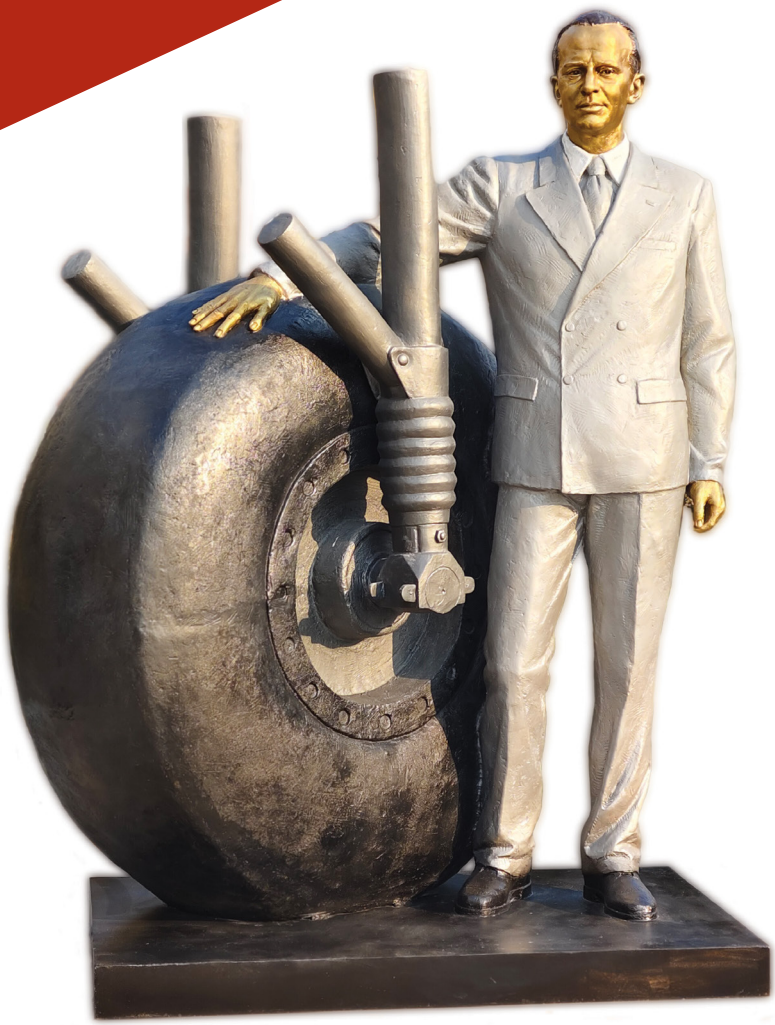
SIR GEORGE DOWTY MEMORIAL COMMITTEE

The Story So Far...
by John Whitaker and Marion Udwin



INTRODUCTION

It gives me huge pleasure and delight to write an introduction for the booklet charting the history of the Sir George Dowty Memorial Committee.

My father was a very reserved person and consequently he did not publicise his huge achievements in life. It has fallen to others to make them known for which l am very grateful.

The phrase ‘a life well lived’ could well have been written for him as this booklet so clearly shows.

George E. Dowty

FOREWORD

The crowning achievement of the Sir George Dowty Memorial Committee to date is erection of a statue of Sir George Dowty . Many eminent authorities believe it to be amongst the finest statues constructed in the 21st Century. It is pictured on the front of this booklet next to his most famous design- a Lancaster Bomber undercarriage. The reverse of this booklet shows the photo which the staue was based upon.

The Lancaster was under the direction of Sir Arthur Harris who was head of Bomber Command. In 1992 his statue was unveiled outside St Clement Danes in the Strand. Then as a tribute to the more than 55,000 crew members of Bomber Command who lost their lives in the Second World War, The RAF Bomber Command Memorial was unveiled by the late Queen Mother in 2021.

Sir Arthur Harris was born in Cheltenham the very town where the Lancaster undercarriage was designed and built. This was one of the major contributions made by Sir George to the war effort and proved to be of sound and rugged design leading to a high degree of reliability and ease of improvement to handle the increasing aircraft weight throughout its service life. Such was the importance of this aircraft, a paper on how it came into being has been included to emphasise the value of all of the team players involved including Sir George Dowty

As well as the many military applications of Sir George Dowty’s designs the multitude of his inventions has resulted in the huge protection of lives- which continues until this very day.

