

**The Development of Aviation Museums in
the United Kingdom**

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Frontispiece



This photograph in the Royal Aero Club's archive, evidently from before the First World War, has on the reverse 'Colindale Avenue Museum'. It probably reflects a local entrepreneur's attempt to exploit interest in the local Hendon aerodrome, which was established in 1910. (RAF Museum, X008-4039)

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Abstract

The thesis is the first investigation of the ways in which national museums, the Royal Air Force and volunteer groups have preserved the United Kingdom's aeronautical heritage. It is focussed primarily on the period from the 1960s to 2020, but also examines the ways in which the Science Museum and Imperial War Museum covered aeronautics from 1912 and 1917 respectively.

Data was gathered using questionnaires and a biennial directory to chart the growth in museums, while interviews with those involved aimed to explore their motivation and the origins of their organisations. Archive research at the National Archives and the Air Historical Branch reveals official policy and attitudes towards aviation history and the disposal of redundant aircraft.

The thesis takes a multi-stranded approach to the history of the development of aviation museums in the UK. It argues that the lack of a national aviation museum is primarily due to economic factors and political decisions regarding funding. It first explores the role of wealthy collectors who restore and fly historic aircraft, arguing that this has led to a small industry providing aircraft for films and air displays. It then investigates the factors that inspire and motivate the enthusiasts who run most of the museums. Two important factors were encounters with aircraft at an early age, and the experience of the materiality of aircraft. The thesis examines the motivations of volunteers in other fields, including social interaction with fellow enthusiasts, using their existing skills and learning new ones, and a change from their paid work. The growth of aviation museums is analysed and compared with two other volunteer-led sectors: canal restoration and heritage railways. A detailed analysis is given of the

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Ministry of Defence's and RAF's policies on the selection of historic aircraft for preservation, and the disposal of redundant assets. It shows that aircraft selected for preservation at the end of the Second World War were primarily the fighters representing the RAF's victory in the Battle of Britain, which would emphasise the need for strong air defence in the years that would follow. The lack of a formal policy enabled RAF stations to display redundant aircraft and the fleet grew until reviews in 1972 and 1987 curbed expansion.

Case studies set out the involvement of the Science Museum and Imperial War Museum in aircraft preservation, showing that an opportunity existed to create a national aviation museum in the 1920s but was lost. After describing the role of national museums, the thesis examines such museums in other countries. A detailed examination is then made of the attempts to form a national museum for the United Kingdom and the arguments made by the Treasury and other government departments. Analysis shows that economic factors were never favourable, that the Treasury opposed new museums, and that the RAF and the Office of Arts and Libraries had strong reasons for opposing the last attempt in the 1980s. The thesis concludes that the UK has played an important role in the development of aviation. It makes a case for recognition of this role through the designation of significant aircraft that are held by various national and volunteer-run museums, appropriately supported, rather than by creating a new national museum.

Chapter 1 – Introduction and Scope

This thesis investigates the way in which the United Kingdom's aviation heritage has been preserved by national and volunteer-run museums. It is the first study to examine the growth of aviation museums, which have grown in number from 7 in 1961 to 104 in 2020. Whilst the UK has national museums devoted to other forms of transport, there is no national aviation (or aerospace) museum. Attempts to create one were made in the 1930s, 1950s and 1970s, and have largely been forgotten. Until the outbreak of the Second World War the Science Museum and Imperial War Museum [IWM] were the only official bodies preserving aircraft, but they had different roles and both were constricted by space in which to store and display their collections. The RAF tried to set up its own museum in the 1930s; it built up a collection during the Second World War, which grew in the following years but had to be culled in the 1980s and 1990s. The study describes these efforts and sets out the reasons for their failure, not least of which was the hostile attitude of Treasury officials in the 1950s. It argues that while the RAF's strategy to raise its profile in the 1930s through record-breaking flights and air displays is well known, historians have hitherto failed to see the attempts to set up an Air Services Museum as another strand of this strategy. The thesis also throws light – for the first time - on the way in which government policy has limited the preservation of historic aircraft by the Royal Air Force and restricted the availability of redundant aircraft for preservation by individuals and volunteer groups. Since the 1930s a small number of private individuals have built up collections of aircraft, usually aiming to fly them for their own pleasure and in air displays. The study draws comparisons with the growth of canal restoration and preserved railways, both of which also rely heavily on volunteers. This thesis explores the factors that motivate collectors, and argues that not only did

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the early collectors pave the way for volunteer-run aviation museums, but since the late 1970s collectors have fuelled the development of an industry which restores historic aircraft and flies them in displays and for films.

The secondary literature on museum history tends to concentrate on museums funded by national and local government, with relatively little on independent museums, perhaps because these have only relatively recently formed a significant sector of the museums community. A notable exception is the material produced by the *Mapping Museums* project led by Fiona Candlin, which has documented the growth in museums of all types in the United Kingdom between 1960 and 2020. Candlin's particular focus is on small museums - their origins, their founders' motivation, and their collections.¹ She points out that 'small independent museums generally fell below the scholarly radar.'² This study has examined a very precise section of the spectrum of museums studied by Candlin and her colleagues. The growth of 'heritage' sites/centres in the 1980s and 90s generated debate regarding their role: were they museums, or attractions capitalising on nostalgia? Anna Woodham discusses these issues further, pointing out that many independent museums have been categorised as "heritage" sites rather than museums.³ Chapter 5 explains how several aviation museums came to be formed for the preservation of aircraft that were at risk of being scrapped. Successive governments in recent decades have encouraged national and local government museums to move away

¹ Fiona Candlin, *Micromuseology: An Analysis of Small Independent Museums* (London: Bloomsbury, 2016).

Fiona Candlin, Toby Butler, and Jake Watts, *Stories from Small Museums* (Manchester: Manchester University Press, 2022).

² Candlin, Butler, and Watts, p.5

³ Anna Woodham, 'Museum Studies and Heritage : Independent Museums and the "Heritage Debate" in the UK', in *A Museum Studies Approach to Heritage*, ed. by Sheila Watson, Amy Jane Barnes, and Katy Bunning (London: Routledge, 2018), pp. 29–43.

from their traditional funding sources, and to take advantage of the increasing numbers of retired people available as volunteers to help paid staff. As a result, much of the UK's aviation heritage is being cared for by volunteer-run museums. The number of people of pensionable age is forecast to increase by nearly 50% between 2020 and 2045 (from 11.9 million to 15.2 million).⁴ A case is therefore made for greater recognition of, and support for, the role played by aviation museums that are run by volunteers.

Volunteers now play a key part in a wide range of heritage organisations, and this study uses the term “volunteer-run museum” in preference to “independent museum” since some members of the Association of Independent Museums are managed by professional staff. Some of the larger museums – such as Aerospace Bristol and the Newark Air Museum – do employ staff, either in management roles or into ensure that functions can continue at times (such as mid-week) when fewer volunteers are available, but volunteers are involved in all the museums studied. This study has examined – in addition to the growth of volunteer-run aviation museums – the way in which volunteers have taken over responsibility for nationalised waterways, initially by campaigning, then working to clear debris, rebuild derelict locks etc. ‘Heritage railways’ rely heavily on volunteers for the restoration and operation of redundant locomotives and rolling stock, mostly to facilitate the experience of steam-hauled rail travel, although diesel locomotives also have their devotees. In the same way that aviation enthusiasts took action to preserve aircraft that had been made redundant

⁴ Office for National Statistics, *National population projections 2020-based interim*, [online], Figure 4, Available from <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2020basedinterim>, Accessed 21 August 2023

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by newer types, the initial impetus for heritage railways came from the replacement of steam locomotives by diesel and electric traction.

The main focus of this research is on three questions:

- Why and how has the number of aviation museums – mostly run by volunteers – increased? Hypotheses developed early in this study suggested that factors such as increases in disposable income and leisure time might have enabled enthusiasts to afford to purchase aircraft and spend time restoring and exhibiting them.
- How has the collection and preservation of aircraft been affected by the policies of Government and the RAF?
- Why have attempts to create a national aviation museum for the United Kingdom failed? There are such museums in the United States, Canada and France, and the UK has played an equally important role in the story of aviation, yet there is no institution that draws together all facets of Britain's aviation heritage.

These questions have so far not been addressed through academic study, yet transport museums in general attract significant numbers of visitors, both domestic and from overseas. The UK's role in the development of shipping and rail travel is covered by national museums at Greenwich and York, supplemented by charitable trusts caring for significant collections at Chatham, Portsmouth and elsewhere.

There are over 200 heritage railways scattered across the UK, and a selection of

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locomotives, owned by preservation groups, operate special trains on main lines.⁵

The number of air displays has shrunk in recent years, but they still draw large crowds. As with any historical study, this project offers opportunities to learn from past developments and inform future projects. The aviation museum community will soon have to face a number of challenges, the potential loss of vital skills, deterioration of exhibits stored outside and possibly reductions in the availability of grants.

To put into context the rise in volunteer-run museums such as those dealing with transport, Chapter 2 describes the overall development of museums in the United Kingdom, focussing on the 19th and 20th centuries. Case studies examine the ways in which two national museums – the Imperial War Museum and Science Museum – have collected aircraft and the constraints within which they have had to operate. In Chapter 3 several scholars' theories relating to collecting are examined and applied to people who have collected aircraft, from Richard Shuttleworth and R G J Nash in the 1930s to the present day. The chapter considers the effect that such collectors have had on aircraft preservation and concludes that modern collectors have created an air display industry. The following chapter investigates factors which can inspire an interest in aircraft and aviation, together with those which motivate people to devote their time (and often, money) to transport museums. It discusses theoretical frameworks such as Stebbins's Serious Leisure concept, and then examines in detail the materiality of aircraft – the ways in which aircraft can appeal to the senses. Interviews with those involved in aviation museums provide views which are used to

⁵ Office of Rail and Road, *Minor and Heritage Railways* [online], Available from <<https://www.orr.gov.uk/about/who-we-work-with/railway-networks/minor-heritage-railways>> Accessed 30 June 2023

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highlight points made in the analysis. Chapter 5 analyses data gleaned from previously untapped sources demonstrating that the number of aviation museums, and aircraft in their collections, has increased steadily over the last 70 years. This growth is compared with that of heritage railways and canal restoration projects over the same period.

The main source of aircraft acquired by museums is the Ministry of Defence, and Chapter 6 explores – for the first time – government policy relating to aviation museums and aircraft preservation, particularly the disposal of redundant aircraft by the RAF. It uses sources held in the National Archives [TNA] as well as Ministry of Defence records that were rejected for transfer to Kew. Also original is the investigation of the failed attempts to set up a national aviation museum for the UK, in the 1930s, 50s and 1970s. These are set out in Chapter 7 which, after discussion of the roles of national museums, discusses the history of the American, Canadian, French and German national aviation museums. Finally an argument is made for the designation of important aircraft held in existing museums as part of a dispersed national collection.

Methodology

To address the three research questions, the study employed statistical analysis, questionnaires and interviews, together with archival research. Statistics - numbers of aviation museums and aircraft in their collections - were gathered to build up a picture of the sector's growth, for comparison with the numbers of preserved "heritage" railways and canal restoration projects over similar periods.

Questionnaires were sent to selected museums – initially those which had been

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identified as among the earliest to be established - partly to gather information on their origins, collections and visitor numbers, but also to seek contacts with individuals who might be interviewed. This element of the project was disrupted by the Covid pandemic, with very few questionnaires returned despite further batches being sent to other museums as the restrictions eased. Only nine of the 25 museums selected gave a response, one of them simply replying that they were unable to help.⁶ However, those which were returned indicated that some museums were run entirely by volunteers while a few were able to employ a core of paid staff. Annual visitor numbers (pre-pandemic) ranged from 300 to 16,500, and while some museums had only one aircraft, other non-national museums had more than twenty.

Examples of the questionnaire and interview questions are given in Appendix A. Ideally, interviewees would be volunteers who had knowledge of their museum's early years, as the interviews were designed to gain more subjective information about both the circumstances which led to the founding of a museum, and individual volunteers' motivation for involvement. Several museums nominated interviewees; to supplement these a small number of existing contacts within the aviation museum community were approached, some of whom suggested people they thought would be of interest. A total of twelve interviews were conducted, with people whose experience ranged from a small museum run entirely by volunteers to national museums. A relatively unstructured interview technique was employed, covering topics such as the origins of the museum, views on the place of replicas in museums and insights into the type of volunteers and visitors associated with each museum. Interviewees were also asked how they came to be interested in, or involved in,

⁶ Details are given in Appendix E

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aviation. The editor of the series of museum directories *Wrecks and Relics*, Ken Ellis, was interviewed early in the project, taking advantage of his extensive involvement in the aircraft preservation movement. Sadly, key figures in the story of the failed national air museum – Sir Peter Masefield, Sir Kenneth Couzens, and Dr John Tanner – have not survived to be interviewed, although Tanner’s widow was able to offer some insights into his work. The sudden death of Dr Robert Fleming, Chair of Aviation Heritage UK, also denied the opportunity of an interview; although an interview with his successor looked at broader topics to gain an overview of the aviation museum community and issues affecting it. He publicised this project at AHUK’s Annual General Meeting, resulting in a further interviewee coming forward. An interview held in the British Library’s collection, with Fred Panton – founder of the Lincolnshire Aviation Heritage Centre – provided useful insights.

Archive Research

A wide range of records held in the National Archives, the RAF Museum, Royal Aeronautical Society, and the Ministry of Defence’s Air Historical Branch were identified and examined. Archive research looked primarily at the failed attempts to set up a national air museum, and Government policy on aviation museums, the selection of aircraft for preservation and the disposal of redundant aircraft, together with Government policy on canal restoration. Files consulted in the National Archives were mostly in the AIR (Air Ministry and Ministry of Defence) series, although broadening the search brought to light material in the following series:

ADM	Admiralty and Ministry of Defence
AVIA	Ministry of Aviation, formerly the Ministry of Aircraft Production
ED	(Office of Arts and Libraries)

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MT	Ministry of Transport – files relating to canal restoration
T	Treasury
WORK	Ministry of Works

Previously untapped records held by the Royal Aeronautical Society and the Air Historical Branch were made available specifically for this project. The Royal Aeronautical Society's files related mostly to its campaign, led by Peter Masefield, for a national air museum. Whilst much of this aspect is also covered in the Air Ministry files at Kew, there is correspondence dealing with earlier suggestions for such a museum, and the minutes of the RAeS Council discuss the purchase of the Nash collection of aircraft. Resources consulted at the RAF Museum included the minutes of Trustees' meetings and a range of museum files dating from the early 1960s. The RAFM's founding Director John Tanner had tried in the 1970s and 80s to expand the museum to become the national air museum; his correspondence had been thought lost when he retired, but fortunately some of his files had been microfilmed before being shredded. The minutes of the RAFM's trustees also shed light on Tanner's plans.

Counting museums

Chapter 7 discusses the unsuccessful attempts to set up a national aviation museum. The Museums and Galleries Commission [MGC] identified the following characteristics of National Museums:

- They have collections of national importance in terms of the United Kingdom or a part of the UK;
- They are vested in Trustees on the nation's behalf;

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- They are wholly or mainly funded by the Government;
- The Government is able to call on their staff from time to time for such expert advice in their field as it may require.⁷

It was important to have a clear definition, for the purposes of the study, of what should count as an aviation museum. Fiona Candlin and Jamie Larkin detail the difficulties encountered in defining a museum for the *Mapping Museums* project, comparing various approaches employed by organisations such as the Museums Association and the International Council of Museums.⁸ A definition was developed specifically for this research project, as follows:

An organisation (ranging from a small informal group to a large firm or government body) whose purpose is:

- *Collecting and preserving*
- *Complete aircraft (including aeroplanes, rotorcraft, gliders, balloons and airships) or substantial components thereof (such as cockpit sections) and*
- *Displaying them, or making them available for study, at advertised times.*

In the case of large organisations, whose prime purpose is not the collection, preservation and display of such material, this function may be undertaken by a subordinate organisation. Examples of the latter are:

- *The Fleet Air Arm Museum, Museum of Army Flying and the Royal Air Force Museum,*

⁷ Museums and Galleries Commission, *The National Museums* (London: HMSO,1988) p.3

⁸ Fiona Candlin and Jamie Larkin, 'What Is a Museum? Difference All the Way Down', *Museum & Society*, 18.2 (2020), 115–31.

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- *Other national museums, notably the Science Museum, and*
- *Heritage groups and centres set up by companies in the aerospace sector.*

This definition excludes groups whose collections comprise relatively small items recovered from aircraft crash sites, primarily to simplify the gathering of data. It had been assumed that such “Aviation Archaeology” or “Wreckology” groups developed in parallel with museums displaying more substantial aircraft, but some interviewees indicated that there were closer links, with some museums having developed from collections of recovered items. Collections – usually private - which are only accessible by prior appointment were excluded. Also excluded were sites with an aviation connection but no aircraft, such as several sites at former airfields; this was because information regarding such sites was difficult to find until – relatively recently - they were included in the source identified below.

A key source of statistics is the series of directories *Wrecks and Relics* - a biennial directory of aircraft in museums, scrapyards, and private ownership, most of which are no longer flying. It began life in 1961 as a duplicated document compiled by the Merseyside Group of Aviation Enthusiasts, but since 1974 has been edited by Ken Ellis, supported by a large network of correspondents who give details of new discoveries, movement of aircraft between sites and so on. Ellis’s long editorship has given the series consistency which, together with his extensive network of contacts who contribute information, should make for reliable data. The 28th edition was published in 2022. In recent years its scope has expanded to include museums which have an aviation theme but no aircraft. The entries are arranged by county, and each aircraft is identified, with a very brief summary of its history. Where aircraft

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have moved since the previous edition, such changes are noted. The *Wrecks and Relics* series has thus enabled both the scoping of the field of study and statistical analysis of the growth of museums and their collections.

Rather than working through all the editions to count the numbers of museums and aircraft (whether complete, or large components) in their collections, the initial approach was to cover the first four (1961, 1963, 1968 and 1974) and then to work through alternate editions. The data was tabulated in a spreadsheet which enabled graphs to be plotted. Where a graph showed steep changes between two editions, the intervening edition was also checked. It was later decided to gather data from every edition, to enable a better comparison with data from other sources such as the *Mapping Museums* project.

An issue encountered in the first few editions arose from the aircraft held by the Air Ministry's Air Historical Branch [AHB] which initially were held in small numbers at several RAF stations. Whilst these were – strictly speaking – not museums, public access was available from time to time, especially at the numerous open days and air displays held annually in September as part of the Battle of Britain commemorations. They were counted as a single collection and they were later brought together to form regional collections at Colerne, Cosford, Finningley and St Athan.

Airworthy aircraft also posed a problem; it was decided that the key criterion should be whether they are available to visitors when not flying. While the RAF's Battle of Britain Memorial Flight has a Visitor Centre (opened in 1986) and offers tours of the

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aircraft in the hangar, the Royal Navy Historic Flight and the Army Air Corps Historic Aircraft Flight do not give such access and so were discounted. There are several private owners whose aircraft are housed at Duxford when not flying; these provided a challenge. Should they be counted as museums, when they are part of a symbiotic relationship between their owners and the IWM, drawing visitors in exchange for the use of the airfield and hangars? The decision was made to count these privately-owned collections as separate organisations, a policy also applied to other organisations which share sites.

Some museums changed their name and/or location, examples being the British Rotorcraft Museum, which became the International Helicopter Museum and is now The Helicopter Museum, and the North East Vintage and Veteran Aircraft Association, which moved its collection from Lambton Castle to Usworth and is now NELSAM – the North England Land, Sea and Air Museum. In such cases the policy was to track the organisation, rather than treating each name as a separate entity. These changes are listed in Appendix B.

Keeping track of aircraft which are loaned to museums by their owners – whether other museums or private owners – would have required significant effort, and it was decided at an early stage to simply count the number of aircraft listed in *Wrecks and Relics* for each site, regardless of ownership. Museums of a general nature which may have a small number of aircraft (often reflecting local industry, such as the Auster aircraft in the former Snibston Discovery Park) were also discounted, apart from the Science Museum, which has a relatively large, broad-ranging collection. On this basis, *Thinktank* – formerly the Birmingham Science Museum, which has only

two aircraft - was discounted. The data gathered from *Wrecks and Relics* is summarised in Appendix C and the original data (in an Excel file) has been lodged in the University's Research Archive.

Canals

The data relating to canal projects was initially drawn from work by Roger Squires which deals with restoration projects.⁹ Squires' book, based on his thesis, includes lists of canal restoration projects with their starting dates, which enable progress to 1975 to be tabulated. Data for canal projects after 1975 has proved elusive, but an alternative approach was founded on the journal *Navvies*, published since 1966 by the Waterway Recovery Group of the Inland Waterways Association.¹⁰ The WRG is an umbrella organisation covering the many groups of volunteers who work on specific canal projects; *Navvies* contains reports on these projects and – more importantly for this research – periodically includes a directory listing the various groups of volunteers. Counting the numbers of groups gives an indication of the growth of the canal restoration movement. Data on canals was collected for those years in which *Wrecks and Relics* was published; as the deadline for contributions to *Wrecks and Relics* is usually early in the relevant year, issues of *Navvies* were selected from similar months – in some cases it was necessary to use an issue from the previous December.

Railways

⁹ Roger W Squires, *Canals revived: the story of the Waterway Restoration movement*, (Bradford-on-Avon, Moonraker Press, 1979)

¹⁰ Originally available from <https://www.waterways.org.uk/wrg/navvies_magazine/subscribe> Accessed during July and August 2020. Now available from <<https://issuu.com/waterwaysassoc/stacks/b8eb59d9bae54973859a007cd8c1112c>>

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Assembling data for railways proved to be less simple. Two sources were identified at an early stage in the project.¹¹ Graphs drawn using their data (Figure 15) showed discrepancies: Brown's indicated that railway preservation started later than was suggested by the information from Tonks; Brown also indicated a slower rate of growth. On closer examination, it seems that Brown's data may not be complete, as indicated by his use of 'some' in his tables. Tonks mentions that 'at the end of the 1950s ...the preservation movement leaned very heavily towards the narrow gauge steam locomotive' whereas Brown's data seems to disregard narrow gauge railways.¹² Cockman describes 36 railways that were in existence in 1980: 16 of these do not appear in Brown's lists from which data was compiled.¹³ There is also a disparity between the railways shown in Brown's 'Location map of heritage railways in the British Isles' and those in his lists, although some of the 109 railways shown in the map are narrow gauge.¹⁴ Extensions to existing railways pose another problem: while they are indicative of growth, they would not be counted as new railways and might not appear in the graph. Brown's figures, therefore, should not be taken in isolation.

A different approach centred on sources which might be regarded as a railway counterpart to *Wrecks and Relics. Railways Restored* was published – more or less annually - between 1990 and 2013, continuing from earlier titles.¹⁵ It listed heritage

¹¹ Jonathan Brown, *The railway preservation revolution. A history of Britain's preserved railways*, (Barnsley: Pen and Sword, 2017)

Eric S Tonks, *Railway preservation in Britain, 1950-1984: a statistical survey*, (Southampton: Industrial Railway Society, 1985)

¹² Tonks, p.4

¹³ F G Cockman, *Discovering preserved railways*, (Princes Risborough: Shire Publications, 1980) pp 2-3

¹⁴ Brown, p.19

¹⁵ Alan C Butcher (ed.) *Railways Restored*, (London: Ian Allan, in conjunction with the Association of Railway Preservation Societies, 1980-2013)
Association of Railway Preservation Societies, *Guide to Steam Trains in the British Isles, 1977-1987*

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railways and their locomotives in England, Scotland, Wales, Ireland (including the Irish Republic) and the Isle of Man, both standard and narrow gauge. Locations were classified under three headings:

- *Timetable Service* – Organisations providing a passenger service between two or more stations with public access.
- *Steam Centre* – A railway or preservation site offering a passenger service on a short length of line on a regular basis, with public access at only one point. In later editions, the term Diesel Centre also appears – these have been included in the Steam Centre count.
- *Museum* – A museum or site that does not offer a passenger service on a regular basis, if at all.
- The term *Railway Centre* appears in later editions, being defined as ‘a catch-all for those centres which do not fall clearly into any of the other brackets. Generally those offering rides over short distances using non-steam motive power.’ It was decided to exclude such organisations and those categorised as *Attractions*.

Data was collected for each class, with the aim of matching the years in which *Wrecks and Relics* was published, although this was not always possible. An appendix listed the members of the Association of Railway Preservation Societies, some of whom ran railways, while others owned and restored locomotives; this offered the option of a separate measure, similar to counting canal groups in *Navvies*. Unfortunately, in later editions this practice changed with individual entries being annotated to show membership, rather than being listed separately. Affiliate and Corporate members of ARPS’s successor, the Heritage Railway Association,

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were listed but these were often groups which are not actively involved in restoration, such as the Guild of Railway Artists, or organisations such as Cliff Railways which are at the periphery of the railway world, so measuring membership was discounted as a means of gathering data. Railways in the Irish Republic (an area not investigated through *Wrecks and Relics*) were excluded, as were those operated by the Isle of Man Government, the aim being to concentrate on volunteer-run railways.

Literature Review

The main subject of this study – the development of aviation museums – sits at the centre of a complex Venn diagram in which many diverse aspects overlap. These include Museum Studies, works on Canal and Railway Preservation, Memory Studies, Collecting, studies of Enthusiasts and Volunteers together with the pioneering members of the aviation preservation movement, many of whom were collectors. This review analyses the existing literature relating to these fields of study, which - together with broader social, economic and cultural contexts - give insights into the many factors that have influenced the growth and development of aviation museums in the UK.

Aviation Museums

Very little has been published on the aviation museum movement, and the existing literature is focussed on the enthusiast market, rather than academic study. This may perhaps be because aviation museums are relatively new, most having been established in the last fifty years, and have not yet drawn academic attention.

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Similarly, no studies of official policy towards aviation museums have been found.

This is therefore the first such study of this field.

Alec Brew gives an overview of aircraft preservation in the UK, concentrating mostly on the period from 1960.¹⁶ Much of Brew's narrative concentrates on the work done by the British Aircraft [later, Aviation] Preservation Council - now Aviation Heritage UK - to act as a forum for museums. The book has much about the origins, development and decline of many groups which have been members of BAPC.

The aim of most publications relating to aviation museums seems to be to help enthusiasts find surviving aircraft. A number of directories have been published, mostly predating the *Wrecks and Relics* series, less regularly and with much less detail. Leslie Hunt's aim in compiling *Veteran and Vintage Aircraft* (1965, 1967, 1970 and 1974) was 'to locate worthwhile machines in museums, collections and, if still flying, to endeavour that they are preserved.'¹⁷ Hunt includes some aircraft in museums outside the UK, and the Smithsonian National Air and Space Museum published more comprehensive lists biennially between 1971 and 1981.¹⁸ Section 1 of the Smithsonian publication lists aircraft alphabetically by design firm, while Section 2, which lists museums and their holdings, was only available to museums, on request.

¹⁶ Alec Brew, *Vampires and Fleas. A history of British aircraft preservation*, (Ramsbury: Crowood Press, 2003)

¹⁷ Leslie Hunt, *Veteran and vintage aircraft: The world's preserved aircraft - where they are, what they look like and who owns them*, (London: Garnstone Press, 1974)

¹⁸ Robert C Mikesh (ed.), *Aircraft in museums around the world*, (Washington, DC: Smithsonian National Air and Space Museum, 1971-1981)

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Ellis's other publications look in more detail at sectors of the British preservation movement.¹⁹ They focus in turn on aviation museums that have closed and whose collections have been dispersed, the national museums which have aviation collections, and privately-run museums. In each volume, a typical entry gives a brief explanation of how the museum came to be established and its subsequent development, but more space is devoted to detailing the museum's aircraft, usually with an account of each aircraft's service history. Beyond a brief timeline in the 2017 book, there is no overview of the development of aviation museums, and no analysis of why so many air museums have come into being.

The histories of national aviation museums in Canada, Germany and the United States have been described in lengthy volumes, primarily intended for a non-academic readership.²⁰ Alex Roland is an exception, giving deeper insights into the political background to the founding of the Smithsonian National Air and Space Museum [NASM], beginning with the rift that developed between the Smithsonian Institution and the Wright Brothers over the question of who made the world's first powered, controlled flight. Roland shows that much of the early arguments for the new museum promoted it as a showcase for American achievement in aviation, quoting the Smithsonian Secretary's 1955 comment 'The airplane is in many

¹⁹ Ken Ellis, *Lost Aviation collections of Britain* (Manchester: Crecy, 2011)
Great aviation collections of Britain (Manchester: Crecy, 2013)
Local aviation collections of Britain (Manchester: Crecy, 2017)

²⁰ K M Molson, *Canada's National Aviation Museum. Its history and collections*, (Ottawa: National Aviation Museum, 1988)
Michael Hundertmark and Holger Steinle, *Phoenix aus der Asche. Die Deutsche Luftfahrt Sammlung Berlin*. (Berlin: Silberstreif, 1985)
Michael J Neufeld and Alex M Spencer, *National Air and Space Museum: An autobiography*, (Washington, DC: National Geographic, 2010)

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respects the product of the genius of the American people.’²¹ The emphasis moved in the 1960s towards education and scholarship, but requests for funding were repeatedly denied by Congress, perhaps partly because the war in Vietnam and the space programme were taking a large proportion of the country’s annual spending. The success of Apollo 11 in 1969 helped to break the funding logjam and NASM could once again provide an opportunity to celebrate American achievement. Roland quotes the Smithsonian’s Director of Museums, Frank Taylor writing in October 1969, ‘My pitch is to the things that Congress reacts to – crowds of people and the image of the United States.’²²

Turning to museums in Europe, Michael Hundertmark and Holger Steinle give a detailed account of the origins and development of Germany’s Aeronautical Museum – from 1909 to its destruction by bombing in 1943 – and have identified that more than 20 of its aircraft survived in Polish hands. Weber argues that the museum in Berlin gained a new, prominent position in 1936 as ‘the future of Germany appeared to lie rather in the motorisation of land and air transport’ which again indicates the importance of museums in promoting national pride.²³ No equivalent sources for have been found for European museums beyond the catalogue of Les Collections de l’Aéronautique, from which the French Musée de l’Air et de l’Espace developed, issued on the former’s opening in 1921.²⁴ The Science Museum was the first British museum to collect artefacts connected with aviation, and the *Festschrift* marking the

²¹ Alex Roland, ‘Celebration or Education? The Goals of the U.S. National Air and Space Museum’, in Brigitte Schroeder-Gudehus (ed.), *Industrial society and its museums, 1890-1990: social aspirations and cultural politics*, (Chur: Harwood Academic Publishers, 1993), p.82

²² Roland, p.85

²³ W Weber, ‘The Political History of Museums of Technology in Germany Since the Nineteenth Century’, in Brigitte Schroeder-Gudehus (ed.), *Industrial society and its museums, 1890-1990: social aspirations and cultural politics*, (Chur: Harwood Academic Publishers 1993), p.16

²⁴ Service Technique de l’Aéronautique, *Les Collections de l’Aéronautique*, (Chalais-Meudon, 1921)

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centenary of its becoming an independent body includes accounts of its collecting in this area and the development of its galleries.²⁵ Less seems to have been published on the European museums than on NASM, although more may be available in French and German.

Although many of Britain's aviation museums have published guidebooks, which may give a little information on the museum's history, only a few have published works looking in detail at their story. These are the larger, longer-established organisations at Flixton, London Colney and Newark. Philip Birtles's book *de Havilland heritage: a history of the Mosquito Aircraft Museum*, devotes less than three pages to the history of the museum; the bulk of the book describes the museum's aircraft and their history. Bob Cossey's book is at the other end of the scale, with a lengthy description of how the museum at Flixton came to be founded and its subsequent development, accompanied by brief histories of the aircraft. Colin Savill's book on the Newark Air Museum sets out its history, decade by decade, as a series of events but with very little indication of the rationale behind the decisions made. He does, however, mention its two founders' desire 'to own a Spitfire, not to fly; not for any particular reason; just to have it.'²⁶ Tony Pratley's thesis examines the Spitfire and the way in which the aircraft's reputation has contributed to 'the war-made myth of the Battle of Britain'.²⁷ He describes the RAF's efforts to create its own

²⁵ *Science for the Nation. Perspectives on the History of the Science Museum*, ed. by Peter J T Morris (Basingstoke: Palgrave Macmillan, 2010).

²⁶ Philip Birtles, *de Havilland heritage: a history of the Mosquito Aircraft Museum*, (St Albans: de Havilland Aircraft Museum Trust, 1997?)

Bob Cossey, *The Flixton story: celebration 25 years of the Norfolk and Suffolk Aviation Museum: the history of the museum and its aircraft*, (Flixton: Norfolk and Suffolk Aviation Museum, 1998)

Colin Savill, *Preservation pioneers: Newark Air Museum 1963-2015*, (Newark: Newark Air Museum, 2016), p.5

²⁷ Tony Pratley, 'The Supermarine Spitfire: Palimpsest, Performance, and Myth' (University of Kent, 2017), Foreword

museum, concluding with its opening, but does not consider the RAF's policy on Spitfires (or other historic aircraft) after 1972. Stephen Hegarty and Stephen Riley document the Ulster Aviation Society's growth from a band of aviation enthusiasts in the late 1960s, some of whom collected relics from wartime crash sites. The recovery of a substantially complete aircraft from Portmore Lough in 1984 led to the birth of the Ulster Aviation Museum which now has a collection of nearly 40 aircraft.²⁸

Museum Studies

The ways in which aviation museums have interpreted their objects, and the factors that can influence this, have been commented on by several scholars. Ludmilla Jordanova, in a more general context, points out that museums 'transmit ideas about [the] past through a variety of lenses, of which visitors are unlikely to be fully aware: they convey narratives and values as well as insights and information.' She also expresses a concern that their visitors may receive impressions of the past that would be contested by historians²⁹ Enthusiasts who run museums may struggle to remain dispassionate when interpreting the aircraft in their collections, and as will be shown shortly, their decisions may ignite controversy. Vergo points out that 'museums make certain choices determined by judgements as to value, significance or monetary worth, judgements which may derive in part from the system of values peculiar to the institution itself.'³⁰

A few American scholars have examined their country's aviation museums, and the way in which they have presented their exhibitions. The Smithsonian National Air

²⁸ Stephen Hegarty and Stephen Riley, *Eyes Turned Skyward. 50 Years of the Ulster Aviation Society* (Lisburn: Ulster Aviation Society, 2018).

²⁹ Ludmilla Jordanova, *History in practice*, (London: Hodder Arnold, 2006), p.129

³⁰ *The New Museology*, ed. by Peter Vergo (London: Reaktion Books, 1989), p.2

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and Space Museum is the most studied, presumably because of its high profile and the controversy between 1993 and 1995 surrounding its proposed exhibition on the bombing campaign against Japan. The exhibition would include the aircraft *Enola Gay* which dropped the first atomic bomb. Joseph Corn is critical of NASM, in which many of the displays were ‘unabashed celebrations of Flight’ and noted the curators’ desire to promote aerospace, arguing that ‘crusading zeal has long been a part of the culture of flight.’³¹ Tom Crouch discusses the two roles which such museums often have to fulfil: commemorating advances in aerospace technology or the work of individuals and organisations, and educating visitors about the – sometimes difficult – issues that can be associated with aviation.³² Roland describes the way in which NASM was seen by some as a celebration of American achievement, while others insisted it focus on education and scholarship. Robert Post, in his detailed account of the birth of NASM, notes that in contrast to other Smithsonian museums, the initial staff of NASM included ‘almost nobody to be called a historian’³³ Michael McMahon, reviewing the new museum some four years after its opening, has the opinion that ‘long before the actual museum building was constructed, and before the individual exhibits came into being, the basic script was written in the U.S. Congress.’³⁴ Government funding can certainly restrict museums’ independence, as the following case demonstrates.

³¹ Joseph J Corn, ‘Tools, technologies and contexts: interpreting the history of American technics’, in Warren Leon & Roy Rosenzweig, *History Museums in the United States: A Critical Assessment* (Chicago: University of Chicago Press, 1989), p.248

³² Tom D Crouch, ‘Aerospace Museums: A Question of Balance’, *Curator: The Museum Journal*, 50 (2007), pp 19–32.

³³ Robert C Post, *Who owns America’s Past? The Smithsonian and the Problem of History*, (Baltimore: Johns Hopkins University Press, 2013), p.162

³⁴ Michael McMahon, ‘The Romance of Technological Progress’, *Technology and Culture*, 22 (1981), p.291

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Crouch's central example is the controversy regarding *Enola Gay*. Veterans' groups objected to aspects of the proposed design for the exhibition, which included a section describing the effects of the bomb on Hiroshima and its people: they felt this was 'anti-American and pro-Japanese'.³⁵ They brought pressure to bear on Congress, which led to the resignation in 1995 of NASM's Director. Many scholars have addressed this saga; Jordanova cites it as an example of the political nature of history, and Otto Mayr makes the points that financial support from sponsors entails the loss of some degree of autonomy and that 'no museum can win a direct confrontation with its chief financial supporters.'³⁶ Post devotes a chapter to the *Enola Gay* exhibition furore, noting that exhibitions in other Smithsonian museums had faced criticism and controversy for challenging their audiences' established views. He cites one senator who asked why the Smithsonian was trying "'to interpret history" rather than simply to ascertain and recount what had actually taken place, just the facts.'³⁷

The Pima Air and Space Museum, in Timothy Luke's view, is a 'tangible sign of how America's history can be theorized, fabricated, and celebrated with flying machines'. He contrasts Pima's emphasis on preserving aircraft with that of the Commemorative (originally Confederate) Air Force, whose aircraft are restored to flying condition and thus emphasise functionality. He notes that the CAF's Arizona Wing's B-17 bomber tours some 60 towns and cities each year 'as a patriotic and educational exhibit.'³⁸

³⁵ Crouch, 'Aerospace Museums: A Question of Balance', p.27

³⁶ Otto Mayr, 'The "Enola Gay" Fiasco: History, Politics, and the Museum', *Technology and Culture*, 39 (1998), pp 462-473
Jordanova, p.137

³⁷ Post, *Who owns America's Past?*, pp 197-220

³⁸ Timothy W Luke, *Museum politics: Power Plays at the Exhibition*, (Minneapolis: University of Minnesota Press, 2002), pp 167-168

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Overall, Luke sees the Pima museum – and air museums in general – as helping to project an image of American ingenuity, skill and dedication, chiming with some of the criticisms made by Corn, Roland and McMahon. It seems that American aviation museums see their role as celebrating flight at least partly as an American achievement, although NASM, Pima and others do have other countries' aircraft – such as Concorde and Spitfires – in their collections. Museums in Europe seem more reserved in their approach.

Crouch notes that many museums have missed the opportunity to interpret exhibits, leaving visitors with only 'a single label providing nothing more than minimal 'nuts and bolts' information, and a data block detailing the size, weight and performance characteristics.'³⁹ Corn suggests that while such interpretation can help visitors to understand the technical evolution of machines, it often lacks rigour. He feels that this is because most technical museums cannot afford to employ curators and historians who might change the style (clearly an issue for volunteer-run museums) or the existing staff's experience and familiarity with the subject 'inevitably colors their intellectual approach.' Mayr notes that Martin Harwit, NASM's director at the time of the *Enola Gay* furore, was 'a professor of astrophysics [with] no previous museum experience.'⁴⁰ British aviation museums have not yet had to face such scrutiny.

Other scholars have also looked in detail at the way objects are displayed. Colin Divall and Andrew Scott are associated with the National Railway Museum; their

³⁹ Crouch, 'A Question of Balance', p.30.

⁴⁰ Mayr, p.473

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book on transport museums understandably focuses on rail museums but it has much that can be read across to aviation museums and other forms of transport. They comment that such museums tend to adopt a “Whiggish” approach, concentrating on technological advances, rather than the social history that springs from them – a point that echoes Crouch’s criticism.⁴¹ Museums have to consider both the specialist enthusiast and visitors who may have little or no knowledge of the field. James Wallis has documented the process by which the IWM’s staff developed new displays leading up to the 2014 centenary of the outbreak of the First World War.⁴² Alys Cundy, examining the IWM’s exhibitions from an earlier period, cites a point made by Corn, who points out that large objects ‘dominate their setting and imply an interpretive importance not necessarily equivalent to their size’. This point is also picked up by Divall and Scott, who comment on the ‘Wow factor’ associated with the large scale of transport objects. They point out the trend for transport museums to turn to social history, rather than focusing on the technological advances represented by objects ‘for a pressing practical reason: to stem the loss of visitors... Museums which pay little attention to social history tend to be those that can still trade on visitors’ personal memories.’⁴³

Corn identifies four styles of interpretation common in museums. The first – Internalist – has already been referred to as dominant in museums of technology and is similar to Divall and Scott’s ‘Whiggish’ approach; the second – Celebratory – links

⁴¹ Colin Divall and Andrew Scott, *Making Histories in Museums: Making Histories in Transport Museums*, (Leicester: Leicester University Press, 2001) p.81

⁴² James Wallis, ‘Commemoration, Memory and the Process of Display: Negotiating the Imperial War Museum’s First World War Exhibitions’ (University of Exeter, 2015).

⁴³ Alys Cundy, ‘Objects of war: the response of the Imperial War Museum, London, to the First and the Second World Wars’, *Post-Medieval Archaeology*, 51 (2017) pp 261-273

Joseph Corn, ‘Tools, technologies and contexts: interpreting the history of American technics’, in Warren Leon and Roy Rosenzweig, (eds), *History Museums in the United States: A Critical Assessment*, (Chicago: University of Illinois Press, 1989), p.248

objects to themes of individual genius or technical progress and, he argues, can flow from historical myths. He regards the ‘Social Historical’ style as most successful in institutions devoted to historical sites, while the last – ‘Cultural Historical’ places objects in the context of a region’s life and culture.⁴⁴ The museums in this study vary greatly in size and their presentation styles differ. Many use the Internalist/Whiggish style, but others are adapting to include more of the social history pertaining to their exhibits.

Broader Museum History

Specialist journals in this field - *Museum Management and Curatorship*, *Curator* and the *Museums History Journal* feature very little on the niche subject of aviation museums; they also offer few papers giving a broad study of the development of museums.

Tony Bennett’s account of the development of museums covers their metamorphosis from private Cabinets of Curiosity, via the Victorian vision of museums as a source of learning that would keep the working classes away from the evils of drink, to their increasing importance as showcases for national achievement in science and manufacturing. He also compares the layout of museums, where visitors are effectively made to walk the routes set out by the curator or designer, to Foucault’s view of prisons as ‘disciplinary models’.⁴⁵ Kate Hill has examined public museums in the second half of the 19th and early 20th century, looking at their development and

⁴⁴ Corn, pp 239-247

⁴⁵ Tony Bennett, *The Birth of the Museum* (London: Routledge, 1995).

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interaction with their environment, their donors and visitors and analysing their collections and displays.⁴⁶

Kenneth Hudson's view of museums describes a similar story. He describes the change from museum access being a privilege to a right, then assesses the educational role of museums before investigating the audiences visiting museums in the 1960s and 70s.⁴⁷ Where both Bennett and Hudson set out a history of museums mostly based on British institutions, Karsten Schubert's stories describe developments in Paris, London, New York and post-1945 Europe.⁴⁸

The *Mapping Museums* project aimed to document and analyse the growth of museums in the United Kingdom between 1960 and 2020. The first results to emerge from the *Mapping Museums* project are given in a 2020 paper by Candlin and her colleagues which reviews surveys of UK museums. The authors conclude that most focus on museums which have Accredited status and therefore the number of museums has been understated.⁴⁹ Candlin's team created their own classification scheme, which includes Transport (with an Aviation sub-category) and War/Conflict, with Airforce (*sic*) as a sub-category. The numbers of museums in these categories are somewhat smaller than the total of aviation museums identified in the course of this study, despite the latter being restricted to museums which display actual aircraft. This is most probably due to differences in the criteria used to assess what qualifies as a museum: Candlin has commented in a blog post that since 1960, 'UK

⁴⁶ Kate Hill, *Culture and Class in English Public Museums, 1850-1914*. (Aldershot: Ashgate, 2005).

⁴⁷ Kenneth Hudson, *A Social History of Museums* (London: Macmillan, 1975).

⁴⁸ Karsten Schubert, *The Curator's Egg* (London: One-Off Press, 2000).

⁴⁹ Fiona Candlin and others, 'The Missing Museums: Accreditation, Surveys, and an Alternative Account of the UK Museum Sector', *Cultural Trends*, 29 (2020), pp 52-53

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museum professionals have used five different definitions of museums'. They are four iterations of the Museums Association's definition (from 1971, 1977, 1984 and 1998) and the definition developed by the International Council of Museums in 1977, which was itself revised in 2007.⁵⁰ The differences tend to arise in areas such as an expectation that collections are held "in trust for society", and that museums are "institutions" – which implies a level of permanence. Volunteer-run museums have difficulty in complying with such requirements and thus have sometimes been excluded from surveys of the museums sector.⁵¹ The development of a definition specific to this study – as set out above – was therefore necessary.

A fuller report by Candlin and her team was published in 2020.⁵² It indicates that the number of museums in the UK grew from 1,043 in 1960 to a peak of 3,314 in 2015 – a factor of 3. The project database covers over 4,000 museums and these data are analysed by a range of factors including type of governance, size, Accreditation status and subject matter. The report notes that 'there have been significant increases in the number of local history and transport museums.'⁵³ Although one of the team's over-arching research questions asked, 'What factors prompted and facilitated the increase in numbers of independent museums?' the report only deals with the data collected regarding museums – opening and closing dates, exhibition topics, size, and location – and seems not to answer the question.⁵⁴ It concludes that

⁵⁰ Fiona Candlin, 'Defining Museums', *Mapping Museums Blog*, 2017 Available from <http://blogs.bbk.ac.uk/mapping-museums/2017/10/30/defining-museums/>, Accessed 17 April 2023.

⁵¹ Fiona Candlin and others, 'The missing museums: accreditation, surveys, and an alternative account of the UK museum sector', pp 50-67

⁵² Fiona Candlin and others, *Mapping Museums 1960–2020: A report on the data*, (London: Birkbeck, University of London, 2020)

⁵³ Fiona Candlin and others, *Mapping Museums 1960–2020*, p.2

⁵⁴ Candlin and others, *Mapping Museums 1960-2020*, p.6

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the new museums of local history, industry and manufacture, transport, and rural industry that opened during the 1960s and 1970s were radical. Their founders used museums to articulate the experience, skills, and histories of working-class communities that had largely been omitted from previous museum exhibitions. They took ownership and control of their own narratives.⁵⁵

The story of aviation museums follows this pattern in one way – the majority of those opened during this period were created by groups of enthusiasts, but they were apparently motivated by a desire to preserve objects, rather than tell stories.

In *Micromuseology* Candlin examines small, independent museums and how they might influence museology. She discusses five major topics: the way in which visitors interact with a museum space; objects – whether being displayed out of their original context alters visitors’ understanding; the influence that curators’ views can have on exhibitions; donors’ motivation; and the ways in which objects are interpreted in displays. The book focuses on seven museums, whose themes range from Bakelite to Witchcraft, while her research included visits to 50 “micromuseums” - ‘small museums operating within a nexus of related conditions, namely low incomes, few staff and relatively limited physical space’. While none of the seven deal with aviation, much of her analysis may well be relevant to that sector.⁵⁶ *Stories from Small Museums* draws on the interviews conducted during the *Mapping Museums* project with people who were involved in setting up museums focused on

⁵⁵ Candlin and others, *Mapping Museums 1960–2020*, p.51

⁵⁶ Fiona Candlin, *Micromuseology: An Analysis of Small Independent Museums*, (London: Bloomsbury, 2016)

transport, the military (including two at former airfields), and local history.⁵⁷ Candlin concludes that some of these founders aimed to preserve objects for their own sake, while local history museums preserved objects to illustrate their communities' stories. Some local museums were founded by people who believed it would benefit their community, whether by attracting tourists and their spending, or by building a sense of community, while a few grew from existing collections. Several of the volunteers Candlin interviewed described a connection with transport that began at an early age, a situation shared by several of those interviewed for this study.

The Growth of "Heritage"

In the early 1980s authors such as Robert Hewison and Raphael Samuel discussed what was seen as a "heritage industry" boom, in which new museums, heritage centres and similar organisations were set up. Candlin argues that the debate tended to focus on large attractions such as Beamish and Ironbridge, rather than the many small museums which would form the basis of her later investigations, and which are at the centre of this study. In her opinion, small, independent museums have often been ignored in studies of the museums sector.⁵⁸

Hewison's rather provocative book was written at a time when the number of museums in the UK was booming, with an associated growth of "heritage" – a term which the author does not define. He examines the trend for "living museums" such as Beamish and *The Way we Were* at Wigan Pier and argues that 'instead of

⁵⁷ Candlin, Butler, and Watts.

