



Records of the British Aviation Industry In the RAF Museum:

A Brief Guide

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Introduction

The RAF Museum holds what is probably Britain's most comprehensive collection of records relating to companies involved in the manufacture of airframes (i.e. aircraft less their engines) aero-engines, components and associated equipment. The entries in this guide are arranged by company name and include a history of each company, particularly its formation and that of subsidiaries together with mergers and take-overs. Brief details of the records, the relevant accession numbers and any limitations on access are given. Where the records have been listed this is indicated. A glossary of terms specific to the subject area is also included, together with an index.

Background to the Collection

The Museum's archive department began collecting records in the late 1960s and targeted a number of firms. Although many of the deposits were arranged through formal approaches by the Museum to companies, a significant number were offered by company staff: a significant example is the Supermarine archive (AC 70/4) including some 50,000 drawings, which would have been burnt had an employee not contacted the Museum.

The collections seem to offer a bias towards certain types of record, notably drawings and production records, rather than financial records and board minutes. This may reflect the circumstances in which the records were acquired (i.e. the fact that the companies had no further need for them) rather than a deliberate decision not to acquire other types of records. The major exception to this situation is the Handley Page files (HP series): after the collapse of the company a consortium comprising the RAF Museum, the Imperial War Museum and Lloyds purchased documentary and other material from the receiver. The administrative and business records were allocated to the RAF Museum, whilst drawings and photographs went to the IWM.

Another explanation for the predominance of drawings amongst the collections is that not only do engineering companies produce large numbers of drawings (ranging from General Arrangements of complete aircraft or sub-assemblies down to detailed drawings of individual components) the drawings themselves are frequently copied. The original draughtsman's drawing would be done on paper, then traced onto linen or film, which would in turn be used for the production of working blueprints or dyeline copies. Some firms then kept microfilm copies of their drawings - many Fairey drawings came to the Museum as large-format microfilm negatives, and the modern standard is 35mm aperture cards. There is thus the potential for several copies of a drawing to be in circulation, and some copies have been donated by individuals rather than by the companies concerned.

Material relating to companies appears among the collections held by other sections of the Museum, notably the Library and the Film Section. Where appropriate, mention of such records is made in this guide. A variety of accession numbering schemes are in evidence, some of which (such as the AC, MPC and HP series) relate to groups of records, whilst others - such as the A, B, L and MAC series - indicate individual items.

Glossary of Terms

Drawing Introduction Sheets - Ledgers giving details of all the drawings associated with a particular aircraft, especially noting changes resulting from modifications.

Drawing Register - List of drawings produced, usually in chronological order, often recording when each drawing was first issued and subsequently replaced by amended drawings.

Type Record - Complete record of all decisions made regarding a particular design, or variant, including all modifications.

Release Note - Certificate stating that the material or component to which it relates complies with appropriate standards and is therefore suitable for use.

Service Reports - Feedback to the company from its representatives, detailing the serviceability state of aircraft with specific units. Presumably analysed to provide data on causes of unserviceability and show where modifications may be needed.

Servicing Instructions - Special instructions for non-routine maintenance, such as inspection of a particular component throughout the fleet after a fault has been discovered.

The British Aircraft Industry: an overview

The first aircraft manufactured commercially in the United Kingdom were primarily intended for sale to private pilots, who flew as a hobby. They included the machines built under licence from the Wright Brothers by the British and Colonial Aeroplane Company, and the designs of Claude Grahame-White. The First World War produced a great demand for aircraft, and many companies' designs - together with those of the Royal Aircraft Factory - were built by subcontractors such as the furniture manufacturers Waring & Gillow, or by the National Aircraft Factories.

Several aircraft manufacturers collapsed after the Armistice, as orders were cancelled. The 1920s and early 1930s were lean years, as the armed services were forced to make do with ageing aircraft despite the rapid advance of technology. A number of take-overs and mergers took place as the industry fought for the relatively few contracts let by the Government. Eventually the threat of war brought about a need for rearmament, and the Royal Air Force embarked on its Expansion Scheme. New aircraft were ordered, and "shadow factories" owned by the State and operated by firms with expertise in related fields - such as the motor industry - were built, both to meet the demand and to disperse the risk of disruption from enemy attack.