Martin Robins
Chairman, Sir George Dowty Memorial Committee

THE STORY SO FAR...

It all started in January 2022 when Martin Robins, reflecting on nearly fifty years since he joined the company, put together his booklet, "Dowty Days Remembered", recalling some of the key figures in the Dowty organisation:

- **Sir George Dowty**
- **Sir Robert Hunt** *(Group Chairman 1975-1986)*
- **J.C. Bracher** *(Deputy Chairman 1981-1987)*
- **K.W. Browning** *(Personnel Director 1970-1985)*

In October of the same year, Martin organised a reunion of former Dowty employees at Arle Court which had been the headquarters of the Dowty Group from its inception through to 1992. The response was such that the reunion had to be held over two sessions, morning and afternoon. This was billed as a last reunion. As it turns out, this was not a last reunion but a new beginning.

John Whitaker was invited along to speak about his grandfather, A.W. Martyn, the first chairman of Dowty's (1936-1947). His speech ended with his long-held belief that Sir George Dowty had never been accorded due recognition as a brilliant engineer, inventor and businessman, either locally or further afield. Little did he imagine that his comments would set in motion such an avalanche of interest and activity, not only from Dowty ex-employees but from eminent people in all walks of life.

It was decided that a Sir George Dowty Memorial Committee should be formed and that Martin Robins was the ideal person to get this up and running.

Martin was appointed as Chairman and Will Mundy (Dowty Rotol apprentice 1964 and then several key positions until retirement in 2011) and John Whitaker were asked to join the committee.

Martin's first step as Committee Chairman was to ask John Whitaker to write papers on the profound influence of Dowty engineering in the aviation and mining industries. These papers were written with technical input from a number of people with specialised knowledge and were published and then circulated to various influential people, first in Britain, then throughout America and beyond.

The first paper highlighted Dowty's significant contribution to the successful outcome of The Battle of Britain. Naturally, there were many factors involved: the skill and dedication of the pilots and their supporting ground crew, the use of radar and the aircraft design. One aircraft component, the Dowty hydro-pneumatic undercarriage, that was fitted to every Hurricane and Defiant, ensured the safe landing of returning planes, preserving both pilots' lives and the planes themselves. What is more, no plane was ever grounded for lack of spare parts - an extraordinary record!

The Battle of Britain paper was sent to, amongst other leaders in their field, The Chief of the Air Staff, Air Chief Marshall Sir Mike Wigston KCB CBE ADC, now retired. His response, on receiving the paper, was to act immediately and with great conviction. He delegated Squadron Leader W. McMiken of RAF Northolt to support the committee in any way needed, resulting in an invitation to attend an annual MOD event at Cotswold Ariport.

On display in 2023 was a bronze bust of Sir George, owned by his son, that inspired the idea of a much larger, public memorial. Stewart Davies very generously offered to fund not just one, but two identical, larger-than-life statues thereby saving the Committee a long and arduous fundraising task. Within just nine months the idea had become a reality.

Bronze bust of Sir George Dowty

The second paper was to highlight Dowty's involvement in mining, particularly coal mining, in the 1950s. Two people were asked to contribute their knowledge:

- **Allan Wilson C.Eng C.MarEng** who, when employed by the National Coal Board (NCB), had hands-on experience of the Dowty Roofmaster and Pit props
- **Bill Reid**, student apprentice at NCB, roof support engineer across Yorkshire and, now living in USA, founder of CoalZoom.com, an e-magazine for the mining industry with a world-wide circulation in excess of 140,000.

What came to light during research for this paper was the unbelievable reduction in deaths and catastrophic injuries in the mines since the introduction of Dowty hydraulic pit props to replace wooden ones and the Dowty Roofmaster that enables miners to work at the coal face protected by a hydraulic, advancing steel roof.

Bill Reid continues to publicise Sir George's name throughout America, where it is already highly regarded. CoalZoom.com is spreading the word across the world in its serialisation of the Dowty mining paper.