⁵⁸ Fiona Candlin, 'Independent Museums, Heritage, and the Shape of Museum Studies', *Museum and Society*, 10 (2012), pp 28-41

Fiona Candlin, Defining museums [online], Available from <<http://blogs.bbk.ac.uk/mapping-museums/2017/10/30/defining-museums/>> [Accessed 4 December 2019]

manufacturing goods, we are manufacturing *heritage*' [emphasis in the original text]. Hewison associates this growth with 'deep social convulsion caused by the twin disruptions of modernisation and recession since 1945.' This, he argues, is the result of major changes that Britain had undergone in the immediate post-war period, such as reconstruction, the creation of New Towns and the Beeching report which led to drastic reductions in the rail network. He points out that 'Nostalgia is felt most strongly at a time of discontent, anxiety or disappointment, yet the times for which we feel nostalgia most keenly were often themselves periods of disturbance.'⁵⁹

Raphael Samuel charted a growing popular interest in history, evidenced by the fashion for "neo-vernacular" architecture, the restoration of older houses which were 'simultaneously modernized and antiqued', family history and "retrochic" goods. He seems to dispute Hewison's suggestion that the decline of manufacturing and other industries acted as an impetus for the growth of museums, and he sees the development of rural museums as a result of the mechanisation of agriculture. Samuel points out that industrial museums were first conceived at a time (the 1950s/60s) of full employment, and views independent museums as part of the democratisation of history. Yet he also comments on concerns arising in the 1960s and 1970s about the loss of 'sectors of national life'.⁶⁰ Samuel's book predates the reduction in size of the armed forces following the end of the Cold War, which led to redundant aircraft being scrapped, in turn encouraging the formation of preservation groups and aircraft museums.

⁵⁹ Robert Hewison, *The Heritage Industry: Britain in a Climate of Decline*, (London: Methuen, 1987) pp 9-10

⁶⁰ Raphael Samuel, *Theatres of memory: past and present in contemporary culture*, (London: Verso, 1994) pp 128, 144 & 199

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Ben Cowell gives an overview of the development of heritage, which he broadly defines as ‘a concern for the continued survival of things inherited from the past’. He concentrates on stately homes, ancient buildings, landscapes and archaeological sites, but not museums, despite mentioning that seven of the top ten visitor attractions in England are museums and galleries.⁶¹ Lionel Munby states that after 1945 ‘local history really took off and began to influence the interpretation of all of English history’.⁶² Jay Winter attributes the “Memory Boom” – which led to the opening of many museums in the 20th century - partly to the role of memory in helping to form national, social, cultural and personal identities, and partly a desire to commemorate the two world wars which had affected almost every community. Garry Champion has written several books on the Battle of Britain, and argues in his 2019 book that in the 1960s ‘the young were focused on demanding a future which was very different from the past; war... was decidedly not for them’.⁶³ Analysis in Chapter 5 reveals that the numbers of aviation museums are greater in areas which have had significant links to the RAF and other flying services; while this is understandable in the case of Lincolnshire, where the RAF still has a strong presence, the RAF left Kent and Sussex more than 20 years ago. The museums in those counties have their roots in the battles fought over them during the Second World War. Winter also notes rising income and the increased proportion of university-educated people in the population, ‘whose education provided them with access to and a desire for cultural activities of varying kinds’.⁶⁴ Woodham cites a

⁶¹ Ben Cowell, *The Heritage Obsession. The battle for England's past*, (Stroud: Tempus, 2008) pp 70 & 74

⁶² Lionel Munby, D Huw Owen, and James Scannell, *Local History since 1945: England, Wales, Ireland* (London: Socialist History Society, 2005), p.5

⁶³ Garry Champion, *The Battle of Britain in the Modern Age, 1965-2020: The State's Retreat and Popular Enchantment* (Cham: Palgrave Macmillan, 2019), Chapter 1, unpaginated ebook

⁶⁴ Jay Winter, *Remembering war. The Great War between memory and history in the Twentieth Century*, (New Haven: Yale University Press, 2006), p.37

report by Knell and others, which supports Winter's assertion, saying 'the generation that had been children and teenagers during the Second World War were now retired or nearing retirement. They were in good health, with more leisure time than ever before, and were actively seeking worthy causes to support.'⁶⁵ This latter point chimes with Kevin Walsh's description of the growth in working- and middle-class households' income during the 1950s and 60s, leading to an increase in leisure activity. Walsh describes conservation as

essentially a traditional, conservative phenomenon, concerned with maintaining that which conservatives consider to be 'traditional', worthy of representing that which best signifies the idea of nation.'

Walsh seems to link this to the rise of middle-class pressure groups seeking to preserve or conserve historic sites, citing the campaign to save the Doric arch at Euston station in 1962 as 'the first great conservation clash'.⁶⁶ However, Walsh makes no mention of local museums run by volunteers. Andrew McLean describes the growth of railway and canal preservation as a result of a growing sense of nostalgia seen in popular culture.⁶⁷

The literature tracing the development of British museums in the period since 1945 is surprisingly thin, although there are several journal articles dealing with contemporary museums in countries such as the Gulf States, China and Denmark.⁶⁸

⁶⁵ Knell, S and others, *Crossing Borders, Connecting European Identities in Museums and Online*, EuNaMus Report 2, (Linköping: Linköping University Electronic Press, 2012). Woodham, 'Museum Studies and Heritage', p.34

⁶⁶ Kevin Walsh, *The Representation of the Past*, (London: Routledge, 1992), pp 41, 70-74

⁶⁷ Andrew McLean, "Flying Scotsman: modernity, nostalgia and Britain's 'cult of the past'", *Science Museum Group Journal*, No. 5 (2015) unpaginated. Available from <http://journal.sciencemuseum.org.uk/browse/issue-05/flying-scotsman/> Accessed 29 April 2020

⁶⁸ Mounir Bouchenaki, 'The Extraordinary Development of Museums in the Gulf States', *Museum International*, 2011, 63:3-4, pp 93-103

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Geoffrey Lewis gives a detailed survey, citing a long tradition of private collecting in Britain, which he traces back to 1151.⁶⁹ Gaynor Kavanagh explores the role played by museums during the First World War, detailing museums' reactions to the war from several angles, including the effect on staff, museums as venues for propaganda and education, the campaigns to establish local war museums, and the creation of the Imperial War Museum.⁷⁰ Catherine Pearson's book on museums in the Second World War also gives a very useful overview of changes in the museum sector during the inter-war period which saw three influential studies examining the ways in which museums should develop, and concluding with the transition to peace and the creation of the Arts Council.⁷¹ Bridget Yates studied the development of volunteer-run museums in rural communities, and her thesis describes the ways in which interest in local history grew in the 1920s and 30s, and post-1945.⁷² She surveyed volunteers to discover why they had become involved with their local museums, and case studies illustrate the development of volunteer-led museums from the 19th century to the 1980s. Yates specifically excludes aviation and motor museums, which are often 'supported by a community of interest'. Adrian Babbidge examines the impact of the 1963 Rosse Report which made recommendations on provincial museums and galleries, and in a later report he and his coauthors discuss

Shui-Yuem Yim, S.-Y. (2005), 'Globalization and the Development of Museums in China', *Curator: The Museum Journal*, 2005, pp 48: 27-29

Susanne Krogh Jensen 'What a curator needs to know – the development of professional museum work and the skills required in Danish museums 1964–2018', *Museum Management and Curatorship*, 2019, 34:5, pp 468-485

⁶⁹ Geoffrey Lewis, 'Museums in Britain: A Historical Survey', in *Manual of Curatorship: A Guide to Museum Practice*, ed. by John M A Thompson, 2nd edn (Oxford: Butterworth-Heinemann, 1992), pp. 22–46.

⁷⁰ Gaynor Kavanagh, *Museums and the First World War* (Leicester: Leicester University Press, 1994). Kavanagh, *History Curatorship* (Leicester: Leicester University Press, 1990)

⁷¹ Catherine Pearson, *Museums in the Second World War*, (London: Routledge, 2017)

⁷² Bridget Elizabeth Yates, 'Volunteer-Run Museums in English Market Towns and Villages' (University of Gloucestershire, 2010).

the devolution of responsibility for local authority museums to charitable trusts between 1975 and 2005.⁷³

Railway and Canal Preservation

Sources of statistical information on the growth in canal and railway projects are limited. The emphasis in the literature relating to canals is on reopening waterways, rather than preserving vessels. Eric Tonks and Jonathan Brown cover railway preservation, while Roger Squires' 1979 book, based on his thesis, includes lists of canal restoration projects with their starting dates; these enable progress to 1975 to be tabulated. A similar source of data for canals later than 1975 has yet to be found, but the magazine *Navvies* contains lists of canal working groups and this has been used to create an alternative measure of growth in canal restoration.⁷⁴ Brown's book takes a similar approach to Squires, with lists of heritage railway projects opened (and in some cases extended) between 1960 and 2015.

Tonks analyses the growth in railway preservation, in terms of both preserved lines and locomotives, whether running, undergoing restoration or as playthings in local parks. He characterises the 1950s as an exploratory period, when nearly all preserved locomotives were steam, and mostly from industrial sites or independent railways. The 1960s saw expansion, with the number of operating railways growing from 3 to 29, while he sees the 1970s as a time of consolidation. Expansion in terms of newly preserved lines, or locomotives saved, continued at much the same rate as

⁷³ Adrian Babbidge, 'Forty Years On', *Cultural Trends*, 14 (2005), pp 3–66.

Adrian Babbidge, Rosemary Ewles, and Julian Smith, *Moving to Museum Trusts: Learning from Experience Advice to Museums in England & Wales Part 1: Strategic Overview* (London: Museums, Libraries and Archives Council, 2006).

⁷⁴ Roger W Squires, *Canals revived: the story of the Waterway Restoration movement*, (Bradford-on-Avon, Moonraker Press, 1979)

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at the end of the 1960s, but it was accompanied by an accelerating process of closures and internal reorganisation.⁷⁵ Brown's narrative – written some 30 years after Tonks – is more detailed and focuses on preserved lines, rather than locomotives and rolling stock, but does not analyse in much depth the factors that underlie the story.⁷⁶ Chapter 5 will show that statistics derived from Tonks' and Brown's lists of preserved railways differ markedly, although both show a similar trend. A further source *Railways Restored* gives a more consistent approach to railway statistics and – like *Wrecks and Relics* – benefits from having had one editor throughout its run.⁷⁷

Ian Carter, after pointing out that the first enthusiast-run railways - the Talylyn, and the Festiniog - started in 1950 and 1954, discusses preserved railways and those who support them.⁷⁸ Brown raises the question of whether heritage railways are aiming to preserve historic artefacts or operate a form of transport that involves wear and tear on those objects. Carter refers to engines in museums as “stuffed steam” and asks whether those involved are ‘playing trains or running a business’, an aspect picked up by Divall and Scott. There is a similar debate among aircraft enthusiasts: for some, aircraft should be seen in their natural element – the air – while others consider the risks of loss or damage through accidents to be too great. David Mather explains how, after the final steam trains ran on British main lines in 1968, groups were able to negotiate with scrapyards to purchase them, and he describes the

⁷⁵ Eric S Tonks, *Railway preservation in Britain, 1950-1984: a statistical survey*, (Southampton: Industrial Railway Society, 1985)

⁷⁶ Jonathan Brown, *The Railway Preservation Revolution. A History of Britain's Preserved Railways* (Barnsley: Pen and Sword, 2017).

⁷⁷ Alan C Butcher (ed.) *Railways Restored*, (London: Ian Allan, in conjunction with the Association of Railway Preservation Societies, 1980-2013)

⁷⁸ Ian Carter, *British Railway Enthusiasm* (Manchester: Manchester University Press, 2009), p.113

changes in British Railway's attitude to steam changed in the 1970s and 1980s when it allowed steam-hauled excursion trains on a few lines, which proved very popular.⁷⁹

Volunteering

Authors have described volunteering in a wide variety of contexts and through a number of concepts and models, including Leisure Volunteering, Serious Leisure and an Economic Model. Leonie Lockstone-Binnie and her co-authors review leisure volunteering from a social sciences perspective, reviewing sociological and psychological approaches to understanding why people volunteer, and examining the application of economic theory to volunteering.⁸⁰ Paul Hoggett and Jeff Bishop discuss the motives that led people to volunteer and to continue to volunteer.⁸¹ Kirsten Holmes compares this view of volunteering with the Economic Model, in which volunteers are seen as unpaid staff. She points out that museum volunteers are effectively “active visitors” whose work supporting their museum brings benefits similar to those reported by museum visitors, and that factors such as enjoyment, pursuing an interest and learning new skills are important stimuli for volunteers’ motivation.⁸² Sue Millar favours the Economic Model, stating that volunteers’ labour, expertise and influence in the community represent a financial asset to museums. She describes volunteers as ‘the ultimate frequent visitors’ and suggests that the ‘huge growth in voluntary trusts and “all volunteer” museums’ was a factor in the

⁷⁹ David Mather, *Great Britain's Heritage Railways: The Rise of the Railway Preservation Movement* (Kettering: Silver Link, 2012).

⁸⁰ Leonie Lockstone-Binney and others, ‘Volunteers and Volunteering in Leisure: Social Science Perspectives’, *Leisure Studies*, 29 (2010), 435–55

⁸¹ Paul Hoggett, & Jeff Bishop, *Organizing around enthusiasms: patterns of mutual aid in leisure*, (London: Comedia Publishing Group, 1986)

⁸² Kirsten Holmes, ‘Volunteers in the heritage sector: a neglected audience?’ *International Journal of Heritage Studies*, 9 (2003), pp 341-355

increase in the number of museums in the UK during the late 1980s.⁸³ Her book was evidently intended to help museums make better use of volunteers: she points out that demographic changes were expected to lead to increased demand for volunteers although traditional sources of volunteers were shrinking.

Robert Stebbins introduced the term Serious Leisure – ‘systematic pursuit of an amateur, hobbyist, or volunteer activity sufficiently substantial and interesting in nature and requiring special skills, knowledge, and experience’ - which fits well the way in which enthusiasts become involved with museums, whether working as guides or in restoration and conservation work.⁸⁴ Orr applies Stebbins’ concept to museum volunteers, arguing that many who volunteer in museums do so to develop their interest and a closer connection to a museum [or perhaps, to particular objects in a museum’s collection] that they have previously visited.⁸⁵ Not all volunteering is Serious Leisure: there should be an element of altruism, through which volunteers make a contribution to society, and an element of skill is required.⁸⁶ Bridget Yates examines volunteers’ motivation through a survey centred on museum volunteers in Dorset. Their responses show that the strongest reasons for becoming a volunteer were interest in their museum and in local history (echoing Orr’s argument) and contributing to their community (altruism). Xiaohua Chen and his colleagues found similar reasons in their study of museum volunteers in New Zealand.⁸⁷ Yates uses

⁸³ Sue Millar, *Volunteers in museums and heritage organisations: Policy, planning and management*, (London: HMSO, 1991), pp 1-2

⁸⁴ Robert A Stebbins, *Amateurs, professionals and serious leisure*, (London: McGill-Queen's University Press, 1992)

⁸⁵ Noreen Orr, ‘Museum Volunteering: Heritage as ‘Serious Leisure’’, *International Journal of Heritage Studies*, Vol. 12, No. 2, March 2006, p.197

⁸⁶ Orr, p.200

⁸⁷ Xiaohua Chen, Claire Liu, and Jane Legget, ‘Motivations of Museum Volunteers in New Zealand’s Cultural Tourism Industry’, *Anatolia*, 30 (2019), pp 127–39.

the concept of Social Capital and found that respondents bonded in groups, built bridges between these groups and created links with other museums and their volunteers.⁸⁸

Julia Trapp-Fallon argues the Serious Leisure model applies to canal volunteers: the rewards that they gain (enriched lives, empowerment and a sense of accomplishment) are similar to those offered by paid employment.⁸⁹ The main part of her paper is based on interviews with canal volunteers in Wales; she concludes that their motivation is often derived from an early curiosity about canals, combined with a nostalgia for the past. However, she feels that the term Serious Leisure doesn't go far enough and suggests that "Committed Leisure" better reflects the long-term projects undertaken by canal volunteers.

Steven Rhoden and his colleagues studied the motivation of volunteers at a heritage railway in South-west England.⁹⁰ They identified six main motivators: altruism, a substitute for work, social/affiliative, hobbies, relaxation/change, and skills-oriented. The authors point out that the specialist skills that were once abundant amongst those who worked in the steam railway era are now in short supply, a factor that also affects the aviation heritage world. Some organisations in both these domains have introduced apprenticeships to ensure that specialist skills can be passed on to a new generation, and in the early 21st century the National Aviation History Skills initiative trained a large number of volunteers from aviation museums, with the aim of closing

⁸⁸ Yates, pp 124-139

⁸⁹ Julia Trapp-Fallon, 'Reflections on Canal Enthusiasts as Leisure Volunteers' in *Academic Renewal: Innovation in Leisure and Tourism Theories and Methods*, LSA Publication, 2007, pp 65-82

⁹⁰ Steven Rhoden, Elizabeth M. Ineson & Rita Ralston, 'Volunteer motivation in heritage railways: a study of the West Somerset Railway volunteers', *Journal of Heritage Tourism*, 4 (2009), pp 19-36,

the skills gap. The authors suggest that their findings could help to target recruitment of further volunteers to meet heritage organisations' needs. This contrasts with Jenny Mattingly's 1984 study of volunteers in museums and galleries, which recommended that 'Volunteers should not be involved in conservation'. She also noted that the boat volunteers were 'fired by a great enthusiasm for the boats themselves.'⁹¹

The canal restoration movement described by Squires depends heavily on volunteers. While he fails to offer a reason why such people have devoted large amounts of their leisure time to rebuilding infrastructure such as locks, bridges and buildings, or restoring barges, he outlines the way in which such enthusiast groups grew and spread. These groups seem to attract people from wide geographical areas and are correspondingly well organised, whereas aviation museums' volunteers seem to be more locally focused.

The enthusiasm that leads people to volunteer in museums and other organisations has several roots, and Chapter 4 discusses the materiality of aircraft. Hilary Geoghegan has commented on this in her thesis and in a paper with Alison Hess, both of which are in the context of technology collections.⁹² Dydia DeLyser and Paul

⁹¹ Jenny Mattingly, *Volunteers in Museums and Galleries: a Report of a Survey into the Work of Volunteers in Museums and Galleries in the United Kingdom*, (Berkhamsted: The Volunteer Centre, 1984), pp 74-75

⁹² Hilary Geoghegan, 'The Culture of Enthusiasm : Technology, Collecting and Museums' (Royal Holloway, University of London, 2008).
Hilary Geoghegan and Alison Hess, 'Object-Love at the Science Museum: Cultural Geographies of Museum Storerooms', *Cultural Geographies*, 22 (2015), pp 445–465

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Greenstein analyse the materiality of motorcycles and the networking necessary for enthusiasts engaged in the complex process of restoring a derelict car.⁹³

The aviation museums which are the subject of this study are a relatively recent addition to the broad community of museums in the United Kingdom and overseas.

Chapter 2 will describe the development of British museums, to give context for the succeeding chapters and analysis.

⁹³ Dydia DeLyser and Paul Greenstein, 'The Devotions of Restoration: Materiality, Enthusiasm, and Making Three "IndianMotocycles" Like New', *Annals of the American Association of Geographers*, 107 (2017), pp 1461-1478

Dydia DeLyser and Paul Greenstein, "'Follow That Car!' Mobilities of Enthusiasm in a Rare Car's Restoration', *The Professional Geographer*, 67 (2015), pp 255–256

Chapter 2 – The Development of Museums in the United Kingdom

Introduction

This chapter examines the lengthy and at times complex history of museums in the British Isles, whether funded by national and local government, or run by groups of volunteers who must raise funds to keep their museums open. Although volunteer-run local museums had begun to flourish in the 1930s, major growth in museums in the UK began in the 1970s, when individuals and groups with no formal museum experience set up a wide range of heritage organisations as part of the so-called “memory boom”, a trend which has continued in subsequent years. Kenneth Hudson has written that ‘three-quarters of the museums we have today were not there in 1945’.¹ The most recent study of museums, by Fiona Candlin and her team, determined that in the period 1960 to 2017 the number of museums in the UK increased more than threefold, with some contraction in numbers in 2016. This growth is primarily attributed to independent museums – those which are not directly funded by national or local government, many of them run by volunteers – which make up over 70% of the total UK sector. In this chapter the argument is made that the growth in numbers of volunteer-run museums is due to socioeconomic factors including growth in both income and leisure time – the latter resulting from reductions in the working week – and an interest in history, due partly to changes in local communities and the potential loss of familiar technology and industry.

¹ Kenneth Hudson, ‘The Museum Refuses to Stand Still’, in *Museum Studies: An Anthology of Contexts*, ed. by Bettina Messias Carbonell (Oxford: Blackwell, 2004), p.86

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This chapter first examines the expansion of the role of museums, from relatively private collections to a medium through which the working classes could be encouraged away from drink and potential disorder, and then to encompass education. Museums helped to produce the skilled workers needed in an industrial society, and later to instil a sense of citizenship, especially through commemoration. Changes in the museum sector between the two world wars and afterwards are described, particularly the restructuring of the late 20th century, in which national museums were placed “at arm’s length” from government funding and many museums moved from local government control to be run by trusts. In a post-industrial society museums’ roles broadened further, to encompass informing and entertaining both the population of Britain and visiting tourists. This chapter identifies factors that have influenced the growth in volunteer-run museums over the last 50 years, the most influential of which is a desire to preserve objects and buildings with which the volunteers have some sort of emotional connection. Case studies examine the roles played by two national museums - the Science Museum and Imperial War Museum - in preserving aircraft, and the limitations with which they had to contend.

From *Wunderkammer* to museum

Cabinets of curiosity – also known as *Wunderkammer* and *Studioli* – are defined by Stephanie Bowrey as ‘privately-owned collections of extraordinary objects – that is, objects perceived to be rare, beautiful, strange, or ingenious.’² These were often specimens of plants, animals or minerals; works of art and artistic craftsmanship might also be included. Such collections originated in the 16th Century and were

² Stephanie Bowrey, ‘Before Museums: The Curiosity Cabinet as Metamorphe’, *Museological Review*, 18 (2014).

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intended primarily for the benefit of their owners (and, presumably, those whom they wished to impress). Tony Bennett points out that access to such collections was restricted to the owners and their guests, giving the owners a sense of power as well as enhancing their reputations as people of taste and knowledge, especially when collections of plants, animals and geological material could demonstrate an interest in developing sciences.³ The British Museum's founding in 1753 brought Sir Hans Sloane's vast collection – over 80,000 'natural and artificial rarities', 40,000 books and 32,000 coins – into public ownership, although visitors had to apply for tickets to view the collection. In practice, only well-connected people were able to gain entry.⁴ Hudson remarks that the British Museum's original rules and regulations 'seem to have been expressly calculated to keep the general public out'.⁵

Change came gradually during the nineteenth century, bringing a shift in emphasis from collections displaying their owners' wealth and power to museums that attempted to educate. Learned societies such as the Royal Society and the Society of Antiquaries had built up collections for their members' study. The Aeronautical Society of Great Britain, founded in 1866 by a group of gentlemen including the balloonist James Glaisher, proposed 'to establish a museum for the collection of all models and inventions of man in his endeavours to elucidate the practicability of Aërial navigation'.⁶ Museums often arranged their collections in ways based on classification, a technique eminently suitable for subjects such as geology and natural history. A prime example is the Rotunda Museum built by the Scarborough

³ Bennett, p.73

⁴ British Museum, *History* [online], Available from <<https://www.britishmuseum.org/about-us/british-museum-story/history>>, Accessed 19 January 2022

⁵ Kenneth Hudson, *A Social History of Museums* (London: Macmillan, 1975), p.9

⁶ Royal Aeronautical Society National Aerospace Library (henceforth NAL), Leaflet setting out the aims of the ASGB, c.1866, in process of cataloguing

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Philosophical Society in 1829 to display its geological collections according to the strata they represent.⁷ Mechanics' Institutes were founded in the first half of the 19th century to fill the need for an educated workforce capable of maintaining, operating and improving the machines at the heart of the Industrial Revolution.⁸ Some held exhibitions of art and 'curiosities', or displays showing the stages involved in production, from raw materials to the finished product. The Huddersfield Philosophical Society, which had grown from the Huddersfield Scientific and Mechanic Institute, organised an exhibition in 1840, with some 2000 exhibits arranged in seven categories, including Natural History, Raw Materials, Arts and Manufactures, Fine Arts, and Curiosities.⁹ Kate Hill notes that several such institutes had museums, 'formed from their members' collecting activity'.¹⁰

The Museums Act 1845 gave local authorities a way to support industry in their area by setting up museums, although few took up the opportunity.¹¹ The Huddersfield exhibits were dispersed, and the town seems not to have gained a museum until 1919, when Legh Tolson donated Ravensknowle Hall to the town as a memorial; it opened in 1922.¹² There was a gradual shift of emphasis in museums towards products, rather than processes, perhaps best seen in the Great Exhibition in 1851 which was intended to showcase British engineering and manufactured goods

⁷ Lewis, p.27

Scarborough Museums Trust: A Brief History [online], available from <<https://www.scarboroughmuseumstrust.com/about/history/>> Accessed 15 April 2022

⁸ Ian West, *Mechanics' Institutes: Introductions to Heritage Assets* (Swindon: Historic England, 2017).

⁹ David Griffiths, "Blending Instruction with Amusement": The Huddersfield Philosophical Society Exhibition of 1840', *Yorkshire Archaeological Journal*, 83 (2011), pp 175–98

¹⁰ Hill, p.41

¹¹ Robert Snape, 'Objects of Utility: Cultural Responses to Industrial Collections in Municipal Museums 1845-1914', *Museum & Society*, 8 (2010), p.18

¹² Griffiths, p.197

Kirklees Council, *The Story of Tolson* [online], Available from <<https://www.kirklees.gov.uk/beta/museums-and-galleries/tolson-museum/tolson-story.aspx>>, Accessed 22 April 2022

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alongside those of the Empire and other countries. Some 4.5 million people visited the exhibition over its six-month run, including large numbers of working-class visitors, many of whom travelled on special trains.¹³ Hudson suggests that the series of world's fairs which followed the 1851 exhibition 'gave museums a social power that they had never had before'. The large numbers of visitors demonstrated that 'the sciences and the useful arts were the proper concern of the community as a whole.'¹⁴ Profits from the Great Exhibition enabled the development of South Kensington into a museum complex, although the Science Museum was not formally established until 1909.¹⁵ A nationally-funded Industrial Museum of Scotland was founded in 1854; its role gradually expanded and – after several changes of title – it is now the National Museum of Scotland.¹⁶

The Victorian period saw the promotion of 'Rational Recreation' which Peter Bailey argues was a movement aimed at controlling the working classes by providing forms of leisure that would be alternatives to drinking and unruly behaviour.¹⁷ It brought about a diverse range of opportunities, such as the provision of public parks and the creation of sports clubs, brass bands and choral societies. Arnaud Page points out that from the early 19th century, 'enclosure Acts started to include the provision of allotments as a way of compensating the loss of common lands', and that the allotment movement was 'increasingly favoured as a way of appeasing agricultural

¹³ Christopher Marsden, 'The Great Exhibition of 1851' [online], *The Gazette*, Available from <<https://www.thegazette.co.uk/all-notices/content/100717>>, Accessed 1 February 2022

¹⁴ Hudson, p.41

¹⁵ Robert Bud, 'Infected by the Bacillus of Science: The Explosion of South Kensington', in *Science for the Nation* (Basingstoke: Palgrave Macmillan, 2010), p.32

¹⁶ Lewis, pp 29 & 32

¹⁷ Peter Bailey, *Leisure and Class in Victorian England* (London: Routledge & Keegan Paul, 1978)

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labourers.’¹⁸ In 1834 a Select Committee on drunkenness had brought three bills before Parliament, proposing that local committees be empowered to raise rates to establish walks, paths, playgrounds, halls, theatres, museums and art galleries. This plan did not succeed, but in 1854 legislation was passed to enable local authorities to establish municipal museums and galleries.¹⁹ The South Kensington Museum – forerunner of the Victoria and Albert and Science Museums – opened in 1857. Its first Director, Henry Cole, argued that museums could help workers to avoid drunkenness:

If you wish to vanquish Drunkenness and the Devil, make God’s day of rest elevating and refining to the working man... show him pictures of beauty on the walls of churches and chapels; but, as we cannot live in church or chapel all Sunday... open all museums of Science and Art after the hours of Divine service... The Museum will certainly lead him to wisdom and gentleness, and to Heaven.²⁰

In 1885 the trustees of the British Museum voted to open on Sunday afternoons, but it would be a further eleven years before the museum would be able to open on Sundays, along with the National Gallery, South Kensington museums, and the Bethnal Green Museum – the last of these was in one of the poorest areas of London, evidently placed there to help ‘improve’ the working class population. As late as the early 1980s, most of the national museums (and some local museums) remained closed on Sunday mornings, presumably the legacy of a time when

¹⁸ Arnaud Page, ‘Meaningful Plots: Leisure, “Rational Recreation” and the Politics of Gardening in British Allotments (Mid 19th -Mid 20th Centuries)’, *Angles. New Perspectives on the Anglophone World*, 5, 2017, unpaginated

¹⁹ Bennett, pp 19-20

²⁰ Sir Henry Cole, *Fifty Years of Public Work of Sir Henry Cole, KCB, Accounted for in his Deeds, Speeches and Writings*, (London: George Bell & Sons, 1884) Volume 2, p.368

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museum staff and visitors would be in church. This practice gradually died out – perhaps as more secular opportunities for relaxation - such as more widespread Sunday trading – appeared, but was still being followed by some museums into the 1980s. Evening opening, intended to allow people to visit after work, seems to have disappeared over time, but in recent years some museums have offered evening events, and sleepovers for both children and adults.²¹

A letter in *The Times* in 1883 pointed out that nearly 30% of visitors to the South Kensington Museum, and nearly half of those who visited the Bethnal Green Museum, did so during these museums' evening opening hours.²² 'The figures make it clear...' Hudson points out, 'that by the end of the nineteenth century, museums were being visited by large numbers of people who could not be described as students.'²³ Gas lighting in the museums was being replaced by electricity, which apparently made the exhibits easier to see. The British Museum had previously rejected requests for evening opening on the grounds that gas lighting might damage the exhibits. While these visitors were evidently self-guided, special facilities were afforded to some: the Director of the Museum of Natural History, Sir William Flower, 'popularised the institution and science by taking parties of working men round the museum on Saturdays... On Sundays he would take a few busy men, whose occupations prevented their being able to come on week-days...'²⁴ Hudson notes that in catering for the latter group, which included judges, ambassadors, artists and

²¹ Natural History Museum, *Dino Snores for Kids* [online], Available from <<https://www.nhm.ac.uk/events/dino-snores-for-kids.html>>, and *Lates*, Available from <<https://www.nhm.ac.uk/events/lates.htm>>
Royal Air Force Museum, *Pillows & Pilots* [online] Available from <<https://www.rafmuseum.org.uk/london/whats-going-on/events/pillows-and-pilots-groups-london/>>, All accessed 16 March 2022

²² Charles Hill, 'The Evening Opening of Museums and Galleries' *The Times*, 2 November 1883

²³ Hudson, p.71

²⁴ Yearbook of the Royal Society, No.5, 1991

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MPs, Flower had 'taken over the patronage-function of the prince who guided favoured people round his art gallery in precisely the same way.'²⁵ To this day, museum directors retain an element of the power represented by cabinets of curiosity, although those who receive special treatment are most likely to be being courted as potential sponsors and donors.

Whereas visitors to the British Museum in the early 19th century were led round the exhibits by guides, by the middle of the century museums – perhaps because larger visitor numbers made guided tours impracticable – had evolved to leave visitors to guide themselves. This often required the displays to be laid out in a logical sequence: the Tower Armouries were rearranged chronologically, and the Museum of Practical Geology became 'an automated space of self-instruction.'²⁶ When the Royal Air Force Museum opened in 1972, its aircraft were arranged in chronological order, to show the progress made in British military aviation from 1912.²⁷ Today, guided tours have reappeared in many museums, in the form of talks on specific topics, often delivered by volunteer guides.

The British Association for the Advancement of Science reported in 1887 that half of the 211 museums outside London had their origins in collections assembled by local societies, and another 25% were based on private collections. The Wallace Collection was bequeathed to the nation in 1897 and opened in 1900; philanthropists such as Carnegie, Passmore Edwards and Tate helped to provide new museums

²⁵ Hudson, pp 71-72

²⁶ Bennett, pp 198-199

²⁷ John Tanner, *The Royal Air Force Museum. 100 Years of Aviation History* (London: Pitkin Pictorials, 1975) pp18 & 24

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and local authorities were empowered by two Acts of 1891 and 1892 to provide and maintain museums.²⁸

Kavanagh states that in 1920 there were 424 museums in Great Britain, of which 215 had been founded or built between 1890 and 1914, and 158 were run by local councils, while others were part of universities or private societies. She writes that 'This growth in museum provision ... was not to be seen again until the heady days of museum expansion in the late 1970s.'²⁹ Some of this growth can be attributed to the increasingly urban and industrialised nature of Britain, where Mechanics' Institutes were fostering learning among the working class, civic pride had perhaps seen a local museum as a desirable asset promoting the worth of the town, and 'interesting but redundant collections and industrialists and entrepreneurs with both money and a yen to have their names remembered' were available.³⁰ However, many small museums were not run by professional curators – indeed the Museums Association was only founded in 1889; it ran its first training course in 1930 and launched its Diploma in 1935.³¹ Curatorship might be included in the role of a town's librarian, and small museums were often in the care of local retired people or those with a private income.³² By 1914 the UK had museums dedicated to anthropology, archaeology, natural sciences and many forms of art, while 'technology had established a foothold, but as a means of explaining technical advances and design development, rather than as a means of recording work or work practices.'³³

²⁸ Kavanagh, *Museums and the First World War* p.13;

²⁹ Kavanagh, p.8

³⁰ Kavanagh, p.8

³¹ Museums Association, *Our Story* [online], Available from <<https://www.museumsassociation.org/about/our-story/>>, Accessed 17 March 2022

³² Kavanagh, *Museums and the First World War*, p.17

³³ Kavanagh, p.19

The First World War brings challenges and opportunities for museums

Perhaps surprisingly, in 1917 there few military or war museums other than the Royal Armouries in the Tower of London, the Royal Artillery Institution's collection at Woolwich, the Royal Engineers Institution at Gillingham and the Royal United Services Institution in Whitehall. Nevertheless, individual regiments and corps had assembled collections of memorabilia – particularly trophies captured from the enemy – and there was a small collection in Bristol of mementoes from the Crimea and Indian Mutiny, mostly donated by veterans.³⁴ Museums were by no means unaffected by the First World War: they were enlisted to support the war effort through exhibitions – which might be regarded as propaganda – and through research into geology, natural history and other scientific work. They were a channel through which the public could be educated in areas such as food production to help supplement the rationing which the war necessitated, hygiene, motherhood and infant welfare. With curators and other staff volunteering or being called up for service, many museums employed retired or disabled men, and women began to be appointed to curatorial posts; volunteers helped with curatorial tasks such as cataloguing, writing labels and research. When men returned after the war, most of the women left but one in three remained in employment. Gladys Barnard, who had joined the Castle Museum in Norwich in 1904 as a typist, remained and eventually became Curator in 1937, retiring in 1951.³⁵

³⁴ Kavanagh, p.19

³⁵ Kavanagh, pp 56-57

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Museums across the nation collected material relating to the war, and exhibitions of munitions and the technology of war attracted eager audiences who had never before been so close to war: Britain's previous conflicts had been overseas, with much smaller numbers of personnel involved than the vast armies and other forces serving at home and overseas. The Science Museum established a 'Warfare Collection' in 1914 including models of British warships and submarines, British and foreign aircraft, as well as some full-size aircraft engines and a model airship. Kavanagh notes that this 'suggests considerable foresight on the part of the museum and an awareness of the changes taking place' in warfare.³⁶ The Science Museum had reacted to a developing technology by mounting a temporary exhibition on aviation in 1912. Museums, with their useful footfall, were enlisted as venues for exhibitions prepared by the Foreign Office's Department of Information, aimed at encouraging support for the war, while the Ministry of Munitions created a touring exhibition on women's work.³⁷

Cecil Grundy put forward a proposal to establish a war museum in every centre of population, containing rolls of honour, records of local regiments and collections of photographs and press cuttings, to act as a memorial to those from the local community who had served.³⁸ At the same time, plans were being drawn up for the establishment of a National War Museum (later renamed the Imperial War Museum); the National Museum would work with the newly-formed Local War Museums Association but would take priority. The IWM – founded in 1917 - saw its role as both

³⁶ Kavanagh, p.66

³⁷ Kavanagh, pp 68-69

³⁸ Kavanagh, pp 105-107

‘a place of study and... one of commemoration’.³⁹ Although several towns were interested in creating their own war museums, this interest waned. Some relics were distributed by the War Office, with tanks and guns being displayed in local parks; these and smaller weapons would disappear by 1940 as the Second World War brought a need for new weapons.

Between the Wars: British museums take stock

The end of the war also brought growth in the number of regimental museums. Material relating to these units’ part in the war – their triumphs, heroes and sacrifice – was added to collections of memorabilia, silver and war trophies which had accumulated during previous campaigns. If, as is sometimes argued, a regiment or corps is a family, such museums guarded the heirlooms and ‘family silver’ which are tangible reminders of the family’s history. The National Army Museum’s origins lay in the collection of material relating to the Indian Army, brought back to the UK after its disbandment in 1947 and first displayed in the Indian Army Memorial Room at the Royal Military Academy Sandhurst in 1951.⁴⁰ The number of military museums grew to around 50 in the 1930s, although since they were generally managed by serving or retired officers with no formal museum experience or training, they may have had much in common with cabinets of curiosity.⁴¹ In 1935 Lieutenant-Colonel L I Cowper called for cooperation between civil and military museums and suggested that a committee be formed comprising experts in the history of military uniforms and museum experts. The committee’s role would be to formulate a policy for military

³⁹ Alys Cundy, ‘Thresholds of Memory: Representing Function through Space and Object at the Imperial War Museum, London, 1918–2014’, *Museum History Journal*, 8.2 (2015), p.247

⁴⁰ National Army Museum, *A Brief History of the National Army Museum* [online], Available from <<https://www.nam.ac.uk/explore/brief-history-national-army-museum>>, Accessed 22 April 2022

⁴¹ L I Cowper, ‘British Military Museums’, *Museums Journal*, 35 (1935), pp 40–49

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museums in the UK as a whole and prevent overlapping. This suggestion met with no success until 1954 when the Army Museums Ogilby Trust was formed 'to be a friend to all regiments alike, and to assist them in their various efforts to preserve their records in the widest possible meaning of the term.'⁴²

Catherine Pearson argues that - contrary to the accepted view - the period between 1926 and the start of the Second World War was a time when the role and activities of museums changed.⁴³ She points out that museums in the UK, operating in a variety of sectors, needed to be reformed and modernised if they were to play an important part in society.⁴⁴ A Royal Commission was appointed in 1927 to examine the national museums and galleries, whilst the non-national 'provincial' museums were the subject of two reviews commissioned by the Carnegie United Kingdom Trust. These reviews were published as the Miers Report in 1928 and the Markham Report in 1938.⁴⁵ Henry Miers was President of the Museums Association [MA] (effectively the curators' professional body and an advocate for museums) from 1928 to 1933 and also served on the Royal Commission from 1931. He promoted museums as a resource for education, something which the MA had resisted in 1919 when the Ministry of Reconstruction had recommended that museums and libraries should come under the Board of Education and be administered by Local Education Authorities. The MA had felt that museums were primarily for collections, with

⁴² Army Museums Ogilby Trust, *Our History* [online], Available from <<https://www.armymuseums.org.uk/about-amot/>>, Accessed 18 February 2022

⁴³ Catherine Pearson, *Museums in the Second World War*, ed. by Suzanne Keene (London: Routledge, 2017), p.5

⁴⁴ Pearson, p.27

⁴⁵ Henry Miers, *A Report on the Public Museums of the British Isles (Other Than the National Museums) to the Carnegie United Kingdom Trustees* (Dunfermline, 1928)
S Frank Markham, *A Report on the Museums and Art Galleries of the British Isles (Other Than the National Museums) to the Carnegie United Kingdom Trustees* (Dunfermline, 1938)

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education as a lower priority.⁴⁶ The Carnegie Trust's strong support for education, particularly through libraries and museums, was doubtless a factor in its commissioning the Miers and Markham studies.

Miers was an ardent advocate for museums, arguing that many museums were in desperate need of improvement:

The very word 'museum' excites quite the wrong impression in the minds of people who have never seen one of the few that are really good. This is not surprising when one considers how dull many of them have become and how low the worst of them have sunk.⁴⁷

The Miers Report made recommendations regarding museums at national, regional and local levels: there should be a museum in every town, collecting material relating to the location – he had found that many local museums were displaying collections of a general nature. At the regional level a county museum would be responsible for arranging exchanges and loans and for circulating collections to rural regions. At the national level museums should receive funding from government departments, private benefactors, and public trusts. New museums could be developed representing industrial, agricultural and folk collections, while travelling exhibitions should promote education, agriculture and health.⁴⁸

The Royal Commission, while focused on the national museums, made some recommendations in Part 1 of its Final Report which had implications for the wider

⁴⁶ Pearson, pp 26 & 30

⁴⁷ Miers Report, p.80

⁴⁸ Pearson, pp 29-30

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sector. These included setting up a Standing Commission (formed in 1931) to oversee developments in both the national and the provincial museums; branches of the national museums should be set up in large centres of population, and the nationals could share more of their 'surplus wealth' through loans to provincial museums.⁴⁹ Unfortunately, not long after the Miers Report and the first part of the Royal Commission's final report were published, the Depression brought spending cuts which severely affected museums – particularly capital projects. Parts of the British Museum and Tate Gallery were closed and both staff numbers and salaries were reduced. By 1932 expenditure had begun to rise again, a trend that continued despite competing demands for spending on education and rearmament as Germany became recognised as a threat to peace.⁵⁰ In the period 1931-1935, a total of 63 new museums were established in addition to regimental museums.⁵¹

Once again, the Carnegie UK Trust supported museums, giving grants to help rural museums services subject to their raising matching funds and having 'a competent curator'. The Museums Association introduced training for curators, leading to the award of its Diploma, and this brought a threefold increase in membership. In 1936 the Trust commissioned a further review of provincial museums, by Frank Markham, which was published in 1938. The review noted that the number of such museums had risen from the 530 identified in the Miers Report to approximately 780 – an increase of nearly 50% in ten years. Like Miers, Markham promoted the educational role of museums, which he felt had outshone the curator's traditional roles of collector, custodian and research. His report called for the establishment of good

⁴⁹ Royal Commission on National Museums & Galleries, *Interim Report* (1928), *Final Report, Part I* (1929); *Final Report, Part II* (1930), London: HMSO

⁵⁰ Pearson, p.30

⁵¹ Lewis, p.35.

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quality museums in towns which did not already have one; museums' collecting policies should reflect their locality and be relevant to the community. It was important to develop the profession through further training schemes which would support the raising of salary scales and thus attract and retain high-calibre staff. This would require the finances of local museums to be strengthened, particularly for the provision of purpose-built museum buildings meeting modern standards and offering improved public facilities. The MA would have to expand its work as an advocate for museums, and the Standing Commission was encouraged to meet its remit in facilitating collaboration between national and local museums. Pearson points out that Markham's call for a nationwide museum service, which would be funded by a grants board, the Board of Education or a new cultural ministry, was made at a time when the state was centralising functions such as electricity generation (establishing the National Grid), broadcasting and creating a national road network. The Board of Education was unconvinced, believing that the Treasury would not sanction the use of government money to support local museums. With war looming the proposal was put on hold.⁵²

While the Miers and Markham reports and the Royal Commission had been examining what might be termed 'mainstream museums', the number of volunteer-run museums in villages and small towns was growing. In the early twentieth century, changes in the teaching of history in schools had given more emphasis to local history, which could be used to illustrate aspects of the broader historical context. Bridget Yates points out that changes in rural communities – such as the expansion of suburbs and the increase in commuting - had prompted the collection

⁵² Pearson, pp 39-42

of material associated with everyday life in the community.⁵³ In the 1920s the Women's Institute began to encourage its members to learn about local history, and to research and publish the history of their village.⁵⁴ The National Council of Social Service had set up a Local History Sub Committee in 1938; it eventually became the British Association for Local History. Kavanagh suggests that one influence in the growth of local history in the latter part of the 1930s was the need to escape from 'the war, the depression, social division, industrial strife and the frightening changes taking place in Nazi Germany'.⁵⁵

Museums during the Second World War

As war approached, the national museums and galleries moved their most important collections into safe storage outside London, although local museums remained relatively unprotected. It was expected that air raids – as exemplified by the bombing of Guernica in 1937 – would cause heavy casualties and damage to property, so the Government ordered the closure of places where crowds might gather, such as cinemas, theatres and the national museums. Almost immediately, a campaign began to reopen museums, perhaps helped by the 'Phoney War' in which large-scale hostilities did not begin until May 1940, but certainly helped by the involvement of provincial museums in educating children evacuated from the cities. The Government realised that entertainment in some form would help to maintain morale and that cultural events could contribute to meeting this need.⁵⁶ Most notably, the

⁵³ Yates, pp 177-181

⁵⁴ Yates, pp 218-223

⁵⁵ Gaynor Kavanagh, *History Curatorship* (Leicester: Leicester University Press, 1990), p.22

⁵⁶ Pearson, p.89

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National Gallery reopened as a venue for lunchtime concerts.⁵⁷ *The Times* reported that

The National Gallery, or at any rate that part of it, including the dome and its transepts which have been set apart by Sir Kenneth Clark for music, was packed out at the first of the new series of concerts which began yesterday... Miss Myra Hess, who has been the prime mover in the scheme, led off very appropriately with a piano recital... Plainly the National Gallery, deserted by one Art, has found a new function in the service of another.⁵⁸

As in the First World War, museum buildings were requisitioned for a variety of purposes, such as a School of Signals at the Science Museum and the Special Operations Executive using workshops and galleries at the Natural History Museum.⁵⁹ Similarly, the Ministry of Information viewed museums as sites for exhibitions informing the public about the progress of the war, but this was not well received by curators, who questioned the value of such propaganda.⁶⁰ The Ministry also questioned the value of siting its exhibitions in museums, which it viewed as 'dull and unaccustomed places, instead of placing it in front of the public where the public normally goes'.⁶¹

From 1942 the emphasis shifted from propaganda to travelling exhibitions, particularly featuring works by war artists. The Council for the Encouragement of Music and the Arts [CEMA] had been created in 1940 and was closely linked to

⁵⁷ Pearson, pp 69-72

⁵⁸ 'National Gallery Concerts', *The Times*, 11 October 1939, p.6

⁵⁹ Pearson, pp 67-68

⁶⁰ Pearson, pp 76-78

⁶¹ The National Archives (henceforth TNA) INF 1/132, Bloxham to Royle, February 1942

museums and galleries, although it was mostly concerned with the promotion of art, music, dance, and drama. CEMA's strategy might be described as 'pump priming' - supporting events such as concerts to build audiences and demonstrate demand, and thus encourage local authorities to take over the funding of such activities in their area. CEMA would provide advice, recommending and organising suitable events.⁶² Museums were thus seen as still functioning and worthy of support, despite the bulk of their collections having been moved to safe storage. Regional federations had been set up before the war; they acted as forums for discussing problems and plans for post-war reconstruction. Some of them pooled resources in lending works of art to military camps and canteens or in contributing material to the National Buildings Record. These federations eventually led to the Area Museum Services set up in the 1960s.⁶³

Transition to Peace

The Arts Council was created in 1945, under the control of the Treasury. During the late 1940s the British economy was struggling, not just with the impact of the expenditure that had been needed for the war, but also with major government projects such as the Welfare State, nationalising industries such as coal and railways, and rebuilding war-damaged towns and cities. Museums had to take a lower priority for funding; their education and outreach work accordingly gave way to bringing collections back from safe storage, and tackling cataloguing and conservation backlogs.⁶⁴ A proposal that the MA should work through Local Education Authorities [LEAs] rather than a separate Grants Board failed, as curators

⁶² Pearson, pp 90-91

⁶³ Pearson, pp 96-97

⁶⁴ Pearson, p.202

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were concerned the funding from the Ministry of Education, via LEAs, would bring pressure to concentrate on education and divert work away from caring for museum collections. Pearson comments:

In 1949, therefore, the museum profession rejected the best chance to effect the transformation of the museum service, just as in 1919 an earlier generation of curators had voted against Board of Education funding.⁶⁵

National and local funding remained tight in the 1950s resulting in most museums being unable to reflect changes in popular culture. A few were able to develop, but for most recovery was slow. Visitor numbers declined from the 1950s, partly due to a perception that they had reverted to being dusty mausoleums but also due to competition from television – ownership of sets had boomed with the Coronation in 1953 – and cheaper holidays. Museums run by private societies suffered severely, with some having to close while others (such as the Bowes Museum and the Yorkshire Museum) were taken over by local or county councils.⁶⁶ Rebuilding and new infrastructure work revealed archaeological remains which put pressure on museum archaeologists, while interest in industrial sites no longer suitable for their original purpose led to the industrial archaeology movement which gained pace in the 1960s and 1970s.⁶⁷

Local growth

In contrast, volunteer-run museums saw significant growth after the war. As life returned to relative normality after the war, there was a renewed interest in local

⁶⁵ Pearson, p.203

⁶⁶ Pearson, p.207

⁶⁷ Lewis, pp 38-39

history. The Festival of Britain gave the impetus to many local exhibitions celebrating communities' history. Yates suggests that the television programme *Animal, Vegetable and Mineral*, first broadcast in 1952, in which experts were challenged to identify objects and specimens from museums, also raised interest in history.⁶⁸ The National Council of Social Service published a journal, *The Amateur Historian*, from 1952. Lionel Munby explained that adult education classes nurtured both those who were keen to learn about their surroundings' past, and 'active amateur workers' who would carry out research, publish their findings and create exhibitions. Local history societies:

unlike many older ones, met in the evenings, not in daytime. They were no longer the preserve of people of independent means and the retired but were often run by working people.