During the post-war years the British aircraft industry shrank once more: aircraft were growing more complex and therefore costly to develop and manufacture, and the power of nuclear weapons meant that fewer aircraft were needed to attack the

enemy. The Sandys¹ report of 1957 suggested that no new manned aircraft would be needed, but this was rapidly seen as incorrect. Further contraction of the industry took place in the 1960s, and the ever-increasing cost of aircraft led to collaboration with other countries in projects such as Concorde, Jaguar, Tornado, and the Gazelle, Puma and Lynx helicopters.

Two major groupings took place: the Hawker Siddeley Group was founded in 1934 when Hawker acquired the Gloster Aircraft Company and the Armstrong Siddeley Development Company. Further companies were added in the 1950s, including a number in Canada. The formation of the British Aircraft Corporation in 1960 united most of the remaining airframe companies. The Plowden Committee report on the aircraft industry in 1965² suggested that the Government should acquire shares in BAC and the airframe elements of Hawker Siddeley to make both public and private capital available. The two groups were merged in 1977, together with Scottish Aviation, to form British Aerospace (BAe), effectively nationalising most of the British aircraft and guided weapons industry. A change of government in 1979 led to the privatisation of BAe over the years 1981 to 1985: it has since undergone several reorganisations, with subsidiary companies being sold or merged. Only a few other companies now produce aircraft, notably Shorts and Slingsby, whilst Rolls-Royce is the only British aero-engine manufacturer. The component and service sector of the industry continues fairly well, with expertise in a number of areas such as undercarriages and propellers.

¹ Cmnd 124; Defence: outline of future policy; 1957.

² Cmnd 2853; Report of the Committee of Inquiry into the aircraft industry; 1965.

Section 2

Company Histories and description of records

Changes in the main company's name are shown in bold type: *italic type* indicates companies whose records are also held by the Museum, but this does not necessarily mean that records relating to mergers and take-overs are included.

Some companies produced house magazines, which have been transferred to the Museum Library's Periodicals Collection: these are included in the guide for completeness.

Airspeed Ltd

The company was founded as Airspeed Ltd in York in 1931 by A Hessel Tiltman and Neville Shute Norway, but a take-over by Swan Hunter in 1933 led to the name being changed to Airspeed (1934) Ltd and the business moved to Portsmouth. In June 1940 Swan Hunter's shares were bought by the De Havilland Aircraft Company, and the name of the company reverted to Airspeed Ltd in January 1944. De Havilland bought out the preference shares in 1948 and a merger between Airspeed and De Havilland was announced in June 1951, leading to the formation of the Airspeed Division of De Havilland.

Before the Second World War the company built light twin-engined transport aircraft, one of which - the Envoy - was developed as a multi-purpose trainer for the RAF and renamed the Oxford. Airspeed's other important contribution to the war effort was the Horsa troop-carrying glider. The post-war Ambassador airliner was purchased in small numbers by British European Airways (BEA)

Papers of A Hessel Tiltman, including prospectuses for the original Airspeed Ltd and the Memorandum and Articles of Association of Airspeed (1934) Ltd 1917-1943 (AC 77/26, listed)

Drawings for a range of aircraft, including the Envoy and the projected AS 14 (MAC 10996 - 11030, listed)

Alvis Ltd

Originally a motor car manufacturer, Alvis entered the aero-engine field in 1935. The Leonides air-cooled radial engine was originally designed before the Second World War but intensive work for the war effort slowed its development. The engine did not enter production until the late 1940s but a series of variants was produced, being used in a number of British aeroplanes and helicopters. Alvis did not pursue aero-engine development beyond the 1950s, concentrating on military vehicles, but continued to support the Leonides and carried out overhaul work on Lycoming piston engines. The company later became part of the United Scientific Holdings group.