March 2024 saw the publication of "Dowty Group Innovators", compiled by Martin Robins, containing:

- **An Appreciation of A.W. Martyn** (first Chairman) by his grandson, John Whitaker
- **Notes on My Father** by George E. Dowty
- **George E. Dowty's speech** at Cotswold Airport, Kemble in July 2023
- **My C.V.** by Sir George Dowty written in 1972
- **Sir Robert Hunt** as remembered by Martin Robins
- **My Working Life** Sir Robert Hunt's own recollections of working with the Dowty Group
- **Notes on my Father, Robert Hunt** by Lady Jackie Heywood, taken from her speech to Safran in November 2023

These insights into the energy and expertise that these people brought to the company can only serve to highlight the reasons why the Dowty Group was so successful.

In April 2024, Martin organised an organ recital in Pershore Abbey to launch the first, newly-completed statue, believed to be the first of its kind in Britain, with its flesh tones to the face and hands and a light-coloured suit. Pershore Abbey was the chosen venue because Sir George was born in Pershore and had close links with the Abbey, including the funding of the restoration of the organ in memory of his twin brother, Edward, who died in a car accident which George survived.

Edward had been organist at St. John's, Worcester. The recital was performed by the noted organist Simon Bell of Dean Close School, where Sir George had been a Governor.
The statue, created from a 1940's photograph of Sir George standing next to the landing gear of a Lancaster, was revealed by way of a photograph presented to everyone present at the Pershore organ recital on 6th April.

The statue was installed at Glebe Farm, Lower Stanton St Quintin, home of Martin and Eunice Robins, and officially unveiled on 1st June 2024 by James Gray (one-time MP for North Wiltshire). The ceremony was conducted by John Kett-White who had lived at Glebe Farm as a child when his father was stationed at nearby RAF Hullavington. The unveiling was also marked by the "Dowty Flight", a private flypast by two de Havilland Chipmunks, organised by Martin Robins.

Glebe Farm, a private residence, was chosen as the site for the statue where it can be be viewed by the public but protected from vandalism. It is hoped that the second statue, on completion, will be installed in a military museum. Negotiations are underway.

Interestingly, Martin's research revealed a family tie between Sir George Dowty and the Rev. George Dowty (1817 to 1889) who had been rector at St. Mary's Church, in the village of Stockleigh English, Devon in the late 1800s. Sir George had visited the church with his son in the 1970s and was presented with the Reverend's well-thumbed, tattered prayer book which remained in an attic until recently, when it was lovingly restored and gifted back to the church by George E. Dowty. It now stands on the altar in a hand-crafted, oak and glass display case, accompanied by an explanatory notice titled with Rev. Dowty's mantra, "Thankful, Trustful, Hopeful".

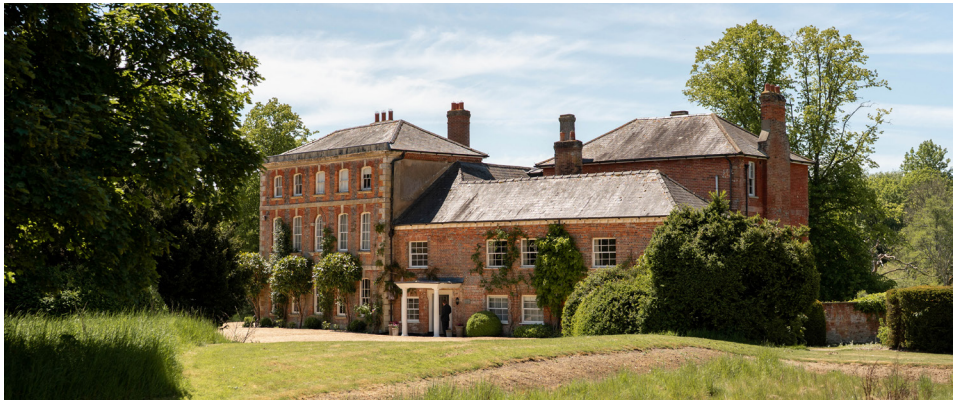
The presentation of the prayer book was combined with the harvest thanksgiving service at the church on 13th October 2024.