Munby used the phrase 'history from below' to describe this broadening of history from academia to enthusiastic amateurs.⁶⁹ Ludmilla Jordanova feels that 'history... as a hobby for amateurs, is an important phenomenon... the difference between professional and amateur historians is probably not as clear-cut as the former think' while Raphael Samuel argued that professional historians deride 'the enthusiasts [who] assemble some of the raw materials from which serious history can be constructed... but who are too often condemned as mere 'fact grubbers'.'⁷⁰

⁶⁸ Yates, p.312

⁶⁹ Lionel Munby, D Huw Owen, and James Scannell, *Local History since 1945: England, Wales, Ireland* (London: Socialist History Society, 2005), pp 15-16

⁷⁰ Ludmilla Jordanova, *History in Practice*, 2nd edn (London: Hodder Arnold, 2006), p.134
Raphael Samuel, *Theatres of Memory* (Verso, 1994), p.27

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Local history groups and museums saw renewed growth in the 1950s, perhaps due in part to incomers becoming curious about the history of the communities they had joined, but this also reflects the reaction in the interwar years to the spread of the suburbs. As Hewison suggests, a major influence in the development of volunteer-run museums has been people's reaction to change and the potential loss of familiar objects and surroundings, for example the spread of suburbs into rural areas which transformed fields into housing estates. This is echoed by Neil Cossons, who points to 'rapid changes in the landscape as the results of urban and industrial renewal and new farming practices' together with 'increased wealth, leisure and mobility, the impact of good quality documentary television with good coverage of archaeology and natural history' as having helped to increase awareness of place and environment.⁷¹ The 'Memory Boom', which led to the opening of many museums in the 20th century, has been attributed by Jay Winter partly to the role of memory in helping to form national, social, cultural and personal identities, and partly to the increased proportion of university-educated people in the population.⁷² This latter point chimes with Kevin Walsh's description of the growth in working- and middle-class households' income during the 1950s and 60s, leading to an increase in leisure activity.⁷³ Arthur Marwick states that average weekly earnings of men almost doubled between 1951 and 1961, and by 1971 they were almost four times the 1951 figure.⁷⁴ Kavanagh points to the adoption of a five-day working week which created a longer weekend, workers' entitlement to longer periods of paid holiday and a

⁷¹ Neil Cossons, 'Independent Museums', in *Manual of Curatorship: A Guide to Museum Practice*, ed. by John M A Thompson, 2nd edn (Oxford: Butterworth-Heinemann, 1992), p.113

⁷² Jay Winter, *Remembering war. The Great War between memory and history in the Twentieth Century*, (New Haven: Yale University Press, 2006)

⁷³ Kevin Walsh, *The Representation of the Past: Museums and Heritage in the Post-Modern World*. (London: Routledge, 1992)

⁷⁴ Arthur Marwick, 'A Social History of Britain 1945-1983', in *Introduction to Contemporary Cultural Studies*, ed. by David Punter (Harlow: Longman, 1986), p.31

lowering of the retirement age, all of which created a market for leisure, whether visiting museums or helping to run them.⁷⁵ A further factor originating in the 1970s was the “New Museology” – a reaction to a perception that museums had failed to react to changes in the modern world, becoming elitist and outdated.⁷⁶ Emphasis was placed on engaging with museum visitors and broadening access to collections. Kasia Tomasiewicz describes how the IWM evolved from quasi-academic ‘detailed narratives of war’ to telling the stories of people’s involvement in conflict.⁷⁷

During the 1980s the number of museums in the UK grew rapidly, together with an expansion of ‘heritage’ exemplified by the trend for ‘living museums’ such as Beamish, Ironbridge and *The Way We Were* at Wigan Pier. Robert Hewison argues that ‘instead of manufacturing goods, we are manufacturing *heritage*’ [emphasis in original text] which he associates with the disruptive effects of modernisation and recession.⁷⁸ This, he argues, is the result of major changes that Britain had undergone since 1945, including post-war reconstruction, the creation of New Towns and the Beeching report which led to drastic reductions in the rail network. The latter had a much greater effect on the population – in terms of access to public transport – than it had on the many train enthusiasts. Hewison points out that ‘Nostalgia is felt most strongly at a time of discontent, anxiety or disappointment, yet the times for which we feel nostalgia most keenly were often themselves periods of disturbance.’⁷⁹

⁷⁵ Kavanagh, *History Curatorship*, p.47

⁷⁶ Vergo, *The New Museology*.

Vikki McCall and Clive Gray, ‘Museums and the “New Museology”: Theory, Practice and Organisational Change’, *Museum Management and Curatorship*, 29 (2014), pp 20-21

⁷⁷ Kasia Tomasiewicz, “‘We Are a Social History, Not a Military History Museum’ Large Objects and the “Peopling” of Galleries in the Imperial War Museum, London’, in *Museums, Modernity and Conflict. Museums and Collections in and of War since the Nineteenth Century*, ed. by Kate Hill (London: Routledge, 2021), pp 225–227

⁷⁸ Robert Hewison, *The Heritage Industry: Britain in a Climate of Decline* (London: Methuen, 1987), pp 9-10.

⁷⁹ Hewison, p.45

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Samuel disputes this view, pointing out that industrial museums were first conceived in the 1950s/60s, when the UK enjoyed full employment, but also comments on a vertiginous sense of disappearing worlds – or what was called in the 1960s... ‘Vanishing History’... amplified in the 1970s by a whole series of separation anxieties which affected now one sector of national life, now another; by the destruction or run-down of regional economies.⁸⁰

Many of these museums were set up as charitable trusts or limited companies, relying on income from admission charges, shops and cafes to meet their running costs and seeking grants from tourist boards and other sources to finance development projects.⁸¹ Many developed strong commercial, entrepreneurial skills and thrived.

Volunteer-run museums have not only addressed local history; Candlin investigated what she calls ‘micromuseums’ – small, independent museums, mostly run by volunteers. She suggests that the formation of such museums began in the 1960s, and explains that they deal with ‘all manner of subjects’ including cartoons, vacuum cleaners, sewing machines and tomatoes.⁸² Candlin notes that there is a trend for such museums to be ‘out of synch’ with mainstream museums’ tendency to display relatively few objects in their exhibitions, supported by text and images.⁸³ She cites the example of the British Vintage Wireless & Television Museum in West Dulwich, opened in 1974, which displays ‘an unrivalled collection of early radios, televisions,

⁸⁰ Raphael Samuel, *Theatres of Memory* (Verso, 1994), p.144

⁸¹ Adrian Babbidge, Rosemary Ewles, and Julian Smith, *Moving to Museum Trusts: Learning from Experience Advice to Museums in England & Wales Part 1: Strategic Overview* (London: Museums, Libraries and Archives Council, 2006), p.17

⁸² Candlin, Butler, and Watts, p.2.

⁸³ Candlin, *Micromuseology: An Analysis of Small Independent Museums*, p.23

loudspeakers and radiograms that grew from one man's personal interest to become a source of information and delight for enthusiasts and experts from around the world.⁸⁴ Photographs on its website show shelves laden with dozens of sets, as well as valves and other related equipment.

Whilst her comment regarding smaller numbers of objects being displayed is correct, in recent years a trend has developed among professionally-run museums for 'storage on display'. Most museums have far more objects in their collections that can be used in curated exhibitions, and they are sometimes perceived as being locked away and inaccessible, with museums being challenged to justify the need for material that is not displayed and for (often expensive) storage facilities. One strand of the New Museology has been enabling visitors to have access to stored collections, albeit with rather limited captioning and explanatory text. Examples include the London Transport Museum's Depot (opened 1999), the Natural History Museum's Darwin Centre (2009), and Derby's Museum of Making (2021), where some 30,000 objects – from small badges to large items of railway signalling equipment – are arranged according to the material from which they are made.⁸⁵ The National Railway Museum and RAF Museum are currently planning similar projects.⁸⁶ Opening storage to visitors shows a museum's commitment to providing

⁸⁴ British Vintage Wireless & Television Museum, *Introduction* [online], Available from <<https://www.bvwm.org.uk/introduction.htm>> *The Wireless Collection* [online] Available from <https://www.bvwm.org.uk/wireless.htm> Both accessed 17 March 2022

⁸⁵ London Transport Museum, *Museum Depot* [online], Available from <<https://www.ltmuseum.co.uk/visit/museum-depot>> Natural History Museum, *Darwin Centre* [online], Available from <<https://www.nhm.ac.uk/visit/galleries-and-museum-map/darwin-centre.html>> Museum of Making, *The Assemblage* [online], Available from <<https://www.derbymuseums.org/collection/the-assemblage/>> All accessed 3 May 2022

⁸⁶ National Railway Museum, *Open Store* [online], Available from <<https://www.railwaymuseum.org.uk/2025/open-store>>

access, and the development of collections management systems has enabled museums to give online access to their catalogues. It also enables curators to seek help from the community in identifying objects that have no catalogue record. As an example, the model aircraft in Figure 1 was identified when the photograph was



Figure 1: ‘Storage on Display’: A packed display case at the Museum of Making: the apparently random assemblage of artefacts might be seen as a modern cabinet of curiosities. (Author’s photograph)

posted on Twitter; it is a Rolls-Royce proposal for a vertical take-off fighter. Online exhibitions have become common, whether created specifically for the internet or as a means of providing access to a temporary exhibition which has closed.⁸⁷

Royal Air Force Museum, *Collections Hub* [online], Available from <<https://www.rafmuseum.org.uk/support-us/introducing-the-raf-midlands-programme/new-collections-hub/>>

Both accessed 6 July 2023

⁸⁷ St Albans Museums, *Explore the Collection* [online], available from <<https://collections.stalbansmuseums.org.uk/explore>> and *Exhibitions Archive* [online], Available from <<https://www.stalbansmuseums.org.uk/whats-on/archive>>, British Museum, *Past Exhibitions* [online], Available from <<https://www.britishmuseum.org/exhibitions-events/past-exhibitions>> All accessed 6 June 2022

Restructuring the sector

The funding of the museums sector changed in the mid-1960s: the Rosse Report surveyed non-national museums and made 37 major recommendations to improve their funding, their relationship with national museums, and museum education services; a particularly important result was the creation of Area Museum Councils.⁸⁸ The Department of Education and Science [DES] came into being in 1964 and a White Paper, *A Policy for the Arts* was published in February 1965.⁸⁹ Responsibility for the arts (including museums and libraries) was transferred from the Treasury to the DES, and purchase grants to local museums would be increased from £54,000 to £108,000 per annum.⁹⁰ The Office of Arts and Libraries was set up in 1979 and became a major part of the Department of National Heritage in 1992. That department was renamed Department for Culture, Media and Sport [DCMS] in 1997, with a further rebranding in 2017 adding 'Digital' to the name.⁹¹

More fundamental change – in terms of the organisation of national museums, and the way in which they were funded - came in the 1980s. The staff of the national museums had always been civil servants, but in 1976 Britain had faced a financial crisis and sought help from the International Monetary Fund. Conditions imposed by the IMF required widespread cuts in public spending, leading to a requirement to

⁸⁸ Standing Commission on Museums and Galleries, *Survey of provincial museums and galleries*, (London: HMSO, 1963).

Babbidge, pp 18-20.

⁸⁹ Cmnd. 2601, *A Policy for the Arts: The First Steps* (London: HMSO, 1965)

⁹⁰ *A Policy for the Arts*, p.18

⁹¹ TNA, *Records created or inherited by the Department of Education and Science, and of related bodies* [online], Available from <<https://discovery.nationalarchives.gov.uk/details/r/C101>> *Records created or inherited by the Department of National Heritage and the Department for Digital, Culture, Media and Sport and Predecessors*, Available from <<https://discovery.nationalarchives.gov.uk/details/r/C348>>, Both accessed 24 February 2022

reduce the size of the civil service.⁹² The Conservative government elected in 1979 carried this forward, seeing the civil service as inefficient. The Prime Minister stated, 'The present Government are committed both to a reduction in tasks and to better management.'⁹³ The reduction in tasks was achieved by disbanding several government agencies and by transferring others to organisations outside the civil service. The National Heritage Act 1983 set up boards of trustees for the V&A, Science Museum, Royal Armouries and Royal Botanic Gardens. The staff were to be employed by the trustees, on terms at least equal to those on which they were employed, but 'no account shall be taken of the fact that employment with the Board is not employment in the service of the Crown.'⁹⁴ Similar arrangements were made for military museums which were part of the Ministry of Defence. While the proposed Act was still being debated, the MOD's Permanent Under-Secretary of State had written to the Permanent Secretary at the DES about the possible transfer of the RAF Museum from the MOD to the DES:

This, if it goes through, will... give the RAF Museum 'devolved status' which the Trustees have been anxious to achieve for some time. It would have the advantage of removing the staff there from my total count of civilian numbers.⁹⁵

Thus several hundred national museum employees found themselves no longer civil servants, although their terms and conditions of employment were effectively the

⁹² Scott Anthony, 'Ambition and Anxiety: The Science Museum 1950-1983', in *Science for the Nation*, ed. by Peter J T Morris (Basingstoke: Palgrave Macmillan, 2010), pp 107–108

⁹³ Hansard, *HC Deb 13 May 1980 vol 984 column 1050*

⁹⁴ National Heritage Act 1983, Schedules 1 and 2, Available from <https://www.legislation.gov.uk/ukpga/1983/47/schedule/2/enacted>, Accessed 8 March 2022

⁹⁵ TNA ED 245/30 Letter from Sir Frank Cooper, Permanent Under-Secretary of State, MOD, to Sir James Hamilton, Permanent Secretary, DES, 12 November 1982, paragraph 2

same.⁹⁶ A further National Heritage Act in 1992 extended the scheme to the National Gallery, the Tate Gallery, the National Portrait Gallery and the Wallace Collection.⁹⁷ Under these Acts, the trustees were given ownership of their buildings and collections, and received block money (Grant-in-Aid) rather than having to bid for an allocation from their parent Ministries' Votes. This gave an element of freedom in the way the museums were able to operate: money from one internal budget (such as building maintenance) could be diverted to another, such as the staffing budget, to support an extra post.

Along with this major change came a move to 'plural funding': national museums were encouraged to supplement their Grant in Aid by seeking grants and donations, and by using their collections to generate income. Examples of the latter include the Science and Society Picture Library, which uses images from (and of) the Science Museum Group's collection, and the National Army Museum's range of products based on reproductions of wartime silk escape maps.⁹⁸ Karsten Schubert points out that this move to plural funding involved swingeing cuts to government funding, not matched by tax concessions to lure potential donors.⁹⁹ A further strand of the plural funding model was encouraging museums to hire out space for events such as book and product launches, conferences and weddings.¹⁰⁰ Schubert comments that 'an

⁹⁶ Personal experience!

Jonathan Lynn & Antony Jay, *Yes, Prime Minister*, Volume 1 (London: BBC Enterprises, 1986), p.154

⁹⁷ National Heritage Act 1992 Available from

<<https://www.legislation.gov.uk/ukpga/1992/44/schedule/1/paragraph/2/enacted>> Accessed 8 March 2022

⁹⁸ Science Museum Group, *Science & Society Picture Library* [online], Available from

<<https://www.scienceandsociety.co.uk/index.asp>>

National Army Museum, *Escape Map Range* [online], Available from

<<https://shop.nam.ac.uk/range/escape-maps/>>,

Both accessed 6 April 2022

⁹⁹ Karsten Schubert, *The Curator's Egg* (London: One-Off Press, 2000), pp 68-74

¹⁰⁰ National Railway Museum, *Case Studies* [online], Available from

<<https://www.hiretherailwaymuseum.com/case-studies>>, Accessed 6 April 2022

elite middle-class pastime gradually evolved into a mass activity and museums changed from state-funded institutions to revenue-generating enterprises, increasingly involved with marketing and fundraising.¹⁰¹ The move to plural funding also brought an emphasis on performance indicators, with museums being required to provide data on criteria such as visitor numbers (and from that, the cost of funding per visitor), visitor profiles, visitor satisfaction and income generated. This change also affected local museums.

From the late 1980s, changes in the way local authorities raised funds led to budgets becoming hard-pressed, and this was exacerbated by the Labour government's policy of modernising local government through the application of private-sector management techniques.¹⁰² Some councils which owned their museums' collections tried to sell objects to raise funds, but this drew severe criticism.¹⁰³ Derbyshire County Council was expelled from the Museums Association in 1991 following the sale of part of its collection.¹⁰⁴ The Museums Association has long held the view that 'collections should not normally be regarded as financially negotiable assets and that financially motivated disposal risks damaging public confidence in museums' although this statement has softened slightly from the view in 1977 that collections should be kept in perpetuity and that there should be 'a strong presumption against

¹⁰¹ Schubert, p.71

¹⁰² Babbidge, Ewles, and Smith, pp 23-25

¹⁰³ Martin Bailey, 'The most important Egyptian sculpture ever to come to market': UK city council risks ire by selling off £6m ancient sculpture', *The Art Newspaper* 1 July 2014 [online], Available from <<https://www.theartnewspaper.com/2014/07/01/the-most-important-egyptian-sculpture-ever-to-come-to-market-uk-city-council-risks-ire-by-selling-off-pound6m-ancient-sculpture>> Accessed 14 March 2022

'Museum keeps status despite sale of paintings' *Bolton News*, [online], Available from <<https://www.theboltonnews.co.uk/news/9148809.museum-keeps-status-despite-sale-of-paintings/>> Accessed 14 March 2022

¹⁰⁴ Ian Robertson, 'Infamous Deaccessions', in *Collections Management*, ed. by Anne Fahy (London: Routledge, 1995), pp 168–81

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disposal'.¹⁰⁵ A number of councils decided that their obligations regarding museums could best be discharged by setting up trusts which would manage their museums and collections – action similar in some ways to the National Heritage Acts of 1983 and 1992 transferring control of national museums from the DES and Ministry of Defence to trustees. Other routes taken include creating Joint Committees to manage a number of museums in a local area, and outsourcing to an independent museum or other heritage organisation.¹⁰⁶

The advent of the National Lottery in 1994 brought major opportunities for museums at all levels to bid for funds for new exhibitions and other projects, via the Heritage Lottery Fund, now the National Lottery Heritage Fund. It represented an opportunity for museums to shake off their image as dull, dusty repositories, which Miers had noted in 1928. This funding supported capital projects such as new buildings, the acquisition of new material and the development of new display techniques which would attract new audiences. During the period 1995-2006 grants totalling over £28.2 million were made to aviation museums: Appendix F lists these awards.¹⁰⁷

When the Labour government came to power in 1997 it pledged to remove the admission charges in national museums that had been introduced during the 1980s, in return for extra funding to compensate for the loss of income. Some opted to retain charging for special exhibitions, an example being the Imperial War Museum:

¹⁰⁵ Museums Association, *Code of Conduct*, Section 2.9 [online] Available from <<https://www.museumsassociation.org/campaigns/ethics/code-of-ethics/2-stewardship-of-collections/>> Accessed 14 March 2022

Janet Ulph, 'Dealing with UK Museum Collections: Law, Ethics and the Public/Private Divide', *International Journal of Cultural Property*, 22 (2015), p.186

¹⁰⁶ Babbidge, Ewles, and Smith, p.1

¹⁰⁷ Extracted from TNA PF 1/1, National Lottery Awards Database: 2001 snapshot and PF 1 /2, 2006 snapshot.

entry to its main London site and IWM North is free, but charges are made for Duxford, the Churchill War Rooms and HMS Belfast.¹⁰⁸ The public's reaction to the decision to remove admission charges was little short of spectacular: the Art Fund reported that visits to museums which had previously charged for admission had more than doubled.¹⁰⁹

Case Studies

The national museums have experienced many changes over the course of the 20th and early 21st centuries. The following case studies look in more detail at the ways in which the Science Museum and Imperial War Museum have developed their aviation collections and the constraints with which they have had to contend.

The Science Museum

The Science Museum was formally established in 1909 and acquired its first aeroplane (S F Cody's Military Biplane) in 1913, although a temporary exhibition – the museum's first - had been held in December 1912. The exhibition included two aeroplanes loaned by pioneer aviators, models, and artefacts from the National Physical Laboratory, Royal Aircraft Factory and the Meteorological Office.¹¹⁰ Such acquisitions clearly represent the Science Museum's role in collecting and documenting developing technologies. As the First World War drew to a close, the

¹⁰⁸ Imperial War Museums, *Our Museums* [online], Available from www.iwm.org.uk/visits, Accessed 24 February 2022

¹⁰⁹ Art Fund, *Free admission boosts sense of public ownership of national museums* [online], 29 June 2009, Available from <<https://www.artfund.org/blog/2009/06/29/free-admission-boosts-sense-of-public-ownership-of-national-museums>>, Accessed 24 February 2022

¹¹⁰ *Report of the Advisory Council of the Science Museum for the Year 1933* (London: HMSO, 1934), p.31

Peter J T Morris, 'Introduction', in *Science for the Nation* (Basingstoke: Palgrave Macmillan, 2010), p.6

'Aeronautics at South Kensington', *Flight*, 5 (1913), p.14

War Office transferred a captured Fokker Eindecker – a monoplane design which had outclassed many British aircraft in 1916.¹¹¹



Figure 2: The Science Museum’s first temporary exhibition – on aeronautics, 1912 (Science & Society Picture Library 10460824)

The Science Museum had designated Aeronautics as a distinct collection in 1919; previously aeronautical material had come under the Naval and Marine Engineering Division. The museum reported the following year that a large new gallery (see Figure 3) was allocated to the new collection and ‘was at once utilised for the exhibition of many objects illustrating important advances in aviation which have

¹¹¹ Ken Ellis, *Wrecks and Relics*, 28th edition, (Manchester: Crécy Publishing, 2022), p.152

taken shape since 1912, when a former exhibition in the Museum illustrated the application of scientific principles to aeronautics at that date.¹¹² Great advances were made in aviation in the inter-war period, which can be summed up as “Higher, Further and Faster” and the Science Museum continued to collect material that represents this progress. The Vickers Vimy which made the first non-stop transatlantic flight in 1919 was donated by the manufacturer, perhaps mindful of its potential to enhance the company’s reputation. Another proponent of aviation, the Under-Secretary of State for Air, Brigadier General John Seely, felt that it would be ‘a far more interesting relic to succeeding generations than many other things that have been kept, such as Stephenson’s *Rocket*.’¹¹³ An object which arguably changed the world even more than *Rocket* was the Wright Flyer, loaned to the Science Museum in 1928 by Orville Wright. He was in dispute with the Smithsonian Institution, which had for many years credited Samuel Langley, rather than the Wright Brothers, with having made the world’s first powered, controlled flight. The Flyer returned to the USA, into the Smithsonian’s care, in 1948.¹¹⁴

¹¹² Science Museum, *Report of the Advisory Council for the Year 1919* (London, 1920), pp 6-7

¹¹³ TNA AIR 2/111/A22443: Letter from Seeley to Sir Alfred Mond, 20 August 1919

¹¹⁴ Tom D Crouch, ‘Capable of Flight? The Wright-Smithsonian Controversy’, in *National Air and Space Museum: An Autobiography*, ed. by Michael J Neufeld and Alex M Spencer (Washington DC: National Geographic, 2010), p.100



Figure 3 - The Aeronautics Gallery in July 1929: the Wright Flyer hangs in the centre of the image, with a Blériot monoplane to the left. (Science & Society Picture Library 10194954)

Significant additions to the Aeronautics collection include the de Havilland Moth flown by Amy Johnson to Sydney in 1930. A model Moth had already been acquired in 1928, and the Advisory Council reported 'This aeroplane has been used very extensively at home and abroad for instructional, private, and general purposes, and marks an important stage in the development of this type of aircraft.'¹¹⁵ The Supermarine S.6b, which won the Schneider Trophy outright for the United Kingdom in 1931, represents the development of both aero-engines and streamlined design, while the Handley Page Gugnunc was designed to demonstrate the crucial

¹¹⁵ Science Museum, *Report for the Year 1928* (London: HMSO, 1929), p.26

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development of leading-edge slots, which enable aircraft to fly safely at low speeds when taking off and landing.¹¹⁶

Whilst the 1930s might be regarded by some as the heyday of the British aircraft industry, during this period the Science Museum had very limited space in which to display its collections, and it is noticeable that - with the exception of the Vimy - the aircraft which were collected are relatively small. The airliners and bombers of the interwar period were too big to be represented other than by scale models or by exhibiting components.



Figure 4 – For many years the Science Museum could only collect aircraft in model form. (Author's photograph).

¹¹⁶ Science Museum, *Mathematics and aviation: the Handley Page 'Gugnunc'* [online], 6 December 2018, Available from <<https://www.sciencemuseum.org.uk/objects-and-stories/mathematics-and-aviation-handley-page-gugnunc>>, Accessed 27 June 2022

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The rate of progress was at times so great that it could be difficult to select truly outstanding aircraft for preservation, and the limited space available also limited the number of aircraft that could be exhibited. The museum's Advisory Council's report for 1930 noted that the aeronautical collection had grown from around 199 items in 1919 to nearly 600. It aimed to show current practice in aviation, but it was very difficult to keep abreast with the existing exhibition space and staff.¹¹⁷ A few full-size aircraft were suspended, giving more floor space for display cases, captioning etc., and by 1933 the museum was working on designs for a new Centre Block in which space would be provided for the aeronautical collection.¹¹⁸

In early 1940 the museum opened a temporary exhibition *Aircraft in Peace and War*, mostly comprising models and small items of equipment.¹¹⁹ The exhibition closed in September 1940, when German attacks on London began and the museum's collections were moved into storage outside London. In 1946 the museum hosted an exhibition on behalf of the Ministry of Aircraft Production, showing German wartime aeronautical developments, visited by over 564,000 people.¹²⁰

By the late 1940s, the Science Museum had received another pioneering British aircraft (the Gloster E.28/39) together with a pre-war Cierva autogiro and several British and German jet engines. A V-1 flying bomb was provided by the War Office in 1945, although a V-2 rocket was not acquired until 1982. All these represented

¹¹⁷ *Report of the Advisory Council of the Science Museum for the Year 1930* (London: HMSO, 1931), pp 26-27

¹¹⁸ *Report of the Advisory Council of the Science Museum for the Year 1933*, p.32

¹¹⁹ Thad Parsons III, 'The Science Museum and the Second World War', in *Science for the Nation* (Basingstoke: Palgrave Macmillan, 2010), p.69

¹²⁰ Science Museum, *Report of the Advisory Council for the years 1940-51*, p.6

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technological advances, although the development of autogiros seemed to have reached a dead end until the 1960s.

The new block was due to be completed in 1943, but a new Aeronautics Gallery opened in the Western Galleries in 1950: press photographs show a rather narrow space with six aircraft suspended from the ceiling and another placed against a wall on which its wings are mounted.¹²¹ The Museum's annual report for 1953 commented that Aeronautics occupied a 'long, narrow temporary gallery' and that the displays had been criticised 'in the public and technical press'.¹²² David Rooney explains that Imperial College's desire to demolish the Western Galleries 'finally convinced the Ministry of Works to recommence the building of the Centre Block'.¹²³ The Museum's annual report made much of the problems that would be caused by the loss of the Western Galleries: there was no other space suitable, and putting the collection in store indefinitely would be 'deplorable'. Much of the material was fragile, and dismantling objects, moving them into store, then back and reassembling would cause damage. The diversion of staff to this task would bring the rest of the museum almost to a standstill, and there would be a serious blow to the Museum's prestige among the aircraft industry and 'the great number of aeronautical enthusiasts'.¹²⁴

In January 1954 correspondence between Allan Wheeler, the Society of British Aircraft Constructors and the Kemsley Trust discussed the idea of a National

¹²¹ 'Aeronautical History Enshrined', *Flight*, 55 (1950), pp 731-732

¹²² Science Museum, *Annual Report for 1953*, p.18

Thurstan James, 'Wanted – a new home', *The Aeroplane*, 85 (1953) p.779

¹²³ David Rooney, "'A Worthy and Suitable House": The Science Museum's Buildings and the Temporality of Space', in *Science for the Nation*, ed. by Peter J T Morris (Basingstoke: Palgrave Macmillan, 2010), p. 169

¹²⁴ Science Museum, *Report of the Advisory Council for 1953*, p.1

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Museum of Aviation, and Sherwood Taylor of the Science Museum suggested that interested parties should meet.¹²⁵ The Royal Aeronautical Society took the idea forward, and although the Museum described itself as ‘benevolently neutral towards such a project which could exist *pari passu* with the Science Museum in the same relationship as the National Maritime Museum’, it had identified at least eight aircraft and several models surplus to [its] requirements which could be transferred if the proposed museum were to be formed.¹²⁶ The proposed National Aviation Museum is discussed more fully in Chapter 7.

When the Centre Block was finally ready, the Aeronautics Gallery - in a much larger space which enabled 24 aircraft to be displayed - opened there in July 1963.¹²⁷



Figure 5 - Alcock & Brown’s Transatlantic Vimy in the Science Museum – probably the Western Galleries, c.1953 – and in the current, much more spacious, Flight Gallery (Left: RAF Museum, uncatalogued; Right: Author’s photograph).

The gallery was redisplayed in the mid-1990s.¹²⁸ Although space in South

Kensington would always be limited, aircraft and other large objects had been stored

¹²⁵ NAL Box 113 File 7, ‘Brief History of National Aeronautical Museum Correspondence’ c.1957

¹²⁶ Science Museum, *Annual Report for 1954*, p.21

¹²⁷ ‘National Collection’, *Flight*, (84) 1963, p.91

¹²⁸ Andrew Nahum, ‘Exhibiting Science: Changing Conceptions of Science Museum Display’, in *Science for the Nation*, ed. by Peter J T Morris (Basingstoke: Palgrave Macmillan, 2010), p.188

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at various sites including West Byfleet in Surrey.¹²⁹ In 1980 the museum created a store for its large objects at the former Royal Naval Aircraft Yard at Wroughton in Wiltshire. Under the Curator of Aeronautics, John Bagley, several aircraft were acquired in the 1980s, ranging from microlights and airships to large airliners. Acquisitions – mostly smaller aircraft, and presumably other artefacts - have continued under subsequent curators. By 1989 the museum was intending to add a turboprop airliner, a second-generation swept-wing airliner and a wide-bodied jet, while also recognising that its collection would need examples of an all-plastic airframe, sport & leisure aircraft, Vertical Take-off developments and helicopters.¹³⁰ However, by 1995 the six hangars at Wroughton were full and in recent years have deteriorated.¹³¹

One major acquisition had to be completed before the museum had acquired space at Wroughton. Arguably the UK's most important post-war aircraft project is Concorde: the technological achievement of developing a supersonic airliner made it a prime candidate for the Science Museum's collection, but how could it be preserved and displayed? Several museums hoped to acquire one of the British prototypes, and a meeting was convened by the Ministry of Defence to discuss an eventual home for Concorde 002, the first British aircraft to fly. In addition to representatives of the Science Museum and RAF Museum, those attending represented the Department of Industry (which "owned" the Concorde project), the

¹²⁹ John Liffen, 'Behind the Scenes: Housing the Collections', in *Science for the Nation* (Basingstoke: Palgrave Macmillan, 2010), p.282

¹³⁰ Air Historical Branch (henceforth AHB) HA 24, File D/DSMS(RAF) 112 – Historic Aircraft Policy – Collection and Preservation and Heritage, Part A Enclosure 57, 'Aircraft Collecting and Preservation Policy Among the National Museums. Notes on a Seminar Held at the Imperial War Museum Duxford on 20 April 1989', pp 2-3

¹³¹ Liffen, p.290

Arts and Libraries Branch of the DES, and the MOD. Several options were considered, including Duxford and various MOD airfields.¹³² It was eventually decided that 002 would be part of the Science Museum collection but be housed in the Fleet Air Arm Museum at Yeovilton in Somerset, together with two aircraft involved in the research and development programme. The second British prototype (01) was donated to the Duxford Aviation Society.¹³³

The Imperial War Museum

As noted earlier, the IWM's role limited its collecting to the period of the First World War, although this was extended in 1939 to cover the Second World War and later to cover armed conflict in general from 1914 onwards.¹³⁴ Space was a major problem for the IWM: only five of the nine aircraft it had collected could be displayed and the others were returned to the RAF when the museum moved to its final home in Lambeth.¹³⁵ One of the nine is now on loan from the IWM to the Fleet Air Arm Museum and two are in the collection of the RAF Museum.

Following the outbreak of the Second World War the IWM intended to build up a complete collection of models of British Service aircraft; manufacturers would be asked to donate a model of each type of aircraft put into production, while models of enemy aircraft and equipment would be paid for by the museum. The IWM was

¹³² TNA AIR 20/13335 Enclosure 13, 'Deployment of Civil Aircraft. Minutes of a meeting held... on 4th November 1974'

¹³³ TNA ED 245/109/1, 'Treasury Minute relative to the transfers free of charge of the Concorde prototype aircraft 002 to the Science Museum and the Concorde pre-production aircraft 01 to the Duxford Aviation Society', (London: HMSO, 12 February 1976)

¹³⁴ Imperial War Museum, *The History of IWM* [Online], Available from <<https://www.iwm.org.uk/corporate/about-IWM>>, Accessed 14 September 2022

¹³⁵ TNA AIR 2/510 Enclosure 51A, Imperial War Museum: Air Service Exhibits. Note of meeting held... August 23rd 1933
See also Appendix I

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allocated a few aircraft on loan in 1946.¹³⁶ In the 1960s the IWM's new Director, Noble Frankland oversaw an expansion that would include 'three new large exhibition galleries capable of displaying heavy equipment such as tanks and aircraft'.¹³⁷ The Museum maintained a list of aircraft it would like to acquire, and in 1961 submitted a request to the Air Ministry: most of the aircraft listed were unavailable, but six were loaned.¹³⁸

The acquisition of the former RAF Duxford in 1972 finally gave the IWM almost unlimited space in which to store exhibits, together with a runway for the delivery of new aircraft, and eight aircraft were presented (rather than loaned) by the MOD between 1972 and 1982.¹³⁹ Although the original intention was only to use Duxford as a store, with some restoration work undertaken by volunteers, occasional open days led in due course to its opening in 1976 as an outstation of the main museum.¹⁴⁰ A further, extensive "shopping list" was submitted in 1989 with the caveat that some of the aircraft were 'not realistic propositions'. A footnote added in the ministry commented 'IWM appears to [be] stepping beyond the role of an Imperial War Museum [underlined in the original text], and rapidly promoting a museum of aviation history. Is this within their charter, I ask?'¹⁴¹

¹³⁶ AHB HA 24 File D/DSMS(RAF) 112 Part A, Enclosure 31, Aircraft Collection and Preservation Policy. Note by F6(Air)/2, Annex B, 21 March 1989

¹³⁷ Noble Frankland, *History at War: The Campaigns of an Historian* (London: De La Mere, 1998), p.166

¹³⁸ TNA AIR 20/10593, Loose Minute, DDL(AS) to S8, 18 April 1961

¹³⁹ AHB HA 24 File D/DSMS(RAF) 112 Part A, Enclosure 31, Aircraft Collection and Preservation Policy. Note by F6(Air)/2, Annex A, 21 March 1989

¹⁴⁰ Interview with Ted Inman, 2 December 2021

¹⁴¹ AHB HA 12, File DofSPol(RAF) 66/3 Part F, Enclosure 40, Ted Inman to DD SPol8, 24 February 1989

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In April 1989 the IWM hosted a seminar at Duxford with the title 'Aircraft Collecting and Preservation Policy among the National Museums'. Presentations were given by the Directors of Duxford and the RAF Museum, the Science Museum's Keeper of Transport, and representatives of the MOD and the Office of Arts and Libraries. The brief for the MOD representative noted the 'need for the MOD to agree a long-term policy covering all its Service Museums and the major National museums'¹⁴² No trace of such a policy has been found so far, although the IWM has continued to fill gaps in its collections and acquire recently retired military aircraft (such as a Tornado and Sea King) in accordance with its role of documenting recent conflicts.

The IWM has shrewdly developed Duxford to create an almost seamless aviation museum - one of the largest in the UK - which goes beyond the Museum's formal remit and is perceived by some as the national aviation museum. In fact, the aircraft displayed at Duxford constitute a cleverly constructed blend of several different collections. First and foremost is the Imperial War Museum's collection. The East Anglian Aviation Society's volunteers helped to work on the IWM's aircraft and the buildings, but a split between the EAAS and IWM in 1975, led to the creation of the Duxford Aviation Society [DAS].¹⁴³ The IWM's remit relates to armed conflict and does not include civil aircraft; the airliners at Duxford are owned and maintained by the DAS.¹⁴⁴ However, the IWM's Director, Dr Noble Frankland, told the Standing Commission in 1978 that the IWM had acquired three civil aircraft 'under special

¹⁴² AHB HA 24 File D/DSMS(RAF) 112 Part A, Enclosure 31, F6(Air)/2 to AUS(SO)(Air), 21 March 1989

¹⁴³ TNA ED 245/30, *EAAS News*, pp 4-7

¹⁴⁴ *History of IWM* [online]. Imperial War Museums, Available from: <<https://www.iwm.org.uk/corporate/IWM-history>> Accessed 22 November 2018
The British airliner collection, [online]. Duxford Aviation Society, Available from <<https://www.britairliners.org/british-airliner-collection>> Accessed 9 May November 2023]

circumstances' two of which, a Beagle Pup and a Beagle 206X, were loaned to Brighton & Hove Corporation. The manufacturers of these aircraft were based at Shoreham, near Brighton.¹⁴⁵ It is noteworthy that Peter Masefield, who had campaigned for a national air museum, was the managing director of Beagle and Chairman of the IWM's Board of Trustees.¹⁴⁶ The Concorde at Duxford was – perhaps uniquely – gifted to the DAS by the Department of Trade and Industry in 1976 at the end of its test programme.¹⁴⁷

With one exception, the IWM does not allow the aircraft in its collection to be flown, for reasons including cost, the risk of damage, and the need to preserve the aircraft in at least as good a state as when they entered the collection. Several private owners, including The Aircraft Restoration Company and The Fighter Collection, base their aircraft at Duxford, adding to the number on display and giving the extra attraction of seeing vintage aircraft fly. Restoration work and servicing can also be seen in one of the hangars. Flying displays draw large crowds and bring in income to supplement the IWM's Grant-in-Aid. The seamless way in which IWM has integrated the various elements gives visitors the impression of a single museum.

Conclusions

Museums have fulfilled many roles over the last 200 years. From their origins as private collections open to a privileged few, they have been seen as a tool to fight

¹⁴⁵ TNA AIR 20/13345, Note on the aims and collecting policy of the Imperial War Museum in the field of aviation, 13 October 1978

¹⁴⁶ Patrick Shovelton, 'Sir Peter Masefield', *The independent*, [online] 23 February 2006, Available from <<https://www.independent.co.uk/news/obituaries/sir-peter-masefield-6108452.html>> Accessed 4 February 2019]

¹⁴⁷ TNA ED 245/109/1, *Treasury Minute dated 13th February, 1976 relative to the transfers free of charge of the Concorde prototype aircraft 002 to the Science Museum and the Concorde pre-production aircraft to the Duxford Aviation Society*, (London: HMSO, 1976)

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drunkenness and disorder among the working class, educational institutions to further the nation's manufacturing prowess, venues for war propaganda and then commemoration, and finally attractions which help to educate, inform and entertain a broad spectrum of visitors. Many of those who visit national museums come from overseas and thus museums help the national and local economy and generate goodwill. Kavanagh points out that museums are part of the service industry sector, which was seen as one of Britain's strengths in the post-industrial period.¹⁴⁸ They can help foster pride in the nation or their local community, in the latter case helping people to gain 'a sense of place' - an understanding of their surroundings and their community's heritage. Funding from national and local government, however, has reduced and museums have effectively been forced to compete for sponsorship and grants whilst using their collections and premises to generate income.

Local museums' focus has shifted in broad terms from general collections – typically archaeology and natural history – in the first half of the 20th century, to telling the stories of their local communities and industries. The mechanisation of agriculture led to the replacement of familiar farm implements by more efficient tools, while industrial archaeology arguably sprang from interest in buildings and other structures made redundant by the decline of manufacturing. As will be shown later in this thesis, the replacement of steam locomotives by diesel power, and the replacement of early jets by more efficient aircraft, were influential in enthusiast groups setting up preservation societies and museums. This change - from professional curators and others in authority deciding what should be preserved in museums, to ordinary people creating and running their own museums – began relatively slowly, often due

¹⁴⁸ Kavanagh, *History Curatorship*, p.6.

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to groups of local historians finding ways to display both the results of their research and objects that they had collected. It gathered pace in the 1960s, as incomes grew and more leisure time became available, and dissatisfaction with traditional museums encouraged the creation of volunteer-run museums. The 'new museology' of the 1970s also helped to change museums' style, encouraging engagement with their audiences and broadening access to collections. The number of museums in the UK increased every year from 1960 to 2015, with the most rapid growth occurring in the 1970s.¹⁴⁹ Such growth has stemmed from an affection for objects and ways of life which had become endangered, often due to technical change. These factors are examined in more detail in Chapter 4.

The case studies in this chapter have shown how both the Science Museum and the IWM were hampered for many years by a lack of space in which to store and display aircraft, and until 1939 by the IWM's focus on commemorating the First World War. Orville Wright's decision to entrust the world's first successful aeroplane to the Science Museum's care is an indication of the museum's reputation. The Science Museum's buildings in London were barely suitable for the display of aircraft until 1963, when the completion of the Centre Block enabled a new Aeronautics Gallery to give a greatly improved exhibition of the museum's important aircraft. In the 1970s both museums acquired airfield sites - at Wroughton and Duxford respectively - and could expand their collections, particularly with regard to larger aircraft. By that time, groups of enthusiasts had already decided to take on the task of preserving and restoring aircraft. The Science Museum's Wroughton store was occasionally opened

¹⁴⁹ Candlin and others, and others, *Mapping Museums 1960–2020*, p.2

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to visitors, although the state of the original hangars has prevented this for several years. Its new National Collections Centre at Wroughton is due to open to visiting groups in 2024.¹⁵⁰ Since the IWM's acquisition of Duxford in 1972 the site has been carefully developed into something close to a national aviation museum embracing both military and civil aviation, with the IWM's collection enhanced through



Figure 6: The Duxford Aviation Society's collection of airliners augment the IWM's military aircraft, helping to give the impression of a national aviation museum. (Author's photograph)

partnerships with enthusiast groups and private collectors.

This chapter has demonstrated that the museum sector is broad, encompassing museums funded by national and local government, learned societies and groups of individuals motivated by a desire to preserve objects and locations in which they

¹⁵⁰ Science Museum Group, *National Collections Centre* [online], Available from <https://www.sciencemuseumgroup.org.uk/about-us/collection/national-collections-centre/>, Accessed 20 September 2022

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have an interest. Chapter 3 examines the role played in aircraft preservation by individuals and groups who have built up collections of aircraft.

Chapter 3 – Collectors and Aircraft Preservation

Introduction

The aircraft collections assembled in the 1930s by Richard Shuttleworth and Richard J G Nash are among the earliest examples of aircraft preservation in the United Kingdom. There are few, if any, academic studies of aircraft collections assembled by individuals, rather than museums. Popular books and articles have been published on the Shuttleworth Collection, and the “Lost Collections” described in Ken Ellis’s 2011 book include some of those assembled by museums and individuals.¹ From the mid-1970s others have built up their own stables of aircraft, apparently with the prime aim of flying them in air displays, although there are many individuals who have assembled collections of non-airworthy aircraft or significant parts. Collections which are only available to be seen by appointment fall outside the main scope of this study, but they are relevant to this chapter.

In this chapter the development of private aircraft collections is examined, firstly by reviewing collecting in general and then using different theoretical models of collectors’ behaviour as lenses through which to view such collections. The development of Shuttleworth and Nash’s collections is discussed, and more recent collectors are examined in terms of the models developed by Gelber. This chapter argues that some of the collections which have grown since the 1970s have helped to create – and have become dependent on – an air display industry. Finally, the chapter examines the overall impact on the aircraft preservation movement and concludes that the investment made by wealthy collectors who have had aircraft

¹ Ken Ellis, *Lost Aviation Collections of Britain : A Tribute to the UK’s Bygone Aviation Museums and Collections* (Manchester: Crécy Publishing, 2011).

restored to airworthy condition has helped to widen the appeal of historic aircraft beyond the core audience of enthusiasts.

Why do people collect?

The literature on collecting falls into investigations of why people collect - often seen from a sociological, psychoanalytic or Museums Studies viewpoint – and studies of specific collections and collectors. Fabio Rojas and Peter Laska comment that ‘Despite their importance, social scientific accounts of collectors are scant’ but ‘the relative under-development of social scientific attention given to collectors as a group has begun to change.’² Susan Pearce points out that studies of collecting ‘have always, and still do, concentrate on that material perceived as “high culture”.’³ The Society for the History of Collecting seems to be focussed on collections of fine art and natural history in the period before 1900, although its website states ‘We cover all aspects of collecting, whether amassed by private individuals or public institutions, and ranging through any time in the past to the present day.’⁴ Russel Belk, after giving a brief account of collecting from ancient times, discusses how collecting has become a more widespread practice as a result of mass production, increased affluence and the spread of a consumer culture. His book seems to be centred on the financial value of collections, in contrast to Pearce’s more ethnographic approach. Belk describes the three models of collector behaviour developed by Stephen Gelber, who studied stamp collectors.

² Fabio Rojas and Peter Lista, ‘A Sociological Theory of Contemporary Art Collectors’, *The Journal of Arts Management, Law, and Society*, 52 (2022), pp 88 & 89.

³ Susan M. Pearce, *On Collecting : An Investigation into Collecting in the European Tradition* (London: Routledge, 1995) p.6

⁴ Society for the History of Collecting [Home page], Available from <<https://societyhistorycollecting.org/>>, Accessed 12 August 2021

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In the broader context, collecting is by no means a new phenomenon; there seems to be some innate desire among humans to gather objects into collections. Museums have their origins in the Cabinets of Curiosities which originated in the 16th century. Russell Belk points out that mass production, growing world affluence and the spread of consumer cultures have made it possible for collecting to become a truly mass phenomenon.⁵ The late 20th century saw something of a commercialisation of collecting, with companies such as the Franklin Mint and Bradford Exchange marketing a wide range of “collectables” - such as figurines and commemorative coins - to a diverse range of markets. The sociologist Ian Carter makes ironic reference to a railway enthusiast’s home which might have:

signed and numbered prints of oil paintings on the kitchen wall, none painted more than ten years ago but all celebrating steam locomotives which departed decades ago to that Great Scrapyard in the Sky... Admire ranked commemorative Coalport plates on the kitchen dresser, above a fine collection of pewter booze flasks flaunting enamelled train paintings... Lots more railway phonecards to collect. Lots more railway stamps to collect.⁶

Signed prints, commemorative plates and other forms of merchandise have also been aimed at aviation enthusiasts, and doubtless many other potential markets.

When might a group of objects become a collection? Belk suggests that there are four key characteristics of a collection. Firstly, *Acquisition* – merely owning a collection does not make someone a collector; there should be an active decision to collect. A group of items – such as glasses from wine or beer festivals – which might

⁵ Russell W. Belk, *Collecting in a Consumer Society* (London: Routledge, 2001), p.53

⁶ Ian Carter, *British Railway Enthusiasm* (Manchester: Manchester University Press, 2009), p.14

at first seem to have been collected may have been simply kept as souvenirs, with no intention to seek out and obtain further examples. Conversely someone who aims to complete their set of King Penguin paperbacks will scour second-hand bookshops and the internet in search of the rare volumes that they need. Belk goes on to state that there should be *Boundaries* which define the type(s) of material collected.

Thirdly, there should be no *Duplication* – items must not be identical – although some of the collectors described below acquired several examples of an aircraft type to trade with other collectors. Finally, material in the collection must be *Removed from ordinary use*: someone who, for example, builds a collection of umbrellas would not wish to use them on a wet day, and vintage cars from a private collection are unlikely to be driven routinely. This last criterion is important in the context of aircraft collections such as Shuttleworth's and more recent aircraft collections, where the aim is usually to keep the aircraft flying. It can be argued that Belk envisaged that items in a collection would *never* be used for their original purpose, whereas Shuttleworth and others fly their aircraft much less often than they would have been when in service. Hilary Geoghegan, whose work with telecommunications enthusiasts will be described in Chapter 4, argues that enthusiasts who collect often intend to use items in their collections.⁷ Belk draws his criteria together in a definition of collecting as 'the process of actively, selectively and passionately acquiring and possessing things removed from ordinary use and perceived as part of a set of non-identical objects or experiences'.⁸ He suggests that collections seldom begin purposefully – the acquisition of one object may lead to another and then further - and that collecting can legitimise acquisitiveness as an art or science. An article in

⁷ Hilary Geoghegan, 'The Culture of Enthusiasm : Technology, Collecting and Museums' (Royal Holloway, University of London, 2008), p.4

⁸ Belk, *Collecting in a Consumer Society*, p.67

The Guardian explains how one couple's collection of teapots grew from a single gift to over 8,000:

We had a glass display cabinet in our kitchen – we tried putting our pantry stuff in it, but it looked a bit tacky... My nan offered us a teapot instead... We liked it. Then my aunt offered us a teapot from her wedding set... We gladly accepted. For the first couple of years, we collected traditional teapots... But it wasn't until we went on holiday to Devon that we realised we were obsessed. We saw a leaflet in our B&B for a teapot factory... We've bought every teapot the owner has designed... Our aim is to have one of everything. There are no duplicates.⁹

Belk also regards collections as an extension of self, 'used not only to express aspects of one's direct experiences; they are also used to express fantasies about the self.'¹⁰ How might this view relate to aircraft collectors?