Drawings for the Leonides series (MAC 58500 - 58570, listed)

Correspondence from the office of the Chief Engineer, Aero Division (Mr A F Varney) and lists of modifications to Leonides engines (AC 90/10)

Sir W G Armstrong Whitworth Aircraft Company Ltd

Armstrong Whitworth acquired the shares of Siddeley Deasy - an aero-engine manufacturer - in 1919, and the Armstrong Whitworth Development Company Ltd was registered in May of that year. It was a subsidiary of Armstrong Whitworth, with its own subsidiary - Armstrong Siddeley Motors Ltd. In April 1920 this company proposed to the main board that a subsidiary company should be formed to continue work on aircraft, and the Sir W G Armstrong Whitworth Aircraft Company Ltd came into being shortly afterwards.

The company made many advances in metal construction and by 1925 the Development Company was prospering. John Siddeley objected to the profits being used to subsidise Armstrong Whitworth's other companies and in December 1926 bought the Development Company from the parent firm, resulting in a change of name to the Armstrong Siddeley Development Company. In 1935 Hawker purchased all the shares of this company, forming the Hawker Siddeley Aircraft Company Ltd (later the Hawker Siddeley Group Ltd) a holding company with shares in Hawker Aircraft Ltd and The Gloster Aircraft Company, together with Avro and Air Service Training.

In October 1961 the merger of the Sir W G Armstrong Whitworth Aircraft Company Ltd and the Gloster Aircraft Company brought the formation of a new concern within the Hawker Siddeley Group, known as Whitworth Gloster Aircraft Ltd. Two years later, further consolidation led to it becoming the Avro Whitworth Division of Hawker Siddeley Aviation.

Drawings for the AW 52, Albemarle, Argosy, Ensign, Siskin and Whitley (MAC 048025 - 048847, listed)

Drawings for the AW 27 (MAC 11031 - 11043, listed)

Drawing Registers (unaccessioned)

House magazine in the library collection:
A W Affairs 1950-1957

Bristol Aeroplane Co.

The company name was first registered in 1910 by Sir George White, his brother Samuel and his son George, but it was not used until 1920 when the assets of the British and Colonial Aeroplane Company Ltd (another of the Whites' companies) were transferred to it. An engine department was also formed in 1920. Shares in the Bristol Aeroplane Company were offered in 1935 but it was restructured in July 1944 with three divisions: Aircraft, Aero-engines and Armament. In 1956 the first two became Bristol Aircraft Ltd and Bristol Aero-Engines Ltd respectively, still owned by the Bristol Aeroplane Company Ltd. The former became part of the British Aircraft Corporation in June 1960. Bristol Aero-engines Ltd merged with Armstrong Siddeley Motors to form Bristol-Siddeley Engines Ltd - owned by the Bristol Aeroplane

Company and the Hawker-Siddeley Group - in April 1959: it was later bought by Rolls-Royce.

Drawings, papers & photographs 1912-1963 (AC 72/3, listed)

Drawing Registers, H series, c.1950s, relating to the Belvedere helicopter (AC75/29, listed)

Drawings for the Bulldog (MAC 037597 - 039999 and 041631 - 045413, listed)

Blenheim test reports, Lecture notes on the Britannia's airframe and systems, photograph albums and press cuttings (AC 76/23, listed)

Type records for several variants of the Britannia and Type 170; drawings for other Bristol aircraft 1920s-1960s (AC 79/2)

Specification for the Type 152, tenders for Air Ministry Specifications issued in 1935 & 1936, Type Record for the Beaufighter (AC 75/4, listed)

Flying logbooks of C F Uwins: Chief Test Pilot 1919-c.1949 and later Managing Director of the Aircraft Division (B1025 - 1035, listed)

House magazines in the library collection:

Bristol Quarterly 1953-1958

Bristol Review Spring 1958-Spring 1959

British Aerospace

In April 1977, as a result of the Aircraft and Shipbuilding Industries Act, ownership of the British Aircraft Corporation, Hawker Siddeley Aviation, Hawker Siddeley Dynamics and Scottish Aviation was vested in a corporation called British Aerospace. The change of government in 1979 led to a move to denationalise the company and shares in British Aerospace plc were offered in February 1981, with the final tranche of shares being offered in 1985. During the 1980s and 1990s the company was restructured several times and a number of elements were sold.