Stockleigh English resident and active parishioner, Martin Lamb, is the son of Mrs Christian Lamb, an ex-naval officer, who was recently awarded the Légion d'honneur by the French government for her contribution to the liberation of France in WW2 through her involvement in the planning of the D-Day landings.

On 20th May 2025, Mrs Lamb was invited as guest of honour to the Dowty Annual Luncheon held at Syrencot House, Wiltshire in the very room where Operation Overlord was planned. Martin Robins had contacted the BBC and they considered this event sufficiently significant to send a photographer and camera crew to film and interview Mrs Lamb. The interview was broadcast and added to the BBC news website, further honouring both Mrs Lamb and Sir George Dowty.

At the lunch, grace was said by John Kett-White and speeches were given by Martin Robins and George E. Dowty.

In March 2025 Sir George's diaries from 1919-1975 were brought to light from storage at his son's home and Caroline Flippance, Sir George's last secretary, was asked to transcribe them.
This proved to be a challenging task; some years were missing or dog-eared, and others were difficult to decipher having been written in pencil, now faded, or in Sir George's own shorthand. These diaries, as well as being a valuable historical record, provide a fascinating insight into his energy, dedication and passion for a diverse range of interests in both his business and personal lives.



Top: Syrencot House, Below: Mrs Christian Lamb

On completion, the book "Diaries of Sir George Dowty" was launched on 9th June 2025, at a function held at Worcestershire County Cricket Club, where Sir George had been President (1964 & 1965). The event received extensive press coverage and was widely praised by all who attended.

The launch was attended by several local dignitaries including:

David & Julie Hemmings
(Pershore Mayor & Mayoress)

Matt Lamb (Mayor of Worcester)

Zoe Cookson (Mayoress of Worcester)

Kashan Pervaiz (Mayor of Tewkesbury)
The next event, still in the planning stage, will be a celebration of the 50th anniversary of Sir George's passing.

As can be seen from the timeline overleaf, the George Dowty Memorial Committee, with the assistance of numerous interested and influential people, has achieved so much in such a short space of time. The committee is extremely grateful to these individuals for their considerable contributions. Particular accord should be awarded to its Chairman, Martin Robins, who, through his tireless research, meticulous planning and his extraordinary ability to connect people, places and events and bring them together, has generated a growing interest and promoted Sir George Dowty's legacy across the world.

TIMELINE

Not included in this list are the numerous talks to history societies and press releases, articles, interviews and photographs that have appeared in national, regional and trade media.

JAN 2022

Publication of 'Dowty Days Remembered', including autobiography of Sir Robert Hunt CBE, Group Chairman 1975-86

OCT 2022

Dowty reunion at Arle Court

JAN 2023

Release of 2023 Calendar

APR 2023

Publication of 'Dowty and The Battle of Britain'

JUL 2023

Dowty Memorial Committee and guests invited to Cotswold Airport

NOV 2023

Publication of 'The Contribution of Dowty to the World of Mining'

JAN 2024

Release of 2024 Calendar

MAR 2024

Publication of 'Dowty Group Innovators'

APR 2024

Launch of the Sir George Dowty Memorial Statue at Pershore Abbey

JUN 2024

Official unveiling of the statue at Glebe Farm

JULY 2024

Second Dowty Reunion at Cotswold Airport

OCT 2024

Presentation of the Dowty Prayer Book at St. Mary's, Stockleigh English with accompanying booklet containing a history of the church

JAN 2025

Release of 2025 Calendar

MAR 2025

Transcription and editing of Sir George's diaries

MAY 2025

Dowty annual luncheon at Syrencot House celebrating Mrs Christian Lamb and the 80th anniversary of VE Day

JUN 2025

Launch of "Diaries of Sir George Dowty" at Worcestershire County Cricket Club

JUL 2025

Third Dowty reunion at Cotswold Airport

DEC 2025

TBA. An event to mark the 50th anniversary of Sir George's passing

LANCASTER BOMBER

Foreword

In 1940, Britain was under threat of invasion from Germany which bombed airfields in the South of England in preparation for a landing along the coast. These attacks were not a total success being thwarted by RAF Hurricanes and Spitfires. Hitler then changed tactics and commenced bombing London with the intent of forcing the Country into submission. Despite the damage and thousands of casualties, the nation, encouraged by one of Churchill's memorable speeches[1] on June 4th 1940 was determined to defend its territory and crush the aggressor which, by then, had occupied a large part of Europe. The resistance put up by Britain caused Hitler to postpone the invasion indefinitely but bombing of London and other cities as well as areas involving war production and radar installations, continued. London was under attack until about 6 weeks before the war in Europe ended.