It can be difficult to determine the motivation that has resulted in the aircraft collections described below: did Nash see a business opportunity in assembling his collection of early aircraft, vehicles and bicycles, or was he fascinated by the technologies that they represent? Jean Baudrillard argues that any given object can either be used or possessed, and these states are mutually exclusive.¹¹ Susan Pearce, who applies a Museum Studies framework, takes this further, pointing out that objects have a useful life, at the end of which they may be thrown away or kept.

⁹ Sue Blayze & Sophie Haydock, 'Experience: I have collected more than 8,000 teapots', *The Guardian*, 10 June 2022, Available from <https://www.theguardian.com/lifeandstyle/2022/jun/10/experience-i-have-collected>, Accessed 10 June 2022-more-than-8000-teapots>

¹⁰ Russell W Belk, 'Collectors and Collecting' in Susan Pearce, *Interpreting Objects and Collections* (London: Routledge, 2012) pp 318-323

¹¹ Jean Baudrillard, 'The System of Collecting', in *The Cultures of Collecting*, ed. by John Elsner and Roger Cardinal (London: Reaktion Books, 1994), p.8

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They may eventually become of interest to others, thereby acquiring financial and historical value by being traded among those who find them attractive.¹² Pearce identifies key points relating to collections: they are groups of objects, brought together with intention and sharing a common identity of some kind, which is regarded by its owner as, in some sense, special.¹³ She suggests that 'We find ourselves attracted to objects for antisocial reasons, where the fascination lies in their worthlessness for other people, which matches the special qualities that only the owner can perceive in them.'¹⁴ The rate of progress in aviation technology meant that for much of the twentieth century, aircraft swiftly became obsolete and effectively worthless in most people's eyes, apart from those enthusiasts who viewed them with affection and wished to preserve them. Pearce also points out that 'militaria and weapons are very common collecting material for men' – civil aircraft rarely feature in collections (other than Shuttleworth's) and the only woman known to have played a significant role in a historic aircraft collection was Caroline Grace, who took over her late husband's Spitfire, flying it in displays; the Grace Family now have a fleet of 11 aircraft and a company undertaking restoration work.¹⁵

Ruth Formanek looked at psychoanalytical approaches to the motivation of collectors, using a combination of questionnaires and interviews, and categorised their responses according to the meanings of collecting to the self, to others, as preservation, restoration, history, and a sense of continuity; as financial investment,

¹² Susan M. Pearce. *On Collecting*, pp 25-26

¹³ Susan M. Pearce, *On Collecting*, p.27

¹⁴ Susan M. Pearce, *On Collecting*, p.172

¹⁵ Air Leasing Ltd, *Who We Are*, [online], Available from <http://airleasing.co.uk/?page_id=24>, Accessed 12 August 2021

Ken Ellis, *Wrecks and Relics*, 27th edition, (Liverpool: Crecy Publishing, 2020), pp 179-180

and as addiction.¹⁶ In the “self” category, some of her respondents indicated that collecting raised their self-esteem. Relationships with other people are also important, and she quotes a collector of cars, who valued being part of the ‘world of friendship that is opened to other collectors around the world’ – the aviation heritage world is relatively small, and the groups who restore aircraft to fly often network and barter spare parts. There is a clear connection to the theme of preservation and restoration, although only four of Formanek’s 167 respondents fell into this category. One of them mentioned ‘the passion to preserve items for other people to enjoy. Getting an item back to pristine condition and working.’ This may well be a stronger motivation for those who work with transport and other machines – the ‘oily handed collectors’ described by Pearce.¹⁷

Formanek devotes little time to those who collect as a means of investment, but Belk uses Gelber’s model, which sees stamp collectors as falling into three categories: *Merchants* who are constantly buying, selling and trading stamps; seeking to add to their collections and make a small profit on each transaction, *Investors* whose collections are constantly increasing in value, to be cashed in, but who enjoy the leisure activity, and *Speculators* who buy low and sell high, but have little interest in completing a collection.¹⁸ This model is also used by the US Internal Revenue Service, who impose separate tax rules for each category.¹⁹ With one exception – that of Doug Arnold, detailed below - there seems to be little evidence

¹⁶ Ruth Formanek, 'Why they collect: collectors reveal their motivations' in Susan Pearce, *Interpreting Objects and Collections*, p.333

¹⁷ Pearce, *On Collecting*, p.213

¹⁸ Steven M Gelber, 'Free Market Metaphor: The Historical Dynamics of Stamp Collecting', *Comparative Studies in Society and History*, 34 (1992), 759–763.

¹⁹ 'If you collect, the IRS will collect from you: Whether category is collector, dealer or investor matters', *Wall Street Journal*, 15 February 2008, p. B1]

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for aviation collections being used as investments; aircraft occasionally change hands, but it is very difficult to determine whether this is by way of barter, or to generate funds for another project. The boundaries between Gelber's three categories, which work well for stamp collectors, are rather blurred in the case of artefacts whose value can be increased through restoration. Gelber also notes that stamps are often collected for their aesthetic appeal, and the materiality of aircraft – discussed in Chapter 4 - can be a factor in the decision to acquire a particular type.²⁰

Collecting is often associated with the desire to complete a set, perhaps of stamps or cigarette cards. Train spotters 'hoped to "clear classes", to see all locomotives of particular types', and Carter cites a journalist's astonishment that 'no boy ever seems to cheat by ticking off numbers he has not seen... he would cheat nobody but himself'.²¹ The search for the item that would fill that need can bring excitement and eventually the joy of success. "Sets" of aircraft are perhaps a rather abstract concept, defined by collectors themselves, but an individual could – for example – aim to acquire each type of fighter aircraft from the Battle of Britain. Such a desire might require very deep pockets, particularly if the ultimate aim is to make all of them airworthy. Nevertheless, the successful acquisition of one aircraft can lead to a desire to renew the satisfaction that it brings, by obtaining a second, third and so on and this seems to be how many private collections grow. Divall and Scott argue that many collections of transport have not begun with 'a clear purpose in mind' and that sometimes their origins 'have lain with the personal predilections of groups of individuals'.²²

²⁰ Gelber, p.749.

²¹ Carter, *British Railway Enthusiasm*, pp 90 & 91

²² Colin Divall and Andrew Scott, *Making Histories in Museums: Making Histories in Transport Museums* (Leicester: Leicester University Press, 2001), p46

Most of the collectors described in this chapter have been pilots, and among pilots there are some who take any opportunity to expand the range of aircraft (in the sense of manufacturers' products, rather than classes such as aeroplanes, helicopters and so on) that they have flown. Such pilots (sometimes referred to as "type-hounds") do not physically collect aircraft, but their logbooks represent a collection of experiences, motivated by their enjoyment of flying, and perhaps a fantasy that relives flying from an earlier period. Logbooks, particularly those of military aircrew, are a useful resource for historians; each is unique and there are many thousands of logbooks in the collections of military museums. They are also valued by medal collectors, since they flesh out the story of a group of medals earned by an individual and thus bring the collector closer to the recipient.

The Early Collectors

Before individuals started collecting aircraft, others had started to collect material associated with flying. John Cuthbert began collecting engravings, drawings and posters relating to ballooning – and fragments of famous balloons – some time before 1820. His collection was acquired by John Fillinham 'a collector on the large scale [whose] collection of cuttings on antiquarian subjects now belongs to the British Museum' who added to Cuthbert's collection. John Hodgson purchased the Cuthbert collection, and in 1924 Hodgson became the Royal Aeronautical Society's Honorary Librarian. He annotated and rearranged the material, which was purchased for the RAeS in 1948.²³ By 1935 a 'Civil Aviation Collection' had been gathered by

²³ J Laurence Pritchard, 'Hodgson-Cuthbert Aeronautical Collection', *Journal of the Royal Aeronautical Society*, 57 (1953), pp 351–374.

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Major Villiers - possibly Major O C G Villiers, who was a Senior Assistant in the Staff Division of the Air Ministry. The collection comprised 'some 90 models of historical and current interest; some go[ing] back more than 100 years, and they include Service aircraft as well as civil and experimental.'²⁴

Aviation is an expensive activity and the collectors in this period were men who had amassed significant wealth or had inherited it. The Air Ministry had promoted flying clubs, but ownership of even one aeroplane was beyond the means of most private pilots. In 1925 the outspoken editor of *The Aeroplane*, C G Grey, complained that men 'with plenty of money' were uninterested in air racing and that there were many rich men who could afford to run 'a whole racing stable of aeroplanes if only the Royal Aero Club could raise its own social status as to induce men of that class to take an interest in air racing'.²⁵ Jack Williams has described the involvement of the upper class in aviation in the 1920s and 30s, pointing out that an Old Etonian Flying Club had been formed by the 1930s.²⁶ The first collector examined below was indeed an Old Etonian.

Richard Ormonde Shuttleworth (1909-1940) was born into a family whose wealth came from agricultural engineering and the manufacture of steam wagons. The two biographies of Shuttleworth are relatively short on detail and in many ways adulatory and uncritical. He inherited £2 million in 1930 and bought his first aeroplane in 1932. A biography based on his mother's unpublished work states 'Engineering and dynamics were the joy of his heart. He loved to explore the power and beauty and

²⁴ TNA AIR 2/2470, Enclosure 4A, The museum interests of the Air Ministry, 4 March 1935

²⁵ C G Grey, 'Gentlemen and Players', *The Aeroplane*, 29 (1925), p.134

²⁶ Jack Williams, 'The Upper Class and Aeroplane Sport between the Wars', *Sport in History*, 28 (2008), pp 450-471

ingenuity of machinery – anything from an artful little gadget to the great supercharged engine of a racing car or aeroplane.²⁷ At Eton he had spent much of his time in the School of Mechanics, and by his early 20s Shuttleworth had begun to develop an interest in old cars and aircraft; he learned to fly and bought his first aeroplane, a de Havilland Moth.²⁸ In 1935 he acquired two pre-First World War aircraft and restored them to flying condition; by the time he was killed in 1940, while flying in the RAF, his collection had grown to include six aircraft and many road vehicles. A trust was formed to keep the collection alive, and the trustees have subsequently acquired further aircraft, some of which were donated by aircraft manufacturers who had retained examples of their older designs.²⁹ An article on the collection, published in 1948, states,

the Trust is willing to give a good home to any bona-fide historic aircraft...

Naturally the selection of aircraft for a collection of this nature must depend to a certain extent upon the material available, but the main aim is to obtain examples only of aircraft that have made their names a household word, or those of pre-1914 vintage whose acquisition would be of definite historic significance.³⁰

Shuttleworth's collection – like those of many subsequent collectors – did not meet Belk's criterion that the aircraft should be 'removed from ordinary use', although it is arguable that they were (and are) only flown occasionally, rather than routinely. It

²⁷ Thomas Ewart Guttery, *Richard Shuttleworth : His Thirty One Mettlesome Years*, (Biggleswade: The author, 1975) p.4

²⁸ Kevin Desmond, *Richard Shuttleworth, an Illustrated Biography*, (London: Jane's, 1982), p.27

²⁹ Shuttleworth Collection, *Richard Ormonde Shuttleworth* [online], Available from <<https://www.shuttleworth.org/richardshuttleworth/>> Accessed 24 June 2021
Charity Commission, The Richard Ormonde Shuttleworth Remembrance Trust, Available from <<https://register-of-charities.charitycommission.gov.uk/charity-search/-/charity-details/307534/charity-overview>> Accessed 27 August 2021

³⁰ Anon, 'The Shuttleworth Collection', *The Aeroplane Spotter*, 9.(1948), pp 114–115.

seems that Shuttleworth bought them and restored them in order to enjoy flying them: 'The business was started by the late Richard Shuttleworth, and was in the nature of a hobby; by 1937 specimens from the collection began to appear at nearly every important aviation function in the country.'³¹

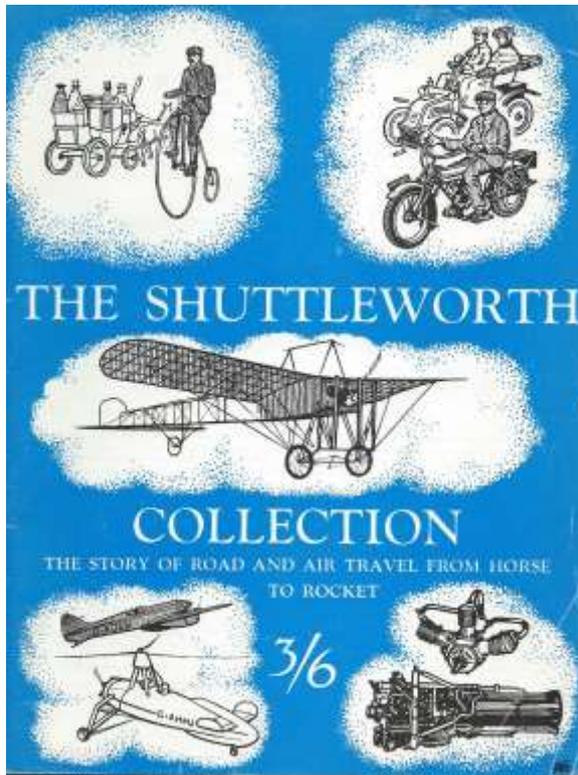


Figure 7: Guidebook for the Shuttleworth Collection, 1967

The boundaries set by the trustees – what in museum terms might be called a collecting policy – have enabled the collection to grow while apparently keeping within the spirit of Richard Shuttleworth's interests: the aircraft are mostly British and are mostly types with which he would have been familiar, although some date from after his death. Several of the aircraft now at Old Warden are on loan from private owners, rather than being owned by the

trust, having been placed there because of the trust's expertise in maintaining and operating vintage aircraft. The Trust benefits from the income derived from hangarage fees and from increased visitor numbers attracted by the larger collection.

Although the Nash Collection is fairly well known in aviation history circles, much less is known about Richard (Dick) G J Nash (1910-1966), who – like Shuttleworth –

³¹ 'The Shuttleworth Collection', p.114

Chapter 3 – Collectors and Aircraft Preservation

was a keen racing driver and had gained a pilot's licence at the age of 19.³² He ran a radio-electronics business but was also a collector. He and Shuttleworth frequently met at Brooklands. Very little seems to have been written about him beyond an article in *Motorsport*, which unsurprisingly concentrates on his automobiles.³³

Participation in these relatively expensive hobbies suggests that he had access to suitable funding, although the source is not clear. He began collecting old cars and bicycles from 1931 and aircraft from 1935. Nash wrote that he started his collection 'with a view to preserving a representative collection of early transport for the interest of present and future generations' and received many enquiries from 'companies seeking veteran cars etc. in films, advertising and exhibitions'.³⁴ Nash's fleet included 'bicycles 1819 to 1900, horseless carriages 1895 to 1914 and aeroplanes 1903 to 1918' which led to his trading as 'The International Horseless Carriage Corporation, [IHCC] Specialists in the hire of early types of mechanical vehicles for films, theatres, advertising, showrooms, aviation displays and exhibitions'.³⁵

In 1939 four of his aircraft were exhibited in a temporary exhibition at the Science Museum. He wrote in 1953 that in addition to the 14 aircraft in his collection, built between 1908 and 1920, he might have been able to add another 16, had the necessary finance and storage space been available, but the 16 had been destroyed during the war. Prior to 1939 he had been approached by the Brooklands motor course authorities with the idea of setting up a building in which to display his 'entire

³² Bill Boddy, 'Softly Spoken, Wild at Heart', *MotorSport*, September, 2002, p.80

³³ Bill Boddy, 'Softly spoken', p.74

³⁴ NAL Box 113 File 7A, Letter to Dr A M Ballantyne of the Royal Aeronautical Society, 26 October 1962

³⁵ Ken Ellis, *Lost Aviation Collections*, p.15

NAL 71/70, *The International Horseless Carriage Corporation* [brochure], c.1935

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collection of over 100 specimens, including racing cars which had performed on the track between 1907 and 1914.³⁶ A planning application for a building near Woking to house his aircraft and car collections was turned down in 1949: the chairman of the Planning Committee reportedly commented, 'It was decided that a museum for such a dull subject in that particular situation would not have a single visitor.'³⁷

The IHCC's catalogue lists twelve aircraft, but Ellis has identified 20 aircraft in total, of which nine survive.³⁸ In 1953 he offered the surviving aircraft for sale, and reportedly received offers 'from America'; this led to the Royal Aeronautical Society purchasing the nine aircraft to keep them in the UK.³⁹ Chapter 7 describes how the potential sale of Nash's collection brought calls for a national aviation museum and led to the RAeS creating a list of historic aircraft that might become part of such a museum's collection.⁴⁰ Some confusion has been caused by the RAeS referring to two aircraft that were subsequently donated to the Society – a Vickers Wellington and a Miles Sparrowjet – as part of the Nash Collection. Most of the surviving aircraft from Nash's collection, together with the Wellington, were loaned by the RAeS to the RAF Museum in the late 1960s and purchased by the Ministry of Defence in 1992. The Society retains one aircraft – again, not from Nash's collection – together with a few engines and an early glider.

³⁶ R G J Nash, 'That National Museum', *Flight*, 64 (1953), p.705

³⁷ 'Apathy over Old-Car Museum', *Motor Sport*, 25 (1949), p.434.

³⁸ Ellis, *Lost Aviation Collections*, p.24

³⁹ 'A Home for Veteran Aircraft', *The Aeroplane*, 84 (1953), p.722

Nash, 'That National Museum'

'A Worthwhile Acquisition', *The Aeroplane*, 86 (1954), p.89

⁴⁰ A H Wheeler, 'A National Museum of Aircraft?', *Flight*, 64, (1953), p.615

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Both Shuttleworth's and Nash's collections were assembled with a view to their being used. From the 1930s to the 1970s, they were the only privately owned aircraft known to be being preserved as collections, rather than individual aircraft being flown by their owners. While Shuttleworth probably intended to use his aircraft for pleasure, Nash seems to have had a more business-like approach, offering his aircraft and vehicles for use in films and other productions. Aircraft from both collections flew in air displays during the 1930s, although Nash expressed a hope in the 1950s that his aircraft would 'be used for static exhibition and not risked for further flying'.⁴¹ The importance of air displays in promoting aircraft preservation is explored later in this chapter. It seems likely, however, that Nash found a commercial use for a collection that had begun as merely an interest; he claimed in 1962 that he had intended to set up a 'permanent exhibition' at Brooklands, but this plan was thwarted by the war.⁴²

The announcement in 1964 that the Shuttleworth Collection would open regularly, rather than by appointment, and the formation of a supporters' group – the Shuttleworth Veteran Aeroplane Society [SVAS] - the following year, raised further interest in aircraft preservation. John Berkeley recalled that some of the founder members of the Midland Aircraft Preservation Society [MAPS] had become members of SVAS and would cycle from Coventry to Old Warden, saying 'In the holidays, they would camp on the airfield; they were given initially pretty menial tasks to do - sweeping hangars and so on - but I know at least Roger did some work on the LVG'.⁴³ This link helped MAPS to acquire one of its first aircraft: the Wheeler

⁴¹ NAL, Box 113 File 7 Letter to Ballantyne, 29 September 1953

⁴² NAL, Box 113 File 7A, Letter to Ballantyne, 26 October 1962

⁴³ Interview with John Berkeley, 7 July 2021

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Slymph, which had been built by Shuttleworth Trustee Allen Wheeler and was presumably not considered to be within the Shuttleworth Collection's terms of reference. While groups such as MAPS started to acquire aircraft and develop museums, from the 1970s individuals began building up collections primarily for use, either to fly themselves or to be flown at air displays and for filming.

In the United States, James H "Cole" Palen was building up a collection from the 1950s. In 1951 he had bought six First World War aircraft from a museum in Long Island which was closing.⁴⁴ He built up a museum at Old Rhinebeck, New York, focussed on aircraft of "the golden age of aviation" – up to 1939. Like the Shuttleworth Collection, the museum's aircraft fly at summer air displays. Palen may also have tried to purchase the Nash Collection in 1953. Palen's collection is a mixture of original aircraft and replicas, together with vehicles of the same period. Palen is reported to have grown up near an airport and became fascinated with flight. He seems to have initially built up his collection for his own pleasure and, as it grew, established his museum as a business.⁴⁵ In 1955 the United States' Assistant Air Attaché in London was reported to be seeking First World War aircraft for the museum at Dayton, Ohio.⁴⁶ The Nash Collection had already been sold, but the museum was instead able to acquire 18 aircraft from the American collector Paul Mantz.⁴⁷ Rather like Nash, Mantz had built up a business providing aircraft (and in many cases, flying them) for films.⁴⁸

⁴⁴ E. Gordon. Bainbridge, *The Old Rhinebeck Aerodrome* (Exposition Press, 1977).

⁴⁵ Old Rhinebeck Aerodrome, *About Cole and Rita Palen* [online], Available from <<https://oldrhinebeck.org/about-cole-and-rita-palen/>>, Accessed 14 March 2023

⁴⁶ 'Historic Aircraft Sought by U.S.', *The Times*, 15 November 1955, p.10

⁴⁷ Email from Dr Doug Lantry, National Museum of the United States Air Force, 6 July 2023

⁴⁸ Academy of Motion Picture Arts and Sciences, Tallmantz Aviation records [online], Available from <<https://collections.new.oscars.org/Details/Collection/633>>, Accessed 19 July 2023
J W R Taylor, 'The Paul Mantz Collection', *Model Aircraft*, June 1955, pp 228-230

Collecting from the 1970s to the present

The 1970s saw a resurgence in the collecting of aircraft by individuals who wished to fly them, rather than creating static museum collections. This may have been inspired by the Confederate [now Commemorative] Air Force [CAF] which had been formed in Texas in 1957 by a group of former military pilots who purchased a surplus fighter.⁴⁹ Members of the CAF were involved in flying some of the aircraft used in the film *Battle of Britain* released in 1969, and this may have inspired others to follow the CAF's lead. How well do the collectors active in this period fit Gelber's three categories – *Merchants, Investors and Speculators*?

The closest fit to Gelber's *Merchant* was Doug Arnold. He built up a large collection of military aircraft, known as *Warbirds of Great Britain*, which - while it was never opened to visitors - included aircraft that often performed in air displays. Ken Ellis describes Arnold as 'well known for speaking his mind and was on record as disliking seeing his business covered in the aviation press.'⁵⁰ His first involvement in aviation seems to have been a company trading in light aircraft at Fairoaks in Surrey, and a move to nearby Blackbushe, which had a longer runway, gave more space in which to park larger aircraft. He also set up an engineering facility at Blackbushe, restoring aircraft – particularly Spitfires which he had acquired in poor condition – to airworthiness. In 1984 he purchased an airfield at Bitteswell and moved his collection again, but this proved short-lived, and the collection moved again in 1987, to Biggin Hill and Bournemouth. Arnold died in 1992 and the collection was dispersed, mostly

⁴⁹ Commemorative Air Force *Our History & Mission*, [online], Available from <<https://www.commemorativeairforce.org/pages/About-the-CAF>>, Accessed 9 November 2021

⁵⁰ Ellis, *Lost Aviation Collections*, p.137

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to buyers overseas. Ellis identifies 79 aircraft which passed through Arnold's hands; another crashed on its delivery flight.⁵¹ Some of these aircraft were simply sold to museums and individuals, and others were bartered in exchange deals to enrich his stock of aircraft. While Arnold's trading through sale and exchange clearly classifies him as a *Merchant*, his activity in restoring aircraft and thereby adding value can be regarded as touching on the *Investor* category. There are also cases where his acquisition of several examples of an aircraft type when no longer required by their owner (such as Hawker Sea Furies from Germany, and North American Mitchells from the filming of *Hanover Street*) suggests that he was also a *Speculator*, acquiring assets in the hope of selling them at a profit.

There are several candidates for the *Investor* category. Sir William Roberts owned extensive estates in Kent and Scotland; the latter included a private airstrip. In 1969 he bought three aircraft that had been used in the making of the film *Battle of Britain* and based them at his Strathallan estate. In order to learn to fly his Hawker Hurricane he needed a powerful two-seat training aircraft and so purchased two North American Harvards, and the collection began to grow; over time some 60 aircraft (most of which did not fly) passed through his hands and the collection opened to the public in 1970. It is arguable that he invested funds in building a collection – a museum in all but name – to attract visitors to his estate. There are many parallels with the Shuttleworth Collection: Roberts had a pilot's licence, inherited wealth and an estate, a desire to fly a historic aircraft, and regular flying displays were held. However, rising costs and falling visitor numbers meant that the

⁵¹ Ellis, *Lost Aviation Collections*, pp 142-146

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collection had to be thinned down and sales were held in 1981 and 1985; the site closed in 1988.

Graham Warner was the driving force behind the restoration of a Bristol Bolingbroke; the name used by the Royal Canadian Air Force for Bristol Blenheims built in Canada, but the restored aircraft is now referred to as a Blenheim. His investment led to the creation of two companies to exploit the demand for airworthy historic aircraft. Warner's aim was to restore the aircraft to airworthiness, completing a project begun by Ormond Haydon-Baillie. He set up the British Aerial Museum of Flying Military Aircraft and employed the team of workers who had been restoring the aircraft for Haydon-Baillie. Whilst the restoration work was under way, Warner acquired a number of other airworthy aircraft and in 1985 set up the Aircraft Restoration Company, which undertook work for other aircraft owners in order to fund the work on the Blenheim. Ellis notes that 'this marked the metamorphosis from personal collection to a more planned, managed business.'⁵² As an *Investor* Graham Warner therefore bridges the gap between private collectors and the industry that has grown up to satisfy the demand for flying displays featuring historic aircraft.

Charles Church was the head of an eponymous firm of house builders. After learning to fly in 1984 he set up an airstrip on his estate in Hampshire, together with a company and a team of engineers who worked to restore five Spitfires; he also bought a North American Mustang, and the Fairey Battle and Avro Lancaster from the Strathallan sale. In 1986 he sought to establish a base for these aircraft and

⁵² Ellis, *Lost Aviation Collections*, p.160

another twelve owned by ‘two friends’ to be operated as a ‘flying museum’.⁵³ The venture would be run profitably, with any profits being spent on the purchase and restoration of further Second World War aircraft. He considered two RAF stations – Benson and Odiham – but these were, and remain, very active and it is unlikely that these would have been sold by the Ministry of Defence. Instead, he purchased the grass airfield at Popham and the project came to naught. While flying one of his Spitfires on 1 July 1989 the aircraft suffered engine problems and Church was killed in the crash. Church’s investment in his restoration company suggests that like Doug Arnold he was both an *Investor* and a *Speculator*.

Ormond Haydon-Baillie served in the Royal Canadian Air Force from 1964, returning to the UK in 1974 with two Lockheed T-33 jet trainers and a Hawker Sea Fury fighter which he flew in air displays; the jet aircraft were painted black, and he styled himself as “The Black Knight”. In addition to his airworthy aircraft, he also had two Bristol Bolingbroke bombers as restoration projects, and reportedly acquired eight Spitfires from India.⁵⁴ The fleet was based at Duxford until his death in a flying accident in 1977. Had he lived, some of the Spitfires may well have been sold on to other restorers, arguably placing Haydon-Baillie in the *Speculator* category.

1980 saw the advent of military jets flying in private hands. It is difficult to classify Mike Carlton’s aim in building up his collection of 26 aircraft, not all of which eventually flew although most were given civil registrations in preparation for them

⁵³ NAL, Papers of Sir John Charnley, Letter from Church to Charnley 20 November 1986.

⁵⁴ *Ormond Haydon-Baillie*, [online] Available from <<http://www.airdisplaymuseum.com/ormondhaydonbaillie.html>>, Accessed 27 June 2021
Extensively Restored Spitfire FR XVIIIe For Sale With Reduced Price [online], 7 May 2020, Available from <<https://aerodynamicmedia.com/spitfire-g-buos-price-cut/>> Accessed 27 June 2021

becoming airworthy. He controlled several companies with interests in property and aviation and based his fleet – named *Hunter One* - at Bournemouth. After his death in 1986 several aircraft were sold, and new owners set up the Jet Heritage Aviation Museum; it opened in 1998 and became the Bournemouth Aviation Museum, although none of the aircraft in Carlton's collection are now in the museum.⁵⁵ Had he lived, would he have proved to be an *Investor* or a *Speculator*? His collection included some types of which there were two or more examples: these might have been intended to be used as sources of spare parts to produce one flyable example, or they may have been acquired as investments to be sold on at a later stage to other collectors.

In most cases these collectors' aim seems to have been primarily to fly their aircraft for their own enjoyment, while Roberts' Strathallan collection evolved into a museum. Arnold, Warner and Church set up businesses to restore aircraft partly for their own use but also to produce airworthy examples that could be sold on. From the 1970s, air displays - the organisers of which would pay for fuel and other incidental costs – offered opportunities for owners to subsidise their costs and increase the annual number of flying hours. Alison Wain has pointed out that keeping machines such as aircraft operating can help keep them in good condition, although there are of course risks associated with operating any sort of machine.⁵⁶

⁵⁵ Ellis, *Lost Aviation Collections*, pp 193-198.

⁵⁶ Alison Wain, 'The Importance of Movement and Operation as Preventive Conservation Strategies for Heritage Machinery', *Journal of the American Institute for Conservation*, 56, (2017) pp 81-95

An Air Display Industry?

Air displays in the United Kingdom have a long history, beginning with aviation meetings at Doncaster and Lanark in 1909 and 1910 respectively. Claude Grahame-White organised regular aviation meetings at the London Aerodrome between 1912 and 1914, and in the 1920s and 30s annual RAF Displays at Hendon raised the profile of the RAF and aviation in general, while also raising money for RAF charities.⁵⁷ Alan Cobham's "Flying Circuses" toured the country in the 1930s, promoting aviation through aerobatics, parachute jumps and brief passenger flights.⁵⁸ Air races such as the King's Cup were popular, although the courses were usually too long for spectators to see the whole race.

In the post-war years, displays were mostly organised by the armed services, the participating aircraft being drawn from their own units, supplemented by aircraft from allied air forces. On one Saturday in September 1960, 25 RAF stations held "At Home" days with flying displays.⁵⁹ These events were primarily aimed at encouraging recruitment and perhaps demonstrating to the taxpayer how their money was being spent. A few civilian display teams operated, notably the Tiger Club's *Barnstormers* and a team sponsored by Rothman's tobacco, and a few individual pilots performed aerobatics – Haydon-Baillie being a prime example. As the armed services reduced in size in the 1980s and 90s, the number of military displays decreased, and displays were organised on a more commercial basis. The Fighter Collection organised a series of annual *Flying Legends* displays which were held for 30 years at Duxford, featuring its fleet of Second World War aircraft

⁵⁷ Andy Renwick, *RAF Hendon* (Manchester: Crecy Publishing, 2012), pp 30-40 & 66-81

⁵⁸ Colin Cruddas, *Those Fabulous Flying Years: Joy-Riding and Flying Circuses between the Wars* (Tunbridge Wells: Air-Britain Historians, 2003)

⁵⁹ 'September 17 Aerobatics', *Flight*, 78 (1960), p.200

supplemented by others from collections based at Duxford and elsewhere in the UK. *Flying Legends* returned to the air display calendar in July 2023.⁶⁰ The *Great Warbirds* displays were held at West Malling from 1992, moving to Wroughton in 1991; the last display was held in 1994. Like *Flying Legends*, the *Great Warbirds* displays were organised by the operators of a military aircraft, B-17 Preservation Ltd.⁶¹ The Royal International Air Tattoo is a very large event, one of few that concentrates on modern military aircraft leavened with some historic content; it raises funds for the RAF Charitable Trust.⁶² The British Air Display Association was formed in 2011 to represent the air display industry and promote safety and professional standards.⁶³

The Imperial War Museum [IWM] has developed its Duxford site over many years to become almost as well known for flying historic aircraft as for its static museum displays. This has been achieved by encouraging the owners of such aircraft to base their collections there, with one hangar being devoted to airworthy aircraft, where visitors can see the aircraft being maintained. The Aircraft Restoration Company has a private hangar where longer-term restoration work is undertaken as well as the servicing of both historic aircraft and others of more recent vintage. It has absorbed other companies – Historic Flying, Aircraft Spares and Materials, and Propshop – and the Blenheim with which the company began is officially registered to Blenheim (Duxford) Ltd. Such companies are not unusual in the air display world: aircraft

⁶⁰ Angela Decker, 'Flying Legends North – "Like Duxford, Only Better"', *Warbirds News* [online] 19 July 2023 Available from <<https://warbirdsnews.com/warbirds-news/flying-legends-north-like-duxford-only-better.html>> Accessed 8 August 2023

⁶¹ B-17 Preservation Ltd, *Great Warbirds Air Displays* [online], Available from <<https://www.sallyb.org.uk/warbirds.htm>>, Accessed 23 July 2021

⁶² Royal Air Force Charitable Trust, *Our Mission* [online], Available from <<https://www.airtattoo.com/the-trust>>, Accessed 20 September 2021

⁶³ British Air Display Industry, *About Us* [online], Available from <<https://www.bada-uk.com/2011/01/about-us/>>, Accessed 8 August 2023

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owned by The Fighter Collection – founded by Stephen Grey – are registered to Patina Ltd, a Jersey company, and the Historic Aircraft Collection of Jersey was founded by Guy Black and Angus Spencer-Nairn.⁶⁴ Black also owns Retrotec, a company which restores aircraft and supplies spare parts. The use of companies based in Jersey is doubtless done to take advantage of the relatively low tax arrangements. As with most industries, the more visible elements of the air display industry – the aircraft that are displayed – are supported by a network of other companies that have evolved to provide specialised services, such as the overhaul of engines by Retro Track and Air, and the manufacture of parts that are no longer available. Ted Inman, the former Director of Duxford, feels that Stephen Grey had a commitment to public interest and invested in the facilities at Duxford in exchange for the use of hangars and the airfield; there was a symbiotic relationship with the IWM, since running and flying his collection made a substantial contribution to the museum through attracting visitors.⁶⁵

The contraction in the size of the armed forces since the end of the Cold War brought a reduction in the number of air displays held in the UK – arguably because the need for recruitment has reduced, although this may be an oversimplification since other factors such as demographic change and competition from high-tech industries mean that the armed services need to find ways to attract men and women at all levels. Constraints on budgets are more likely to be a factor. There is certainly a public demand to see aircraft fly, and the gap left has been filled mostly by the companies identified above, based at Duxford and elsewhere.

⁶⁴ Searches of the Civil Aviation Authority's G-INFO database, <<https://siteapps.caa.co.uk/g-info/>>, 12 August 2021

⁶⁵ Interview with Ted Inman, 2 December 2021

Effect on the Aircraft Preservation Movement

It is clear that Richard Shuttleworth and Dick Nash's collecting inspired the movement that has led to the large number of privately funded museums in the UK. The proposed sale of the Nash Collection in the 1950s led to calls for a national air museum, and the Shuttleworth Trust's announcement in 1964 that it would open regularly came at a time when groups of individuals were becoming concerned about the potential loss of tangible heritage in the fields of industry, land transport and aviation. This is likely to have brought the realisation that groups and individuals could obtain aircraft to keep them from being scrapped. Many volunteer-run museums operate on the proverbial shoestring, but collections of flying historic aircraft are still the preserve of those able to invest significant sums in both restoration and the inevitable operating costs – fighter aircraft consume fuel at a prodigious rate, and larger aircraft such as the Consolidated Catalina and Boeing B-17 Fortress even more so. Such investment has certainly increased the number of historic aircraft that can be seen in museums and at air displays, although the inevitable bartering between organisations can mean that some aircraft leave the UK for foreign shores. This was discussed by BAPC in 1984; it was noted that the existing regulations restricted the export of historic objects over 50 years old, which would thus not prevent the export of aircraft of Second World War vintage. A policy statement was drafted, and a sub-committee deputed to identify specific aircraft worthy of preservation.⁶⁶ In January 2021 the Historic Aircraft Association – a group which aims to promote the safe operation of historic aircraft in the UK, primarily composed of the owners of such aircraft – called for measures to prevent the export

⁶⁶ Minutes of BAPC's 69th meeting, 4 August 1984, via John Berkeley

of aircraft regarded as ‘National Treasures’.⁶⁷ Whilst the bulk of the examples cited are British designs, they also suggest that foreign designs should be included but given lower status than British aircraft.

The HAA suggests that ‘increasing demands of burdensome regulations’, some of which have been introduced in response to accidents, have forced aircraft owners to sell their aircraft to organisations in countries which have a more lenient regulatory environment. Under current arrangements, export licences are already required for ‘Means of transport more than 75 years old’ which are valued at £39,219 or more.⁶⁸ Nevertheless, as Gelber points out, many collectors – whether their interest lies in aircraft, stamps or other objects – enjoy buying, selling and exchanging items to enrich their collections, and some aircraft may leave the UK and return at a later date. Those in museum collections generally have a more stable life, and air displays can encourage visits to museums whose aircraft are no longer flown, perhaps to see a wider range of aircraft types. These “rich boys’ toys” have indirectly helped volunteer-run museums by generating interest in aircraft among the general public, leading to visits that bring income and potentially offers of practical assistance.

Conclusions

The private collectors described in this chapter do not entirely fit the models put forward by authors who have analysed collectors’ motivation. While Doug Arnold certainly is an example of Gelber’s *Merchant* category, and others exhibit some of

⁶⁷ Historic Aircraft Association, *HAA calls for “National Treasures” Watchlist* [online], January 2021, Available from <<https://haa-uk.aero/haa-calls-national-treasures-watchlist/>>, Accessed 29 July 2021

⁶⁸ Arts Council England, *UK Export Licensing for Cultural Goods. Procedures and guidance for exporters of works of art and other cultural goods*, 2016, Available from <[https://www.artscouncil.org.uk/sites/default/files/download-file/Guidance for exporters issue 1 2016.pdf](https://www.artscouncil.org.uk/sites/default/files/download-file/Guidance%20for%20exporters%20issue%201%202016.pdf)>, Accessed 29 July 2021

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the characteristics of Gelber's *Speculator* and *Investor* roles, there are others who seem to have built up collections simply for their own enjoyment. Shuttleworth apparently enjoyed both flying his aircraft and the challenge of restoring veteran aircraft. Nash claimed to have started collecting aircraft and other forms of transport for the benefit of future generations and then realised that they represented a business opportunity. Similarly, the collection at Strathallan began with a desire to fly a Hurricane, but Roberts required other aircraft on which to train in order to qualify for such a complex aircraft. As Nash and Roberts' collections grew, they became more like Gelber's *Investors*, acquiring aircraft to help generate income for their businesses. In most cases these collectors had amassed significant wealth from other activities – Shuttleworth and Roberts inherited wealth, Arnold and Warner had dealerships in aircraft and cars, while Carlton had a portfolio of property and other companies, and Church built housing estates.

The preservation movement has benefitted from these collectors' use of their significant wealth. Aircraft that were often in very poor condition have been restored to fly in displays and can often be seen in films and television programmes. This generates interest among those who might not otherwise be motivated to visit an aviation museum, bringing useful income and intangible benefits such as increased visitor numbers that support applications for funding.

While wealthy collectors have done much to generate interest in historic aircraft, most of the people who have set up and run aviation museums are enthusiastic volunteers, often of much more modest means. Chapter 4 examines the factors that have inspired their enthusiasm and motivated them to devote their time and effort to

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museums. These are manifold, but the chapter gives particular focus to the materiality of aircraft.

Chapter 4 – Volunteers: Motivation, Inspiration and Materiality

Introduction

Writing about the Smithsonian National Air and Space Museum's first curators, Robert Post comments, 'nearly everyone believed that aeronautics (and now astronautics) was *intrinsically* exciting and shared a sense of awe at the exploits of "magnificent men in their flying machines." Their mission as museum people, therefore, was simply to facilitate an emotional response, perhaps just by enabling other people to get up close to the objects of their own affection.'¹ This is undoubtedly true in the case of volunteer-run museums, since the majority of volunteers tend to be enthusiasts. NASM and the RAF Museum were founded at a time when there were no formal courses in aviation history, so the subject knowledge required of curators often came from an earlier career in the flying services or a long-standing interest in aviation. It would be natural for such people to have an evangelical outlook and promote aviation. While several studies have focused on enthusiasts as communities – particularly enthusiasts who volunteer in areas related to the subject of their enthusiasm – it seems that very little investigation has been made into *why* or *how* people become enthusiasts. The All-Party Parliamentary Group on General Aviation [APPG GA] noted that 'Aviation is naturally exciting and attractive, in particular to the young'.² Interviews with those involved in aviation museums – whether as volunteers or paid staff – confirm that their attraction to aviation can often be traced back to encounters at a relatively early age with aircraft

¹ Robert C Post, *Who Owns America's Past?*, p. 162

² All-Party Parliamentary Group on General Aviation; *Heritage Working Group Programme 2018-2019*, p.1, Available from <<https://generalaviationappg.uk/wp-content/uploads/2019/01/Heritage-Programme.pdf>>, Accessed 11 May 2021

in flight, and material qualities such as shape and sound make an impact and trigger the sort of emotional response described by Post.

Enthusiasm and volunteering tend to go hand in hand: an enthusiasm for a subject leads people to volunteer, to be more closely involved. Volunteers can be found in virtually every museum – not only in aviation museums - whether supplementing the work of paid staff or performing all the tasks necessary for their museum to operate. No studies of volunteers in aviation museums have yet been identified. Why do individuals want to work, either as volunteers or paid staff, in aviation museums? This chapter investigates factors that inspire enthusiasts' affection for aviation and those which motivate them to work (mostly as volunteers) in aviation museums. Drawing on the broad literature on volunteering, particularly Robert Stebbins' concept of "Serious Leisure", this chapter then explores the varied roots of such enthusiasm. Kirsten Martinus notes that several scholars in the field of economic geography view the activities of enthusiasts as 'providing work-life balance or [acting as] sources of alternative knowledge'.³ Interviewees' responses suggest that the majority have an enthusiasm which may be deep-seated; many found it difficult to identify precisely what had sparked their enthusiasm. After discussing the broad influences which can lead to such a passion, such as books, films and models, the chapter focuses on the materiality of aircraft - described by DeLyser and Greenstein as 'a term used to encompass the lives of and the very thingness of things' - as a factor that draws staff and visitors into the world of aviation museums.⁴

³ Kirsten Martinus, "It's a Love Interest" – Enthusiasts and Regional Industry Cultures of Practice', *Geoforum*, 144.103808 (2023), pp 1–10

⁴ Dydia DeLyser and Paul Greenstein, 'The Devotions of Restoration: Materiality, Enthusiasm, and Making Three "IndianMotocycles" Like New', *Annals of the American Association of Geographers*, 107 (2017), p.1465

Squires' study of canal restoration noted:

The period 1946 to 1975 has seen the development of the Leisure Revolution, the awareness of Leisure Amenity, and the growth of the volunteer worker willing to devote time and effort to the provision of leisure facilities for the enjoyment of members of society in their leisure hours.”⁵

In a later work based on his thesis he notes that ‘very little research work has been undertaken to evaluate the true strength or the origins of the volunteer workers’ and it appears that this is still the case.⁶ One aim of this study has been to identify the factors that can spark an enthusiasm for aviation and motivate people to devote their time, effort - and often money – to restoring and preserving aircraft, railways and canals. Ian Carter quotes a journalist’s view that ‘Train spotters occupy a unique place in British society: the butt of jokes, abuse and, ultimately, social concern’ but aviation enthusiasts are sometimes seen in a similar light.⁷ In his book Carter examines forms that enthusiasm takes, such as the market for books and magazines, Societies, model railways, and restoring and operating engines, rolling stock and “heritage railways” yet he seems ultimately not to be able really to explain – or explore – what it is about railways (and, by extension, other forms of transport) that inspires such enthusiasm. He also charts the development of enthusiast societies and the railway preservation movement.

Other scholars have offered some suggestions. Divall states that

⁵ Roger W Squires, *The Waterway Restoration Movement 1946-1975*, University of London, 1977, p.2

⁶ Roger W Squires, *The New Navvies: A History of the Modern Waterways Restoration Movement* (Chichester: Phillimore, 1983), p.20

⁷ *The New Zealand Herald* 10 May 1994, in Carter, *British Railway Enthusiasm*, p.88

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Many [museum] visitors, for instance, derive a good deal of pleasure from the memories rekindled by seeing old vehicles from their youth... most people in once industrialised societies are interested in 'the past' chiefly as a way of understanding how that past has shaped their own lives and what lessons it might provide for the future.⁸

Samuel suggests that a growing awareness of history and/or heritage, combined with an apparent increase in leisure time, encouraged white-collar workers and middle-class men to become involved in restoring and operating machines which they would not encounter in their weekday work. Cuts in the RAF, following successive defence reviews, may have released personnel who continued their connection with aircraft by volunteering in museums: Hilary Geoghegan found that some of the enthusiasts who enjoyed making telephone exchange apparatus work were former telephone engineers.⁹ Her thesis is a detailed examination of three volunteer groups associated with telecommunications, Industrial Archaeology and computers. Working with these groups, she explores the relationships between people, technology and machines, the way in which technology can inspire nostalgia, and thus the motivating factors that lead people to devote their time and energy to collecting and restoring telephone equipment and computers. She points out that 'people have long been fascinated by the history of technology and engineering. Moreover, enthusiasts have been central to the collection, conservation and preservation of this particular material record.'¹⁰ Her comment that 'not all

⁸ Colin Divall, 'Transport Museums: another kind of historiography', *Journal of Transport History*, 24 (2003), p.260

⁹ Hilary Geoghegan, *The culture of enthusiasm: technology, collecting and museums*, (unpublished doctoral thesis, Royal Holloway, University of London, 2008)

¹⁰ Geoghegan, *The culture of enthusiasm: technology, collecting and museums*, p.4

enthusiasts collect for collecting's sake, they often collect for use' chimes with those collectors who fly their aircraft.

Volunteering

Volunteers work in a wide range of settings in society; in some settings they support paid staff, while other organisations are run solely by volunteers. There is an extensive literature on volunteering, covering a broad spectrum of settings, including museums, and most of the aviation museums on which this study is focussed were set up, and are run, by volunteer enthusiasts. One view of volunteers – the Economic Model – sees volunteers essentially as unpaid staff, who contribute their time and energy to improve the performance of organisations. Kirsten Holmes argues that they are effectively 'active visitors' who derive benefits from their work similar to those reported by museum visitors: they gain enjoyment through pursuing an interest and often learn new skills in the process.¹¹ This view of volunteers as 'active visitors' is echoed by Sue Millar, who describes them as 'the ultimate frequent visitors.'¹²

Robert Stebbins coined the term "Serious Leisure" to denote voluntary work that was substantial and required special skills, knowledge or experience as well as commitment and dedication. His Serious Leisure Perspective divides Serious Leisure into three strands: *Amateur* (such as engagement in art and sport), *Hobbyist* (including collecting, making and tinkering) and *Volunteer*, which has many facets

¹¹ Kirsten Holmes, 'Volunteers in the Heritage Sector: A Neglected Audience?', *International Journal of Heritage Studies*, 9 (2003), pp 341–55.