Drawings for the conversion of the Vulcan bomber to a tanker c.1982 (MAC 035976 - 036056, listed)

Cierva Autogiro Ltd

Don Juan de la Cierva pioneered the autogyro in Spain, but an order from the Air Ministry led to the formation of a British company to hold patents and grant licences. The company moved to Hanworth (Middlesex) in 1932, where a training school was formed. The company chairman, Air Commodore J G Weir, had his own company concentrating on helicopters and in 1943 the Cierva company merged with G & J Weir to form Cierva Rotorcraft Ltd. This company was still trading in 1983, producing a light helicopter and windmills, but seems to have ceased trading.

Papers of R A C Brie, former chief pilot (A510 - 511 and B1240 - 1385, listed)

De Havilland Aircraft Company Ltd

The company was formed at Stag Lane, Edgware, in 1920 building light aircraft, trainers, racing aircraft and an airliner before moving to Hatfield, Hertfordshire in 1934. A factory at Hawarden, near Chester, was taken over from Vickers-Armstrongs in 1948 for aircraft production. Separate companies were formed to manufacture engines and propellers, and a parent company - de Havilland Holdings - was formed in 1955. This in turn became the de Havilland Division of the Hawker Siddeley Group in January 1960.

Drawings for the DH 9 (MAC 10251 - 10256, listed)

Film - mainly raw camera footage, but including some finished publicity films, 1930s-1950s (FC 95/170-286, listed)

House magazine in the library collection:

D H Gazette June 1937; December 1938-May 1939; April 1948 & February 1949-August 1961

Fairey Aviation Company

The company was formed in 1915 and built aircraft at Hayes and at Hamble. The slump in the aircraft industry led to the formation of Fairey and Charles, producing motor-vehicle bodies but the main business carried on and a public company - the Fairey Aviation Company Ltd - was registered on 5 March 1929. It developed the Great West Aerodrome at Harmondsworth, Middlesex, and expansion of the aircraft industry in preparation for, and during the Second World War led to the company operating factories at Hayes, Stockport, and Errwood Park, together with plants at Longbridge, Hamble, Weybridge, Ringway and Burtonwood. The development of Heathrow Airport led to a move from the Great West Aerodrome to White Waltham near Maidenhead.

In March 1959 a new parent company, the Fairey Company Ltd, was formed as a holding company with a number of subsidiaries including Fairey Aviation Ltd. Pressure from the government led to the latter being bought by Westland in May 1960.

Minutes of Board Meetings of the Fairey Aviation Co. Ltd. and the Fairey Company Ltd. March 1929-February 1947 and January 1949-December 1970 (unaccessioned)

Drawings, photographs, type records, Drawing Introduction Sheets, press cuttings (AC 73/30, listed)

Microfilm copies of annual reports & balance sheets, 1929, 1930, 1938, 1958, & 1961 (M10,176, listed)

Microfilm copies of reports on the Prince aero engine, and the company's responses to Air Ministry specifications for a variety of aircraft, c.1925-1950s (M10,177 - 10,179)

& M10,199 - 10,287 listed)

Film - largely raw camera footage, 1950s, including the Fireflash missile, the Rotodyne, Gyrodyne and Fairey Delta (unaccessioned)

House magazine in the library collection:
Fairey Affairs June 1945-Christmas 1954

Fane Aircraft Company

Captain Gerard Fane set up the Fane Aircraft Company at Norbury, London. Only one aircraft was produced - an Air Observation Post (i.e. artillery spotting) design, to Air Ministry specification F.1/40 - which first flew in 1941 but did not enter production.

Drawings of the Fane F.1/40, correspondence with engine manufacturers (AC 76/7)

Flight Refuelling Ltd

Alan (later Sir Alan) Cobham was a pioneer aviator whose company Alan Cobham Aviation Ltd helped to popularise aviation and also conducted trials on the refuelling of aircraft in flight. In 1934 the name of the company was changed to Flight Refuelling Ltd. Flight Refuelling (Holdings) Ltd was formed in May 1955 and acquired a number of other subsidiary companies in diverse fields. It became the Flight Refuelling Group plc in 1985 but to reflect the group's widespread interests the name was changed in 1994 to Cobham plc.

