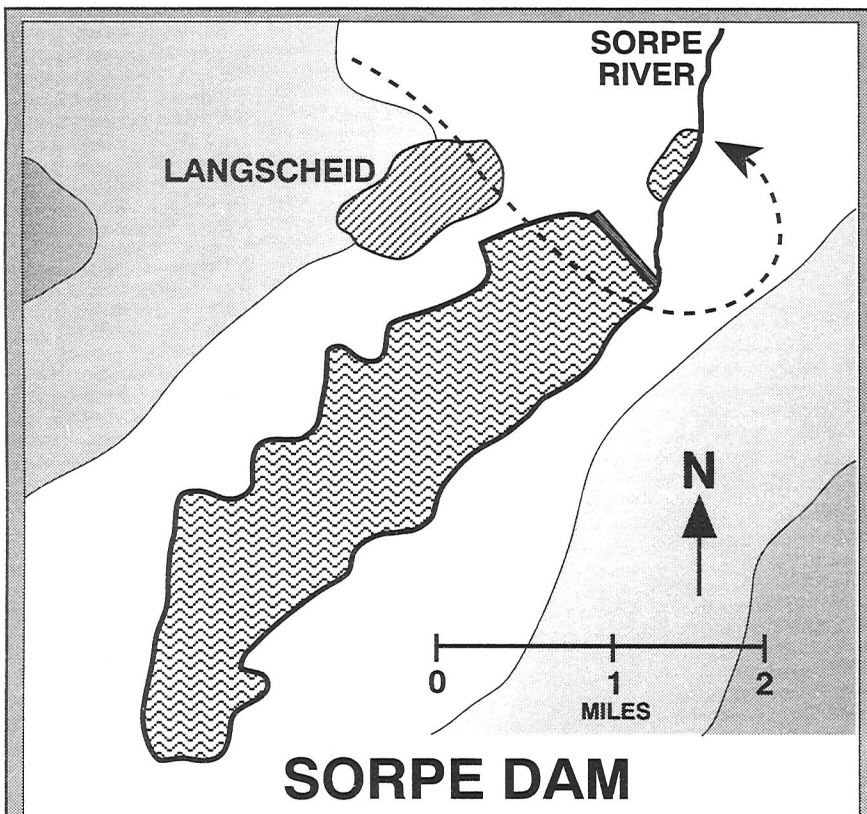
Anderson returned to Scampton at 0530hrs with his 'Upkeep' still intact. His rear turret was out of action and, having been the last aircraft to take-off, had encountered mist making navigation more difficult. Without his rear guns, Anderson had to make large detours to avoid areas of intense flak. This caused him to become more behind schedule and with daylight just 90



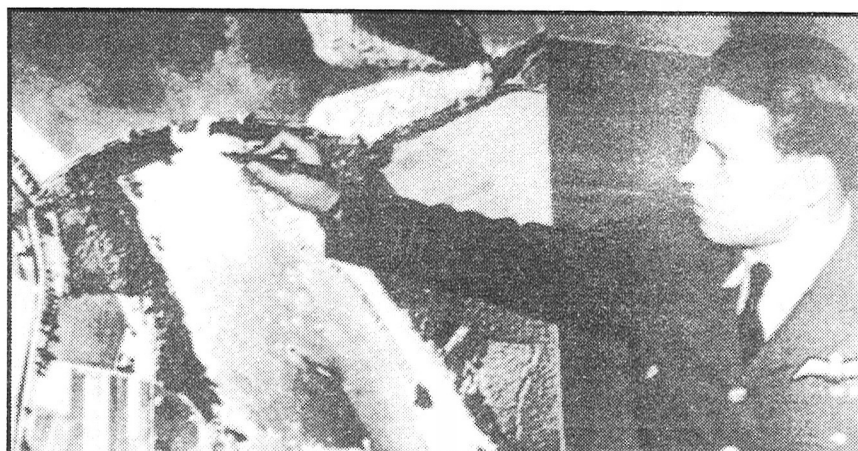
● Reconnaissance photo of the Sorpe Dam the day after the raid. Water has clearly passed over the top of the dam (AHB, MoD).



● His Majesty King George VI examines photos of dams damage during a visit to Scampton shortly after the raids (617 Sqn records).



● Line of attack on Sorpe and Ennepe dams.