¹² Sue Millar, *Volunteers in Museums and Heritage Organisations: Policy, Planning and Management* (London: HMSO, 1991), p.1

including *idea-based, material* and *environmental*.¹³ He also points out that it is common ‘for the participant to add a volunteer component to his or her amateur or hobbyist activity’ – this certainly applies to enthusiasts in many museums, heritage railways and other settings where restoration work might be argued to require more skills than Stebbins’ ‘making and tinkering’ might suggest.¹⁴ Noreen Orr applies this concept to museum volunteers, arguing that many do so to develop a closer connection to a museum that they have visited.¹⁵ While some visitors may indeed be inspired to become volunteers, other volunteers may have brought a pre-existing interest to the museum. Julia Trapp-Fallon argues that the Serious Leisure model applies to volunteers and that they gain rewards similar to those offered by paid employment: enriched lives, a sense of accomplishment, empowerment and involvement. Her work was centred on canal volunteers, and she prefers the term “Committed Leisure” which better reflects the long-term projects that some volunteers undertake.¹⁶

Paul Hoggett and Jeff Bishop, looking at enthusiasm in a wider range of leisure-oriented groups such as Morris Dancers, sports, and metal detectorists’ clubs, noted that reasons for joining such groups included collective projects, making friends and meeting people, and exchanging information – examples of the latter include local history groups and the Locomotive Club of Great Britain. Crucial factors brought to

¹³ Jenna Hartel, *Diagrams of the Serious Leisure Perspective*, [online] Available from <<https://www.seriousleisure.net/slp-diagrams.html>> Accessed 27 April 2021

¹⁴ Robert A Stebbins, *New Directions in the Theory and Research of Serious Leisure*. (Lewiston: Edwin Mellen, 2001), pp 126-127

¹⁵ Noreen Orr, ‘Museum Volunteering: Heritage as “Serious Leisure”’, *International Journal of Heritage Studies*, 12 (2006), pp 194–210

¹⁶ Julia Trapp-Fallon, ‘Reflections on Canal Enthusiasts as Leisure Volunteers’, in *Academic Renewal: Innovation in Leisure and Tourism Theories and Methods*, (Eastbourne: Leisure Studies Association 2007), p.77

such groups by enthusiasts included sociability and productive work. Steve Bell described his museum as having several facets, one of which was ‘a club for old gits’ – his volunteers.¹⁷ Another interviewee suggested that, of the volunteers in his museum,

I would say a third had military backgrounds [of] one form or another. Quite a few also had a background in police/ambulance/fire, and I think... volunteer museums, have a camaraderie. It's a bit like going back to working for an organisation like the services, or the police, or whatever, where there is banter: there is sort of [a] connection of those sorts of people.¹⁸

As Orr suggests, this indicates that in addition to making use of the skills and knowledge gained during their service these people are maintaining contact both with aircraft and equipment with which they served, and also with the military culture which influenced their younger lives. It also chimes with Stebbins’s comment that Serious Leisure is characterised by a ‘peculiar ethos and social world and distinctive identity’.¹⁹ Suzanne Keene points out that military museums – and many aviation museums have predominantly military aircraft in their collections - ‘need to be places where people can commemorate their membership of a group or a community’.²⁰ Candlin also comments on regimental museums as family collections.²¹

¹⁷ Interview with Steve Bell, 24 March 2021

¹⁸ Interview with Trev Clark, 9 February 2021

¹⁹ Robert A. Stebbins, ‘Unpaid Work of Love: Defining the Work-Leisure Axis of Volunteering’, *Leisure Studies*, 32 (2013), p.340

²⁰ Suzanne. Keene, *Fragments of the World : Uses of Museum Collections* (Oxford: Elsevier Butterworth-Heinemann, 2005) p. 95

²¹ Candlin, Butler, and Watts, *Stories from small museums*, pp 83-85

In a related field, a study by Steven Rhoden and his colleagues gathered information on the motivation of volunteers at a heritage railway. They identified six main motivators: *Altruism, a Substitute for Work, Social/Affiliative, Hobbies, Relaxation/Change, and Skills-Oriented*.²² *Altruism* is likely to be a strong motivator for volunteers working for charities but can also be seen in those who restore derelict, unsightly canals to provide an amenity for their local community.

Volunteering as a substitute for work might perhaps be most evident in retired people or those temporarily unemployed or retired, while the *Social/Affiliative* theme tallies with the interviewee's comments about a significant proportion of volunteers having backgrounds in the uniformed services. The BBC programme *The Golden Age of Canals* provides an insight into the *Relaxation/Change* motivation: Joseph Boughey commented about volunteers working to restore canals, many of whom were from professional backgrounds:

Quite a few people I've met came from clerical jobs which were pen-pushing, as it were... and didn't provide the satisfaction of working with your hands. Almost like sort of a dignity of manual labour – you're doing something real. During the day you're pushing paper round and at the end of your career you're not quite sure what you've actually achieved. You go past that lock and see the brickwork you've helped to set, or see something that you cleared, something you worked on. I think that's a big motivator. And I think for many people this was a serious way of having an awful lot of fun.²³

²² Steven Rhoden, Elizabeth M. Ineson, and Rita Ralston, 'Volunteer Motivation in Heritage Railways: A Study of the West Somerset Railway Volunteers', *Journal of Heritage Tourism*, 4 (2009), p.30

²³ BBC, *The Golden Age of Canals*, first broadcast 16 May 2011

Only one of those interviewed for this study was not an aviation enthusiast. He described himself as a pen-pusher and explained that after his wife died, he had found himself needing a purpose in life. Volunteering had been suggested to him, but ‘Oxfam shops weren’t really for me, and I discovered the [de Havilland] museum.’ Like Boughey’s canal restorers, he uses his practical skills working on an aircraft and ‘it’s a good day when I can go home thinking I’ve actually achieved something – left something here.’²⁴

Alan Beattie was

a bank clerk for many, many years and I required something to take my brain off that subject. Got to do *this* tomorrow, got to do *that* tomorrow, all those sort of things, so I suddenly got into [the] engineering side; something completely different than (*sic*) what I were doing. I used to go to the [Yorkshire Air Museum] and ended up volunteering there.’²⁵

J G Lawson was a young man when he joined a group aiming to preserve a Vickers Viscount airliner. He too used his volunteering to escape from his job and wrote that he opened up the aircraft ‘after work, simply for the sheer pleasure of sitting in the aircraft on a warm summer’s evening and shedding the tensions of a day’s work.’ But while volunteers can gain rewards from their labour, there are also potential problems. Lawson eventually left the group with which he volunteered, citing factors including ‘the Chairman’s naïve faith in others’ and commented that the spirit of the project ‘was killed at this early stage by those who saw the whole business as a

²⁴ Interviewee L, 9 February 2023

²⁵ Interview with Alan Beattie, 5 July 2022

management exercise'.²⁶ The comments by Boughey, Beattie and Lawson all exemplify Rhoden's *Relaxation/Change* motivator.

Volunteering can have its drawbacks. Zelmarie Cantillon and Sarah Baker examined the rewards and costs associated with volunteering in archives and museums, and noted that the latter include not only interpersonal tensions – as experienced by Lawson - but also issues associated with relationships, finance, the balance of time between work, family and leisure, as well as emotional and physical stress.²⁷ Ken Ellis hinted that at least one aviation museum began when a split in a volunteer group led to one faction going their own way; he described 'people who... leave and set up somewhere else and then hate the other lot and both hate each other with a vengeance.'²⁸

The *Skills-Oriented* motivator might best be seen in volunteers who have worked with aircraft or who are hoping to acquire relevant skills. People with some of the traditional aircraft maintenance skills, such as fabric work, are becoming hard to find and a few of the larger museums have set up apprentice schemes to keep rare skills alive. Jenny Mattingly, in her 1984 study of volunteers in museums and galleries, recommended that 'Volunteers should not be involved in conservation, which is highly skilled work and within the job description of paid, trained staff' but conservation work in most aviation museums relies on volunteers, either because they cannot afford professional staff, or to supplement the work of trained

²⁶ J G Lawson, *One Summer at Speke : A Personal Account of the Preservation of a Historic Aircraft* (High Wycombe: Skycol Publications, 1978), pp 35, 32 & 26

²⁷ Zelmarie Cantillon and Sarah Baker, 'Serious Leisure and the DIY Approach to Heritage: Considering the Costs of Career Volunteering in Community Archives and Museums', *Leisure Studies*, 39 (2020), pp 270–273

²⁸ Interview with Ken Ellis, 29 August 2019

conservators.²⁹ The skills required when replacing corroded skin panels or building new wooden wing ribs are somewhat different to those of conservators working on documents on parchment or oil paintings, but there are basic principles which are valid for all conservation work. The National Aviation Heritage Skills Initiative was a Lottery-funded scheme which ran from 2005 to 2010 and developed nationally-accredited training courses for volunteers working on aircraft, combining technical skills with conservation principles and health and safety awareness.³⁰ Funding to continue beyond 2010 was not forthcoming and the APPG GA points out that ‘Long-term volunteers are now aged, but still vital... a continuing programme of skills transfer is necessary to ensure skills in heritage technologies are not lost.’³¹ Mattingly’s study seems to have mostly looked at museums funded by national and local government, rather than volunteer-run museums; this may be because it was published at a time when the boom in museums was just beginning.

Volunteering can also be a way for people who aspire to work in a museum to gain work experience – another example of *Skills-Oriented* volunteering. Holmes has pointed out that competition for jobs in local and national museums is such that applicants need to show commitment to their chosen career, and a record of volunteering in museums helps to demonstrate this dedication.³² Alan Beattie also cited one of his volunteers who

²⁹ Jenny Mattingly, *Volunteers in Museums and Galleries: A Report of a Survey into the Work of Volunteers in Museums and Galleries in the United Kingdom*. (Berkhamsted: The Volunteer Centre, 1984), p.74

³⁰ *National Aviation Heritage Skills Initiative* [online] Available from <<https://web.archive.org/web/20100729190951/http://www.nahsi.org.uk/>> Accessed 11 May 2021

³¹ *Heritage Working Group Programme 2018-2019*, p.3

³² Kirsten Holmes, ‘Experiential Learning or Exploitation? Volunteering for Work Experience in the UK Museums Sector’, *Museum Management and Curatorship*, 21 (2006), p.241

can't hold down a job because he's not physically fit, but he can come down and potter every day of the week, which is great because we've got another body on site; he can help us to make sure that if one of us has to be somewhere else we can ensure that there's at least two people on site at all times.

Such diversity among volunteer teams is important, and in return this person will presumably benefit from social contact. Alan also reported an example of the *Social/Affiliative* motivator, commenting that

many of us probably wouldn't communicate with too many people if we didn't actually go down there and get working, because we've finished work... often throughout the week, basically I'm not speaking to anybody because I live on my own, and so do many of the other volunteers.³³

Margaret Deery and her colleagues identified three types of volunteers, which they named *Enthusiasts* (who have specialist knowledge relating to the museum's subject), *Opportunists* (who see volunteering as a way to progress their careers) and *Enhancers* (those who volunteer to improve their personal lives).³⁴ As might perhaps be expected, the Opportunists were mostly from the lower age groups. Older people - like Alan Beattie - tend to be Enhancers who value the social interaction and the opportunity to use their skills.

³³ Interview with Alan Beattie, 5 July 2022

³⁴ Margaret Deery, Leo Jago, and Judith Mair, 'Volunteering for Museums: The Variation In Motives across Volunteer Age Groups', *Curator*, 54 (2011), pp 313–25.

Chapter 4 – Volunteers: Motivation, Inspiration and Materiality

Not all volunteers work on aircraft; as with many museums there will be people who volunteer in visitor-facing roles such as guided tours, cafés and shops, or in library, archive or other collection-related roles. Ken Ellis cited a couple whose volunteering at the Newark Air Museum used a rather different set of skills:

there's a husband and wife team that do the bins and do the grass, and all that they've asked for in the middle of this is that they create an air raid - an Anderson - shelter area, with a proper working garden so that they're growing proper World War 2 stuff... the number of school parties that come and look at this is phenomenal... and their payback is that they keep the grounds immaculate.³⁵

It has not been possible to obtain data on the numbers of male and female volunteers, but observation indicates that the vast majority are male. Trev Clark noted that 'the females are wives, partners, some of them are widows. Some of them are widows of previous volunteers, if you see what I mean - husband passes away, but wife still comes.'³⁶ Over the last 30 years the proportion of women working in both civil and military aviation has increased, and it seems likely that the number of female volunteers will also increase in time.

Cantillon and Baker note Stebbins' identification of *Personal Rewards* (which relate to personal enrichment, self-actualisation, self-expression, self-image, self-gratification, recreation of self and financial return), *Social Rewards* (social attraction, group accomplishment and contributing to the group's development) and *Thrills*

³⁵ Interview with Ken Ellis, 29 August 2019

³⁶ Interview with Trev Clark, 9 February 2021

(‘sharply exciting events and occasions’ or high points experienced during a Serious Leisure career).³⁷ Delegates from aviation museums at a conference held in 2020 were asked to submit a phrase that represented their reason for volunteering.³⁸

Figure 8 gives their responses, among which are references to *Social Rewards*

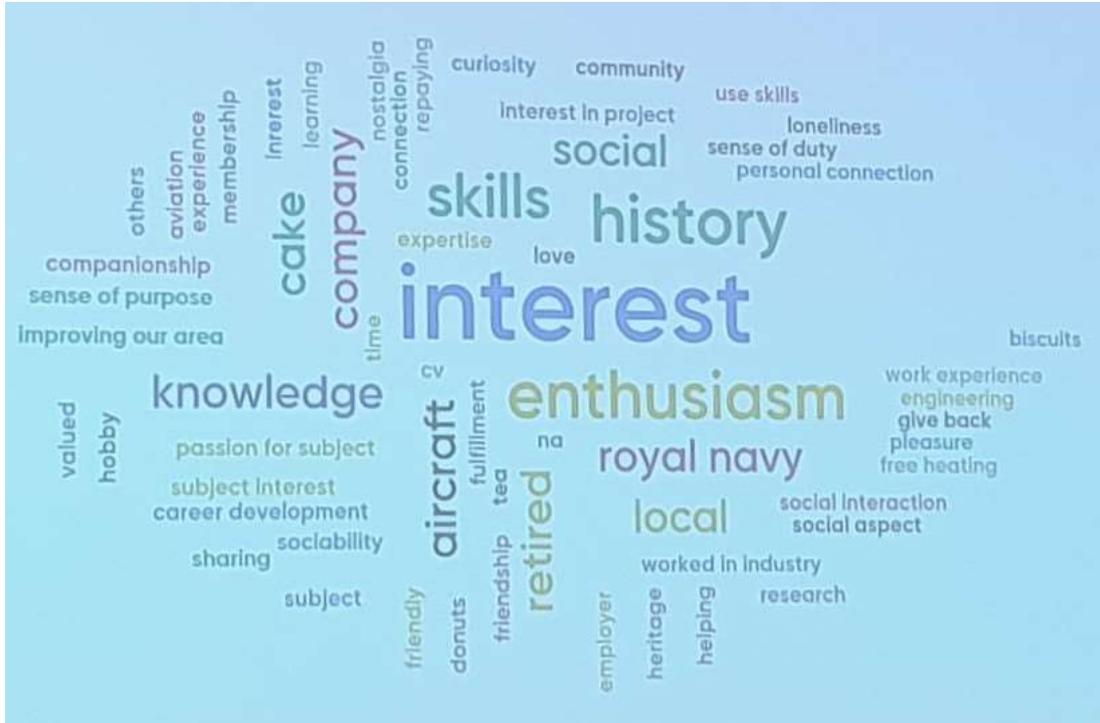


Figure 8: Volunteers’ motivation – a straw poll (Author’s photograph)

(Companionship, Friendship, Social Interaction, Being Valued, Fulfilment, and Loneliness), *Personal Rewards* relating to work (Previous work in the aircraft industry, Using their skills or Aviation experience, Career Development and Expertise). Factors related to their Enthusiasm (Interest in/Passion for the Subject, and Nostalgia) could be classified as Stebbins’ *Thrills*. Their responses ratify the concepts set out by the authors cited above. The most frequently offered reasons – indicated by the larger type – are *Interest* (presumably in aviation, a separate term *Subject Interest* was also used) and *Enthusiasm* (those who attended the conference

³⁷ Cantillon and Baker, p.267

³⁸ ‘To Infinity and Beyond!’, Organised by the Aviation and Aerospace Archives Initiative, held at Aerospace Bristol, 12 February 2020

were arguably likely to be enthusiasts). The next most frequent are *Skills* (probably manual skills, though other skills such as research might be represented) and *History*.

Inspiration and Enthusiasm

Colin Divall and Andrew Scott suggest that 'Without enthusiasts, the transport collections in many countries would be far less rich, the possibilities for making public histories far more restricted.'³⁹ Fiona Candlin and her colleagues reported that the volunteers at the museums they studied 'almost always had subject specialists as part of the team' and many enthusiasts have detailed subject knowledge.⁴⁰ Hilary Geoghegan cites Tine Kleif and Wendy Faulkner's comment that 'few scholars have really 'got inside' the nature of the pleasure [of technology] or explored what the passion [for technology] is all about'.⁴¹ Ian Carter's study of railway enthusiasts shows that there are many parallels between railway enthusiasts and those who might describe their enthusiasm as "on a higher plane" although he seems not to identify the factors behind 'the railway fancy'. Geoghegan found that the technology enthusiasts she studied were 'often unable to find the words to articulate their passionate connection'.⁴² Similarly, those interviewed for this study have often found it difficult to express what it is about aircraft and aviation that has inspired and maintained their interest.

³⁹ Colin Divall and Andrew Scott, *Making Histories in Museums : Making Histories in Transport Museums* (Leicester: Leicester University Press, 2001), p.11

⁴⁰ Fiona Candlin, Toby Butler, and Jake Watts, *Stories from Small Museums*, p.131

⁴¹ Hilary Geoghegan, 'The Culture of Enthusiasm : Technology, Collecting and Museums' (Royal Holloway, University of London, 2008), p.25

Tine Kleif and Wendy Faulkner, "'I'm No Athlete [but] I Can Make This Thing Dance!" Men's Pleasures in Technology', *Science, Technology, & Human Values*, 28 (2003), p.297

⁴² Geoghegan, p.43

Chapter 4 – Volunteers: Motivation, Inspiration and Materiality

The root cause of many air museum volunteers' enthusiasm is perhaps best described as "airmindedness" – an interest in, and enthusiasm for, the use and development of aircraft. This in turn can be attributed to many factors related to their experiences, often from their pre-adulthood, among which are air displays, aircraft spotting, books and films, and model aircraft. Displays began before the First World War and continued in the 1930s. The RAF for many years held "At Home" days at RAF stations around the country, often in September, to mark the peak period of the Battle of Britain. Their aim was to encourage recruiting, foster good relations with the local community, and raise funds for the RAF Benevolent Fund and the Royal Air Forces Association's welfare work. The 1960s saw two major anniversaries – the 25th anniversary in 1965 of the Battle of Britain and the 50th anniversary of the formation of the RAF in 1968 - both of which were commemorated by events at national and local levels. In 1969 the film *Battle of Britain* was released, for which large numbers of British and German aircraft were assembled and flown in impressive combat sequences. It was one of the last aviation films to use real aircraft in significant numbers, rather than relying on special effects. Some of the non-flying replicas built for the film have since found their way into museums.

Some of those who started museum collections were young men who had grown up in the 1940s, 50s and 60s; they were used to seeing military and civil aircraft (perhaps at an airfield near their home) and developed a curiosity about them. Campion suggests that most young people in 1965 had seen something of the war and wanted to progress towards a better future; this may be true for the majority, but not for all.⁴³ Candlin and her colleagues cite Peter Scoley, who had seen a wartime

⁴³ Campion, *The Battle of Britain in the Modern Age*, Chapter 1, unpaginated ebook

airfield being built on his family's farm. He decided to create a heritage centre, which opened in 1994, after meeting many of the personnel who had been stationed at Metheringham and returned to see their former base.⁴⁴ One interviewee recalled his childhood near an airfield on the south coast, where he was initially frightened by the noise but then 'I stopped and looked at it and went "Ooh, crumbs, that's amazing!"'⁴⁵ Another, who grew up in a similar situation, commented, 'my parents thought I'd grow out of it [his interest in aircraft] but I forgot to.'⁴⁶ Two others learnt about wartime aircraft through their parents' recollections. One explained, 'I'd make a model of a B-17 and my mother would say, "Oh yes, I remember watching them going out... hundreds of them flying over, all painted silver, going across..." and every time I made a model aeroplane, I extracted a story from my family.'⁴⁷ Ken Ellis recalled playing among scrapped aircraft in the 1960s created an interest in aircraft: 'I was just fascinated by – you know – what does that belong to? Why is this scrapping? And the like.'⁴⁸

A photograph of the founder members of the Midland Aircraft Preservation Society [MAPS] taken in the early 1970s, shows five young men.⁴⁹

⁴⁴ Candlin, Butler, and Watts, pp 68-72

⁴⁵ Interview with Trev Clark, 9 February 2021

⁴⁶ Interview with Steve Bell, 24 March 2021

⁴⁷ Interviews with Trevor Woodgate, 3 April 2021 and Andy Saunders, 15 April 2021

⁴⁸ Interview with Ken Ellis, 29 August 2019

⁴⁹ Ken Ellis, Chris Goss, and Gunther Ott, *Local Aviation Collections of Britain The UK's Regional Aeronautical Treasures*. (Manchester: Crecy Publishing, 2017) p.287



Figure 9: Founder members of MAPS with the fuselage of their Parnall Pixie, c.1967 (Coventry Evening Telegraph, via John Berkeley)

Jonathan Brown, in his history of railway preservation, notes ‘It was very difficult to shake off a perception that the [railway] preservationists were nothing but a bunch of bumbling amateurs, steam romantics and dreamers... predominantly young men with limited experience. They were members of the Ian Allan “locospotters” generation who found in the preserved railway an outlet for youthful energy and self-expression.’⁵⁰

“Spotting” aircraft – learning to distinguish one type from another – had become a valued skill during the Second World War. Members of the Royal Observer Corps

⁵⁰ Jonathan Brown, *The Railway Preservation Revolution. A History of Britain’s Preserved Railways* (Barnsley: Pen and Sword, 2017), pp 166-167

tracked and reported aircraft flying over the UK, and other spotters – perhaps men employed in factories - warned of the approach of enemy aircraft. Peter Masefield notes that the number of Spotters' Clubs eventually grew to 808.⁵¹ Trevor Woodgate's father was a member of the ROC and passed his interest in aircraft down to his son.⁵² Although there is some evidence that people were collecting railway engine numbers in the 19th century, "trainspotting" began to grow in the late 1930s and had its peak in the 1950s.⁵³ The Southern Railway published a list of its locomotives in 1934 and the publishing house Ian Allan set up its Spotters Club in 1945; in 1948 it was renamed the Locospotters Club 'To avoid confusion with the original "spotters" who did some splendid work during the war identifying aircraft.'⁵⁴ Ian Allan soon became a major publisher of books and magazines on railways, aviation and other forms of transport, chief among which were the series of *ABC* guides. Carter explains that 'the number of the locomotive heading each train would be... checked in one's *ABC* to discover whether this engine had been "copped" – seen for the first time. If so, its entry in that tome would be underlined, joyfully.'⁵⁵ The *ABC* guides grew to include airline liveries and fleet lists, as well as details of military aircraft fleets; the railway and aircraft series are still being published, albeit not by Ian Allan. Ian Allan seems not to have created an aircraft spotters club to parallel its Locospotters Club, perhaps because the potential market was seen as smaller. Some of the post-war generations of spotters would (and some still do) spend their spare time at a local airfield, perhaps waiting to see an unusual aircraft and perhaps

⁵¹ Peter Masefield & Bill Gunston, *Flight Path* (Shrewsbury: Airlife, 2002), p.54

⁵² Interview with Trevor Woodgate, 3 April 2021

⁵³ National Railway Museum, *Trainspotting*, [online], Available from <<https://www.railwaymuseum.org.uk/what-was-on/trainspotting>>, Accessed 14 August 2019
Carter, *British Railway Enthusiasm*, pp 88-102

⁵⁴ Ian Allan Locospotters Club, *Spottings and Jottings*, 1 August 1948, p.1

⁵⁵ Carter, *British Railway Enthusiasm*, p.90

collecting aircraft registrations in their *ABCs*; word would spread about an expected arrival in the same way that birdwatchers share news of rare visiting birds.

The aviation enthusiasts' group Air-Britain was also formed in 1948; it publishes magazines and historical monographs and organises events for its members. A more commercial venture was *The Observer's Book of Aircraft*; the first edition of was published in 1952 and was probably aimed at both the spotter market and members of the Royal Observer Corps. Published mostly annually, it subsequently ran to at least 38 editions.⁵⁶ In the same way that railway enthusiasts developed their own terms, such as "gricers", "bashers" and "scratchers", Hegarty and Riley explain that spotters in Ulster might specialise in military or civil aircraft ("millos" and "civvies") while "dotties" would try to identify high-flying aircraft which were little more than dots to the naked eye.⁵⁷

It seems that some people's interest in aircraft progressed from merely watching them to a desire to own one. A group of members from the Merseyside Society of Aviation Enthusiasts formed the Northern Aircraft Preservation Society in 1962 and acquired an Avro Avian; this was the first aircraft to be rescued by a volunteer group. A week later, members of the Solway Group of Aviation Enthusiasts acquired their first aircraft.⁵⁸ Air-Britain's short-lived Air Relics Research Group, set up in 1962, broke away in 1963 and became the Historic Aircraft Preservation Society.⁵⁹ Several

⁵⁶ William Green and Gerald Pollinger, *The Observer's Book of Aircraft*, (London: Frederick Warne, 1952)

⁵⁷ Stephen Hegarty & Stephen Riley, *Eyes turned skyward. 50 years of the Ulster Aviation Society*, (Lisburn: Ulster Aviation Society, 2018), p.17

⁵⁸ Ken Ellis, *Local Aviation Collections*, pp 161 & 41

⁵⁹ Alec Brew, *Vampires and Fleas: A History of the British Aircraft Preservation Movement* (Ramsbury: Crowood Press, 2003), p.20

museums have their origins in groups collecting material from crash sites and displaying them with carefully researched details of the circumstances behind the aircraft's loss. Andy Saunders recalled 'We were getting shedloads of [wreckage] – literally – and it was being stored in barns and farms and all sorts of places. So I personally came up with the idea of trying to establish a museum at Tangmere.'⁶⁰



Figure 10: Roger Smith (then a teenager) at a wartime crash site in Snowdonia (via John Berkeley)

Books and films

The 1950s saw the publication of large numbers of memoirs, biographies and other books relating to the Second World War, which were consumed avidly by young (and not-so-young) men. Amongst those dealing with the RAF were books by fighter aces

⁶⁰ Interview, 15 April 2021

such as Johnny Johnson and Pierre Clostermann, while Paul Brickhill's books *Reach for the Sky*, *The Dam Busters* and *The Great Escape* were later made into films which over the years have been regularly shown on television.⁶¹ Frederick Smith's 1956 novel *633 Squadron* was also made into a film, with a less well-known sequel *Mosquito Squadron*. There is also a large technical literature with books on specific aircraft types, together with works on campaigns, aircraft manufacturers and histories of airfields. The market for books on military aviation, while relatively small in comparison to other publishing sectors, remains significant. While new books on the Second World War are still appearing, books on later conflicts and more modern aircraft are also in demand. Publishers still see the Spitfire and Lancaster as subjects that will generate significant sales, arguably at the expense of less popular, but worthy, aircraft such as some of the inter-war designs. Aircraft which had no combat role are also somewhat neglected. Books on civil aircraft are a relatively niche market, mostly focussed on airliners. Pen and Sword's *Air World* imprint includes 56 books on military aviation and 12 on non-military flying, while Air-Britain's catalogue has a closer split, 24:12. Crécy Publishing's aviation catalogue comprises a similarly overwhelmingly military collection. Of the 30 books submitted to *The Aviation Historian* for review up to April 2021, only three were on non-military subjects.⁶²

⁶¹ James Edgar (Johnny) Johnson, *Wing Leader*, (London: Chatto & Windus, 1956)
Pierre Clostermann, *The Big Show*, (London: Chatto & Windus, 1951)
Paul Brickhill, *The Dam Busters* (London: Evans Brothers, 1951); *The Great Escape*, (London: Faber & Faber, 1951); *Reach for the Sky: the story of Douglas Bader DSO DFC*, (London: Collins, 1954)

⁶² Pen and Sword Books, *Air World* [Catalogue] <<https://www.pen-and-sword.co.uk/Air-World/i/40/order/title/asc/18>>
Air-Britain Books [online], <<https://www.air-britain.co.uk/actbooks/acatalog/ABBooks.html>>
Crécy Publishing, *Aviation History* [online] <<http://www.crecy.co.uk/aviation-history>>
All accessed 28 April 2021
Email from the Editor of *The Aviation Historian*, Nick Stroud, 28 April 2021

Captain W E Johns' books had captivated an earlier generation and the career of his character James Bigglesworth - *Biggles* - continued into the 1960s, having begun in the First World War, progressed through the Second and then continued as an air policeman until Johns' death in 1968. From 1941 Johns also wrote books about *Worrals* – Flight Officer Joan Worrals of the Women's Auxiliary Air Force. This may have been motivated by a desire to tap into the market for girls' fiction, or to encourage girls to aspire to work either in aviation or more generally for the war effort. Stephanie Spencer points out that the *Worrals* series began at a time when recruitment to the WAAF was falling.⁶³ Johns gave his heroine a flying role, but WAAFs did not fly aircraft; indeed, later in the war several WAAFs were released to join the Air Transport Auxiliary and fly as ferry pilots.⁶⁴ Women had been flying in the ATA since late 1940, and eventually made up some 12½% of the ATA's aircrew, so Johns could have given *Worrals* that role, but his preference for the WAAF suggests that she was modelled closely on *Biggles*. The WAAF, a military organisation, would give more opportunities for exciting plots than the ATA which had a relatively restricted role.

In a similar vein, some comics were aimed primarily at boys and adolescent males and included strips telling “war stories” – sometimes factual, but mostly fiction. Matthew Rech has described the role played by comics in promoting the military, from the Boer War to comic-book style recruiting advertisements issued in 2009. He notes the rise of ‘Pocket Library’ war comics which were ‘born of necessity in the late 1950s, where, since 1945, an appetite for war comics was met with expensive

⁶³ Stephanie Spencer, ‘No “fear of flying”? Worrals of the WAAF, fiction, and girls' informal wartime education’, *Paedagogica historica*, 52 (2016), pp 137-153

⁶⁴ Peter Elliott, ‘The RAF's First Women Pilots’, *Air Clues*, (44) 1990, pp 170–74.

American imports'. Rech quotes Alexander Clarkson's comment that 'fundamental to their success was "the crucial role the Second World War played in popular memory across Europe [which] created a mass audience"'.⁶⁵ The influence of such literature on an impressionable audience may be another factor in the emerging trend of enthusiasm being sparked in boys and young men.

Building Model Aircraft

Nick Pollard and Neil Carver note that there has been no study of the hobby of building static model aircraft, and they therefore compared their own experiences of model building.⁶⁶ They found that their parents (mostly their fathers) had taken them to air displays and museums, and their fathers' help and encouragement seemed to have reinforced their engagement with modelling. This supports the reports from several interviewees that their interest started with, or was strengthened by, experiences during their youth. Timothy Luke comments that 'Small boys, eager to be fliers, begin by fusing their minds, hands, and imaginations with miniature aircraft, piecing together little machine copies in anticipation of coexisting with big machine originals.'⁶⁷

Flying models date from the early 20th century; the Wright Brothers experimented with kites and flying models before progressing to manned gliders and building the aircraft that made the world's first sustained powered flight in 1903. Several of the

⁶⁵ Matthew F. Rech, 'Be Part of the Story: A Popular Geopolitics of War Comics Aesthetics and Royal Air Force Recruitment', *Political Geography*, 39 (2014), p.41

⁶⁶ Nick Pollard and Neil Carver, 'Building Model Trains and Planes: An Autoethnographic Investigation of a Human Occupation', *Journal of Occupational Science*, 23 (2016), pp 168–80

⁶⁷ Timothy W Luke, 'Superpower Aircraft and Aircrafting Superpower: The Pima Air and Space Museum', in *Museum Politics: Power Plays at the Exhibition* (Minneapolis: University of Minnesota Press, 2002), p.184

early designers of aircraft experimented with flying models in their youth. By the 1930s building and flying model aircraft had become a hobby for boys and young men, who had presumably already become fascinated by flight. Competitions provided an incentive to develop both the efficiency of designs and individual modellers' skills.⁶⁸ The magazine *The Aeromodeller* – concentrating on flying models – first appeared in 1935. These models were usually at best “semi-scale” (resembling a generic aeroplane, rather than being a faithful reproduction of an actual type) while some were more radical designs. Non-flying scale models probably began with the tradition among service personnel of producing “trench art” – decorative items and models made from scrap wood and other materials – and this continued among airmen in both world wars.⁶⁹ Dinky Toys' range of metal models focused primarily on vehicles but seems to have included aircraft from the 1930s to the 1960s, and the Air League promoted model aircraft in the 1930s as a way of encouraging airmindedness in children – the “Skybird” range of models came in kit form, with pre-shaped wooden components which had to be carefully finished on assembly. Other firms produced “solid” models which required more advanced skills, and in 1955 Airfix produced its first aircraft kit – a Spitfire. Richard Butsch, writing about the development of aircraft modelling, sees it as the growth of a leisure industry in which the models are a commodity.⁷⁰ Before the First World War flying models were produced from household materials, and in the inter-war period modellers developed technical knowledge to design high performance models using parts purchased from a fledgling model industry. After the Second World War young people with little skill

⁶⁸ Charles D Rushing, *Wakefield International Cup* [online], Fédération Aéronautique Internationale, Available from <<https://www.fai.org/wakefield-international-cup>> Accessed 3 March 2021

⁶⁹ Fergus Read, *Trench Art* [online], Imperial War Museum, July 2018, Available from <<https://www.iwm.org.uk/history/trench-art>>, Accessed 18 May 2020

⁷⁰ Richard Butsch, 'The commodification of leisure: the case of the model airplane hobby and industry', *Qualitative Sociology*, 7 (1984) pp 217-235

or technical knowledge were able to construct non-flying display models from plastic kits. He sees this as deskilling the modelling community, but closer inspection suggests that this view is not entirely correct. Richard Yarwood comments that “a mass-produced model can be transformed as the modeller becomes an artisan, able to imbue his or her characteristics on a model through the ‘serious pursuit’ of assembling, painting, using and displaying scale models”.⁷¹

An interviewee recalled being given two Airfix kits in his youth – one a jet aircraft, and the other propeller-driven. The first model had no moving parts but with the second:

the propeller turns, so that kind of interested me more than the Draken did, and then you kind of get into wanting to find out a bit more about it, and so I got a book about aircraft of the Second World War and just kind of took over from, from there. It’s largely Airfix’s fault, but that’s certainly what started it all.⁷²

The instruction sheets provided in early Airfix kits often gave some historical information regarding the aircraft type and the actual example depicted by the model. It is arguable that a generation of enthusiasts gained much of their knowledge from an informal “Airfix School of History”. Ellis quotes one of the founders of MAPS who said that early members ‘could be divided into two groups – aeromodellers (*flying*, not plastic kits) or (*sic*) train spotters, who changed to plane spotting with the advent of diesels.’⁷³ The more serious modellers often undertake extensive research,

⁷¹ Richard Yarwood, ‘Miniaturisation and the representation of military geographies in recreational wargaming’, *Social & Cultural Geography*, 16 (2015), p 657

⁷² Interview with Ian Brown, 19 January 2021

⁷³ Ken Ellis, *Local Aviation Collections*, p. 286

seeking to add fine details to a basic kit or to customise a kit through an unusual colour scheme such as the aircraft flown by a specific pilot or the livery of an obscure airline.

Making models often requires - and can help develop – the attention to detail and coordination of hand and eye required for work in aircraft restoration. ‘A model-maker at the National Maritime Museum Cornwall explained, ‘I can remember very clearly looking [at ship models] and being interested in how, for instance, some model-makers use pins and nails to set stanchions up to make it appear like a stanchion with guide wires etc.’⁷⁴ Modelling an object such as a ship or aircraft involves engagement with the materiality of the object, and this materiality can be an important factor in people’s engagement with aircraft.

Books, films, modelling and time spent observing aircraft (spotting) all help to build up knowledge of aviation, and many enthusiasts have deep and broad knowledge of their particular area of interest, which can be invaluable for museums. Elizabeth Haines and Anna Woodham use the term “Enthusiast Experts” in a paper describing a project in which independent researchers worked with Science Museum staff to explore stored objects relating to generating and distributing energy.⁷⁵

⁷⁴ Jack Davy and Charlotte Dixon, *Worlds in Miniature: Contemplating Miniaturisation in Global Material Culture*, (London: UCL Press, 2019), p.83

⁷⁵ Elizabeth Haines and Anna Woodham, ‘Mobilising the *Energy in Store*: Stored Collections, Enthusiast Experts and the Ecology of Heritage’, *Science Museum Group Journal* [Online], Autumn, 2019, Available from <https://journal.sciencemuseum.ac.uk/article/mobilising-the-energy-in-store>, Accessed 7 August 2023

Materiality - Sight, Sound, Smell, Touch, Environment & Charisma

Materiality can be thought of as an examination of the non-verbal ways (particularly sight, smell and sound) in which objects convey their significance to those who value them. Andrea Whitcomb cites Ross Gibson: ‘museums are spaces in which to have sensory experiences; they are spaces in which transformative experiences are possible because of the ability of objects to reach out and literally touch someone.’⁷⁶ This is echoed by Hilary Geoghegan and Alison Hess, who write of ‘an affective museum space [which] stemmed from the sight, sound and smell of the (often decaying) objects on display’.⁷⁷ Aircraft in a hangar can present the senses with a variety of sights, sounds and smells, while the environment in which they are displayed may also influence the visitor. The charisma of a famous aircraft can be a powerful draw. Sandra Dudley points out that museum objects have the power to inspire emotive and affective responses – such responses can be invoked both in museum visitors and those who work with collections.⁷⁸

There is something about machines which people find mesmerising. Susan Pearce writes of

the oily handed collectors, who spend most of their free time working on their material in sheds and garages. Linked with these, but probably separable from them are those for whom the apparent power and potency of their material is important. The size and speed of trains and cars, collected in harsh

⁷⁶ Andrea Whitcomb, ‘Remembering the Dead by Affecting the Living’ in Sandra Dudley, *Museum Materialities Objects, Engagements, Interpretations* (Abingdon: Taylor & Francis, 2010), p.40

⁷⁷ Hilary Geoghegan and Alison Hess, ‘Object-Love at the Science Museum: Cultural Geographies of Museum Storerooms’, *Cultural Geographies*, 22 (2015), p.448

⁷⁸ Sandra Dudley, *Museum Materialities Objects, Engagements, Interpretations* (Abingdon: Taylor & Francis, 2010), p.19

reality in a range of less inspiring ways – train numbers, train memorabilia, pictures and cards – seem to offer this kind of power.⁷⁹

It seems that many of the volunteers who work to restore aircraft are attracted by the appeal of “getting their hands dirty”.

An interviewee suggested that part of the fascination with aircraft is simply the fact that they *can* fly – something which humans are unable to do without the aid of machines.⁸⁰ This would be particularly striking to a child, and several interviewees reported that their interest started in childhood. Dydia DeLyser and Paul Greenstein have studied ‘communities of enthusiasm centered on the agentic materiality of the things they restore and to (*sic*) labors of love and devotion’ by focussing on one man’s restoration of three motorcycles, an activity and emotions which are very similar to those found among those who visit and work in aviation museums.⁸¹

Annemaree Lloyd and Michael Olsson interviewed restorers of vintage cars; they conclude that car restoration is a multisensory embodied practice.⁸² No evidence has been found of similar studies focussed on aviation museums.

Pierre Lemonnier examines his own interest in racing- and sports cars of the 1950s and 60s. He uses the example of a model of the racing car driven by his boyhood hero, which brings to mind ‘all kinds of images of drivers, cars, and heroic feats, and even... smells and vibrations, all of which flutter around in an endless concatenation

⁷⁹ Susan M Pearce, *On Collecting: an Investigation into Collecting in the European Tradition*, (London: Routledge, 1995) p.213

⁸⁰ Interview with Trevor Woodgate, 3 April 2021

⁸¹ Dydia DeLyser and Paul Greenstein, ‘The Devotions of Restoration: Materiality, Enthusiasm, and Making Three “IndianMotocycles” Like New’, *Annals of the American Association of Geographers*, 107 (2017), p.1461

⁸² Annemaree Lloyd and Michael Olsson, ‘Untangling the Knot: The Information Practices of Enthusiast Car Restorers’, *Journal of the Association for Information Science and Technology*, 70 (2019), p.1318

of ideas.’⁸³ Much of this can easily be transferred to aviation: where Lemonnier grew up fascinated by motor sports, boys in the 1930s read about the aces of the First World War. Their sons (and probably some daughters) grew up with comics and books about flying in the Second World War. Rapid progress in aviation during the post-war decade meant that aviation was rarely out of the news. Military flying was more in evidence than today; with many more airfields home to large numbers of British and American aircraft, people in many parts of the country saw aircraft practicing their war roles at both high altitude and low level.

Sight

Machines - whether aircraft, cars, wind- and watermills, or looms in cotton mills - are thought of by some people as living creatures and perhaps lose something when seen at rest in a museum. Frank Trentmann cites Heidegger’s discussion of things and objects, in which an artefact (for example, a hammer) is experienced differently when it is put to use or lying unused – it is easier to appreciate the power and speed of an aircraft, car or locomotive by seeing it in action, than to interpret performance data given in a museum caption.⁸⁴ In an interview for the *Mapping Museums* project, Keith Whitmore of the Ingrow Loco Museum remarked on the difference between diesel and steam locomotives: ‘There was nothing to do on [diesels]; pressing the button, it’s not alive, there was thing (sic) about steam engines being alive.’⁸⁵ Paul Wright discusses the experimental Advanced Passenger Train and the difficulty of interpreting for visitors its ground-breaking technology and its troubled

⁸³ Pierre Lemonnier, *Mundane Objects: Materiality and Non-Verbal Communication*, (London: Routledge, 2016), p.101

⁸⁴ Frank Trentmann, ‘Materiality in the Future of History: Things, Practices, and Politics’, *Journal of British Studies* 48 (April 2009), p.289

⁸⁵ Keith Whitmore (2018) interviewed by Toby Butler, Mapping Museums project, Available from <www.mappingmuseums.org/interviews>, Accessed 14 February 2021

development and cancellation.⁸⁶ Enthusiasts have argued for many years about whether aircraft are best appreciated when flying – in, they suggest, their natural element – or in museums, where they might be likened to stuffed birds.

Mark Vanhoenacker comments that

‘a parked aeroplane also embodies contrarities of place. At the airport gate a plane is immobilised, Gulliver-like... yet it retains something of the imaginative shadow it cast when it vaulted seamlessly from Singapore to London... The stillness of a parked aeroplane holds all places; such groundedness suggests only its opposite.’⁸⁷

Museums offer rare opportunities for people to look closely at an aircraft, something now almost impossible at airfields and airports due to the necessary security measures. Such close proximity brings the materiality of an aircraft to the fore, particularly for children: Alan Beattie explained ‘If you were stood in front of an aircraft that’s 60 ft long, 18ft high and 16 ft wide, it would seem big to us, but if you’re only three foot high it’s got to seem even bigger’. He also commented on reactions from some adults: ‘it’s the opportunity to actually see how big these things are and how flimsy they are as well, ... “I’m never flying again - I’ve seen what that’s made of”.’⁸⁸ Close inspection can show that the apparently smooth skin of an aircraft is actually made up of relatively small panels held together with rivets, or evoke curiosity about apertures and protuberances. One interviewee suggested that ‘a

⁸⁶ Paul Wright, ‘Mobility, Museums and Awkward Unsettling’, *Area*, 51 (2019), pp 45–54.

⁸⁷ Mark Vanhoenacker, *Skyfaring. A Journey with a Pilot*, (London: Chatto & Windus, 2015), p.106

⁸⁸ Interview with Alan Beattie, 5 July 2022

military aeroplane looks a bit more interesting than the average civil aeroplane, certainly the fighters' and contrasted the Phantom fighter with the Valetta transport displayed next to it. 'It's a very purposeful looking machine; it sits next to the Valetta, which is... a sort of a big white thing that sits on a tail-dragging undercarriage, looking quite big and imposing, but it doesn't look purposeful.'⁸⁹



Figure 11: The Short SC 1 in the Science Museum's *Making the Modern World* exhibition is pinned to the wall, like a butterfly in a case, to show the six lift engines. (Author's photo)¹

An aircraft in a museum can therefore evoke glimpses of both its past and that of the viewer – the nervousness of a passenger or trainee pilot's first flight, the adrenaline rush caused by combat, aerobatics or an in-flight emergency, or the boredom of a long patrol or long-haul flight when confined to an uncomfortable seat. Yet, in a world

⁸⁹ Interview with Steve Bell, 24 March 2021

where jet aircraft have become the means of everyday journeys (and, to others, at best a noisy annoyance or at worst, a serious threat to the planet's future) can a visitor to the Science Museum really appreciate the extent to which Britain's first jet aircraft – the small Gloster E.28/39 – changed the world?

Smell

Martin Dilly was a young child during the Second World War and was able to get close to aircraft at RAF Blackbushe. He wrote:

It was the sight and the smell of rows of camouflaged Hotspur training gliders and Whitley bombers, used as tugs, that got me hooked on aircraft for life. The smell of warm aircraft, with their doped ply and fabric, and the aromatic fumes of 'proper' high octane aviation fuel... cast a spell that brought me and my long-suffering mother back to that airfield as often as I could persuade her to pedal there and kept me involved with aviation in various forms ever since.⁹⁰

More recent aircraft, in which the main material is aluminium, are less fragrant while the use of synthetic materials such as glass- and carbon fibre in modern aircraft may not offer much beyond vague hints of lubricating oil and hydraulic fluids. The rotary engines of First World War aircraft were often lubricated with castor oil, and surviving aircraft of this period – such as those flown by the Shuttleworth Collection - have not only a characteristic sound but also an exhaust with a distinctive smell, which will linger as the oil is often deposited on the fuselage.

⁹⁰ Martin Dilly, *The War from an Air-Minded Boy's Viewpoint*. [online] BBC WW2 People's War article A5282921. Available from <www.bbc.co.uk/history/ww2peopleswar/stories/21/a5282921.shtml>, Accessed 14 May 2021

An aircraft cockpit will often offer a mixture of smells including leather and rubber and - some would maintain – fear. The word ‘cockpit’ has its origins in cockfighting, and a military aircraft cockpit can also be the centre of a life-or-death struggle.⁹¹ The cockpit is an aircraft’s nerve centre, where its crew command it to perform the tasks for which it was designed, while they monitor both its progress (navigation) and its health in terms of oil pressure, fuel flow and other parameters. If an aircraft can have a soul, it would probably reside in the cockpit; the rest of the structure, engines and other equipment exist merely to transport the cockpit, its occupants, and any weaponry, passengers or cargo to their destination. In more practical terms, the Civil Aviation Authority’s guidance on aircraft restoration regards the “core” of an aircraft – ‘the area that would encompass the cockpit and main wing-mounting structure’ - as being key to the identity of an aircraft.⁹²

Visitors to museums often want to get inside aircraft. This can be relatively easy to arrange with relatively modern light aircraft and those designed to carry passengers, but military aircraft are often cramped and designed for fit young men and women who can clamber in more easily than older or less mobile people. Access may bring risks of injury to people, or damage (at best, though wear and tear) to the aircraft. Nevertheless, several museums have responded to this demand, offering special events where supervised access is provided, perhaps outside normal operating hours and generating income for the museum through ticket sales.⁹³

⁹¹ "cockpit, n." *OED Online*, Oxford University Press, March 2021, <www.oed.com/view/Entry/35477>, Accessed 12 April 2021.

⁹² Civil Aviation Authority, CAP 1640, *Ex-Military Aircraft Design, Restoration and Continuing Airworthiness Approval*, Issue 2 (Crawley: CAA, 2021), p.23, Paragraph 2.10

⁹³ Yorkshire Air Museum, *Open Cockpits Day 2019* [online] Available from <<https://yorkshireairmuseum.org/latest-news/open-cockpits-day-2019/>>

What drives this desire to sit in an aircraft cockpit? It may be simple curiosity or a desire to discover and understand what aircrew have to contend with in flight.

Former aircrew may want to revisit an aircraft they once flew, to reminisce about their earlier life; the smells they encounter there may well evoke memories. Before the 9/11 attacks in 2001, airline crews would often invite passengers onto the flight deck during relatively quiet stages of a flight, but security measures now mandate that the cockpit door must remain locked during flight. The flight deck has thus become forbidden territory, which invokes curiosity. The last 30 years have seen a number of companies – such as *Just Planes* and *The Pilot Channel* - offering films of flights from the flight deck – originally on video, then DVD and now via YouTube and other media.⁹⁴ Social media and small video cameras have enabled pilots, from those who fly for recreation to airline captains, to record flights and post well-crafted videos online.⁹⁵ For some people, there may be an element of wishful thinking – people whose ambition is to become a pilot, or who were unable to realise that ambition and wistfully think of what might have been. Matthew Rech, studying the way in which the armed forces' presence at air displays is focused on recruitment, states that

After having queued, parents and their children may be guided by Royal Air Force personnel onto a Sea King helicopter, for example, and allowed to sit in the pilot's seat and to press buttons and move levers

Fleet Air Arm Museum, *Open Cockpits Tour: 17 May 2018* [online], Available from <<https://www.fleetairarm.com/event/139.aspx>>, Both accessed 15 October 2020

⁹⁴ <<https://www.justplanes.com/>> <<https://www.youtube.com/user/pilotchannel1>> both accessed 29 October 2020

⁹⁵ The Flying Reporter <<https://www.youtube.com/user/huntj86>>

Plane Old Ben <<https://www.youtube.com/user/PlaneOldBen>>; Both accessed 29 October 2020

and that 'The highly popular "Future Pilot" stickers handed out by the RAF and eagerly collected by younger showgoers, for example, represent a simple interpretation of both the role of the pilot and of the identity and aspirations of its wearer.'⁹⁶ Trev Clark commented on a photograph on his wall: 'Age five: me sitting in a Varsity: that's what did it. I don't know why - it's sort of this magical thing that, you know, you can touch.'⁹⁷ For others, it may be a feeling of participation: sitting in a passenger seat in an airliner may be an experience that they wish to recall, or perhaps - most notably with the Concordes preserved in museums - were never able to have.