Files relating to the development of flight refuelling equipment for various aircraft, 1950s - 1970s (Unaccessioned)

Publicity film on the history of refuelling in flight (FC 78/45)

House magazine in the library collection:
FR Summer 1963-Spring 1968

Gloster Aircraft Company

Originally registered as the Gloucestershire Aircraft Company on 5 June 1917, the company was owned jointly by George Holt Thomas's Airco and H M Martyn. The Armistice brought the cancellation of large numbers of contracts and the GAC acquired the design rights of the Nieuport Nighthawk fighter. Nieuport's designer Harry Folland became the chief engineer in 1921 and over the next 14 years developed a series of biplane fighters.

In 1926 the company name was changed to the Gloster Aircraft Company, apparently to help overseas customers and in 1927 it acquired the Steel Wing Company. In May 1934 Gloster was taken over by Hawker, becoming part of what would become the Hawker Siddeley Group. It built many of its parent company's designs but won contracts for Britain's first jets : the E.28/39 which tested Sir Frank

Whittle's engine, and the Meteor which was the first Allied to jet to see service. Later marks of Meteor were built by Armstrong Whitworth, whilst Gloster concentrated on the Javelin fighter. It was absorbed into the Whitworth Gloster division of Hawker Siddeley in 1961.

Drawings for the Gamecock (MAC 013456 - 013471, listed)

Drawings for the Gauntlet and Gladiator (MAC 036057 - 036074, listed)

Photographs, glass negatives and reports (AC 71/15)

Service reports, servicing instructions and other papers of Mr F C Cook, former technical representative, c.1941-1960s (AC 78/24)

Production data, Meteor and Javelin (AC 74/28)

Microfilm copies of Meteor and Javelin drawings (AC 92/11)

House magazine in the library collection:

The Gloster 1925-1929

Grahame-White Aviation Company

Claude Grahame-White founded a flying school at Pau in France before purchasing land at Hendon and developing the London Aerodrome in 1910. In addition to training service and civilian pilots the company built aeroplanes of its own design and, during the First World War, other designs under licence. Another victim of cancelled contracts after the Armistice, the company branched out briefly into motor vehicles and furniture manufacture but went into receivership in February 1924.

Photograph albums of the factory and the Hendon aerodrome, albums of press cuttings, fragmentary correspondence and other papers re the company and the Hendon aerodrome. (A301 - A316 and B700 - B802, listed)

Handley Page Ltd

The world's first public company solely for the construction of aeroplanes, it was founded by Frederick (later Sir Frederick) Handley Page in 1909. In addition to manufacturing aircraft, the company also had interests in airlines, forming Handley Page Transport Ltd in June 1919 and bought the Aircraft Disposal Company in 1920. A factory and aerodrome were built at Cricklewood during the First World War but the encroachment of housing onto the site forced flying activities to be moved to Radlett, Hertfordshire in 1929.

In June 1948 Handley Page (Reading) Ltd was formed to take over the former Miles factory and that company's projects, but production was slowly transferred to Cricklewood and the Reading site closed on 31 March 1963. Sir Frederick was fiercely independent, refusing government pressure to merge. After his death in 1962 the firm had financial trouble and Handley Page Ltd went into voluntary liquidation in

August 1969. A rescue bid was mounted, with the aim of forming Handley Page Aircraft Ltd to build the Jetstream, but this failed and on 27 February 1970 a winding up order was issued.

Papers from Sir Frederick Handley Page's private office (AC 70/10, listed)

Company files 1909-1970 (HP series, part listed)

Papers of G C D Russell, Chairman and Managing Director, 1962-1965 (AC 71/21, listed)

Halifax drawings (MAC 11242 - 11278)

Hawker Aircraft Ltd

The Sopwith Aviation Company went into receivership in September 1920 but the directors quickly formed a new company to purchase the Sopwith patents. This was registered in November 1920 as the H G Hawker Engineering Company Ltd - named after Sopwith's test pilot. By 1933 the company had grown, partly due to the production of its Hart bomber under licence, and it was decided to float a new company, Hawker Aircraft Ltd. Within a year it had purchased the Gloster Aircraft Company and announced plans to form a trust to acquire the Armstrong Siddeley Development Company: this would lead to the formation of a public holding company, the Hawker-Siddeley Aircraft Company Ltd.