The trials and tribulations that this nation suffered were severe, as those of us who lived through the war years can testify; many sacrifices were made including the ultimate. This applied to many nations cross the World including the civil population of the aggressors, **all to give us the freedom that we enjoy today**.

All the armament that could be mustered to do the job was produced and the technology improved along the way. Much of the technology has been developed further and is accepted as part of our present day lives.

The Lancaster, with its Dowty content, is a well-remembered aircraft of WWII for its operational capability about which, much has been written and publicised on film. The genesis of the aircraft is less well known and this note outlines how it came into being.

The Manchester

In the mid-1930's, Britain was re-arming. In 1936 Air Staff specifications were issued for a four-engined heavy bomber and a twin-engined high performance bomber. Avro[2] elected to propose a design for the twin-engined requirement and Type 679 was submitted in January 1937. It was to be powered by two 1700 s.h.p. Rolls Royce Vulture engines, have a bomb load of 8,000 lb, a cruising speed of 289 mph with a 2,000-mile range and an all-up-weight (AUW) of 37,800 lb. Two prototypes were ordered in April 1937 and a production order followed only two months later. The first prototype flew in July 1939 and the production standard aircraft was delivered to Boscombe Down in August 1940. Now called the Manchester, fitted with a Dowty undercarriage as well as other Dowty equipment, it went into service in November 1940.

Design changes from proposal to entry into service resulted in the early production aircraft having a take-off weight of 50,000 lb, a cruising speed of 245 mph and a range of 1,700 miles. A larger bomb load of 12,000 lb was also feasible but never used.

The Vulture engine proved troublesome from the outset with poor reliability leading to the engine being de-rated. Improvements were made to increase power but in-flight engine failures due to mechanical issues still occurred. However, the Boscombe test data showed the aircraft to compare well with all other contemporary British bombers even the Stirling and the Halifax. Two hundred Manchester bombers were built and entered service.

[1] https://winstonchurchill.org/resources/speeches/1940-the-finest-hour/we-shall-fight-on-the-beaches/

2 Later to be known as HSA Manchester. See also Addendum

Introducing Four Engines

At the same time as Avro was working on the Vulture powered Type 679, it responded to other Air Ministry Specifications but kept working on other engine configurations of Type 679 using two or four engines. In February 1940 a scheme with four Merlin XX engines was produced and the calculated performance was discussed with the air Ministry later that month. In July 1940 the Air Ministry instructed RR and Avro that Merlin XX installation was to take priority over the Vulture powered Manchester. After more high-level discussions that month, Avro was instructed to produce a four Merlin engined Manchester prototype by July 1941.

In 1938 Stuart Duncan Davies left Hawkers[3] where, working for Sydney Camm, he was Project Engineer on the Hurricane. He joined Avro as Assistant designer on the Manchester working for Roy Chadwick. On April 1st 1940, Roy Dobson, General Manager, Avro, appointed S.D. Davies to reorganise the Experimental Shop and to take charge of new developments. On July 31st1940, Roy Dobson informed Stuart Davies that the Ministry had agreed to a prototype version of the Manchester with four engines being built. Work to begin immediately and to be completed by May 31st 1941 with the first to be flight ready in 5 months, i.e. by the end of the year. The plan produced by Davies in 5 days, working with Chadwick, then approved by Dobson, was to use production standard fuselage sections and centre section wing. New outer section wings to increase the span from 90 to 100 ft, new engine sub frames to accommodate the Merlins and undercarriage mountings with the strengthened Dowty Manchester undercarriage. There were other changes associated with the use of four engines The plan showed "cleared for flight" by Christmas Eve 1940. All went well until air raids hindered movement to Ringway and a last-minute instruction to change the type of all the hydraulic-pneumatic couplings, because of unreliability on the Manchester, created a small delay to the original plan. First flight was approved on January 4th 1941 but weather precluded flight until **January 7th**.