Whilst outside the scope of this study, many individuals who may not have the space in which to keep a complete aircraft have restored and preserved aircraft cockpits, perhaps in their garage or garden. Alec Brew points out that some of these people 'began with a collection of aircraft parts and instruments and graduated to creating fully equipped instrument panels. It was a natural step to want to see these panels installed in a cockpit.'⁹⁸ They are relatively easy to transport, and the Newark Air Museum hosts *Cockpit-Fest* - an annual gathering of "cockpiteers" and their cockpits. The 2019 event drew 18 cockpits, supplementing the ten in the museum's own collection; some of the latter are from aircraft which were too large to transport to the museum's site.⁹⁹

⁹⁶ Matthew F Rech, 'Ephemera(I) Geopolitics: The Material Cultures of British Military Recruitment', *Geopolitics*, 25 (2019), pp 1082 & 1088.

⁹⁷ Interview with Trev Clark, 9 February 2021

⁹⁸ Brew, *Vampires and Fleas*, p.166

⁹⁹ Newark Air Museum, *Cockpit-Fest 2019 Thank You* [online], Available from <http://www.newarkairmuseum.org/C-Fest_Thanks_19>, Accessed 15 October 2020

Sound

Hilary Geoghegan worked with members of the Telecommunications History Group and wrote, ‘Sounds are also important to the technology enthusiast. For THG member Malcolm the sound of a working Strowger [telephone] exchange “makes the hairs stand up on the back of your neck.”’¹⁰⁰ Greenstein remembers his first encounter with an Indian motorcycle, ‘when the man kick-started the bike to leave, the combination of the ratcheting kick-starter sound and the spinning, whirring starter gears entranced [me] — for some people the very materiality of machinery is powerfully compelling.’¹⁰¹ British Rail’s Class 50 diesel locomotives were known to railway staff and enthusiasts as “Hoovers” because of the sound made by part of the engine.¹⁰² It is perhaps not surprising that gramophone records were produced of aircraft and locomotive sounds. The British Library holds more than a hundred railway recordings made by Chris Thompson; the accompanying notebooks are held in the Norfolk Record Office and comprise:

short paragraphs that are well written, lyrical even, and do evoke the sounds of each journey and station. It is the detail of the background noises and atmosphere which capture the imagination of those of us who are not thrilled to learn the exact numbers and types of engine.¹⁰³

¹⁰⁰ Geoghegan. p.135

¹⁰¹ DeLyser and Greenstein, p.1468

¹⁰² Severn Valley Railway, *BR Class 50 50007 ‘Hercules’* [online], Available from <https://www.svrwiki.com/BR_Class_50_50007_Hercules> Accessed 29 October 2020

¹⁰³ *Flightstream label* [online] Available from <<https://www.discogs.com/label/522050-Flightstream>>, Accessed 29 October 2020

British Library catalogue search conducted 29 October 2020

Jackie Mitchell, *Sounds in Silence: Journeys by Rail in Lockdown* [online], Norfolk Record Office Blog, 11 July 2020, Available from <<https://norfolkrecordofficeblog.org/2020/07/11/sounds-in-silence-journeys-by-train-in-lock-down/>> Accessed 29 October 2020

Aircraft, too, can have distinctive sounds which mostly originate from their engines and – as Geoghegan and Greenstein found – can be of great significance to enthusiasts. The Rolls-Royce Merlin engine powered many British aircraft of the Second World War as well as the American P-51 Mustang; its sound is almost revered by enthusiasts. In the jet age, the Hunter was noted for its “blue note” and the Vulcan for the howl made by its Olympus engines when the throttles were opened to full power – something which also physically resonated through spectators’ bodies, giving a feeling rarely matched by other aircraft.¹⁰⁴ The sound of the Chinook helicopter – a type sometimes nicknamed “Wokka-Wokka” – comes from the interaction between its two sets of rotor blades, and announces its arrival long before the aircraft appears. In a museum setting, engines are unlikely to be run – even when aircraft are displayed outside - but audio recordings can be incorporated into displays to enhance visitors’ experience and add ‘life’ to static aircraft.

In recent years the retirement of several military aircraft types brought opportunities for groups to operate on the ground aircraft which, due to their complex nature, are unlikely to be granted permission to fly. “Fast taxi” runs down the long runways at Bruntingthorpe and Elvington would give spectators an impression, through sound and speed, of the power of military aircraft which most museum displays could not convey.¹⁰⁵

¹⁰⁴ If You Never Heard A Vulcan Howl, You Simply Have To [online], Available from <<https://worldwarwings.com/if-you-never-heard-a-vulcan-howl-you-simply-have-to/>> Accessed 29 October 2020

¹⁰⁵ Timeline Events, *Rolling Thunder Afternoon with Sunset and Night Shoot at Former RAF Bruntingthorpe*, Saturday 30th September 2017, [online] Available from <<https://www.timelineevents.org/product.php/374/rolling-thunder-afternoon-with-sunset-and-night-shoot-at-former-raf-bruntingthorpe-saturday-30th-september-2017>> Accessed 5 February 2021

Touch

Although touching museum objects is generally not encouraged, it is possible to provide samples of the materials used, particularly the fabric with which many aircraft were covered before the development of metal-skinned construction. Visually impaired visitors can derive great benefit from tactile models, or through specially arranged tours with trained guides who can help them to understand the exhibits better through touching them.

Knowing that an aircraft's structure comprises linen stretched over a wooden frame can reinforce the impression that both military and civil aircraft built before the Second World War were fragile, and that those who flew in them were at great risk. Those who work on the aircraft, however, often rely on touch as part of their work. One of Lloyd and Olsson's interviewees commented, 'When I'm making a panel, the feel I get from the metal tells me how much pressure to apply', while another explained that 'working on these cars is very hands on. Drawings, even a video, only get you so far. That's why the best way to learn — really the only way — is hands-on.'¹⁰⁶ They highlight 'the potential of tools and other objects, such as sheet metal and car parts, and the cars themselves to be entangled in practice, in ways that shape practical and symbolic understanding.'¹⁰⁷ For some people, the ability merely to touch an object with a history can be enthralling – Andy Saunders recalls retrieving a propeller blade from a crashed bomber, 'we hauled... the propeller out - and that sort of... I was just completely fascinated with the idea that there were

¹⁰⁶ Annemaree Lloyd and Michael Olsson, 'Untangling the Knot: The Information Practices of Enthusiast Car Restorers', *Journal of the Association for Information Science and Technology*, 70 (2019), pp 1317-1318

¹⁰⁷ Lloyd and Olsson, 'Untangling the Knot', p.1320

tangible things to be found.’ This experience led him into recovering artifacts from aircraft crash sites, and then setting up a museum in which to display them. He also commented that this was similar to children in wartime who collected souvenirs from crashed aircraft.¹⁰⁸ Gabriel Moshenska cites several examples of this activity, although it seems that part of the attraction was obtaining scarce materials such as Perspex for use in making models and other objects.¹⁰⁹

Environment

The environment in which museum objects are displayed can strongly influence the way in which visitors interact with them. Reviewing books on the controversy surrounding the proposed exhibition in the Smithsonian National Air and Space Museum of the aircraft – *Enola Gay* – which dropped the atomic bomb on Hiroshima, Alex Roland suggests ‘Normally the voice of the artifacts dominates that of the repository’ and that displaying it in the same building as the Wright Flyer, Lindbergh’s *Spirit of St Louis* and the Apollo 11 capsule ‘trumpets celebration’. By contrast, he points out that the aircraft which dropped the Nagasaki bomb has been on display at the National Museum of the USAF for many years without stirring much controversy ‘because visitors expect an air force museum to celebrate this instrument of war’.¹¹⁰

Some air museums are located on active airfields, such as the Imperial War Museum’s outstation at Duxford, the Shuttleworth Collection at Old Warden and the Midland Air Museum at Coventry, while many more are on former airfields such as the Yorkshire Air Museum at Elvington and the Newark Air Museum. Airfield

¹⁰⁸ Interview, 15 April 2021

¹⁰⁹ Gabriel Moshenska, *Material Cultures of Childhood in Second World War Britain* (Abingdon: Routledge, 2019).pp 20, 145, 149-150

¹¹⁰ Alex Roland, ‘Voices in the Museum’, *Technology and Culture*, 39 (1998), p.483

buildings such as hangars and control towers are often used, the former to house aircraft and associated exhibits such as vehicles, and the latter for interpretive displays telling the history of the site and those who flew from it. There are often more aircraft in a museum's collection than can be stored under cover and some have to remain exposed to the weather. This creates an incentive to fit as any aircraft into a hangar as possible, which can result in a jumbled, packed display, although it may be easier for visitors to get close views of the aircraft than if they were kept well away by barriers.



Figure 12: Tightly packed aircraft at the Shuttleworth Collection, 18 August 2018 (Author's photograph)

Hangars were rarely designed to be comfortable places for those who worked in them. Those on wartime airfields were usually temporary structures. The large doors at each end, to enable aircraft to be moved in and out, leave gaps through which the winter winds blow with ease and rattle the corrugated iron sheets covering the steel frame. It has always been difficult and expensive to light and heat such cavernous buildings. These factors perhaps give an impression of the conditions in which groundcrew worked to maintain aircraft – often very cold and draughty in winter, hot

in summer, and noisy. Aircraft parked outside may only be viewed hurriedly on a cold or wet day – although very large aircraft can provide some shelter from the rain - and visitors may not appreciate that groundcrew often had to spend much of their working day in such conditions. Other surviving buildings such as Nissen huts are also cold in winter and hot in summer; they can show that life off-duty could also be less than pleasant.

Immersive experiences are very rare in aviation museums, not least because they are expensive to produce. The RAF Museum created an audio-visual show *Our Finest Hour* for the 60th anniversary of the Battle of Britain in 2000. The Australian War Memorial's *Striking by Night* exhibition is centred on the Memorial's Lancaster bomber and tells the stories of those Australians who served in Bomber Command during the Second World War. It 'features a dramatic sound and light show that re-creates a night bombing operation over Berlin in December 1943.'¹¹¹ The Fleet Air Arm Museum's *Carrier* experience gives the illusion of being on the deck of an aircraft carrier. Visitors arrive via a simulated helicopter flight and are able to view several aircraft, together with large-screen video of aircraft being launched from and landing on an aircraft carrier. The tour continues via the flying control room and ends as they descend on an aircraft lift into the carrier's hangar deck.¹¹² Virtual reality is beginning to offer museums the ability to put people 'inside' an aircraft, with authentic sounds to augment the visual scenes.

¹¹¹ Australian War Memorial, *Striking by Night* [online], Available from <<https://www.awm.gov.au/visit/exhibitions/striking/>> Accessed 10 November 2020

¹¹² Ken Ellis, *Great Aviation Collections of Britain: The UK's National Aeronautical Treasures* (Manchester: Crecy Publishing, 2013), p.95
Fleet Air Arm Museum, *Carrier*, [online], Available from <<https://www.fleetairarm.com/exhibition/Carrier/3-5.aspx>> Accessed 10 November 2020

Charisma

Another intangible attribute is the reputation that an aircraft has (sometimes unfairly) gained, which can influence the way in which they are viewed. The Spitfire's wartime exploits have earned it an honoured place in British culture, and the Sopwith Camel of the First World War is regarded almost as highly among enthusiasts – perhaps due in part to *Biggles* stories – despite it being a difficult, almost dangerous, aircraft for inexperienced pilots, many of whom were killed in accidents. The English Electric Lightning is very popular among those who go to air displays and visit museums, although as the type retired from RAF service in 1988, an increasing proportion of such people will not have seen one fly. Its reputation has been kept alive through word of mouth, books and other media. Similarly, many steam railway enthusiasts are unlikely to be able to remember the days of main line steam but have been drawn to 'the fancy' by a romantic vision handed down, perhaps from an older family member. A steam train ride brings the expectation of sights and sounds that have been extolled and discussed, but the smell of the smoke may distract passengers from the soot and smuts that are also a part of steam-hauled travel. Concorde has not only a futuristic shape but also an image that evokes speed and glamour, while those who lived near Heathrow in Concorde's heyday may remember it more for its noise. Whilst mere unpopularity or a mediocre record might mean that some aircraft types are not selected for preservation, aircraft can also be reviled. When *Enola Gay* was finally displayed in the Smithsonian's Udvar-Hazy Center in 2003, red paint was thrown over it in a protest against its part in the bombing of Hiroshima.¹¹³

¹¹³ BBC News, *Enola Gay display angers victims* [online], 16 December 2003, Available from <<http://news.bbc.co.uk/1/hi/world/americas/3315729.stm>> Accessed 29 January 2021

Sheila Watson points out that by 1965 Sir Winston Churchill was a charismatic figure 'inextricably associated with the image of the nation in 1940'. She examines the way in which the Churchill Museum uses sound and images to 'provide visitors with a chronological but incomplete and, for those not entirely sure of the events of 1940, a somewhat disjointed and confusing impression of what happened and why'. Noting that the extracts from Churchill's speeches were specially selected to be emotional and evoke a response, she comments that this use of visitors' senses encourages them to engage with the story more than conventional simple text would do.¹¹⁴

Churchill's "Finest Hour" speech at the height of the Battle of Britain is frequently used in association with images of fighter pilots and, particularly, Spitfires. This is perhaps an important factor in the Spitfire having attained its revered place in British culture, although more Hurricanes than Spitfires fought in the Battle. Many of the visitors to aviation museums are likely to have no direct experience of Spitfires, Camels, Mosquitoes and the like, but have read about them, seen documentaries and perhaps heard from friends and relatives. They are drawn to museums and displays to see them because they want to know what these famous aircraft are like.

Conclusions

Museums and their collections provide visitors with links to their past – almost by definition, aircraft in museums are "old" and many visitors will not have direct experience of many of the aircraft displayed. Interviews have indicated that, although those who are closely involved with aviation museums seem to find it hard to identify what sparked their interest, such enthusiasm often began at an early age. This might

¹¹⁴ Sheila Watson, 'Myth, Memory and the Senses in the Churchill Museum', in *Museum Materialities: Objects, Engagements, Interpretations*, ed. by Sandra H Dudley (London: Taylor & Francis, 2009), pp 204–223

be one reason for the disdainful remarks made about ‘small boys’ by Treasury and Air Ministry officials in the 1950s and early 1960s.¹¹⁵ Such early interest may come about through direct experiences (for example, exposure to aircraft leading to a curiosity about them, and thus to the accumulation of knowledge expressed in various ways) or indirectly, through parents or other relatives recollecting their experiences. Influence may also trickle down from one generation of enthusiasts to the next – for example, if an enthusiastic parent takes their family to an air display or museum. Tom Crouch – one of the Smithsonian curators cited by Post – recalled that his father had regularly visited the forerunner of the United States Air Force Museum at Dayton as a boy, then worked on the base as an adult. Crouch had shared his father’s interest, writing ‘You could not grow up where I did without being fascinated by airplanes... it seems I rode to the museum every other day for a couple of summers.’¹¹⁶ Trapp-Fallon found similar trends from her interviews with canal volunteers.¹¹⁷ At the other end of the scale, some of those who work in - or visit – museums may do so to maintain a connection with their previous career, or one to which they aspired but were unable to pursue. In other areas, people such as Geoghegan’s telecommunications engineers developed their enthusiasm through working with the technology, and perhaps nostalgia plays an important role in their hobby.

Scholars such as Stebbins and Rhoden have investigated the factors that motivate volunteers. The lists of motivators which they have identified include some that are

¹¹⁵ TNA T 218/57, K E Couzens to Mr Griffiths, undated
TNA AIR 20/12073 Enclosure 2A, Note on the proposed exhibition in the new Whitehall Building, 4 August 1960

¹¹⁶ Tom D Crouch, ‘Foreword’, in *A Pictorial Tour of the National Museum of the United States Air Force*, ed. by Jerry Rep and John King (Dayton, Ohio: Air Force Museum Foundation, 2021), pp iv–v

¹¹⁷ Trapp-Fallon, ‘Reflections on Canal Enthusiasts as Leisure Volunteers’, pp 75-76

Chapter 4 – Volunteers: Motivation, Inspiration and Materiality

common to both (Stebbins' Social Rewards and Hobbyist are similar to Rhoden's Social/Affiliative and Hobbies) although there are other factors unique to each list. Deery and her coworkers looked at types of volunteers and identified three, their broad definitions show some correlation with the more detailed classifications used by Stebbins and Rhoden.

Most museums – including those which have paid teams of staff - will have a core of dedicated volunteers who are more than the unpaid workers envisaged by the Economic Model. Their roles may include front-of-house tasks (welcoming visitors and conducting tours) maintenance of the collection and buildings, and research to document the collection. These people gain benefits and satisfaction through their 'Serious Leisure' and the long-term commitment demonstrated by many volunteers certainly justifies Orr's term Committed Leisure. There are many factors that may motivate people to spend their leisure time on voluntary work, not least the desire to be part of a community with similar interests. Others may relish either the opportunity to maintain some sort of contact with their former career (such as Geoghegan's telecommunications engineers and the ex-RAF volunteers cited by Trev Clarke) or to develop new skills in a field very different from their main job.

Popular media also played a role in creating an interest in aviation and its history. The 1950s and 60s saw the publication of many popular books dealing with the Second World War, including memoirs, fiction and comic strips. Some of the books were made into films, and all would have been avidly consumed by a generation born either during the war or in the following decade. Airfix's model aircraft range, launched in 1955, has also sparked an interest in aviation among young people. The

photographs of young enthusiasts earlier in this chapter show that some of this generation went on to become involved with the first volunteer-run groups.

Divall and Scott comment that ‘much research needs to be done on what motivates and interests transport enthusiasts, but there is a great deal of anecdotal evidence to suggest that the operation of equipment and its corollary, movement, is and has long been a central and sometimes overriding concern’.¹¹⁸ Materiality, in its many forms, can exert an influence on those who visit or work in aviation museums. It may be a striking shape, the memory of a distinctive sound (such as the motorcycle that captivated Greenstein) or even a distinctive smell that strikes a chord with someone’s memory of an experience from long ago. Visitors may be attracted by a desire to see the aircraft about which they have learned from an earlier generation or through books and other media, being drawn by the reputation or charisma of a specific aircraft type. Others will have a nostalgia for aircraft which they built, serviced or flew, or which fascinated them at an early age.

Volunteers can gain satisfaction from using their manual skills in restoration and conservation work – they may be the few people who are allowed to use their sense of touch - and the act of touching a historic object can evoke a variety of responses. Museums offer object handling sessions which enable visitors to engage with the materiality of relatively small artefacts. Delyser and Greenstein comment that ‘the materiality of the motorcycles drives the bonds between enthusiasts and between enthusiasts and bikes’ and it seems that the materiality of aircraft is a significant

¹¹⁸ Colin Divall and Andrew Scott, *Making Histories in Museums : Making Histories in Transport Museums*, p.11

Chapter 4 – Volunteers: Motivation, Inspiration and Materiality

factor that draws people to work in aviation museums.¹¹⁹ The “object-love” which volunteers (and paid curators) develop for the items in their care can be inspired by many factors, and many enthusiasts have built up extensive stores of knowledge and skills that can be great assets for the museums with which they work.

Following this exploration of volunteers’ inspiration and motivation, the next chapter examines the growth of volunteer-run museums, comparing that sector with two other fields in which volunteers have worked: restoring canals, and heritage railways.

¹¹⁹ Delyser & Greenstein, p.1474-75

Chapter 5 – Volunteer-run Aviation Museums

Introduction

The second half of the twentieth century saw increased interest in the preservation of a wide range of means of transport, especially canals, railways and aircraft. A survey commissioned by the Federation Skills Trust in 2021 found that 45% of respondents had an interest in heritage transport, whether rail, road, maritime or aviation – and that 20% had visited a transport museum in the last five years.¹ Nearly all the aviation museums in the United Kingdom are run by groups of volunteers, and the number of such museums has grown almost constantly over the last 50 years, from 7 to 104. Volunteers also assist the paid staff of the larger museums. This chapter investigates the growth in aviation museums and compares it with two other types of volunteer-led heritage: canal restoration and railway preservation. It begins by studying the data compiled from the *Wrecks and Relics* series on the numbers of aviation museums in the UK and the aircraft in their collections. Their geographical spread is examined, and museums are classified by type, with conclusions drawn regarding these and the reasons behind the closure of some of the museums. The influence of changes in disposable income on museum openings is also evaluated. This study has identified a much larger number of aviation museums than the recent *Mapping Museums* project led by Professor Fiona Candlin, which investigated the number of museums – of all types - open in the UK from 1960 to 2020.² It is thus able to give a more focussed analysis of the growth in numbers, and this focus on

¹ JDA Research, *Public Interest and Attitudes Towards Heritage Transport*, January 1921

² Mapping Museums [online], Available from <<https://museweb.dcs.bbk.ac.uk/home>>, Accessed 30 November 2021

the relatively small field of aircraft preservation, with a larger sample size, gives a finer level of detail.

Triggers for growth in efforts to restore canals and preserve railways are identified. The chapter argues that a combination of events in the mid-1960s – particularly the replacement of steam locomotives and older aircraft by newer technology - provided the impetus for the foundation of aviation museums and railway preservation. This movement gathered pace as part of the ‘memory boom’ of the 1970s and 80s. Some of the original Aircraft Preservation Groups expanded, acquiring further aircraft, with a shift in emphasis leading to rebranding themselves as museums. Factors underlying the growth in the three fields are investigated and assessed, and the work done by the British Aviation Preservation Council (now Aviation Heritage UK) to raise the profile of aviation heritage and to improve standards in volunteer-run museums, is described.

Analysis of Data

In the early 1960s most aircraft in museums were held by the Science Museum, the Imperial War Museum or in private collections such as the Shuttleworth Collection at Old Warden; the College of Aeronautics at Cranfield used a number of aircraft and engines as teaching aids. Significant numbers of historically important aircraft were held by the RAF and Royal Navy but were rarely displayed; the RAF’s policy on historic aircraft is explored in Chapter 6.

Chapter 5 –Volunteer-run Aviation Museums

Data gathered from the biennial directory *Wrecks and Relics* (summarised in Appendix C) indicate that the number of aircraft preserved in museums has grown at a fairly constant rate, while the number of museums has peaks and troughs.

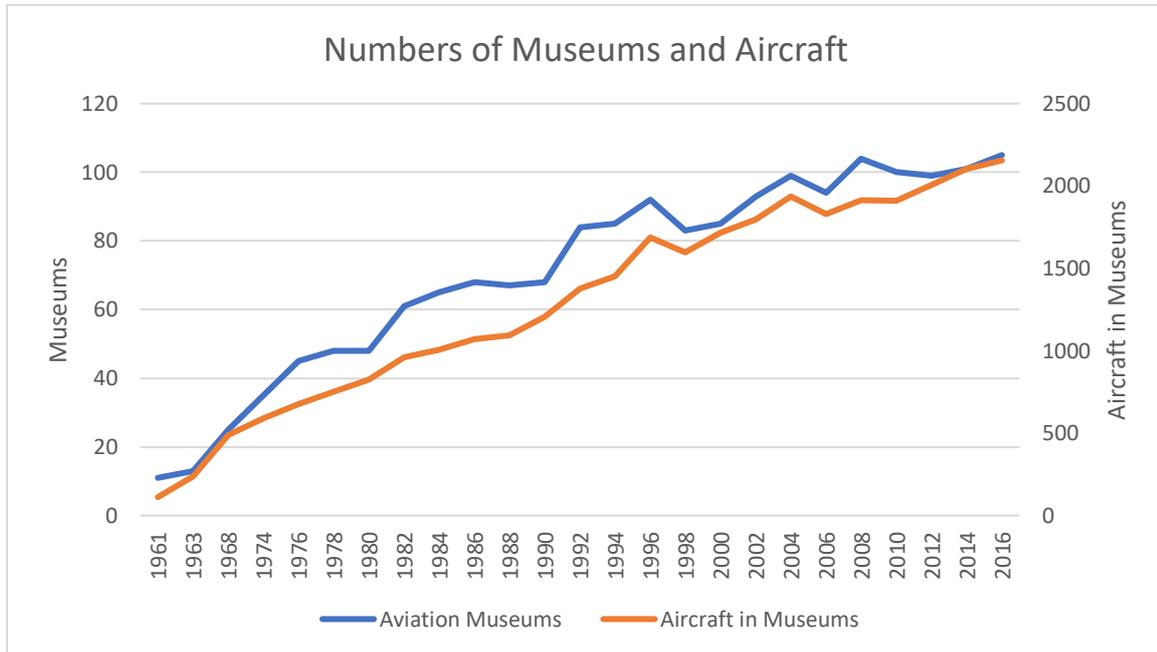


Figure 13: Growth in numbers of aviation museums and aircraft

Some of the peaks in this graph may reflect the 'discovery' by the editor of *Wrecks and Relics* of museums which had already been running for some time. While this may be the case in the early years, the directory has for most of its life been compiled with the help of a wide range of informants, so it is unlikely that many new developments would go unnoticed. A simple explanation for the continuing rise in numbers is that once a few groups had established the feasibility of acquiring aircraft, others saw that it was possible and decided to follow suit. Some of the museums might have been running for a few years prior to meeting the criteria for this study by acquiring aircraft or substantial parts. In a few cases museums have shrunk, losing the aircraft which qualified them for inclusion – perhaps through deterioration - and thus reducing the total. A number of museums closed, and this aspect is discussed later in this chapter.

Chapter 5 –Volunteer-run Aviation Museums

The largest growth in aviation museums occurs in the periods 1982 to 1984 (increase of 13) and 1992 to 1994 (+16). This may reflect the retirement of some military aircraft types, which thus became available to groups who went on to set up museums. The Vulcan fleet retired in 1983, but only eleven were obtained by enthusiast groups, probably due to the need for a suitable runway on which to take delivery of such a large aircraft. The end of the Cold War brought reductions in the size of the armed services, with several types of aircraft being offered for disposal. Divall and Scott use the term ‘acquisition at the point of obsolescence’ and suggest that many museum collections, ‘particularly those founded by enthusiasts, are in effect the equivalent of rescue digs undertaken by archaeologists’.³ Garry Campion suggests that ‘the 1990s witnessed an increase in the number of sites developed as museums or memorials’, although this is in the context of the Battle of Britain. He argues that this ‘reflected the passing away of many who had fought in the Battle and the desire of those who remain to commemorate those who had been killed in 1940’.⁴ Certainly the 50th anniversaries of the Battle of Britain and other wartime campaigns – when the survivors were in their seventies and their number began to dwindle – would inspire the creation of memorials and museums, and Figure 13 shows that there was an increase during the 1990s. Throughout the period covered by this study, the average number of aircraft held by individual museums ranged from 10.2 to 21.5, with a mean of 17.8, but this was not constant growth. New museums, with only a few aircraft, would reduce the average although this effect reduces as the overall number of museums increases.

³ Colin Divall and Andrew Scott, *Making Histories in Museums : Making Histories in Transport Museums* (Leicester: Leicester University Press, 2001), p.46

⁴ Garry Campion, *The Battle of Britain in the Modern Age*, unpaginated ebook

Disposable Income

The Institute for Fiscal Studies publishes details of mean and median income, after housing costs, from 1961. These data were adjusted by the IFS for inflation using a variant of the Consumer Price Index.⁵ Plotting these figures and data from *Wrecks and Relics* gives the following graph.

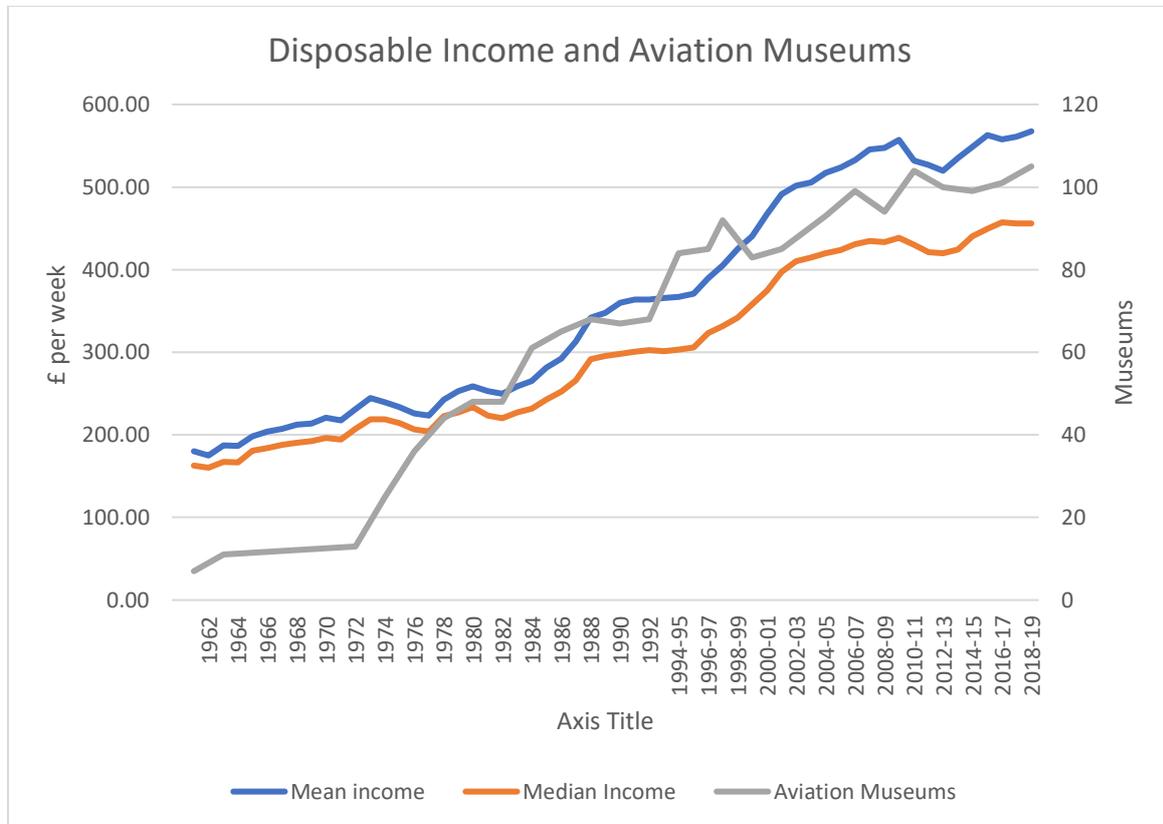


Figure 14: Changes in the Number of museums in relation to disposable income

While both median and mean income rise fairly steadily, with a widening gap that broadens more quickly from the mid-1980s, the number of museums does not increase proportionately. There are sharp rises (new museums opening) and some decreases (closures), suggesting that creating museums does not simply depend on affordability and that other factors are probably involved. These may include the

⁵ Institute for Fiscal Studies: *Living Standards, Inequality and Poverty Spreadsheet* (online), September 2022, Available from <<https://ifs.org.uk/living-standards-poverty-and-inequality-uk>> , Accessed 24 February 2023

availability of aircraft following reductions in the military fleets, for example, in 1991 following the end of the Cold War, or a group acquiring a site to display their collection. It is thus difficult to see any direct correlation between income and the ability to set up an aviation museum.

Candlin points out that in the early 1980s the Conservative government's Enterprise Allowance scheme created 'clear incentives to start small businesses and museums were among them.' At the same time the Youth Training Scheme introduced in 1983, which offered work experience to unemployed teenagers, was taken up by museums.⁶ This scheme enabled museums to take on extra staff at minimal expense and thereby undertake additional projects. The Newark Air Museum, for example, operated a YTS project in which twelve young people helped with maintenance and construction tasks while receiving training in mechanical engineering under the supervision of a full-time supervisor funded as part of the scheme.⁷

Comparison with Aviation Museums in the USA

Writing in 2007, Tom Crouch - Senior Curator, Aeronautics, at the Smithsonian National Air and Space Museum - noted the formation of museums in the 1960s in San Diego, Oshkosh and Seattle, and commented that

In 1971, only nine institutions listed themselves as aerospace museums in the first annual edition of the Official Museum Directory [OMD]. Three other

⁶ Fiona Candlin, 'Independent Museums, Heritage, and the Shape of Museum Studies', *Museum and Society*, 10 (2012), p.32

⁷ Colin Savill, *Preservation Pioneers : Newark Air Museum 1963-2015* (Newark: Newark Air Museum, 2016), p.39
Brew, *Vampires and Fleas*, p.126

Chapter 5 –Volunteer-run Aviation Museums

institutions--the United States Air Force Museum, the Museum of Naval Aviation, and the Confederate Air Force Flying Museum--preferred to list themselves as military institutions. Most large museums of transportation and technology with significant aeronautical collections... listed themselves under a more general category... The 2006 edition of the OMD lists 99 aerospace museums.

He suggests that even 99 is an underestimate:

The Aero.com website lists 178 aerospace museums world-wide, 157 of which are in the U.S. Perhaps an even better measure is the fact that 83 aerospace museums sent representatives to the annual National Air and Space Museum/American Association of Museums *Mutual Concerns of Air and Space Museums* conference in 2006. Those figures indicate that the number of aerospace museums in the U.S. has increased at least seven-fold in the 35 years since 1971.⁸

Data from *Wrecks and Relics* show that between 1974 and 2006 the number of aviation museums in the UK rose from 25 to 99 – a factor just below four, although this does not include museums which do not display aircraft.

⁸ Crouch, 'Aerospace Museums: A Question of Balance'.

Museum Closures

Analysis of the reasons for museums closing (mostly as reported in *Wrecks and Relics*) reveals the following:

Reason for closure		Number
Premises	Landlords imposed changes which made the museum no longer viable, terminated the lease or sold the site	16
Uneconomic	Running Costs exceeded income	7
Changes to access arrangements	Viewing by prior arrangement takes museums outside the scope of this study, which specifies 'open to the public at advertised times'	7
Death of key personnel, or members' advancing age		7
No aircraft	Disposal of a museum's aircraft takes it outside the scope of this study: museums which 'display aircraft or major components'	5
Rationalisation	Consolidation of an organisation's collections onto a single site	4
Obsolescence	Aircraft in Cranfield's teaching collection became outdated and thus no longer met the needs of the College.	1
Collection sold		1
Unclear		13
Total		60

Table 1: Reasons for closure (for specific cases see Appendix G)

Museums which do not own their site, or do not have long leases, are evidently vulnerable, since their landowners may increase the rent or redevelop the site and give notice to quit. The decision in 2020 by the new owners of Bruntingthorpe to concentrate on its use for 'automotive vehicle services' affected several groups whose aircraft were lodged there.⁹ Similarly, the Fenland Aviation Museum had to

⁹ Dave Walton, *Statement re Aviation Activities at Bruntingthorpe* [online], 24 July 2020, Available from <<https://web.archive.org/web/20200726204928/http://www.bruntingthorpe.com/aviation>>, Accessed 10 June 2021

close in 2022 because the landowner sold the site to a developer.¹⁰ The Nene Valley Aviation Society had to leave Sywell when the airfield owners redeveloped part of the site; they found a new home at Sibson but could not obtain planning permission and the group closed down.¹¹ The Cornwall Aviation Heritage Centre was given notice to quit in 2023; some of its aircraft cannot easily be moved to new owners and will have to be scrapped in order to leave the site clear.¹² Income streams may be uncertain, and museums need to ensure that they continue to attract paying visitors – whether new customers or those who return regularly – by refreshing displays, adding new material and ensuring that the museum is properly marketed. Closures due to financial losses include the Historic Aircraft Museum at Southend, the Strathallan Aircraft Collection and the Whitehall Theatre of War. The Viscount Preservation Group was based at Liverpool Airport from 1972 to 1975, and heightened security measures made it very difficult for them to open the aircraft to visitors, leading in turn to a loss of income. The group closed down and the aircraft was moved to Duxford.¹³

A few closures stem from ‘rationalisation’, reflecting the closure of a subsidiary site; one example is the Bristol Aero Collection, which moved the bulk of its exhibits to

¹⁰ Sarah Cliss, ‘Future of aviation museum up in air after sale of site’, *Fenland Citizen*, 17 September 2022, <<https://www.fenlandcitizen.co.uk/news/future-of-aviation-museum-up-in-air-after-sale-of-site-9216593/>>

Sarah Cliss, ‘End of an era as Fenland museum is set to close its doors after three decades’, *Fenland Citizen* 10 October 2022 <<https://www.fenlandcitizen.co.uk/news/end-of-an-era-as-fenland-museum-is-set-to-close-its-doors-af-9278093/>>

Sarah Cliss, ‘What a day! Visitors flock as Fenland museum opens for one last time’, *Fenland Citizen* 31 October 2022 <<https://www.fenlandcitizen.co.uk/news/what-a-day-visitors-flock-as-fenland-museum-opens-for-one-l-9281677/>> All accessed 31 October 2022

¹¹ Alec Brew, *Vampires and Fleas: A History of the British Aircraft Preservation Movement* (Ramsbury: Crowood Press, 2003), pp 130-131

¹² Olivier Vergnault, ‘Homeless Cornwall Aviation Heritage Centre forced to sell off jets on eBay to pay to scrap other planes’ [online], *Cornwall Live*, 20 June 2023, Available from <<https://www.cornwalllive.com/news/cornwall-news/homeless-cornwall-aviation-heritage-centre-8537034>> Accessed 23 June 2023

¹³ Brew, pp 42-43

join the Concorde displayed at Filton prior to the opening of *Aerospace Bristol*. Changes in policy can also lead to the movement of collections: the Yorkshire Helicopter Preservation Group originally displayed its aircraft at the Yorkshire Air Museum, but ‘Our hosts at Elvington did not wish to continue to accept the housing of independent groups and so the decision was made to search for a suitable home for the embryo YHPG.’¹⁴ The Covid pandemic forced the temporary closure of museums in 2020 and 2021, and several aviation museums were among those which received support through the Covid Recovery Fund to offset lost income, while others were helped through rate support grants.¹⁵ It seems that, thanks to such financial support, the pandemic did not lead to the loss of museums that had been feared.

Locations

The entries in *Wrecks and Relics* are arranged by county, and this has enabled the following analysis of museums by location.

County	Museums		
Avon	1	Lincolnshire	10
Bedfordshire	2	London	6
Berkshire	2	Merseyside	3
Buckinghamshire	4	Norfolk	4
Cambridgeshire	2	North Yorkshire	1
Cheshire	6	Northamptonshire	2

¹⁴ Yorkshire Helicopter Preservation Group, *The History of YHPG* [online], Available from <www.yhpg.co.uk>, Accessed 11 October 2021

¹⁵ Arts Council England, *Culture Recovery Fund: Data* [online], Available from <<https://www.artscouncil.org.uk/publication/culture-recovery-fund-data>>, Accessed 4 November 2021; Interview with Steve Bell, 24 March 2021

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Cornwall	5	Northern Ireland	5
Cumbria	1	Nottinghamshire	2
Devon	4	Scotland	8
Dorset	3	Shropshire	3
Durham & Cleveland	1	Somerset	3
East Sussex	3	South Yorkshire	2
East Yorkshire	2	Staffordshire	1
Essex	7	Suffolk	5
Gloucestershire	8	Surrey	3
Greater Manchester	5	Tyne & Wear	1
Hampshire	6	Wales	6
Hertfordshire	1	Warwickshire	9
Isle of Man	1	West Midlands	2
Isle of Wight	2	West Sussex	3
Kent	8	Wiltshire	6
Lancashire	6	Worcestershire	1
Leicestershire	2	Yorkshire	4

Table 2: Aviation museums by county

The data reflect the numbers over the 60-year span of *Wrecks and Relics* and thus include several museums which have closed. Adjustments had to be made to resolve boundary changes, such as Avon vs Somerset, and East/West Sussex; North and South Humberside were counted as East Yorkshire and Lincolnshire respectively. A few museums moved: the North East Land, Sea and Air Museum began as the North East Vintage and Veteran Aircraft Association, which exhibited

its aircraft at Lambton Castle before moving to Usworth in the mid-1970s, and the South Yorkshire Aircraft Museum exhibited its aircraft at Nostell Priory before moving to Firbeck in Nottinghamshire and then to the former Doncaster Airport. The Aeroplane Collection, originally formed in 1962 as the Northern Aircraft Preservation Society, has had a particularly nomadic history: it has housed the bulk of its collection at Stockport, Irlam, Peel Green, Hadfield, Warmingham, and most recently Hooton Park, with other aircraft and engines on loan to eight museums.¹⁶

Clearly the majority of aviation museums are – or have been – located in England. This may reflect factors such as the higher profile of aviation in England (exposure to aircraft seems to be a factor involved in creating enthusiasts) where most of the UK's aviation industry was based and where most of the UK's airfields were located. The smaller land area and population size of Northern Ireland would limit the number of viable museums: there would be relatively few volunteers, and competition for visitors between a number of small museums would limit their chances of survival. Candlin and her team found that small museums are more likely to close than larger ones. The terrain of the Scottish Highlands has not permitted the construction of many aerodromes, although a few were built during the Second World War, mostly in coastal areas. The closure of RAF Kinloss on the Moray Firth was the trigger for a museum – *Morayvia* – begun by a group intending to preserve the last remaining Nimrod at Kinloss; its collection has since expanded.¹⁷ As discussed in Chapter 2, interest in local history has resulted in the setting up of volunteer-run museums; the predominance of Lincolnshire might be explained by its soubriquet 'Bomber County'

¹⁶ The Aeroplane Collection, *The TAC Years* [online], Available from <http://theaeroplanecollection.org/tac_history.html>, Accessed 8 November 2021

¹⁷ *About Morayvia* [online], Available from <<https://www.morayvia.org.uk/about-us>>, Accessed 16 September 2021

due to the large number of airfields located there in the Second World War, although Norfolk and Suffolk were equally densely populated with airfields. Small museums – excluded from this study because they do not display aircraft – have been set up at many former airfields in these counties, telling the story of their role in the air war.

The RAF still has a strong presence in Lincolnshire, which may provide a source of volunteers (whether retired or still serving) and military flying keeps the profile of the RAF - and aviation in general - high. Kent and Sussex are closely associated with the Battle of Britain, but Gloucestershire is at first sight less easily explained. The Gloster Aircraft Company had become part of the Hawker Siddeley Group in the 1930s and gradually lost its identity, but the county's other interests in aerospace – Dowty, which made undercarriages and hydraulic components, and the propeller firm Rotol – remained visible into the 21st century, gradually diversifying to produce equipment for other markets and being acquired by other companies.¹⁸ Aircraft manufacture in Bristol had a longer heritage, and some of the collections in the area came together to create *Aerospace Bristol* which opened in 2017.

Kent has the second largest number of museums, many of which have connections to the Battle of Britain: the heaviest fighting took place over Kent and Sussex. The Kent Battle of Britain Museum grew from a collection of relics gathered from aircraft crash sites by Mike Llewellyn.

It became evident to Mike that the remains of crashed Battle of Britain aircraft were still there to be found. At first he was accompanied by two or three fellow

¹⁸ Dowty Heritage Project, *Dowty Group* [online], Available from <<https://www.dowtyheritage.org.uk/content/category/dowty-group>>, Accessed 23 August 2021
Dowty Propellers, *A Proud Heritage* [online], Available from <<http://dowty.com/about-us/a-proud-heritage/>>, Accessed 23 August 2021

enthusiasts, none of whom envisaged the creation of a museum, they were just indulging in a fascinating hobby which took them all over Kent at the weekends; but, as time went by, and the team grew larger, they were asked to set up exhibits at various venues.¹⁹

Types of museum

The museums identified in this study were analysed using broad categories, as follows:

Category	Scope	Number
Class or Type	Dedicated to a specific form of aircraft (e.g the Helicopter Museum and the Gliding Heritage Centre) or a specific aircraft type (such as the Shackleton Preservation Group)	21
Company	Centred on a specific aircraft manufacturer, for example the de Havilland Museum	5
Displays	Organisations whose prime focus is on flying displays, such as Historic Flying	18
National	National Museums, such as the Science Museum	6
Military	Either sponsored by the Armed Services, or with a collection largely restricted to military aviation; the Bentwaters Cold War Museum is one example	60
Private Collection	Collections assembled by individuals, such as the Shuttleworth Collection	15
Site/Local	Focussed on a specific place's aviation connections, for example the Farnborough Air Sciences Trust	39
Not specified	Collections with a general theme, such as the Blyth Valley Aviation Collection	78

Table 3: Aviation museums by category

The allocation of museums to categories was arbitrary, and some were allocated to two – for example, the RAF Defford Museum deals with the research carried out for

¹⁹ Kent Battle of Britain Museum, *About Us – Museum History* [online], Available from <<http://www.kbobm.org/history.html>>, Accessed 26 January 2023

the Royal Signals and Radar Establishment [the Military category] by aircraft from the airfield at Defford [Site/Local].

Some museums can help to give a sense of place. The Norfolk & Suffolk Aviation Museum's purpose relates to 'items associated with the Anglia region' while the Yorkshire Air Museum is 'passionate about educating the public in the history of aviation, particularly in Yorkshire' and has displays relating to aviation in the county.²⁰ Some of its aircraft represent types that have associations with Yorkshire. Similar local connections are represented in museums focused on companies, such as the de Havilland Museum at London Colney, *Aerospace Bristol*, and the Museum of Berkshire Aviation. The Helicopter Museum's site is very close to a factory which built helicopters for some 50 years, although its collection includes helicopters from a wide range of countries and manufacturers, rather than solely local products. The workers formerly employed by these companies are likely to have nostalgia for the aircraft they helped to create, which can lead them to devote their time and energy to keep the companies' names and achievements alive.

Since the 1980s museums of all types have had to compete with other leisure and commercial attractions – from theme parks to Sunday shopping, as well as other museums – in order to attract visitors and thereby generate income in order to survive. Most have recognised that the support of local councils and regional tourism authorities is important, not only in promoting their museum but also in gaining access to funding.

²⁰ Norfolk & Suffolk Aviation Museum, Collections Development Policy, 2019, p.1; Yorkshire Air Museum, *About Us* [online], Available from <<https://yorkshireairmuseum.org/about-us/>>, Accessed 2 September 2021

Comparisons with the *Mapping Museums* project

The *Mapping Museums* project ran from October 2016 to September 2020 and aimed to examine the development of the museum sector between 1960 and 2020. In particular, it looked at the numbers of museums opening and closing over the period of the study, whether the number of independent museums grew more quickly than those in the public sector, the most common topics of exhibition and the size of the new museums, and factors that might have contributed to the closure of museums.²¹ It found that the museums sector tripled in size, with an increase from 1,043 to 3,289 museums of all kinds, and that this growth continued from 1960 to 2015. However, the rate of growth was not uniform across the UK: there were variations in different regions of England and across the four nations.²² The study found that more museums (of all types) are found in the South of England than elsewhere.²³ The authors comment that ‘independent museums proliferate in the South East where levels of wealth are far higher than in the North East and North West, where there are fewer independent museums.’²⁴ As mentioned earlier, there are significant numbers of aviation museums in the East of England, the East Midlands and Yorkshire and the Humber – all of which had large numbers of airfields during the Second World War – but which are likely to be less prosperous.

Mapping Museums does not have a simple Aviation category: it classifies aviation as part of its Transport category, and Airforce (sic) as part of the Military group. In

²¹ Fiona Candlin and others, *Mapping Museums 1960–2020: A Report on the Data* (London: Birkbeck, University of London, 2020), p.5

²² Candlin and others, p.2

²³ Candlin and others, p.38

²⁴ Candlin and others, p.51

addition, the number of aviation museums included in the *Mapping Museums* dataset (53) is significantly smaller than the number (208) identified by this project, despite this study having used stringent criteria to define which organisations should be counted as museums. This study therefore looks at a smaller, tightly defined set of museums.

The data gathered by *Mapping Museums* include the dates of opening and closure of museums; similar data was assembled from *Wrecks and Relics*, based on the first and last editions in which a museum appeared – this may have produced a slight difference in the dates attributed. For example, a museum recorded as opening in 1985 would probably not appear in *Wrecks and Relics* until the 1986 edition, although if the information did not reach the editor before the cut-off date, it would not appear until 1988. Similarly, a closure in 1995 would be reflected in there being no entry in the 1996 edition. The smaller numbers found by *Mapping Museums* primarily reflect the smaller number of aviation museums in their database, presumably because the team were either unaware of the resource represented by *Wrecks and Relics* or found it difficult to extract the data.