The holding company bought out the remaining shares in Hawker Aircraft Ltd in 1937 and was renamed Hawker Siddeley Aviation Ltd in 1965: HSA was absorbed into British Aerospace in 1977.

Drawings and photographs 1920s-1970s (AC 92/11)

Drawings for the Hawker P1127 (MAC 11279 - 11400)

Microfilm copies of Flight Test Register and test reports 1931-1954 (MF10093/8)

Irvin Great Britain

Leslie Irvin founded the Irving (sic) Air Chute Company in the United States in 1919, and opened a factory in Letchworth in 1926. The British company is now part of the Hunting Group and, in addition to parachutes, builds inflatable structures.

Documents relating to the manufacture of the parachute used by HRH the Prince of Wales on 28 July 1971, primarily Release Notes and a list of staff involved (AC 77/3)

Parachute drawings (AC 77/4)

Miles Aircraft Limited

F G Miles and his brother George built their first aircraft, the Gnat, in 1926 and founded the Gnat Aeroplane Company at that time. They also set up the Southern Aero Club Ltd and Southern Aircraft Ltd, the latter's business being primarily the rebuilding and repair of light aircraft, although another Miles design - the Southern Martlet - was built by the company. In 1932 the brothers approached Phillips & Powis, a Reading-based motor dealer which also ran a flying club and aircraft repair business, to build his Hawk design. This proved successful: Powis bought out Phillips' share of the business, and F G Miles joined the staff of the company.

In 1936 Phillips & Powis was floated, 125,000 shares being purchased by Rolls-Royce: F G Miles became Managing Director. Five years later Rolls-Royce sold its shares to F G Miles, his wife and George Miles and the company name was changed to Miles Aircraft Ltd in 1943.

Although the company had been successful in the period up to 1945, winning large orders for training aircraft, severe financial difficulties were experienced in 1946 and 1947. A receiver was appointed in November 1947. An agreement with Handley Page to take over the company's aircraft business was reached in 1948, resulting in the formation of Handley Page (Reading) Ltd. Other products in which Miles had interests, including photocopiers, bookbinding machinery and Biro pens, were taken over by the Western Manufacturing Estate Ltd, which later merged with the Adamant Engineering Company Ltd. Adamant Western became the Adwest Group Ltd on 31 October 1963.

House magazines in the library collection:

Miles Magazine 1938 & 1946-1947

Milestones 1946

The following records are copies of material held by the Adwest Group, from whom permission must be obtained before copies are supplied to researchers.

Drawings for Miles aircraft of the inter-war period (MAC 053052 - 054412, listed)

Video copies of film shot by the company's film unit, 1940s - mainly raw footage of aircraft trial, but including some factory scenes and newsreels (unaccessioned)

Morris Motors Ltd

Osberton Radiators, founded in 1919, was purchased in 1923 by Morris Motors. It was sold to a holding company, Morris Motors (1926) Ltd three years later and became Morris' Radiator Branch. The company was approached by Rolls-Royce in August 1939 to make radiators for its Merlin aero-engine and later developed a range of heat exchange equipment for aircraft and military vehicles. The parent company was absorbed into the British Motor Corporation in 1952.

Radiator drawings (MAC 013758 - 014641, listed)

Pemberton-Billing

Noel Pemberton-Billing decided in 1913 to build flying boats: his company produced several designs - including landplanes - but when he stood for Parliament in 1916 Pemberton-Billing sold his interest in the firm, which became the Supermarine Aviation Works Ltd.

Drawings for the PB 25, 25E, 29E and 31 (MAC 045685 - 046584, listed)

Brochure, c.1914 (B3501)

Redifon Flight Simulation Ltd

The electronics group Rediffusion had a Flight Simulation Division by 1971, together with a separate firm Redifon Air Trainers Ltd. The two seem to have merged and by 1974 Redifon Ltd - a holding company - owned Rediffusion Flight Simulation Ltd. The name of this company changed frequently, becoming Redifon Simulation Ltd by 1979 and - by 1983 - Rediffusion Simulation Ltd. A link with the American firm Hughes led to its current incarnation as Hughes Rediffusion Simulation.