The Lancaster

The first flight of the prototype of what was known as the Manchester III showed immediate improvements in take-off performance and handling. The first nine flights were completed in just over two weeks. The name **Lancaster** was formally approved and the aircraft was delivered to Boscombe Down for evaluation on January 28th 1941. A truly remarkable effort of the Avro team. First production aircraft reached the RAF by Christmas 1941 and the first operation was conducted on **March 3/4 1942** just 14 months after the first flight of the prototype

Dowty Equipment on the aircraft included, main undercarriage, retraction jacks and locks, tail wheel structure, undercarriage position indicator, bomb door actuation jacks, flap control unit. This may not be a complete list.

Although some of the missions have been well publicised some other information may be of interest.

There were 200 Manchester bombers in service until 1943 when they were withdrawn. The take-off weight was 50,000 lb, a maximum cruising speed of 245 mph and could carry a bomb load of 8,000 lb with a range of 1700 miles. It was also cleared to carry 10,350 lb of bombs.

There was a total of 7,377 Lancasters built, including prototypes. The initial take-off weight was 60,000 lb and a maximum cruising speed of 260 mph and it could carry a bomb load up to 14,000l lb. The take-off weight was later increased to 63,000 lb. An increase in power enabled another increase in maximum weight to 65,000 lb Towards the end of the war just less than 60 aircraft were modified for special operations and cleared for even higher take-off weights up to 72,000 lb, some of this being structure weight. The Dam Busters aircraft weight was 67,000lb with a 9,250 lb bomb load. Other Barnes Wallis bombs were the Tallboy at 12,000 lb and the Grand Slam at 22,000 lb.

[3]Later to be known as HSA Kingston. See also Addendum

Tallboy needed modifications to the bomb bay because of shape and physical size but could be handled within the maximum weight that had been cleared by Boscombe Down at 68,000lb. Tallboy was used on such missions as sinking the Tirpitz but was first used on June 8th 1944 to bomb a railway tunnel in the Loire Valley. The principal of this bomb was to drop it from high altitude so that the bomb was travelling at supersonic speed on impact and penetrated deep into the earth before exploding to create an earthquake type shock wave.

The Grand Slam was based on the same principal but at 22,000 lb far exceeded the normal max load of the Lancaster and significant modifications were required. To save weight, the nose and dorsal gun turrets were omitted and ammunition for the rear turret reduced. Bomb doors and redundant bomb bay equipment was removed. The undercarriage was strengthened to allow for the increased operational weight and an increased landing weight if the aircraft returned with an un-dropped bomb. The first mission with the Grand Slam was on March 13th 1945 Nineteen aircraft of 617 squadron, of Dam Buster fame, took off heading for Bielefeld railway viaduct in Germany, two loaded with Grand Slam bombs the remainder with Tallboys. Fog over the target meant aborting the mission and no bombs were dropped. The two with Grand Slams returned and with bombs on board landed at RAF Carnaby, near Bridlington Yorkshire where the runway was 9,000 feet long and five times the normal width. This was just less than 3 times the landing run measured by Boscombe down at a similar landing weight. With maximum bomb load and minimum fuel, manoeuvring and gust encounter capability would have been restricted. Landing without damaging the aircraft was due to the remarkable skill of the pilots. The mission was successfully carried out the next day. Before the war ended, just a few weeks later 21 Grand Slams had been dropped in anger

In many ways the Manchester was not a complete failure. A quote from Ref.1: "*The airframe was undoubtedly the most advanced of its kind to have been designed anywhere in the World at that time*". The fuselage and the centre section of the wing were carried through into the Lancaster. Rolls Royce did more development of the Vulture engine and both power and reliability improved. However, the Merlin being needed for the defence of Britain in the Hurricane & Spitfire commanded priority.