Chapter 5 –Volunteer-run Aviation Museums

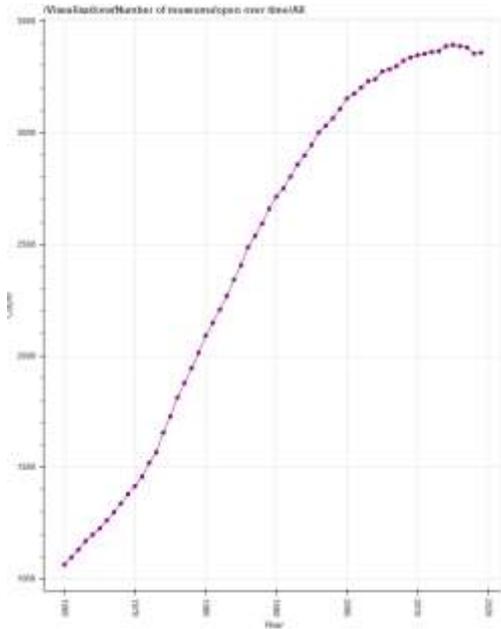


Figure 15: Number of museums – all types – open in the UK²⁵

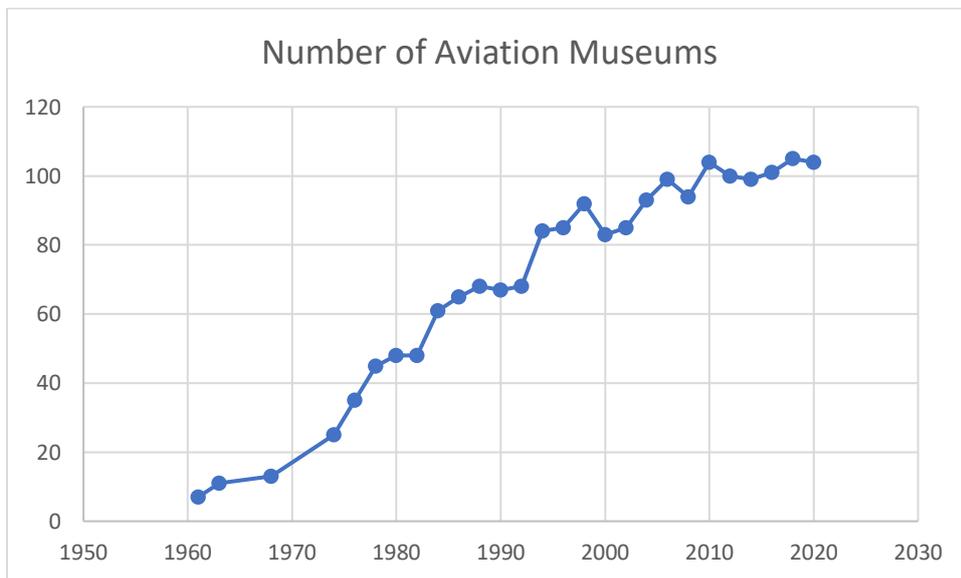


Figure 16: Growth of Aviation Museums, 1961-2020

²⁵ Image downloaded from the *Mapping Museums* website at <www.mappingmuseums.org>, Accessed 3 June 2021

It has not been possible to plot the data gathered by *Mapping Museums* on the same graph as that from *Wrecks & Relics*, since some of the data used by the former are less precise:

When we do not have the precise date when a museum opened or closed, we use a date range, for instance a museum can be logged as having opened between 1985 and 1989... In the Visualisation facility, we use a ‘smearing’ operation within our statistical analyses: for example, if a museum is known to have opened between 1985 and 1989, then the count of one museum is spread evenly over the 5 years 1985, 86, 87, 88, 89, with a ‘count’ of 0.2 being assigned to each year.²⁶

The two graphs differ: Candlin’s shows exponential growth, while the number of aviation museums grows at a fairly steady pace. The former, with the broader approach of Candlin’s study, may well result from museums of various types opening in quick succession, while the latter is a much narrower sample and represents trends within a small part of the overall museum community.

Most of the aviation museums in this survey are run by volunteers: they thus fall within the Independent category used in Candlin’s analysis, which includes organisations such as English Heritage and the National Trust as well as the sub-categories Not-for-profit and Private; these last two are the most relevant to aviation museums. The *Mapping Museums* report shows that these sub-categories grew as follows:

²⁶ Mapping Museums, *Browse, search, and visualise sometimes give slightly different results to the same question. Have I made a mistake?* [online] Available from <<https://museweb.dcs.bbk.ac.uk/faq>>, Accessed 2 February 2023

	Open in 1960	Open in 2017	Closed in 2017	Closed (%)	Cumulative growth (%)
Not-for-profit	269.8	1,497	139.5	8.5	454.9
Private	114.6	449.6	232.7	34.1	292.4

Table 4: Data extracted from Fiona Candlin and others, *Mapping Museums 1960–2020: A*

Report on the Data p.16, Table 1

Data from this study indicate that in 1961 there were 7 aviation museums in the UK, which by 2016 had become 101, a cumulative growth rate of 1442%. Some 202 organisations have been identified, of which 58 had closed by 2016 – others changed their names and/or location or were absorbed into larger organisations, as detailed in Appendix B. This indicates that 29% of aviation museums had not survived – a figure which does not compare well with the 18.7% closure rate for the museums sector overall but is close to the 28% found by *Mapping Museums* for transport museums.²⁷

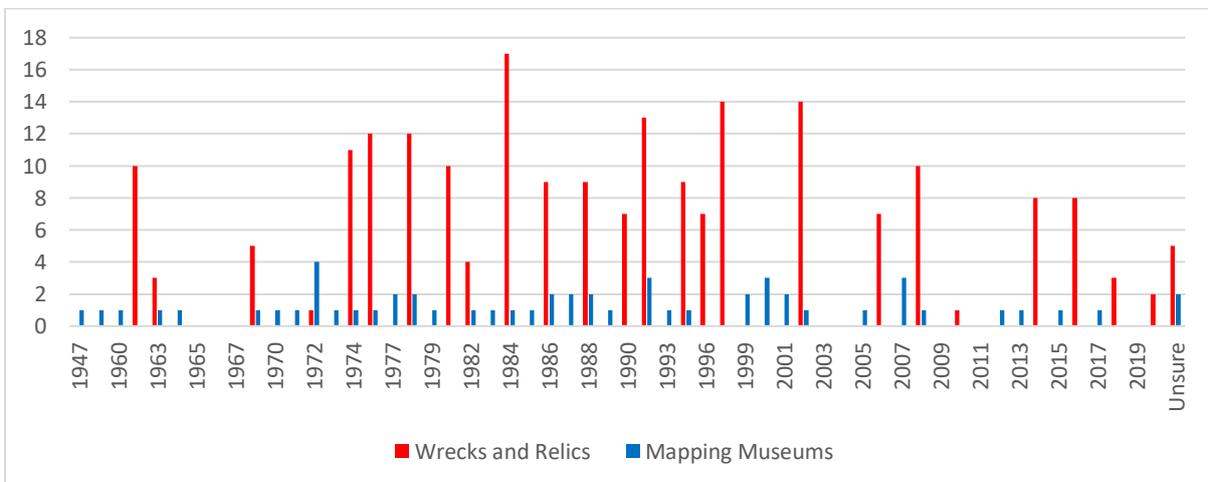


Figure 17: Aviation Museums Opening, by year

²⁷ Candlin and others, *Mapping Museums 1960–2020: A Report on the Data*.pp 3 & 25

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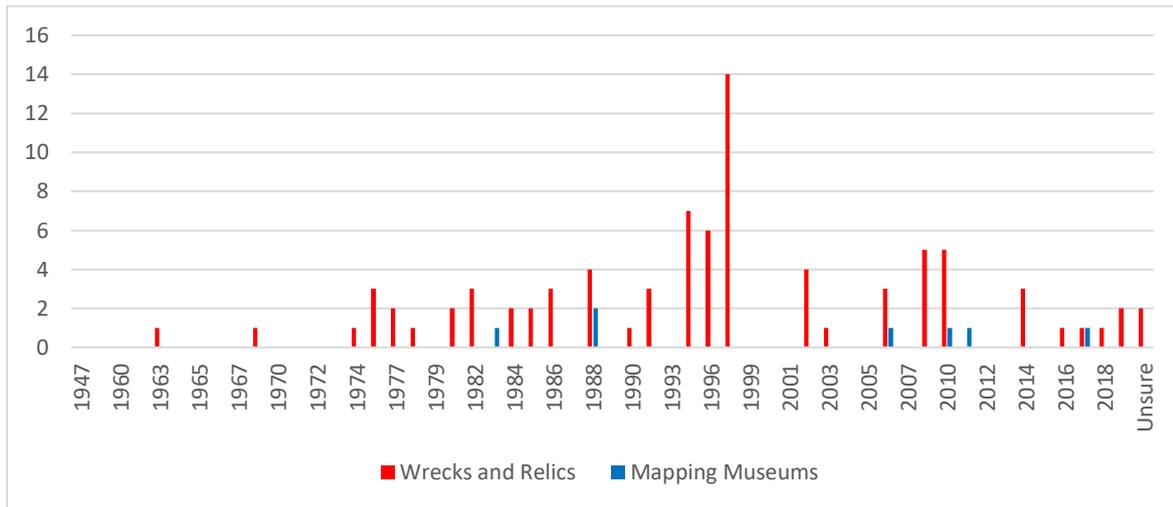


Figure 18: Aviation Museums Closing, by year

The number of aviation museums began to grow in the 1960s, but it is important to add context by considering other forms of transport in which volunteers played significant roles. The following section looks at the restoration of canals, and the preservation and operation of railways by enthusiasts.

Canals

The data gathered for this study indicate that interest in canal restoration began to grow several years before the start of railway preservation, which in turn pre-dates the founding of most aviation museums.

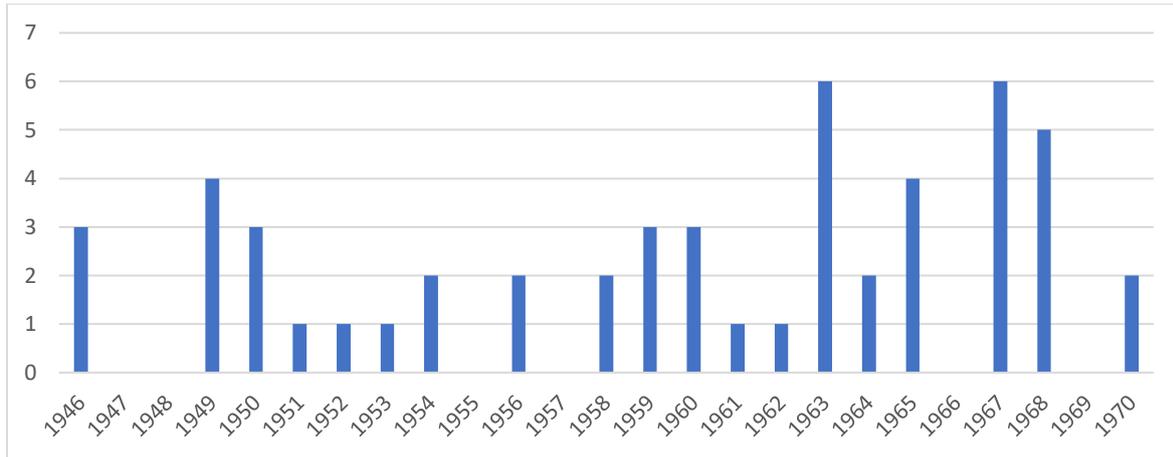


Figure 19: Canal Project Starting Dates (from Squires (1979))

By the end of the Second World War the canal system was in serious decline, with some stretches becoming almost dry and overgrown; and many were under threat of being officially abandoned and filled in. Expansion of the road network required bridges being built over canals, and some bridges were designed with insufficient clearance for canal traffic to pass underneath, effectively blocking the canal. The 1947 Transport Act brought railways, ports, bus companies and road haulage into public ownership, including those canals that were owned by the railway companies.²⁸ Canals which were privately owned remained so, in some cases into the late 1960s.²⁹ In its 1952 annual report, the British Transport Commission [BTC] stated that of 1751 miles open to traffic, about 747 miles were largely uneconomic, and the Commission wanted ‘greater expedition in the proceedings involved in formal abandonment’.³⁰

²⁸ Transport Act 1947, Available from https://www.legislation.gov.uk/ukpga/1947/49/pdfs/ukpga_19470049_en.pdf Accessed 23 August 2021

²⁹ Joseph Boughey and Charles Hadfield, *British Canals: The Standard History*. (Stroud: Tempus, 2008), p.247

³⁰ David Bolton, *Race against Time. How Britain's Waterways Were Saved* (London: Mandarin, 1991), p106.

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The canal restoration movement effectively began with the formation of the Inland Waterways Association in 1946; it campaigned in advance of the 1947 Act. The campaign took advantage of revived interest in pleasure cruising, which was in part inspired by the publication of books on canals, and rallies and displays organised by the IWA. A network of IWA branches helped with campaigns for local canals and waterways. The first Restoration Society was formed in 1950, but it was more of a campaigning than a working group; the Lower Avon Navigation Trust – formed by members of the IWA’s Midlands Branch - was working by 1952.³¹ A paper given to the Royal Institute of British Architects [RIBA] in 1962 described work on the Stratford on Avon Canal, which had been taken over in 1960; after funds had been raised, restoration work began in 1961, with volunteer working parties in action every weekend. Units of the Royal Engineers and Royal Air Force carried out dredging, trenching and bulldozing, and helped to build a lock chamber and install lock gates.³²

The Transport Act 1962 reorganised the oversight of transport, devolving the responsibilities of the BTC to the British Waterways Board [BWB] and three other Boards responsible for Railways, Docks, and passenger transport in London.³³ No longer part of a large, diverse organisation, the BWB lost ‘the cross-subsidisation which had shielded the loss-making parts of the [BTC]’.³⁴ In 1964 the BWB opened negotiations with the Home Office, explaining that it owned ‘a mixed bag of canals and waterways... which vary from reasonably normal commercial undertakings to... waterways either of no use at all or mainly of amenity value’. It sought the use of

³¹ Boughey and Hadfield, p.252

³² TNA MT 81/701, *Stratford on Avon Canal restoration*

³³ Transport Act 1962, Available from <<https://www.legislation.gov.uk/ukpga/Eliz2/10-11/46/contents/enacted>>, Accessed 2 September 2021

³⁴ Boughey and Hadfield, p.247

prison labour to help lower the cost of maintaining 'stretches of waterway which may not economically justify themselves... but which nevertheless may be worth keeping on general social policy grounds and may certainly prove a very costly thing to eliminate.'³⁵

While the BWB letter regarded prisoners as "voluntary" help in the widest sense', growth in restoration work by IWA volunteers had been slow until 1961/62, when the London Working Party Group was formed; in 1965 it began organising excursions to projects on various canals, bringing extra labour to supplement the work of local groups. Its journal *Navvies Notebook* (later *Navvies*) was first published in 1966, giving details of planned working parties, and this enabled the strength of the working parties to grow. The canal volunteers thus comprised groups dedicated to specific canals (or stretches thereof) and others who seem to have been prepared to work on more than one project. Squires quotes a study which found that 28.4% of those who took part in a working party on the Grantham Canal had experience of working on other canals.³⁶

³⁵ TNA MT 88/145, Letter from British Waterways Board to the Home Office, 29 May 1964

³⁶ Roger W Squires, *The New Navvies: A History of the Modern Waterways Restoration Movement* (Chichester: Phillimore, 1983), p.21

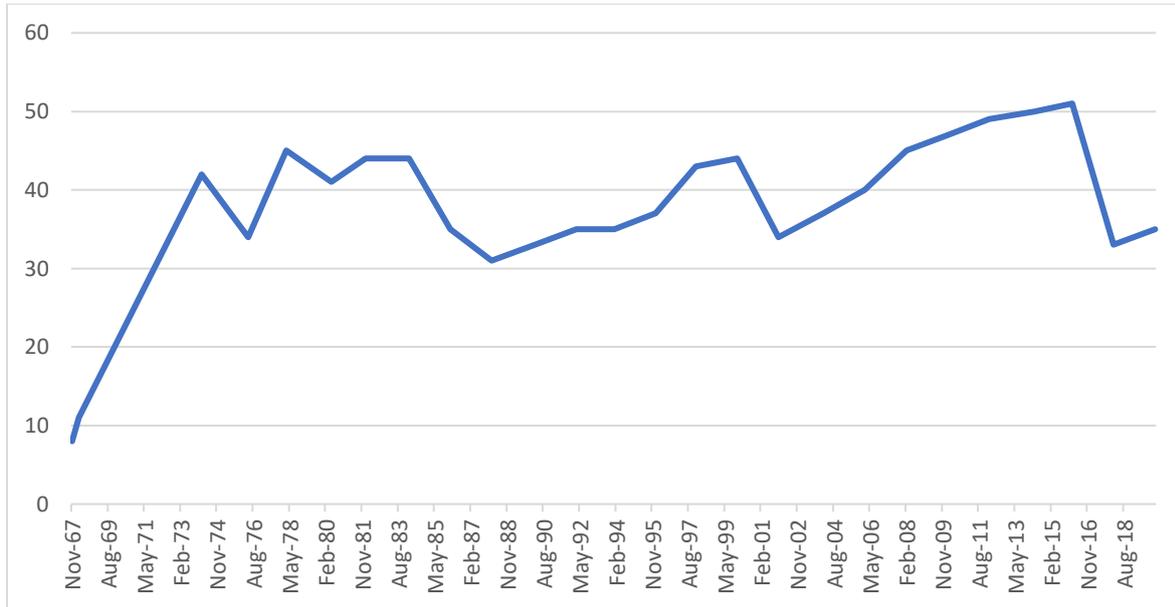


Figure 20: Numbers of Canal Restoration Groups (data from *Navvies*)

Railways

Railway preservation can be divided into two categories – the preservation of individual locomotives, and the development of Heritage Railways, usually using former branch lines that were closed under the Beeching reorganisation of British Railways’ network. Keeping locomotives running seems to have been a strong motivator, and while some former main line locomotives are effectively confined to rural routes, others are used to haul excursion trains on the main lines, recreating the heyday of steam traction.

The graph below shows that there are different types of railway preservation site, with different aims, as classified by *Railways Restored*.

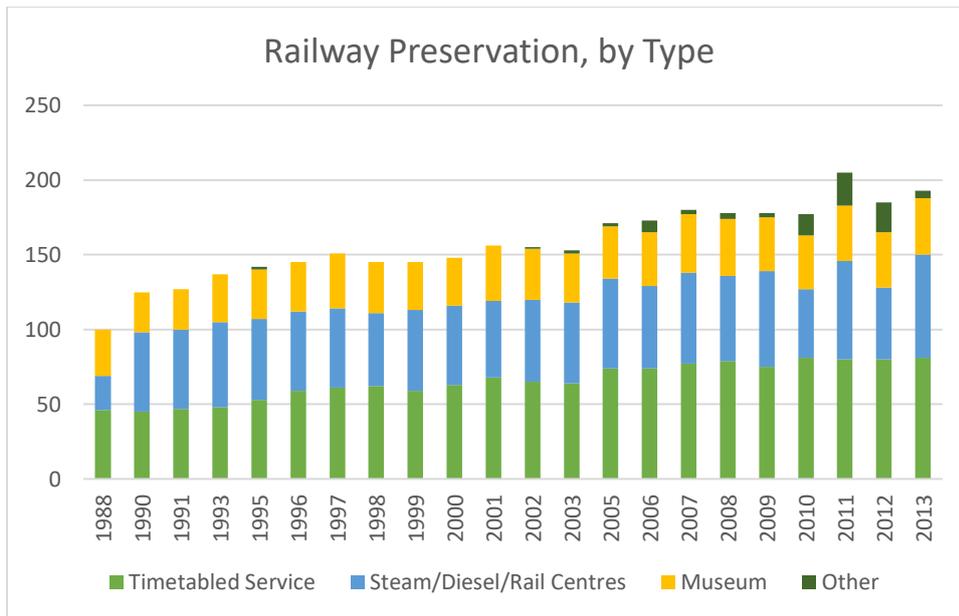


Figure 21: Preserved railways, by type (data from the *Railways Restored* series)

Those shown as *Timetable Service* operate passenger services between two or more stations, while *Steam Centres*, *Diesel Centres* and *Rail Centres* operate over a short length of line, with only one public access point. *Museums* do not offer a passenger service on a regular basis, if at all. The number of railways offering a Timetable Service has increased steadily, from 46 in 1988 to 81 in 2013, while the number of Steam and Diesel Centres grew between 1988 and 2008 before declining, then growing sharply in 2013. The decline may reflect some of the Centres extending their track and thus meeting the criteria for the Timetable Service category. Overall, the number of sites almost doubled (from 100 to 193) in the period shown.

Mark Lambert has shown that railway companies (particularly the ‘Big Four’ in the period 1923-47: Great Western, LMS, LNER, and Southern) took steps to preserve some of their locomotives and memorabilia, and this initiative was continued after nationalisation in 1948 by the BTC.³⁷ Calls for a national railway museum had been

³⁷ Mark Lambert, ‘Ordering Expended Mobility: The Designation and Display of British Railway Heritage 1948-Present’ (University of Nottingham, 2017) pp 94-101

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made as early as 1896.³⁸ Eric Tonks indicates that preservation by individuals (rather than by the BTC or the Science Museum) in the 1950s 'leaned very heavily towards the narrow gauge steam locomotive, but not exclusively so; this was simply because such engines were comparatively easier to find space for.'³⁹ Not only were such locomotives smaller than their standard gauge counterparts and probably cheaper to run and maintain, the lines on which they ran were privately owned, rather than being part of British Railways. BR would have resisted the use of its lines by preserved locomotives: such use would have clashed with its timetables, and the continued use of steam would have undermined BR's image of a modern railway. The first volunteer-run railways were narrow gauge – the Talylyn Railway Preservation Society was formed in 1950, and the Ffestiniog Railway was revived in 1954. Some industrial locomotives – used to move materials around large sites such as steelworks – had been preserved by the companies that owned them.

In 1955 British Railways announced its Modernisation Programme that would see the replacement of steam traction with diesel and electric locomotives.⁴⁰ Some of the redundant locomotives were being purchased as attractions, or for use in children's playgrounds, while a small number would eventually return to the main line at the head of special trains. The Beeching Report of 1963 led to the closure of large numbers of branch lines, many of which would subsequently be reopened as heritage railways.⁴¹

³⁸ Lambert, p.104

³⁹ Eric S. Tonks, *Railway Preservation in Britain, 1950-1984 : A Statistical Survey* (Southampton: Industrial Railway Society, 1985) p.4

⁴⁰ British Transport Commission, *Modernisation and Re-Equipment of British Railways*. (London: British Transport Commission, 1955).

⁴¹ *The Reshaping of British Railways* (London: Her Majesty's Stationery Office, 1963).

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As explained in the Methodology, data on railways come from a variety of (sometimes conflicting) sources which cover different dates and are based on different criteria; these are set out in the graph below.

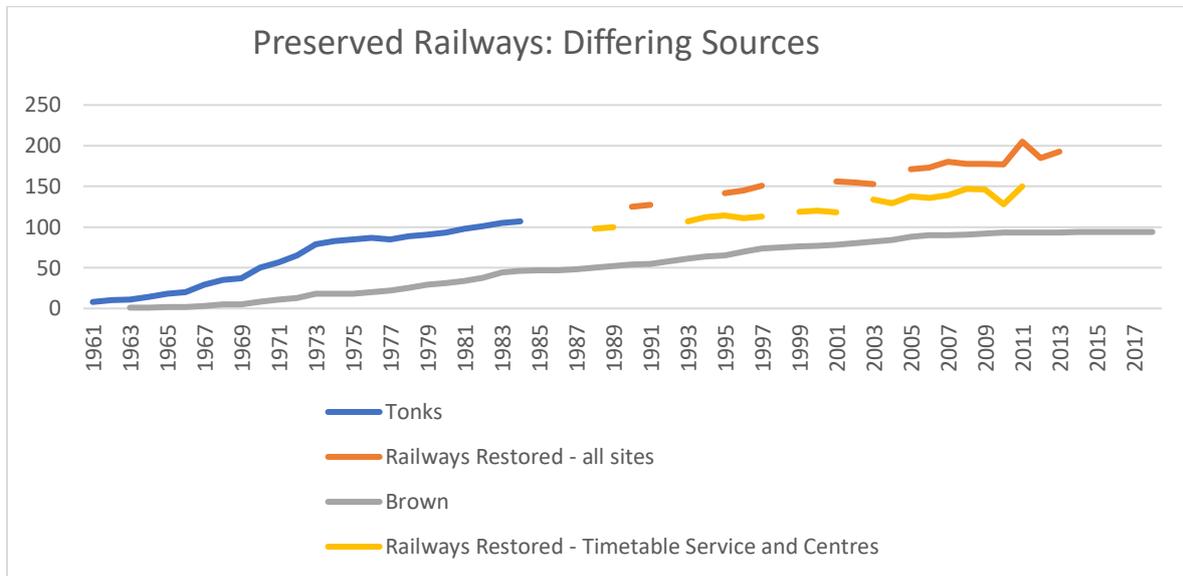


Figure 22: Railway preservation projects 1961 - 2018 ⁴²

The data from all three sources indicates a steady increase in the number of preserved railways, although the rate of increase varies. Brown's data focuses on railways which operate locomotives and doesn't cover the museums which appear in *Railways Restored*. But what factors inspired and sustained the preservation of railways, canals and aircraft? The next section sets out an argument that literature and films raised awareness, albeit through a rather romantic view, of canal life that might be lost. British Railways' Modernisation Plan and the Beeching report's closure of branch lines provoked the sizable community of railway enthusiasts to take action.

⁴² Tonks, *Railway Preservation in Britain*

Alan C Butcher (ed.) *Railways Restored*, (London: Ian Allan, in conjunction with the Association of Railway Preservation Societies), 1988-2013

Jonathan Brown, *The railway preservation revolution. A history of Britain's preserved railways*, (Barnsley: Pen and Sword, 2017)

Aircraft preservation, on the other hand, had been a low priority until the threat of Nash's collection being sold overseas lit a slow-burning fuse.

Factors influencing the growth of aviation, canal and railway preservation

L T C (Tom) Rolt was an engineer who became a prolific author of books on railways, engineering and company histories. He seems to have written very little on canals, but his 1944 book *Narrow Boat* had a dramatic effect on the future of inland waterways. It told of his purchase of an old canal boat, *Cressy*, which he converted to a home and used to travel the network from Banbury - via the Oxford Canal, the Grand Union, and the Trent and Mersey Canal, returning via the Coventry Canal - with his wife in the autumn and winter of 1939-40. The book drew attention to the state of disrepair into which the canals had fallen, but in many ways its main impact may have come from his descriptions of canal life: the crafts and skills which he felt would soon be lost. He described the pace of life, which was also changing - due to competition, both between canal carriers and with other, faster forms of transport. The foreword describes the book as 'the survey of a countryside of unchartered home-waters less familiar than the Solomon Islands.'⁴³ Joseph Boughey suggests that Rolt's prime aim was 'to record threatened environments and cultures, but this had unintended consequences', notably inspiring people – perhaps weary after more than five years of war – to prevent the disappearance of the canal way of life, and thus leading to the formation of the Inland Waterways Association.⁴⁴ The IWA campaigned against the closure of canals and groups of members formed the working parties that have toiled to bring individual canals back to life. There is little in

⁴³ H J Massingham, 'Foreword' in L T C Rolt, *Narrow Boat* (London: Eyre & Spottiswood, 1944), p.vii

⁴⁴ Joseph Boughey, 'From Transport's Golden Ages to an Age of Tourism: L. T. C. Rolt, Waterway Revival and Railway Preservation in Britain, 1944 – 54', *Journal of Transport History*, 34 (2013), p.26

Narrow Boat by way of a call to arms, urging readers to take up pick, shovel or trowel and begin clearing silt or rebuilding canal infrastructure. It is a more subtle, evocative lament for the endangered skills of craftsmen who built and repaired canal boats or painted their traditional decoration of roses and castles.

Further interest in canals would have been sparked by the film *Painted Boats*, released in September 1945. *The Times* described it as

a semi-documentary film with a slight story which illustrates a modest aspect of English life and transport – that of the barges which ply their laborious way up and down the canals... the film without overglorifying the picturesque anachronism of a bargee's way of life and place in industry absorbs into itself some of the quiet loveliness of the English countryside in war-time... The voyages the boats make on the canals are absorbing to watch in the cinema.⁴⁵

The film centres on a family with a horse-drawn barge, but the rather thin story is interspersed with brief documentary segments that describe the origin of canals, the loss of their transport role to the railways, and their increased dereliction. They emphasise the role that they played in supporting the war effort and would play in life after the war. It also shows some of the difficulties that canal families face, such as poor education, the result of bargees' children having to move with their parents and thus not having consistent schooling. Some of the traditional crafts, the potential loss of which caused Rolt concern, are depicted. Given the place which cinema held in entertainment in the 1940s, it is likely that *Painted Boats* reached a larger audience

⁴⁵ 'New films in London', *The Times*, 1 October 1945, p.6

than *Narrow Boat* did initially, although the latter would have been more accessible through libraries once the film had reached the end of its run. The traditional decoration associated with canals would appeal to a broader audience than the drab colours of other forms of transport. In 1947 the newly-founded IWA mounted exhibitions 'representing the colourful and traditional ways of narrowboat life, never before seen by the general public' at Heal's in London, then in cities such as Birmingham, Bristol and Stoke, in order to raise the profile of their campaign.⁴⁶ This may have created pressure that led to a statement from the Docks and Inland Waterways Executive that it had

no intention of suppressing a decorative art which brightens the entrances and interiors of cabins, or the gaily painted cans and buckets which are a feature of the long-distance canal boats. There is no question of substituting numbers for the names borne by the craft, as has been alleged.⁴⁷

For railway preservation, the major changes planned for British Railways from 1955, particularly the loss of steam traction and the closure of many rural lines in the 1960s, have evidently given impetus to the movement, although Tonks points out that locomotives from industrial sites were being preserved in the early 1950s. Rolt was a key player in reviving the Talylyn Railway following the death of its owner.⁴⁸ The 1953 film *The Titfield Thunderbolt*, in which a group of villagers take over their local railway line when it is closed, predates the announcement of BR's radical changes but may have sown seeds among railway enthusiasts.⁴⁹

⁴⁶ Bolton, pp 39-40

⁴⁷ 'Canal boats to stay gay', *The Times*, 28 February 1949, p.2

⁴⁸ Tonks, p.4; Boughey, p.28

⁴⁹ *The Titfield Thunderbolt* [online], Available from <<https://www.imdb.com/title/tt0046436/>>, Accessed 22 November 2021

Railway preservation is often seen as focused on locomotives and – to a lesser extent – rolling stock such as carriages and wagons, although the last of these appears to be a minority interest. However, much restoration work is aimed at returning these items to full working order, and they require a length of track on which to run them. The closures resulting from the Beeching report made stretches of land (trackbed) available for purchase by preservation groups, although track had been lifted from many stretches as part of the closure, so new rails had to be purchased and laid. Tonks comments that ‘The keynote of the ’sixties was the emphasis on operating railways and even the numerically greater increase in private preservation could be explained by the desire to be able to get locomotives to run.’⁵⁰ However, bringing a railway line back to life can be a lengthy, expensive process. The land must be acquired, track has to be purchased and laid, drivers and other volunteer staff must be trained, and the organisation must pass stringent tests to obtain the necessary permission for the railway to operate, particularly for the carriage of passengers.⁵¹ Denis Dunstone questions some of Tonks’ conclusions, arguing that Tonks was using raw data to draw conclusions, but the wide variety of locations which Tonks regarded as preservation sites might not support those conclusions. Dunstone then comments that by the mid-1970s ‘the growth in the number of sites had slowed down and the sites themselves were getting bigger’.⁵² As with aviation museums, once a site has been secured, the collection of exhibits (locomotives, rolling stock or aircraft) tends to grow.

⁵⁰ Tonks, *Railway preservation in Britain*, p.5

⁵¹ P. J. G. (Philip John Greer) Ransom, *Railways Revived: An Account of Preserved Steam Railways* (London: Faber & Faber, 1973), pp 17-24

⁵² Denis Dunstone, *For the Love of Trains: The Story of British Tram and Railway Preservation* (Shepperton: Ian Allan, 2007), p.122

Brown gives the example of the Scottish Railway Preservation Society, which had to concentrate on ‘preserving locomotives and coaches before they were lost, deferring the acquisition of a railway until the late 1970s.’ He notes that grants became available from the 1970s, which encouraged railway preservation groups to achieve charitable status, and Dunstone notes that the North Yorkshire Moors Railway received support from the county council to help develop tourist use.⁵³ Overall volunteer-run railways have moved from merely preserving and operating locomotives and rolling stock to becoming tourist attractions, many of them offering special events such as Santa Specials, 1940s weekends, and beer and music festivals.⁵⁴

Triggers for the initial growth in aviation museums are less evident, although interest in preserving historic aircraft had been growing from the mid-1950s, when the Royal Aeronautical Society stepped in to purchase the Nash Collection of aircraft to prevent its sale abroad. Peter Masefield’s RAeS committee then lobbied for a national air museum. The 1957 Defence White Paper reduced the size of the RAF and cancelled the further development of manned aircraft. This reduction in size of military aircraft fleets led to the scrapping of many aircraft types, particularly first-generation jets such as the Meteor, Vampire and early versions of the Hunter. Aviation enthusiasts – many of whom had developed their interest growing up in the

⁵³ Jonathan Brown, *The Railway Preservation Revolution. A History of Britain’s Preserved Railways* (Barnsley: Pen and Sword, 2017), pp 49 & 156; Dunstone, p.102

⁵⁴ Bluebell Railway, *Special Events* [online] Available from <<https://www.bluebell-railway.com/special-events/>>;

East Lancashire Railway, *Events* [online] Available from <<https://www.eastlancsrailway.org.uk/events/>>;

Keighley & Worth Valley Railway, *Beer & Music Festival 2021* [online], Available from <<https://kwvr.co.uk/event/beer-music-festival/2021-10-14/>> All accessed 22 November 2021

1940s – ‘felt that there was an issue about the loss of early jets’ and were able to acquire aircraft either from scrapyards or direct from the Air Ministry, whose policy was to sell redundant aircraft at scrap value.⁵⁵ Bruce Robertson wrote in 1983 that

Within the lifetime of the majority of readers, including some teenagers, Spitfires were still being thrown on scrapheaps for metal salvage... There came an awakening in the 1960s with an awareness of what had gone – not one example of a Stirling, Beaufort, Hampden or Whitley in existence, types which were built in four-figure quantities and were standard wartime operational aircraft. Of course, some far-seeing enthusiasts had started preservation in the 1950s, but lack of funds to salvage what remained and lack of general interest led to much being lost. Now there is a consciousness of what is of value both by (*sic*) the Services and private individuals.⁵⁶

Raphael Samuel points out that the 1950s were a time of change in Britain, when not just steam locomotives but also trams were being phased out, and interest in local history grew. He suggests that ‘railway preservation mania was the first mass historical enthusiasm of the post-war years [with] its reliance upon volunteers’, apparently overlooking the canal volunteers, and he regards the 1960s as ‘a decade when modernization was in the ascendant’.⁵⁷ In 1959 Peter Masefield’s RAeS Historical Group was formed and the Society published a register of 119 historic British and Foreign aircraft located in the UK and worthy of preservation.⁵⁸ This move may have been influenced by the listing of buildings of special architectural or

⁵⁵ Interview with John Berkeley, 7 July 2021

⁵⁶ Bruce Robertson, *Aviation Archaeology* (Cambridge: Patrick Stephens, 1983), p.7

⁵⁷ Raphael Samuel, *Theatres of Memory* (Verso, 1994) pp 172 & 212

⁵⁸ Anon, ‘Historical Group’, *Journal of the Royal Aeronautical Society*, 62 (1959), pp 479–482. See also Appendix G.

historic interest, under powers introduced by the Town and Country Planning Act 1947.⁵⁹ 1959 also saw the unveiling of the prototype de Havilland Mosquito at Salisbury Hall – more as an attraction to the building than as a museum – and the Royal Aero Club appealed for historical records and souvenirs.⁶⁰

The movement seems to have gathered pace in the 1960s. Peter Thomas had suggested in 1959 that a Short Sunderland should be preserved and – while noting that examples of several important British aircraft of the Second World War had already been preserved - argued for other types to be added to the list.⁶¹ A Sunderland was donated by the French Navy in 1961. Groups such as the Northern Aircraft Preservation Society (NAPS) and Air-Britain's Air Relics Research Group were formed; the latter would become the Historic Aircraft Preservation Society in 1965 and its collection formed the basis of the Historic Aircraft Museum at Southend. In this period the emphasis seems to have been on preserving aircraft, rather than setting up museums: the 1968 edition of *Wrecks and Relics* includes advertisements for seven groups, five of which use the phrase 'Aircraft Preservation Society'.⁶² Thomas suggested a 'British Air Museum' in 1963 – the year the Science Museum's new Flight Gallery opened - and his Skyfame Aircraft Museum opened the following year. The Newark Air Museum was formed in 1963, although it did not open to the public until 1973.

⁵⁹ Town & Country Planning Act 1947, Section 30(1), Available from <https://www.legislation.gov.uk/ukpga/1947/51/pdfs/ukpga_19470051_en.pdf>, Accessed 19 October 2021

⁶⁰ 'Historical Records Wanted', *Flight*, 76 (1959), p.760

⁶¹ Peter Thomas, 'A British Air Museum', *RAF Flying Review*, 18 (1963), p.49. 'Saving one Sunderland', *The Aeroplane and Astronautics*, 97 (1959), p.44

⁶² S George Jones, *Wrecks and Relics*, 3rd edition (Liverpool: Merseyside Society of Aviation Enthusiasts, 1968)

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The Shuttleworth Collection opened to the public on a full-time basis in 1964 and the Shuttleworth Veteran Aeroplane Society was formed the following year; it raises funds to support the collection and gives enthusiasts opportunities to provide tangible support by volunteering at Old Warden. At the same time, the Vintage Aircraft Group was formed to create a focal point for owners, pilots and enthusiasts of vintage and classic light aircraft.⁶³ 1964 also brought the news that an exhibition marking the 50th anniversary of Royal Navy aviation would become a permanent Fleet Air Arm Museum – and the announcement that a Royal Air Force Museum would be set up.⁶⁴ Leslie Hunt's book *Veteran and Vintage Aircraft of the World* was primarily produced in 1965 to raise funds for a children's home, but it is likely to have helped to raise interest in the preservation of historic aircraft at a time when few aviation museums existed; three more editions were published over the next ten years. 1965 also saw the 25th anniversary of the Battle of Britain, which would be marked with air displays, other events and books. Leonard Mosely points out that when plans were being made for the film *Battle of Britain* (released in 1969) it was generally assumed that only six Spitfires remained from over 5,000 built – the film's air adviser, Hamish Mahaddie, eventually traced 109.⁶⁵ Colin Savill records that the founders of the Newark Air Museum, which has its roots in this period, had a 'desire to own a Spitfire, not to fly; not for any particular reason; just to have it.'⁶⁶

⁶³ *About the Vintage Aircraft Club* [online] Available from <http://www.vintageaircraftclub.org.uk/about.php>, Accessed 10 November 2020

⁶⁴ TNA ADM 1/29067, Historic Naval aircraft and equipment: proposal to form a Fleet Air Arm Museum at RNAS, Yeovilton

Hansard, Official Report, Commons, 9 March 1964 Volume 691, Column 160

⁶⁵ Leonard Mosley, *The Battle of Britain: The Making of a Film* (London: Weidenfeld & Nicolson, 1969), p.40

⁶⁶ Colin Savill, *Preservation Pioneers : Newark Air Museum 1963-2015* (Newark: Newark Air Museum, 2016), p.5

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Groups who were effectively unable to afford relatively modern aircraft with primarily metal structures, found that older aircraft - often fabric-covered – were more affordable.⁶⁷ Some of the aircraft acquired in the early stages had been held by schools and other organisations as training aids; two examples are the Avro Avian and Hawker Hart retrieved from schools by the Northern Aircraft Preservation Society and the Solway Aviation Group respectively in November 1963. The small Mignet Flying Flea (*Pou de Ciel*) had been built by amateurs in the 1930s before it was banned as dangerous, and a surprising number had survived. The 2020 edition of *Wrecks and Relics* lists 24 examples in the UK, either in museums or in private collections.

Another source of exhibits was aircraft crash sites. Many wartime aircraft met an untimely end, either in combat or in accidents. High ground claimed a significant number of aircraft and the wreckage - often fairly inaccessible – would be left at the crash site. During the early 1970s these sites were explored by groups who recovered material to exhibit. In low-lying areas or moorland bogs, the sites would need excavation: if an aircraft crashed vertically the engine might be several feet below ground. In the early 1970s expeditions to high ground wreck sites were mounted by the RAF's Officer Cadet Training Unit based at Henlow, partly to provide opportunities to develop leadership and teamwork, and partly to recover material for the nascent RAF Museum, which had its depot at Henlow.⁶⁸ Some of these expeditions were undertaken with the East Anglian Aviation Society, and the publicity given in the aviation press is likely to have encouraged other groups to follow their

⁶⁷ TNA AIR 2/15954, Enclosure 1A, Loose Minute from G F Moorcraft, 24 March 1961

⁶⁸ NAL, Recording of a lecture 'Aviation Archaeology' given by Squadron Leader R E Leach, 20 October 1970

lead. The practice was rather unregulated until the passing of the Protection of Military Remains Act 1986 brought a requirement to obtain a licence from the Ministry of Defence before digging could start.⁶⁹ Interviews have indicated that some museums – for example the Tangmere Military Aviation Museum, the Norfolk and Suffolk Aviation Museum, and the Ulster Aviation Society - began in this way, and only later acquired the substantial aircraft sections which would bring them into the scope of this study.⁷⁰

Further growth came in the early 1970s, when Hawker-Siddeley offered 12 surplus de Havilland Vampires to any group for a nominal fee.⁷¹ In 1976 the US Air Force offered surplus aircraft, originally supplied to the French and Belgian Air Forces under military aid programmes, on indefinite loan to museums in the UK and elsewhere. A total of 31 aircraft went to 14 British museums, and several Hunters were also offered by Hawker-Siddeley.⁷²

The post-war period saw the RAF and Fleet Air Arm shrink due to a combination of factors including the replacement of older aircraft by more potent types and changes in defence policy such as the withdrawal of UK forces from the Far East. Owen Thetford gives the following figures for the number of RAF aircraft in service, including those held in reserve:⁷³

⁶⁹ Ministry of Defence, *Guidance: Aviation Archaeology* [online], Available from <<https://www.gov.uk/guidance/aviation-archaeology>>, Accessed 17 August 2021

⁷⁰ Interviews with Trevor Woodgate, 3 April and Andy Saunders, 15 April 2021

⁷¹ Minutes of the 23rd meeting of the British Aircraft Preservation Council, 13 January 1973

⁷² Alec Brew, *Vampires and Fleas: A History of the British Aircraft Preservation Movement* (Ramsbury: Crowood Press, 2003), pp 46, 62 & 94

⁷³ Owen Thetford, *Aircraft of the Royal Air Force*, 9th edn (London: Putnam Aeronautical Books, 1995) pp 407-408

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Year	1962	1972	1982	1995
Aircraft fleet	2161	1557	1413	1247

The Ministry of Defence's policy on aircraft disposal is studied in detail in Chapter 6 but in general terms, when an aircraft type left service the majority would be sold as scrap. In some cases aircraft were transferred to RAF technical training schools and air cadet squadrons as training aids, while a small number might be used for research. RAF stations were able to display one aircraft next to their main gate; these 'gate guardians' were often aircraft types that had flown from the station, but they might spend many years exposed to the British weather, with little maintenance to prevent their deterioration. The end of the Cold War brought both the redundancy of several aircraft types and a requirement (due to arms control agreements) for them to be seen to be scrapped, rather than being passed to museums.

In the 1960s and 1970s museums and preservation groups were able to take advantage of the large-scale scrapping of aircraft by purchasing them from scrap dealers; early issues of *Wrecks and Relics* show that enthusiasts kept a close eye on scrapyards in their local areas. From time to time aircraft in the technical training schools would be replaced by more modern types and be sold off. The Ministry would invite tenders from anyone interested in purchasing surplus material – from uniforms to vehicles and aircraft – and museums and individuals might be successful. The Newark Air Museum issued 1250 £1 bonds to fund the purchase of its Gloster Javelin.⁷⁴

⁷⁴ Savill, p.35

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In the same way that the Scottish Railway Preservation Society had to store its collection before acquiring track on which to run trains, aviation groups often had to store the aircraft in sheds, barns and other buildings before they were able to obtain a site. John Berkeley explained that in its early years, the Midland APS kept some of its exhibits in three lockup garages and a pigsty, the latter being guarded by a sheep which would butt anyone who came near.⁷⁵ The Newark Air Museum opened in 1973, but mains water was not connected until 1976 and electricity in 1986.⁷⁶ Aircraft museums might often be located on an airfield – either a former RAF station, such as the Yorkshire Air Museum at Elvington, or an active airfield such as the Solway Aviation Museum at Crosby on Eden. While these museums might have the use of one or more hangars and other buildings, only a few museums aim to preserve the infrastructure of the airfield. A significant example is the First World War airfield at Stowe Maries in Essex; the museum there has as its aim ‘To restore the aerodrome to “1918” and tell the story of home defence in World War 1’.⁷⁷ Locating a museum on an airfield has the obvious advantage that new acquisitions can be flown into the site, provided the runway is long enough. Conversely, the lack of a runway limits the size of aircraft that can be moved to the site by road: most aircraft can be dismantled to some extent, but this is expensive in terms of effort and transport costs.

Volunteers from the Newark Air Museum spent six weeks dismantling an Avro Shackleton, which was not airworthy, for transport by road and reassembling it; Newark’s Avro Vulcan – a much more complex aircraft - landed on the disused runway at the museum’s site.⁷⁸ Most of the larger aircraft – predominantly airliners –

⁷⁵ Interview with John Berkeley, 7 July 2021

⁷⁶ Savill, pp 13, 21 & 58

⁷⁷ Response to questionnaire, January 2020

⁷⁸ Newark Air Museum, *Shackleton & Vulcan Ownership Changes* [online], 15 December 2021, Available from <<http://www.newarkairmuseum.org/Shackleton-Vulcan-21>>, Accessed 22 December 2021

in museums are found on sites which have good runways, such as the City of Norwich Aviation Museum at Norwich Airport, the Duxford Aviation Society's collection at Duxford, and the Midland Aircraft Museum, Nimrod Preservation Group and Shackleton Preservation Group at Coventry Airport.

David Smith states that 444 airfields were built in the UK between 1939 and 1945, in addition to those dating as far back as 1912 and others constructed under the RAF's pre-war Expansion Schemes. Ronald Blake gives the total as 720 airfields by 1945.⁷⁹ Usually comprising three hard runways arranged in a triangle, they therefore cover a significant area and now the land between the runways has often reverted to agriculture, while in some cases the runways and other hard surfaces have been taken up to provide hard core for the foundations of roads and other building projects. In the early days of the aircraft preservation movement disused airfields were seen by some as a resource which could be utilised:

All over the country there are airfields which have been closed... They have plenty of hangar space, but aircraft are not normally kept there. Rather than let these buildings lie empty, surely it would profit the Air Ministry or Admiralty to let the hangars and hard standing areas for a small but useful amount of money.⁸⁰

The Treasury, however, did not share this view and expressed concern about the proposal to set up an RAF Museum as it might be used to keep open an airfield which could otherwise be disposed of, thereby depriving the Treasury of both

⁷⁹ David J Smith, *Britain's military airfields 1939-1945*, (Wellingborough: Patrick Stephens, 1989) p 54
Ronald N E Blake, 'The Impact of Airfields on the British Landscape', *The Geographical Journal*, 135, (1969), p.508

⁸⁰ Peter Thomas, 'A British Air Museum' *RAF Flying Review*, 18 (1963), p.49

savings and the income from the sale.⁸¹ Blake identified a diverse range of ways in which disused airfields could be used.⁸² Airfields – whether in use or disused - are now considered ‘brownfield’ sites suitable for housing and other uses, and the value of the land makes it very difficult for museums to purchase a site.