Drawings for Britannia & Comet flight simulators (unaccessioned)

Rose Brothers (Gainsborough) Ltd

William Rose developed a bombsight during the First World War, but it was not put into production. During the Second World War the company designed and developed a rear gun turret for the Lancaster, armed with .5" Browning machine guns, which replaced the earlier Frazer Nash turret. The company is now Rose Forgrove Ltd, and mainly manufactures wrapping machines, although some specialised work is undertaken for the aviation industry.

Patent specifications and related drawings for the Rose Bombsight, c.1917 (AC 76/5)

Pictorial record of the development of the Rose gun turret (V011304)

Short Brothers Ltd

Eustace, Oswald and Horace Short took up ballooning in the 1890s and began manufacturing balloons in 1902. The company was formed in 1908 in Battersea, and aeroplanes were first built in 1909. A factory at Rochester, Kent was opened in late 1914 over the next 25 years the company grew steadily, producing a long succession of flying boats including the Empire boat for Imperial Airways and the RAF's Rangoon, Singapore and Sunderland. Landplanes included the Stirling heavy bomber.

In 1934 the company took a majority holding in Pobjoy, an engine manufacturer, forming Pobjoy Aircraft and Airmotors which built the Short Scion light transport under licence. Another subsidiary, Short & Harland Ltd - owned equally by Short Brothers and Harland & Wolff - was established in 1936 with a factory in Belfast. Management of the firm was taken over by the Government in 1943, Short Brothers being merged with Short & Harland in November 1947 to form Short Bros. &

Harland. Production was then concentrated on the Belfast site, with Rochester closing in 1948. In the 1950s the firm built a number of prototypes for projects which were not developed, building other companies' designs under licence. A series of transport aircraft were built in the 1960s and 1970s and the company also developed expertise in the design and production of anti-aircraft missiles and remotely piloted vehicles.

Renamed Short Brothers Ltd in 1977, the company became a public limited company in 1984. It was purchased by the Canadian firm Bombardier in June 1989.

Type records for the Sunderland, C-class flying boat and Stirling (AC 93/9, listed)

Drawing schedules for the Sperrin, photograph albums c.1909-1980s (AC 94/40, listed)

Correspondence regarding the purchase of patent rights in H R Busteed's emergency flotation gear for aircraft 1918-1932 (B1466)

House magazines in the library collection:

Short Story 1946-1962 & 1972-1986

The Short Story News-Gazette January-May, 1947

Shorts Quarterly Review 1951-1965

Sopwith Aviation Company

T O M (later Sir Thomas) Sopwith was one of Britain's pioneer pilots and formed the company in 1912. Its designs were produced in large numbers during the First World War but, ironically, a large claim from the Treasury for Excess War Profits Duty led to the firm going into voluntary liquidation in 1920. It was re-formed later that year as the H G Hawker Engineering Company Ltd. See also entry for Hawker Aircraft Ltd.

Drawings and photographs, c.1914-c.1918 (AC 92/11)

Copies of Sopwith Triplane drawings (MPC 71/12, listed)

Copies of Sopwith Baby drawings (MPC 74/33, listed)

Supermarine Aviation Works (Vickers) Ltd

"Supermarine" was the telegraphic address of Pemberton-Billing Ltd: when Noel Pemberton-Billing sold his interest in the company in 1916 it was renamed the Supermarine Aviation Works Ltd. Most of the company's products prior to 1936 were flying boats or seaplanes, but the series of seaplanes designed for the Schneider Trophy contests of 1927, 1929 and 1931 paved the way for the famous Spitfire fighter. In 1928 Vickers acquired Supermarine's equity, resulting in the name Supermarine Aviation Works (Vickers) Ltd: this was taken over by Vickers-Armstrongs in October 1938, when the company became Vickers-Armstrongs Ltd (Aircraft Section) (Supermarine Division). The expansion of the

aircraft industry in readiness for the Second World War brought new factories at Long Marston, near Swindon and at Castle Bromwich near Birmingham, whilst design work and administration was dispersed to a number of sites to reduce the threat from enemy attack.