● Guy Gibson autographing the breach to the Mohne Dam (617 Sqn records).

minutes away, he reluctantly decided to return to Scampton. This left just two aircraft from the third wave to press on to the dams.

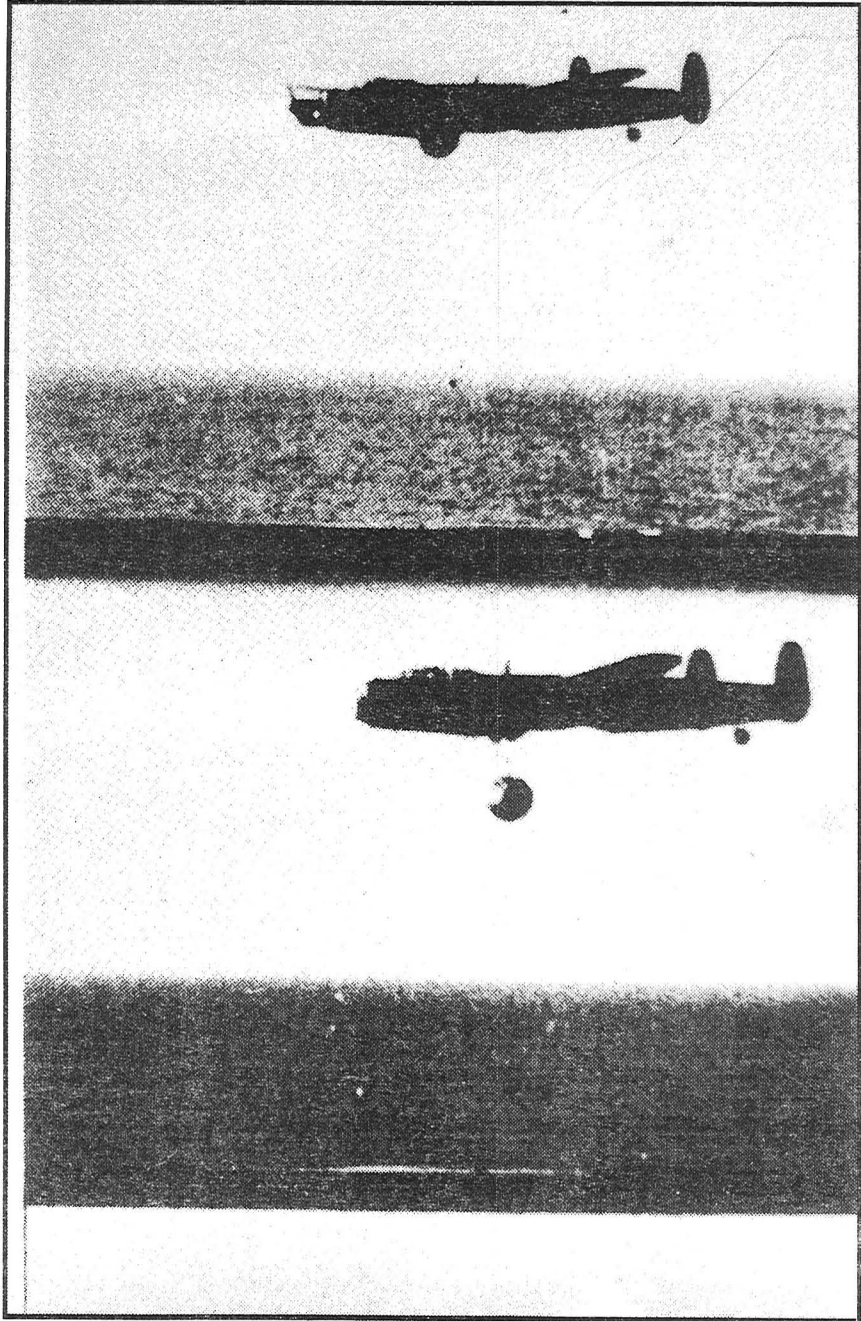
Brown had been ordered to attack the Sorpe dam. On arrival the crew found that the mist encountered by McCarthy earlier had thickened. He too needed several attempts before finally releasing

his weapon but, although hitting the target, there was no breach. Brown and his crew returned safely to Scampton at 0533hrs.