A concluding thought-provoking quote again from Ref 1: *However the story is told, it is evident that a successful Manchester programme would have precluded the development of a of a four-engine version. The Lancaster might then never have been built and the Royal Air Force would thus have been deprived of its most potent offensive weapon. This is not to say however, that Roy Chadwick, the Avro Chief designer, would not have wanted to pursue a four-engined design but it is likely that the Air Ministry would have placed its priorities in other directions*.

Addendum

Undoubtedly, almost the entire Avro work force of the time contributed in some way or another to the creation of the Lancaster, many going above and beyond the call of duty but this was the culture in wartime Britain. However, it may be of interest to the reader to know how the careers of the three named individuals in the story, Roy Dobson, Roy Chadwick and Stuart Davies evolved after the war.

Roy Dobson stayed with Hawker Siddeley, the Avro parent, becoming a main board director and eventually Chairman in 1963. He assisted with the moulding of the post WWII industry and was knighted for services to Industry. He retired in 1967 and passed away a year later at the age of 76.

Roy Chadwick went on the develop the Lincoln, York, Lancastrian and Tudor all based on the Lancaster or its derivatives. He was then assigned to lead the development of what was to be the Vulcan bomber.

In August 1947 Roy was tragically killed in an aircraft accident involving a test flight of the prototype Tudor II. Fortunately, Stuart Davies who was also on the same flight escaped. Roy Dobson had planned to be on the flight, backed out at the last minute to take a phone call.

Stuart Davies then took over the reigns as chief designer on the Vulcan Bomber. In 1955 he joined the Dowty Group and was appointed as Managing Director of the recently formed Fuel Systems Company. Three years later he rejoined Hawker Siddeley Kingson as Technical Director. In 1964 he returned to Dowty and was appointed Technical Director, Dowty Rotol. He was awarded the British Gold Medal for Aeronautics in 1958 and made a CBE in 1968. Stuart Davies retired in 1972 but remained a consultant to Dowty for several more years. He passed away in 1994 at the age of 88.

The genealogy of Hawker Siddeley is relevant to the story also. Alliot Vernon Roe founded A.V Roe & Company in 1910 later renamed as Avro Aircraft. Armstrong Siddeley acquired the company in 1928. In 1912 Thomas Sopwith formed Sopwith Aviation and went on to build over 18,000 aircraft for the WWI theatre, However, after the war, punitive taxes nudged the company into bankruptcy. Sopwith's test pilot, Harry Hawker, bought the assets of Sopwith and formed H.G. Hawker Engineering in 1920.

Tom Sopwith became Chairman. In 1933 the name was changed to Hawker Aircraft Ltd. then went on to merge with Armstrong Siddeley and Armstrong Whitworth Aircraft to become Hawker Siddeley Aircraft thus encompassing Avro Aircraft. Hawker had already purchased Gloster Aircraft in 1934. For a while, all companies continued to operate under original names and to produce individual designs although manufacturing was shared. Nationalisation in 1977 followed by de-nationalisation in 1981 eventually led to it all being part of BAE Systems.

The foregoing has been prepared by D G M Davis OBE CEng FRAeSoc. using information from the following references.

1. **The Design and Development of the Avro Lancaster**. A booklet published by the Manchester Branch of the Royal Aeronautical Society to commemorate the 50th anniversary of the first flight on the Lancaster

2. **www.memorialflightclub.com/14-march-1945-first-grand-slam-raid**

3. **Individual Wikipedia web sites on people and companies**

Acknowledgements
Thanks to the Manchester Branch of the Royal Aeronautical Society for permission to use extensive parts of Reference 1.

Author, David Davis

- Joined Dowty Rotol in 1960,
- Dowty Mining 1961-1962
- 1963 Transferred back to Dowty Rotol
- 1979 appointed Technical Director, Dynamics, (the Rotol part of the business)
- Early 1980's was appointed Technical Director Dowty Rotol.
- 1990 Dowty Aerospace reorganised into 5 product focussed business units. Appointed Managing Director Propellers. 1991 Company selected to supply Propellers to Lockheed for the Hercules C130J.
- 1991 Awarded OBE
- Mid 1990's After TI takeover, moved to corporate HQ as Business Development Director
- 1997 Moved to USA and retired 1999