Drawings, specifications, Drawing Introduction Sheets, technical manuals and series of reports issued by the Aeroplane and Armament Experimental Establishment and the Marine Aircraft Experimental Establishment. (AC 70/4, listed)

Papers collected by E J Davies, whilst a designer with the company (AC 93/1, listed)

Indexes to Technical Office reports 1925-1946 (B257 - 258, listed)

Plans of works and schedules relating to requisitioned property, 1939-1951 (B258 - 264 & B266, listed)

Charts illustrating monthly production of Spitfire and Seafire aircraft, 1938-1943 (L35, listed)

Papers of R J Mitchell, former Chief Designer - mainly commemorative: include photographs of Schneider Trophy aircraft and teams. (AC 72/24, listed)

House magazine in the library collection:

Vickers & Supermarine Aviation Bulletin No 3 (1931) only.

Vickers Ltd

The armament firm Vickers, Son and Maxim Ltd received a contract from the Admiralty in 1908 for the construction of an airship. This led to the formation of Vickers' aviation department at Brooklands in 1911, a factory being opened at Erith in Kent. A further factory was opened at Weybridge in 1915 and the business grew during the First World War. In 1925 a subsidiary company was formed to exploit the rights Vickers had in patents granted to Michel Wibault.

Vickers merged with Armstrong Whitworth in 1928 (although the Sir W G Armstrong Whitworth Aircraft Company Ltd was not part of the merger) to form Vickers-Armstrongs Ltd. This new company then acquired Supermarine. In 1954 Vickers-Armstrong formed a subsidiary, Vickers-Armstrong (Aircraft) Ltd to handle its aircraft business, and this became part of the British Aircraft Corporation when that company was formed in 1960. Vickers retained a 40% share of BAC.

Photographic negatives of illustrations from technical manuals for aircraft produced by the company (AC 77/5 & AC 77/11)

Papers of Sir Barnes Wallis (A1235 - 1248 & B3246 - 3257, listed)

Drawings for projects associated with Sir Barnes Wallis, 1940s-1950s (AC 71/26)

Film - raw footage of trials of "bouncing bombs" and the Swallow and Wild Goose variable-geometry aircraft (unaccessioned)

Arch file containing correspondence regarding wind tunnels, 21 August 1953-16 December 1958 (AC 76/33)

Photographic negatives of illustrations from technical manuals for aircraft produced by the company (AC 77/5)

Westland Aircraft Ltd

Petters Ltd received a contract from the Admiralty to build aircraft and opened the Westland Aircraft Works at Yeovil in 1915, initially building other companies' designs but later being given design tasks such as the development of the DH9A from the DH9. In July 1935 the aircraft department became a separate company, Westland Aircraft Limited and in July 1938 the John Brown shipbuilding group purchased most of the shares, the remainder being bought by the electrical group AEI. Much of Westland's work revolved around the production and modification of other companies' designs, but a number of the company's own aircraft were produced such as the Lysander and Whirlwind. Many, such as the Pterodactyl, failed to progress beyond the prototype stage.

In April 1946 a wholly-owned subsidiary - Normalair - was formed to produce air control equipment, and an important step was taken in 1946 with the negotiation of a licence to build helicopters designed by the American company Sikorsky. This led to Westland becoming Britain's prime helicopter company and, in addition to the Sikorsky designs, Westland participated in a number of international helicopter projects. In 1959 the company bought Saunders-Roe and in the following year both Bristol Helicopters Ltd and Fairey Aviation Ltd, resulting in a four-division structure reflecting the original firm (the Yeovil Division) and the three acquisitions. Westland had a 65% stake in the British Hovercraft Corporation, formed in October 1966. Westland Helicopters Ltd was also formed in 1966 as a wholly-owned subsidiary of the parent firm, to handle the helicopter business of the group.

In the early 1980s Westland bought the US firm Airspur Helicopters Inc, renaming it W30 Hel Inc. A financial reconstruction in 1986 brought about the sale of significant numbers of shares to United Technologies and Fiat, the latter selling its shares to GKN in 1988.

Drawings, largely for the Wapiti (MAC 010262 - 010580, listed)

Papers (mostly letter books) of H E T Saint, Westland representative at the Aeroplane and Armament Experimental Establishment, Boscombe Down, 1939 - 1944 (B214 - B236, listed)

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