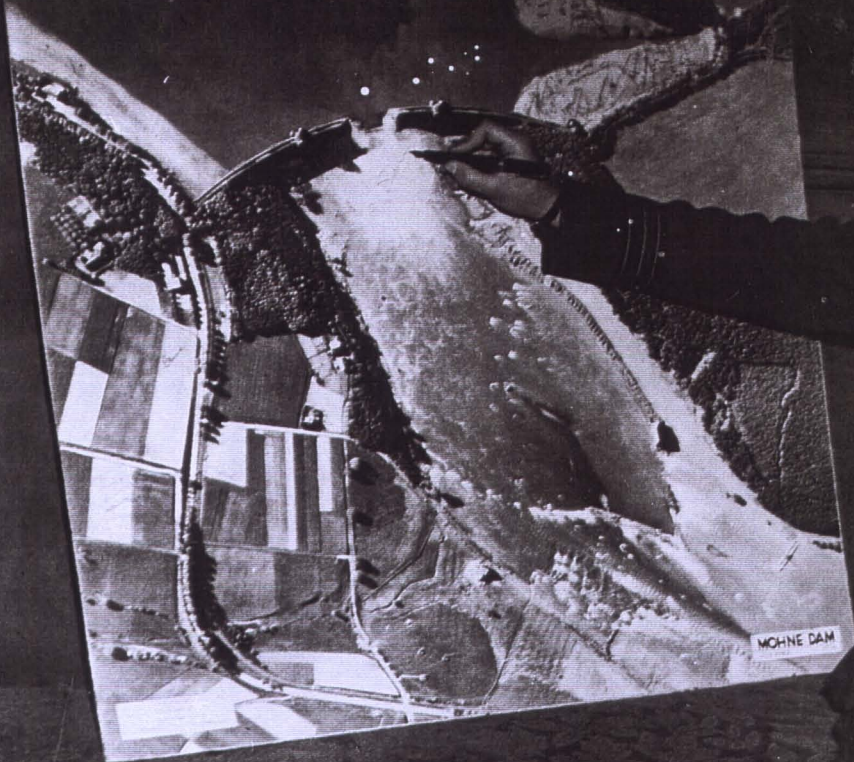
Ordered to attack the Ennepe dam, Townsend also found the target covered by mist. After four attempts the 'Upkeep' was released, but exploded short. With daylight getting dangerously close, he

raced for home. Undoubtedly, Operation Chastise was a success. Two of the primary targets had been breached, resulting in widespread damage from flooding. However, the loss of life suffered by 617 Squadron had been exceptionally heavy. Eight of the nineteen Lancasters failed to return. Fifty-three of the crews lost their lives.

Many gallantry awards were made to survivors of the raid. Wing Commander Guy Gibson DSO DFC was awarded the Victoria Cross for 'his outstanding bravery and leadership during the raid.' The other surviving officer pilots — Knight, McCarthy, Maltby, Martin and Shannon were each awarded the Distinguished Service Order, with Brown and Townsend both receiving the Conspicuous Gallantry Medal. Fourteen Distinguished Flying Crosses and twelve Distinguished Flying Medals were awarded to other survivors of the raid.



● 'Upkeep' trial, April 1943. (BAC via Ken Delve).





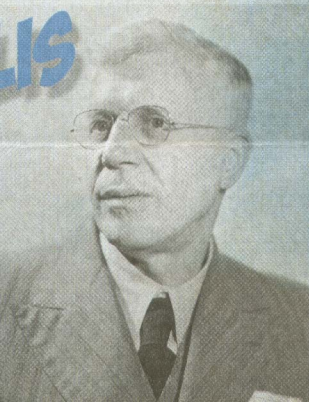




Barnes Wallis.



19



617 Squadron practice dropping the Upkeep weapon at Reculver, Kent. A group of observers watches as the bomb bounces towards the shoreline. Dr Barnes Wallis, on the extreme left of the group, can be seen urging the bomb on.



A photograph of five men in Royal Air Force uniforms. On the left, a man in a flight suit and pilot's cap stands with his arms crossed. Next to him is another man in a flight suit and pilot's cap, smiling. To the right are three more men in flight suits and pilot's caps, standing in a row. The background is a cloudy sky. The title 'OPERATION CHASTISE' is written in large, white, bold, sans-serif capital letters across the bottom of the image, slanted upwards from left to right.

OPERATION CHASTISE



*The breach in the Möhne
dam four hours after
the Dambusters raid.*