Most of the airfields in the UK have had relatively short operational lives, having been built for the Second World War, and thus it is frequently difficult to make a case for their preservation as historic sites, particularly when it is difficult to identify sites which have played a particularly distinguished role. Even when a site has such a history its preservation is not certain: RAF Scampton was the base for the famous Dams Raid of May 1943 and continued in front line roles until 1983; the station closed in late 2022. There have been calls to preserve some of the buildings, although several are reported to be in very poor condition.⁸³ Details were released in late 2021 for the development of the site which would include ‘a commemorative park for the RAF and the Dambusters that encourages visitors to learn about their history, and entertaining attractions’ as well as a restoration centre for vehicles and aircraft, and ‘two new museums, one devoted to the Dambuster story and the other describing the storied (*sic*) history of the airbase’.⁸⁴ In early 2023 the site was due to be sold to the local council who would work with another developer to create ‘an immersive/living museum’ and keep the airfield operational, but the Home Office

⁸¹ TNA 225/2799, Note by DMK, 25 September 1962

⁸² Ronald N E Blake, ‘Disused Airfields as a Planning Resource’, *Trent Papers in Planning*, 78/8, July 1978

⁸³ *Campaign aims to preserve heritage of RAF Scampton after closure* [online], 29 July 2020, Available from <<https://www.bbc.co.uk/news/uk-england-lincolnshire-53565207>>, Accessed 4 November 2021; Daniel Jaines & Ashley Franklin, ‘RAF Scampton Moves Another Step to Closure as MOD Confirms new plans’, *Lincolnshire Live* [online], 2 June 2021, Available from <<https://www.lincolnshirelive.co.uk/news/local-news/raf-scampton-moves-another-step-5481109>>, Accessed 4 November 2021

⁸⁴ *Horizon Park Venture* [online], Available from <<https://horizon-park.co.uk/#prettyPhoto>>, Accessed 8 November 2021

intends using the site for a refugee centre.⁸⁵ Old Sarum has been in use as an airfield since 1917, and currently houses a museum dedicated to the experimental flying conducted at nearby Boscombe Down.⁸⁶ A planning application for housing development and new hangars was refused in 2019 and a judicial review failed to overturn the decision. The list of closed museums in Appendix F shows that museums are at risk from landowners who find the sale of a site for housing more attractive than giving a home to an aviation museum. By contrast, branch railways and canals are relatively narrow, linear features and the alternative uses to which they can be put are limited. Buildings used by the aviation industry are also at risk. Allan Winn pointed out that

most of the industrial heritage of the aviation industry has either been lost or is at risk, and it didn't really *start* until the First World War. We're already losing airfields, we've lost most of the aircraft manufacturing buildings that built, we think, somewhere north of 200,000 aeroplanes.⁸⁷

Whilst airfields are rarely preserved there are moves to commemorate and study them. The Lincolnshire Aviation Heritage Centre at East Kirkby grew from the landowners' desire to commemorate their brother who died serving in Bomber Command. They were eventually able to purchase a Lancaster which would be displayed among the surviving airfield buildings; the names of 848 men who died

⁸⁵ Stephen Bridgewater, *Exclusive Interview – RAF Scampton saved in landmark deal* [online], 10 March 2023, Available from <<https://www.aerosociety.com/news/exclusive-interview-raf-scampton-saved-in-landmark-deal/>> Accessed 11 March 2023

West Lindsey District Council, *Ministers are being urged to remove former RAF Scampton site from its list of places for an asylum centre* [online], Available from <<https://www.west-lindsey.gov.uk/council-news/2023/03/ministers-are-being-urged-remove-former-raf-scampton-site-its-list-places-asylum-centre>>, Accessed 17 March 2023

⁸⁶ Old Sarum Airfield Ltd, *A Concise History of the Airfield* [online], Available from <<https://www.oldsarumairfield.co.uk/history/>>, Accessed 4 November 2021

⁸⁷ Interview with Allan Winn, 28 June 2021

flying from East Kirkby are displayed in a memorial chapel.⁸⁸ There are a number of small museums – outside the scope of this study because they do not display aircraft – which document the history of airfields and the units that were based there.

Examples include the 493rd Bomb Group ‘Helton’s Hellcats’ Museum at Debach, the Twinwood Aviation Museum located alongside a Glenn Miller Museum in the former control tower at Twinwood Farm in Bedfordshire, heritage centres at Dunkeswell and Upottery in Devon, and the RAF Ingham Heritage Group in Lincolnshire.⁸⁹ It is noticeable that several of these small museums commemorate American forces’ operations from the UK; the absence of aircraft may be due to the difficulty of acquiring relevant exhibits, particularly if they have to be brought back to the UK.

Comparison with the Canal and Railway movements

There are parallels between the railway and aircraft preservation movements. Enthusiasts of all kinds are by their nature often very knowledgeable about their chosen field, and with emotional connections to such machines fear that important, historic relics will be lost. Eric Treacy commented that ‘Nostalgia for the steam era has been made all the more keen by the suddenness of its passing’.⁹⁰ John Berkeley of the Midland Air Museum recalled that the founders had ‘an all-consuming passion for what they saw as reckless destruction of aircraft, some of which were of some importance.’⁹¹ In both railway and aircraft preservation, technology change – the replacement of steam by diesel, and the introduction of more potent aircraft –

⁸⁸ British Library C900/09554; Millennium Memory Bank. Fred Panton interviewed by Malcolm Swire, BBC Radio Lincolnshire, 22 January 1999

⁸⁹ Candlin, Butler, and Watts, pp 68-75

The Twinwood Museums [online], Available from <<https://twinwoodevents.com/museums/>> Accessed 3 February 2020

⁹⁰ Eric Treacy, ‘Foreword’, in Gerald Nabarro, *Steam Nostalgia: Locomotive and Railway Preservation in Great Britain*. (London: Routledge and Keegan Paul, 1972), p.xi.

⁹¹ Interview with John Berkeley, 7 July 2021

resulted in the size of fleets being reduced and the redundant locomotives and aircraft becoming available to preservationists, albeit often via scrapyards. Woodham Brothers' scrapyard at Barry received 288 locomotives; rather than being cut up, 213 of them were eventually sold to groups for restoration to running condition.⁹² Clearly, locomotives have a higher scrap value due to their sheer weight; raising funds to purchase and then restore a locomotive has involved "supporters groups" such as the Merchant Navy Locomotive Preservation Society, which was formed in 1965 and purchased *Clan Line* in 1967 for £2,200 (about £36,000 today).⁹³ David Mather states that "rescuing" some examples from the scrapyard took between ten and twenty years – presumably the time needed to raise the necessary funds – and that the Woodham Brothers were content to negotiate such long periods because they had plenty of other work scrapping many of the large fleet of wagons that had become surplus.⁹⁴ Some are owned by wealthy individuals. Dunstone points out that *Flying Scotsman* was 'owned in succession by three successful businessmen' and opines 'this is a typically British solution... The state is reluctant to pay for preservation so private individuals have to.'⁹⁵

Aviation has its own wealthy supporters, some of whom are described in the chapter on collectors. The only major project in recent years involving the restoration of a large aircraft to flying condition is the *Vulcan to the Sky* project which succeeded in returning XH558 to flight in 2007. The aircraft was finally grounded in 2015 when the aircraft and engine manufacturers withdrew their support due to the difficulty of

⁹² Dunstone, p.128

⁹³ Merchant Navy Locomotive Preservation Society, *Who Are We?* [online], Available from <<https://www.clan-line.org.uk/about-us/>>, Accessed 21 July 2021

⁹⁴ David Mather, *Great Britain's Heritage Railways: The Rise of the Railway Preservation Movement* (Kettering: Silver Link, 2012), p.12

⁹⁵ Dunstone, p.50

finding engineers with the expertise needed to guarantee the airworthiness of an aircraft built in 1960 and designed in the early 1950s. The project was funded by a supporters club in addition to sponsorship from companies and the Heritage Lottery Fund.⁹⁶

The way in which the aircraft preservation movement has grown differs from the very successful canal restoration movement. Rolt's book *Narrow Boat* led to a meeting with Robert Aickman, and the two men founded and led the Inland Waterways Association in its formative years, although both had resigned by the end of 1951. Whereas Rolt's motivation was focussed on supporting 'the traditional trade of the canals, as he feared that anything just preserved for 'pleasure' would tend to become a precious and 'arty cult'', Aickman seems to have been an evangelist. He believed fervently that the object of the campaign was to save, and eventually restore, every single mile of waterway that remained in existence... It was not just that he considered every mile of waterway as an amenity, though certainly he considered this aspect to be of great value in a society that seemed bent on concealing more and more open land under motorways, housing estates and industrial parks.⁹⁷

The IWA's success seems to be attributable to a range of contributory factors, mostly absent in the aviation museums story. They can be summarised as Pressure, Visibility, Amenity, Participation, and Coordination. The IWA acted as a pressure group, opposing the closure of canals and staging a series of rallies and cruises to

⁹⁶ Vulcan to the Sky Trust, *About the Club* [online], 27 November 2015, Available from <<https://web.archive.org/web/20151127122547/http://www.vulcantothesky.org/club.html>>, Accessed 21 July 2021

⁹⁷ Bolton, *Race Against Time*, pp 6 & 85

draw attention to their cause, with many high-profile supporters such as John Betjeman, Margot Fonteyn and Lord Lucan. Although Peter Masefield was certainly the most active proponent of the campaign for a national air museum, he seems to have been less successful in gaining publicity for his proposal: there is very little in the aviation press regarding the scheme, and he makes no mention of the project in his autobiography.⁹⁸ He was President of the Royal Aeronautical Society, but the RAeS was primarily occupied with promoting the British aerospace industry, which was enjoying great success. It had a forward-looking culture which arguably left little time for history, although Masefield did establish the RAeS Historical Group in 1959, to 'coordinate and foster the interests of those many individuals who have been undertaking historical research over the years, as well as groups of amateur historical researchers.' The group compiled and published registers of British and Foreign aircraft and engines considered worthy of preservation.⁹⁹ Peter Thomas had some success in lobbying for the preservation of a Sunderland flying boat and started a museum as a memorial to his late brother. However, he faced difficulties in obtaining aircraft from the Air Ministry, due to the policies in force regarding the disposal of aircraft, which were regarded as assets to be sold at market value, even if this was their scrap value.¹⁰⁰ Beyond this, there seems to have been very little publicity in the aeronautical press and virtually none in the broader media. Masefield's initiative has more or less been forgotten; indeed, the discovery of files in the National Archives was one of the inspirations for this research project.

⁹⁸ Peter Masefield & Bill Gunston, *Flight path*, (Shrewsbury: Airlife, 2002)

⁹⁹ 'Historical Group', *Journal of the Royal Aeronautical Society*, 63, (1959), pp 479-482

¹⁰⁰ TNA AIR 2/15954, Enclosure 1A, Loose Minute from G F Moorcraft, 24 March 1961

Canals are very visible, and restoration attracted support not only from those who wished to use them for relaxation, but also those who saw them as eyesores and/or as potential amenities for the community – for walking alongside, or fishing, as well as boating. The paper presented to the 1962 RIBA Conference – evidently written by a canal enthusiast – waxes lyrical:

The choice is before us; it is between a useless expensive stinking ditch, a raw festering wound across the heart of England, a 13½ mile rubbish dump, and a clean clear useful waterway carrying commercial and pleasure traffic, relieving pressure on the roads, giving pleasure to untold thousands of people, supplying water to industry and agriculture. A thing of use and of beauty which will pay for itself and serve the Nation.¹⁰¹

In contrast, aircraft might be out of sight in hangars or relegated to a distant corner of an airfield and thus attract less attention. Canals also had value in transporting water for industrial use and there was a small element of commercial traffic. This might justify some government subsidy, whereas the Treasury was determined to realise the value of redundant airfields and aircraft. Boating holidays on the Thames and the Norfolk Broads became popular in the 1930s; Rolt refers disparagingly to ‘chromium-plated Maidenhead cruisers’.¹⁰² One of the IWA’s early supporters was Lionel Munk, whose company Maid Line Cruisers offered craft on the Thames; he saw an opportunity to expand his business into canal cruising.¹⁰³ The Festival of Britain in 1951 provided an opportunity for the IWA to raise the profile of canals, by offering trips on the Grand Union Canal from Camden Town to Edgware Road in a specially-

¹⁰¹ TNA MT 81/701

¹⁰² Rolt, *Narrow Boat*, p.29

¹⁰³ Bolton, *Race against time*, pp 112-113

constructed narrow boat. Both canals and railways enable the public to experience these forms of transport at first hand, but few aircraft in museums' collections fly and even fewer are able to carry passengers. The reasons for this include cost and regulation. Flying is highly regulated: aircraft must comply with strict airworthiness criteria and more complex military aircraft are unlikely to be allowed to fly. Such flying is treated by regulators as commercial air transport. Maintenance must be undertaken by licenced engineers, while pilots and other crew members are also required to hold licences, usually of a higher standard than the basic Private Pilot's Licence. The airspace in which aircraft fly is also restricted, particularly in the South of England, which limits the ability to demonstrate aerobatics. Commercial opportunities for the aviation preservation movement thus seem to be limited to providing aircraft for flying displays and films, although in recent years a few companies have offered pleasure flights in historic aircraft ranging from Tiger Moths to Spitfires.

The IWA had many local branches, usually linked to specific canals, and this will have helped to spread the word quickly and create a 'critical mass' of support. The most tangible form of this support is the groups of volunteers, coordinated by the Waterways Recovery Group, who from the mid-1960s were organised across the country to work on restoration projects.¹⁰⁴ Railway enthusiasts seem to have banded together, either to reopen a closed line, or to preserve a particular type of locomotive which appealed to them. The Association of Railway Preservation Societies (ARPS)

¹⁰⁴ Roger W Squires, *The Waterway Restoration Movement 1946-1975*, (doctoral thesis, University of London, 1977), p.201

was formed in 1959 to co-ordinate the activities of the various groups.¹⁰⁵ The aircraft preservation movement seems to have lacked this coordination, at least in its early years. The British Aircraft Preservation Council [BAPC] grew from a magazine *Control Column* produced by the Northern Aircraft Preservation Society, which became a medium for communication between similar groups scattered around the country. A report of the meeting that founded BAPC in October 1967 describes ‘the rapid growth of the movement and the vital necessity for a rational policy of co-operation and mutual assistance’ but there would be ‘no relinquishing of local pride within a Great National Movement’.¹⁰⁶ BAPC’s meetings were a forum for the exchange of information and spare parts; Ken Ellis recalled:

it’s where it really starts and from there you get everybody else saying... ‘we went to the meetings – we couldn’t believe who we met. We couldn’t believe that they also had the same problems we had, or that they’d actually solved the problem that had been stopping us doing X, Y and Z for the last three years.’¹⁰⁷

BAPC: Promoting aviation museums and improving standards and skills

In 1996 the BAPC established a National Aviation Heritage Committee with the remit to review the state of heritage material (primarily aircraft), identify priorities and recommend appropriate national policies and initiatives. The committee - which included representatives from organisations with interests in aviation history beyond

¹⁰⁵ Andrew McLean, “Flying Scotsman: modernity, nostalgia and Britain’s ‘cult of the past’”, *Science Museum Group Journal*, No. 5 (2015), unpaginated. Available from <http://journal.sciencemuseum.org.uk/browse/issue-05/flying-scotsman/> Accessed 29 April 2020

¹⁰⁶ *Control Column* No. 10, December 1969, pp 116-117

¹⁰⁷ Interview with Ken Ellis, 29 August 2019

the museum community, such as the Airfield Research Group and Royal Aero Club - aimed to raise the profile of Britain's aviation heritage, to ensure that the most significant examples are protected, and to help ensure that national priorities are met with the help of national funding to support acquisitions, conservation and capital projects.¹⁰⁸ The proposed National Aviation Heritage Strategy identified five key areas, that would be developed over the period 1996 to 2001:

- Protecting aviation artefacts, archives and sites
- Making skilled manpower available
- Raising standards of education and interpretation
- Making restoration and conservation more effective, and
- Raising the profile of the UK's aviation heritage.

The first four of these aims are rather introspective, and arguably provide the foundations for the fifth – an expression of the need to 'get their act together' before drawing attention to the many museums and their collections. The canal movement, under Aickman's zealous leadership, took a different approach, raising the public profile at an early stage to demonstrate that canals were not the lost cause that many might have thought.

BAPC updated the lists of historic aircraft and engines pioneered by Peter Masefield, taking account of the growth in the number of aircraft in museums; Masefield accepted the position of BAPC's President. National Aviation Heritage Weeks were held, adding weight to individual museums' attempts to gain publicity. In October 2017, 50 years after its formation, BAPC became Aviation Heritage UK (AHUK),

¹⁰⁸ John Berkeley, 'Raising the Standard: Developing a Competent Workforce', in *European Aviation Preservation Council Seminar on Restoration and Preservation of Historic Aircraft*, 2000.

whose aims include furthering ‘the preservation and presentation of all aspects of the national aviation heritage’ by acting as a representing, co-ordinating and enabling body.¹⁰⁹ AHUK seeks to ‘develop and promote the National Strategy for Aviation Heritage in partnership with relevant national bodies’ and this work led in July 2020 to the All-Party Parliamentary Group on General Aviation calling for the setting up of a National Register of Historic Aircraft.¹¹⁰

BAPC’s original Objects included providing advice to its member groups on ‘preservation and other appropriate matters’ The threads of the National Aviation Heritage Strategy addressed issues common to many types of volunteer-run museums, recognising that many volunteers are unlikely to have received formal training in the types of work they undertake, such as customer care for front-of-house staff. It noted that the aircraft preservation movement had concentrated on ‘collecting aeroplanes and setting up more and more museums’, without ensuring that its member organisations had the skills needed to preserve those aircraft and maintain the collections. This created a risk that museums would not be properly managed and thus fail to attract sufficient income (from visitors and sponsors) to meet their running costs. ‘Without people with the necessary skills, we will find it difficult to raise our standards of visitor services, interpretation of exhibits, education or any of the many other activities that the public has a right to expect from a 21st Century air museum.’¹¹¹

¹⁰⁹ Aviation Heritage UK, *Constitution* [online], 2017, Available from <<https://aviationheritageuk.org/about/constitution/>> Accessed 30 July 2020

¹¹⁰ All-Party Parliamentary Group on General Aviation, *APPG calls for ‘national secretariat’ to protect historic aircraft* [online], 17 July 2020, Available from <<https://generalaviationappg.uk/appg-calls-for-national-secretariat-to-protect-historic-aircraft/>> Accessed 30 July 2020

¹¹¹ Berkeley, *Raising the Standard*, p.5

This shows a desire to increase professionalism within the aviation museum community. A particular issue was the need to raise the standard of restoration and conservation work: the aircraft industry was contracting and thus the number of people available with relevant skills was declining as the average age of volunteers increased. Little information had been made available to the museums sector on restoring aircraft, although the Museums and Galleries Commission had published material dealing in general terms with 'large objects' which touched on aircraft, and a former curator at the Smithsonian National Air and Space Museum had published a book on aircraft restoration.¹¹² In the 1990s BAPC held a series of one-day conferences under the title *Stop the Rot* to raise awareness of the need to improve the care of museums' collections and introduce measures for both preventive and remedial conservation. The National Aviation Skills Initiative, led by BAPC, received over £600,000 from the Heritage Lottery Fund to provide training for volunteers.¹¹³ Further pressure to raise standards came via the Accreditation scheme operated by the Arts Council in England and similar bodies in Scotland, Wales and Northern Ireland. The scheme sets out standards for *Organisational Health, Managing Collections, and Users and their Experiences*.¹¹⁴ The scheme follows on from an earlier Registration scheme introduced in the 1990s. Examination of the lists of Accredited Museums and those working towards Accreditation indicates that 25 aviation museums had achieved the standard by October 2021, with another eight

¹¹² Museums & Galleries Commission, *Standards in the Museum Care of Larger & Working Objects* (Museums & Galleries Commission, 1994).

Stephen Ball, *Larger & Working Objects. A Guide to Their Preservation and Care*, ed. by Peter Winsor (London: Museums and Galleries Commission, 1997).

Robert C Mikesch, *Restoring Museum Aircraft* (Atglen, PA: Schiffer, 2009).

Association of British Transport & Engineering Museums, *Guidelines for the Care of Larger and Working Historic Objects*, (Cambridge: Collections Trust, 2018)

¹¹³ Interview with John Berkeley, 7 July 2021

¹¹⁴ Collections Trust, *Accreditation* [online], Available from <https://collectionstrust.org.uk/accreditation/>, Accessed 29 October 2021

working towards it – a total of 33, roughly a third of the museums identified by this study as active in 2020.¹¹⁵

Conclusions

The beginnings of canal restoration and moves to preserve both railways and aircraft in the 1950s and 60s can be viewed as the initial rumblings of the ‘memory boom’ that would be most noticeable in the 1970s and 80s. Samuel commented on the extraordinary and, it seems, ever-growing enthusiasm for the recovery of the national past... The preservation mania, which first appeared in reference to the railways in the early 1950s, has now penetrated every department of national life.¹¹⁶

He suggested that such interest in preserving the past, which also led to the setting up of folk and industrial museums, was ‘a pole of opposition to the modernizations of the time’ - this is clearest in railway enthusiasts’ reaction to the end of steam traction and aviation enthusiasts’ concern that important aircraft could be lost.¹¹⁷ The mood had perhaps changed from ‘somebody ought to do something about it’ to ‘We need to do something’. However, progress in canal restoration, railway and aircraft preservation was slow, especially in the early years; it then grew steadily despite some closures of railways and aviation museums.

The initial growth of aviation museums can be attributed to the coming together of several factors:

¹¹⁵ Downloaded from <<https://www.artscouncil.org.uk/accreditation-scheme/about-accreditation#section-4>>, Accessed 29 October 2021

¹¹⁶ Samuel, p.135

¹¹⁷ Samuel, p.141;

Interview with John Berkeley, 7 July 2021

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- Groups of keen (often young) aircraft enthusiasts, who were concerned about:
- the potential loss of important aircraft due to:
- Technology change, which led to:
- Aircraft being available at scrap value.
- Growth in working- and middle-class households' income during the 1950s and 60s, together with
- Shorter working hours, leading to an increase in leisure activity.¹¹⁸

The following diagram shows how these forces act together.

¹¹⁸ Kevin Walsh, *The Representation of the Past: Museums and Heritage in the Post-Modern World*. (London: Routledge, 1992) p.41

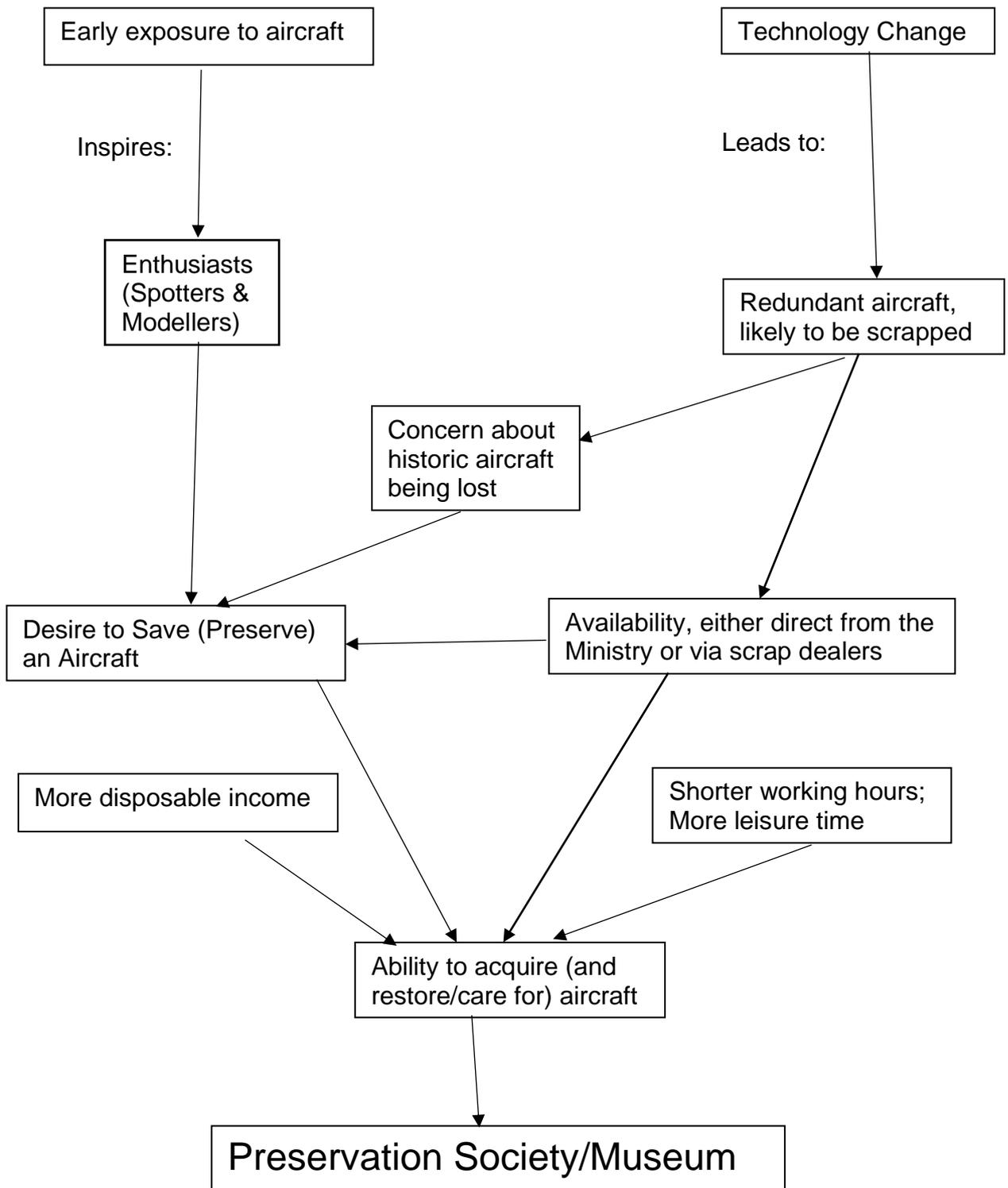


Figure 23: Factors contributing to the founding of aircraft museums and preservation groups.

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This urge to preserve is reflected in many museums having their origins in Aircraft Preservation Societies and Groups, most of which changed their name to 'museum' as their collections grew, although there are still a few Preservation Groups looking after specific aircraft types.

Canals and railway lines are more visible to those living nearby than most aviation museums, which encourages people to help restore a local amenity. Nevertheless, in all three fields, the publicity gained through successes – the opening of a new museum, railway line or stretch of canal, or the acquisition of a new exhibit – can not only attract new volunteers and funding but can also inspire others to open their own museum, enabling the movement to grow.

The canal movement, apparently influenced in its early days by mass media such as Rolt's book and the film *Painted Boats*, also benefitted from Aickman's charismatic leadership; he had an ability to evangelise for the canal movement; a skill which seems to have been lacking in the early days of aircraft preservation. It seems that if Peter Masefield's call for a national air museum – initially made in 1954 – had come a few years later it might have been able to garner more support outside the aviation community, as interest in history grew among the general public.

The majority of aircraft in museums are military types, and the large fleets administered by the Ministry of Defence have been the major source of acquisitions. How have museums been able to acquire the aircraft that attract enthusiasts, whether as volunteers or as visitors, and what influence have Government departments had on aircraft preservation? The next chapter investigates – for the

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first time - the way in which the Treasury, Ministry of Defence and departments more directly involved with museums have been involved in shaping the aviation sector of the museums community. It then discusses how the RAF selected aircraft for preservation during and immediately after the Second World War, and its policies on the disposal of aircraft and the management of its historic aircraft collection.

Chapter 6 – Government and the RAF’s policies on aircraft preservation

Introduction

Before the 1970s, the preservation and display of historic aircraft - those that had achieved specific feats, and examples of types of aircraft which represent important developments in aviation – was primarily undertaken by national museums such as the Science Museum and the Imperial War Museum [IWM]. The RAF’s official collection, managed by the Air Historical Branch, was rarely available for viewing by the public. Official approaches to aviation history have hitherto not been studied, either by academics or enthusiasts. This chapter investigates the roles played by official bodies – particularly the Air Ministry and its successor the Ministry of Defence [MOD], the Treasury and the Department for Digital, Culture, Media and Sport [DCMS] – and their impact on the preservation of Britain’s aviation heritage. While these departments were generally in favour of preservation, the Treasury kept a watchful eye on the financial aspects, often opposing initiatives which it regarded as involving unnecessary spending. The Treasury’s guidelines on the disposal of government assets also influenced the availability of surplus aircraft for the volunteer-run museums which began to increase in numbers from the mid-1970s.

This chapter analyses attitudes within the Treasury, and the role of the departments most closely involved in heritage: the Standing Commission on Museums and Galleries, and its successors. Using files held in the National Archives and the MOD’s Air Historical Branch, it examines the previously unexplored ways in which the Air Ministry and later the Ministry of Defence have identified aircraft for preservation, managed the RAF’s collection, and dealt with the disposal of redundant

aircraft. It concludes that there are no indications of a clear overarching policy, although a relatively recent change has made it easier for volunteer-run museums to receive newly retired aircraft. Similarly, while the Admiralty handled its own aircraft sales, no records have been found that might throw light on its policy regarding aircraft preservation. The Science Museum and Imperial War Museum were restricted in their collecting, partly by a lack of space in which to store and display aircraft, but also by the IWM's remit which was perceived to be limited to the First World War; later aircraft had to be ignored until 1945. This perception is overturned by a letter – discovered during research for this chapter - from 1927, in which the Treasury Solicitor advised that the IWM would be able to acquire material from later conflicts. The argument is made that within the RAF a rather *laissez-faire* attitude prevailed, although the selection of aircraft during the Second World War was made with a view to promoting the RAF's victory in the Battle of Britain and thus its important role in the defence of the United Kingdom, both during and after the war. The allocation of obsolete aircraft for display at RAF stations had advantages, but the closure of units as the RAF contracted in size created a surplus which in turn became a liability.

Overview

For over a hundred years, Britain has played a leading role in aviation, both in developing the technology and in using aircraft for military purposes. The rapid development of aviation and the use of aircraft in warfare created difficulties for those responsible for preserving evidence of this work: a new aircraft might become outdated in less than a decade. As will be set out in Chapter 7, repeated calls in the 1930s, 1950s and 1980s for a national aviation museum have failed to achieve their

aim, one fundamental reason being the way in which aviation has already been catered for by two existing museums with well-defined - but different - aims. The Science Museum views flight as a technology, while the Imperial War Museum and (later) the museums of the three flying Services deal with aircraft as weapons of war, using them to focus discussion on human stories associated with their use.

Before the First World War, the Government had little involvement in aviation, although an Act to control flying (on safety grounds) was passed in 1911 and the Royal Flying Corps (with Military and Naval Wings) was formed in 1912.¹ Flight was very much in its infancy and the Science Museum had begun collecting material in the late 19th century, such as a model of Hiram Maxim's unsuccessful steam-powered aircraft, together with some components, and prints of the Henson Aerial Steam Carriage. The Museum's Inventory Numbers allocated to these items indicate that both were catalogued in 1896.²

In contrast to the Science Museum's view of aircraft as technological artefacts, the Imperial War Museum collected aircraft to illustrate the use of that new technology in warfare. In 1917 the President of the Air Board, Lord Rothermere, had directed that 'a specimen should be preserved of each type of fighting aeroplane which has been... used in this war'. The collection would be 'part of the National War Museum' which was later renamed the Imperial War Museum.³ Nearly 80 aircraft were

¹ TNA CAB 38/23/7, Report of a Sub-Committee of the Committee of Imperial Defence on the Control of Aircraft, 6 February 1913, paragraphs 7 & 8

² Science Museum, *Aeronautics: heavier-than-air aircraft. A brief outline of the history and development of mechanical flight with reference to the National Aeronautical Collection*, by Maurice Davy (London: HMSO, 1949).

³ TNA AIR 2/132/D22707, Letter from the Air Board to the Committee of the National War Museum, 19 December 1917.

selected, of which about half were eventually delivered and stored at the Agricultural Hall in Islington. None of those aircraft entered the IWM's collection, and their fate is unclear. The IWM has not been able to trace records relating to the collection, but such a large collection could not have been accommodated in any of the buildings occupied by the IWM between 1920 and 1939. Aircraft and other exhibits were selected by the IWM direct from the three services; a total of nine aircraft were acquired in 1920 and placed in store (along with other items for the IWM) in the Science Museum, but only four were retained.⁴

Tom Scheinfeldt describes how the two museums 'were uneasy bedfellows' between 1924 and 1935, when much of the IWM was housed in the Science Museum's Western Galleries; the aeronautical material was housed in the Museum's basement. He suggests that the cramped accommodation offered to the IWM 'forced it to divest itself of its aeronautical collections, which the Science Museum happily received in exchange for its own sectioned firearms collection' but this probably relates to the large collection of engines, aircraft instruments and other relatively small objects gathered for the IWM, rather than aircraft.⁵ In 1924 the Air Ministry sought views on a suggestion from the Science Museum that forming 'a closer relation' between the aeronautical section of the IWM and that of the Science Museum would be beneficial, or whether it should continue as a separate 'war collection'.⁶ Respondents commented that 'fusion of the two collections is the only practical method of showing the "milestones" of Aeronautical progress as a whole', and that the two collections

⁴ TNA AIR 2/510 Enclosure 30A; The nine aircraft are listed in Appendix H

⁵ Tom Scheinfeldt, 'The First Years: The Science Museum at War and Peace', in *Science for the Nation*, ed. by Peter J T Morris (Basingstoke: Palgrave Macmillan, 2010), pp. 43-46

⁶ TNA AIR 2/2538, 'The Aeronautical Section of the Imperial War Museum' and covering letter, 8 February 1924

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could be exhibited together, with labels identifying the IWM objects.⁷ The Air Ministry agreed with the latter suggestion, but pointed out that it viewed the IWM collection as a memorial, which should not be subservient to ‘the useful purpose of scientific or educational advancement... however the arguments in favour of exhibiting the two collections together are strong.’⁸ Chapter 7 will describe how during the 1930s the RAF started to develop aspirations for its own museum, and the Air Ministry – responsible for both the RAF and civil aviation – considered whether the museum should include both Military and Civil Aviation. Deliberations were cut short by the looming war, with rearmament taking precedence over history.

The Second World War brought a more organised approach to collecting aircraft for preservation. The Air Ministry noted the decision made in 1931 ‘for the preservation and storage of such suitable material as was available’ for the proposed RAF Museum, but proposed only to ‘meet the requirements of the Imperial War Museum, Science Museum, Royal United Services Museum and the Scottish National Naval, Military and Air Services Museum.’⁹ The Ministry recognised that storing relics and trophies could be difficult but proposed to preserve specimens of special interest such as components from the first enemy aircraft brought down on British soil. The Science Museum would be provided with ‘exhibits which record the progress of aviation both civil and military’.¹⁰ The Air Ministry Librarian, J C Nerney, was given the task of collecting documents and artefacts as historical records of the war; he became the Head of the Air Historical Branch [AHB] when it was re-formed in 1941.

⁷ TNA AIR 2/2538, Letters from Wing Commander R F Barton, 18 February 1924, and Colonel R Donaldson Hudson, 10 February 1924

⁸ TNA AIR 2/2538, Letter to the Director of the Science Museum, 11 March 1924

⁹ TNA AIR 2/10183, ‘Collection and preservation of material for historical and museum purposes’, 26 March 1940, paragraph 4

¹⁰ Paragraphs 8, 9 & 12

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The Ministry of Aircraft Production [MAP], responsible not just for overseeing production but also for some areas of research and development, had issued instructions in 1942 regarding the retention of records for use in writing official histories of the ministry's work.¹¹ There was no mention of aircraft, but in 1945 the AHB approached the MAP asking for the Gloster E.28/39 – Britain's first jet-powered aircraft – to be transferred to its custody for 'preservation with the Royal Air Force museum collection'. This was agreed, and the MAP suggested a joint meeting of the Ministry of Education, Air Ministry, Admiralty and the Ministry of Aviation 'to set up a comprehensive museum.'¹²

The IWM's ability to collect aircraft was limited, both by its focus on the First World War and by a lack of space. Although the Treasury Solicitor had pointed out in 1927 that the Imperial War Museum Act 1920 contained 'no express restriction' on the collecting of material from later conflicts, the museum seems not to have followed this up, perhaps because the IWM was perceived primarily as a memorial to those who had fallen in the Great War.¹³ Noble Frankland, Director of the IWM from 1960 to 1982, described his predecessor L R Bradley as seeing the museum 'through the eye of its original beholders...they had believed that the Great War must be the war that ended war.'¹⁴ Collecting later material would have put further pressure on the IWM's limited storage space – the IWM was located in the Imperial Institute's Western Galleries until moving to Lambeth in 1935. Bradley, who had joined the museum in 1917 and became Director in 1937, empathised 'almost wholly with the

¹¹ TNA AVIA 34/3, Office Memorandum 66A/42, 'Preservation of historical records', 21 April 1942

¹² AVIA 34/3 Enclosure 5A, Note on collection and preservation of material for historical and museum purposes, 10 March 1945

¹³ TNA T227/442, G Stuart King, Treasury Solicitor, to the Secretary, IWM, 23 December 1927

¹⁴ Frankland, *History at War*, p164.

First World War’... To him, the Second World War was a nuisance which deposited masses of material in the Museum, squeezing its already restricted space and disrupting such order as its exhibitions had earlier had.’¹⁵ Following the outbreak of war in 1939 the Treasury agreed that the IWM’s scope should be extended, on the basis that ‘no increase in staff or premises was contemplated’, doubtless to ensure that funds were not diverted away from the war effort.¹⁶ A similar caveat was imposed when the Treasury agreed to extend the IWM’s remit again in 1953.¹⁷

The Treasury

The Treasury has overall responsibility for managing government spending, and major projects must gain its blessing. The decision noted above - to make the IWM cover the Second World War with no extra resources - is understandable, as funds were needed for the war effort. As will be described in Chapter 7, the Treasury was unsympathetic to Peter Masefield’s call for a National Aeronautical Collection or Museum in the late 1950s. It was seen by one official as ‘a very extravagant proposal for what will, in effect, be the duplication of the existing functions of parts of the [IWM] and Science Museum’ although that paper takes a relatively dispassionate view, reviewing the financial implications. These included the transfer of exhibits from the RAF and the provision of accommodation; the exhibits would probably be obsolete and have no financial value, but the large spaces required to house aircraft could be very costly.¹⁸ The Science Museum was represented on Masefield’s

¹⁵ Frankland, pp 163-164.

¹⁶ TNA AIR 2/10185, Standing Commission on Museums and Galleries, Report of the sub-committee on the allocation of relics of the present war, 14 August 1941, p.2

¹⁷ TNA T 227/442 Enclosure 23, J G Owen, Treasury to The Trustees of the IWM, 24 March 1953

¹⁸ TNA T 218/57, Mr Wolfe to Mr Herbecq and Mr Bligh, 2 October 1958

committee, and by mid-1959 the Science Museum was planning its new aeronautical gallery, which opened in 1963.¹⁹

A key figure in the Treasury's dealings with aeronautical museums was K E (later Sir Kenneth) Couzens, who had opposed the expansion of the IWM and admitted to colleagues in 1958 that he had 'a very strong feeling that we have enough museums already and that we do well to look after the ones we already have rather than start new ones.'²⁰ He pointed out that most of the national museums and galleries were started by large private donations, but expressed his opinion that such support was unlikely to be received 'unless one regards as benefaction gifts by aeroplane manufacturers of old aeroplanes which they have been rather too shamefaced to scrap hitherto...'.²¹ This rather misses the point (perhaps deliberately) that a major collection of aircraft was already in the hands of the RAF and the RAeS had the Nash Collection of early aircraft. Couzens was in a rather influential position in the Treasury: he was private secretary to the Financial Secretary from 1952 to 1955, and private secretary to the Chief Secretary from 1962 to 1965. In his view, a National Aeronautical Museum was unlikely to be a centre for aeronautical research, and the museum 'would be very like the IWM in having no significant learned side, though it would no doubt have more amusement value for small boys.'²² When Noble Frankland took over as Director of the IWM he did much to develop its research facilities.²³ While Couzens saw a risk that a new aviation museum would involve the

¹⁹ NAL F pamph 16, Science Museum, *Provision of New Gallery and Plans for Reorganisation of the National Aeronautical Collection*, (London: Science Museum, August 1959)

²⁰ 'Sir Kenneth Couzens', *The Times*, 12 August, 2004, p.32

TNA T 227/442, Note by Couzens, 7 February 1957

TNA T 218/57, Couzens to Mr Griffiths, 4 November 1958

²¹ TNA T 218/57, Couzens to Mr Griffiths, 4 November 1958

²² TNA 218/57, Couzens to Mr Griffiths, 4 November 1958

²³ Frankland, p.170

Treasury 'funding duplication' he seemed to accept that the Science Museum and the National Maritime Museum could both cover the same subject. Couzens suggested 'playing this one long' – apparently delaying any decision, or even an expression of support for the idea - until the proposal had been studied further.²⁴ This seems to have had the effect the Treasury desired: the Air Ministry let Masefield's Royal Aeronautical Society take the lead by compiling a list of historic aircraft.²⁵ However, the Air Ministry developed its own plan for a permanent exhibition (perhaps deliberately not referred to as a 'museum') in its new building in Whitehall. Once again, the Treasury was not impressed, pointing out that space in the building was expensive and office space should not be used for a permanent exhibition.²⁶

There is a precedent for the Treasury's attitude: in 1951 the War Office had sought approval for the creation of a National Army Museum at Sandhurst.²⁷ The Treasury's view was that they wanted 'to avoid the setting up of a permanent Army Museum at Chelsea and should try to do as little as possible at Sandhurst.... If we go high and handsome about an Army museum, we shall find the RAF wanting something done for them.' As with the National Aeronautical Museum, the Treasury intended to 'play this slow'.²⁸ The Financial Secretary wrote a strong letter to the Parliamentary Under-Secretary at the War Office, reminding him that there were 17 national museums, galleries and libraries, all seeking extra funding, and challenging the War Office

²⁴ TNA T 218/57, Couzens to Mr Griffiths, 4 November 1958

²⁵ TNA T 218/57, Airey Neave (Parliamentary Under Secretary of State, Air Ministry) to J E S Simon (Financial Secretary), 19 February 1959

²⁶ TNA T 218/57, Neave to Simon, 27 August 1959 and reply, 15 September 1959

²⁷ TNA T 225/1105, War Office to W G Angle, 6 October 1951

²⁸ TNA T 225/1105, [Initialled 'AS'?] to Mr Serpell, 29 August 1957

claims regarding the appeal of an Army museum beyond 'Army people'.²⁹ In 1953 the Treasury considered the IWM's request to extend its remit to cover all campaigns in which British forces have been engaged since August 1914 – a reaction to the Korean War and fighting in Malaya. It was suggested that 'by drastic retrenchments at the [IWM] and [Commonwealth] Institute, we might squeeze both white elephants into the Lambeth building, making it a Commonwealth War and Peace Museum and saving, say, £25,000.'³⁰ Other options included:

- a) 'limiting the scope to the two World Wars,
- b) closing the IWM,
- c) reducing it in size and
- d) being prepared to see it go on expanding indefinitely.'

This might require the Standing Commission to be involved; the author 'did not expect to get the answers b and c.'³¹ Writing in 1957 Couzens declared that the IWM's trustees were wedded to a policy of expansion and that 'there is obviously a case for a Public Committee to review the functions of the [IWM].' He warned that 'unless the terms of reference were carefully drawn and the personnel suitably chosen there might be a risk of expansionist recommendations.'³²

As the Treasury had feared, the RAF *did* want something: in 1962 the Deputy Under-Secretary wrote to the Treasury explaining that the Air Council had agreed the case for an RAF Museum.³³ The initial reaction was that it was 'a shrewd move on the Air Ministry's part for it makes it a little more difficult to reject out of hand.'³⁴

²⁹ TNA T 225/1105, Simon to Hugh Fraser MP, 1 September 1959

³⁰ TNA T 227/442, Miss Boys to Mrs Rossiter, 16 February 1953

³¹ TNA T 227/442 Mrs P M Rossiter to Mr Owen, 18 February 1953

³² TNA T 224/442, Note by K E Couzens, 7 February 1957

³³ TNA T 225/2799, Sir Henry Smith to Sir Burke Trend, 17 September 1962.

³⁴ TNA T 225/2799, R C Griffiths to Mr Peck and Mr Hunt, 20 September 1962

Characteristically, the Treasury monitored closely the progress of the plans for the RAF Museum, noting with concern the rising costs involved. A paper discussing whether the museum should have trustees concluded

The advantage will be that the Trustees will deal with various matters of management which Government Departments are not well equipped to deal with, and if anything goes wrong you can blame the Trustees and disclaim responsibility. The disadvantage is that you will have created a pressure group of empire builders.

A footnote by Couzens exclaims ‘But how nice it would be not to have an RAF Museum at all!’ [underlined in text]³⁵ Eventually the Treasury gave the go-ahead for the project, having been assured that no request for a contribution to the capital costs would be made.³⁶

In the broader context of aircraft preservation, the Treasury seems to have had only indirect influence, in terms of setting policy and limits for the disposal of assets such as aircraft. However, its insistence on maximising the income from the sale of redundant aircraft made it more difficult for volunteer-run museums to compete with companies and wealthy individuals when aircraft became available, particularly as the smaller fleets of military aircraft increased competition and thus raised prices.

Department for Digital, Culture, Media, and Sport and predecessors

The Standing Commission on Museums and Galleries was responsible for allocating what might be termed ‘war memorabilia’ to museums and galleries at the end of the

³⁵ TNA T 225/2799, Mary Loughnane to Mr Couzens and Mr Barraclough, 23 April 1964; footnote 24 April

³⁶ TNA T 225/3338, John Diamond (Chief Secretary) to Gerald W Reynolds (Minister of Defence for Administration), 25 May 1967

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Second World War.³⁷ The report of its sub-committee explained that the Air Ministry had ‘very definite views about the disposal of RAF relics’ and wanted any allocations to be on indefinite loan, to be recalled ‘if a Royal Air Force Aeronautical Museum were set up in the future.’³⁸ Subsequently the Commission evidently had little involvement in transport museums, a sector which seems to have developed from the 1950s: its file on transport museums deals only with the closure of the British Transport Museum [BTM] at Clapham and the creation of the National Railway Museum.³⁹ The BTM had been set up by the British Transport Commission, which controlled most forms of transport in the UK, with the exception of aviation. In November 1978, however, the Standing Commission convened a meeting to discuss whether there was a need to coordinate aviation museums and rationalise the collecting policies of national and departmental museums interested in aviation. Those attending included representatives from the Science Museum, IWM, Fleet Air Arm Museum, RAF Museum, Royal Scottish Museum, the MOD and the Department of Education and Science (Arts & Libraries).⁴⁰

The Commission’s Chairman explained that they were not proposing a single national museum, which would be impracticable and undesirable. He described the financial problems involved as ‘formidable’ and the difficulties incurred in transferring ownership of aircraft from one museum to another as ‘daunting’. It was agreed that a new census of historic aircraft should be compiled – the meeting seems to have been unaware of Masefield’s original listing, although by 1978 it was somewhat out

³⁷ RAF Museum (henceforth RAFM), T804647, Air Ministry Order A.360/40, ‘Collection and Preservation of Material for Historical and Museum Purposes’, 6 June 1940

³⁸ TNA AIR 2/10185, Report of the sub-committee on the allocation of relics of the present war, 14 August 1941, p.1

³⁹ TNA EB 3/33

⁴⁰ TNA EB 5/41, Commission Document (78/34), Calling notice for the meeting.

of date – and that national and departmental museums should discuss acquisitions informally to avoid competitive bidding. The meeting also recommended that an aviation museum should be established in the North of England, since most of the museums represented were based in London or the Southwest. The possibility of extending export control measures to include historic aircraft was also to be investigated. Finally, the Directors of the five museums were invited to meet again to review progress on the census and discuss any other relevant issues.⁴¹ The main meeting was to reconvene some six months later (in mid-1979) but no trace of this meeting has been found.

The Standing Commission was succeeded in 1981 by the Museums and Galleries Commission, which was itself succeeded by the Museums, Libraries and Archives Council in 2000. Funding for these bodies came originally via the Office of Arts and Libraries, then the Department of National Heritage, and from 1997 from DCMS. DCMS's influence on aircraft preservation has been largely through the distribution of National Lottery funding. As is described in Chapter 2, museums and preservation groups have benefitted from grants made for projects such as new hangars, the acquisition of new exhibits and improved interpretation through new displays. The Lottery also funded the National Aviation Heritage Skills Initiative, run jointly by the IWM and the British Aviation Preservation Council, with the aim of raising standards in aircraft restoration work.⁴²

⁴¹ TNA EB 5/41, Commission Document (78/44), Record of a meeting on Aviation Museums, 30 November 1978.

⁴² *National Aviation Heritage Skills Initiative* [online] Available from <<<https://web.archive.org/web/20100729190951/http://www.nahsi.org.uk/>>> Accessed 11 May 2021

In 2020 the All-Party Parliamentary Group on General Aviation wrote to the Secretary of State for Digital, Culture, Media, and Sport, arguing for the establishment of a national register of historic aircraft – analogous to the registers already in existence for historic ships and railway heritage – with a secretariat to help support the owners of historically important aircraft.⁴³ The Minister replied that the Government recognises the importance of aviation heritage within the cultural landscape, but DCMS's budget was committed to supporting museums and heritage during the pandemic. There were no plans to take the action recommended by the APPG. She pointed out that AHUK is regarded as a Specialist Subject Network and is thus able to bid for funds from the Arts Council England.⁴⁴

Air Ministry, Ministry of Defence and the Royal Air Force: Building and managing the RAF's aircraft collection

As mentioned earlier, none of the aircraft gathered in 1918 for the National (later Imperial) War Museum have survived. In late 1918 an exhibition of captured German aircraft and related equipment was held at the Agricultural Hall in Islington, and the Air Ministry offered 'to the public schools who send in the greatest number of essays of equal merit as a result of a visit to the exhibition, a complete German aeroplane as a permanent memento'.⁴⁵ The exhibition closed in January 1919 after more than 200,000 people had visited, and the Ministry decided to transfer the exhibition to sites in the north of England, combining it with an exhibition on the work of the RAF.

⁴³ All-Party Parliamentary Group on General Aviation, *APPG calls for 'national secretariat' to protect historic aircraft* [online], 17 July 2020, Available from <<https://generalaviationappg.uk/appg-calls-for-national-secretariat-to-protect-historic-aircraft/>> Accessed 30 July 2020

⁴⁴ Letter from Caroline Dinenage, Minister of State for Digital and Culture, to Lord Davies of Gower, Co-Chair of the APPG on General Aviation, 24 February 2021; Access provided by AHUK, with the agreement of Lord Davies

⁴⁵ Harry Woodman, 'Captured Enemy Aircraft Exhibition of 1918', *Cross and Cockade*, 2 (1971), p.81

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The aim of these exhibitions seems to have been partly to celebrate the air services' part in victory, and partly to publicise the newly-formed RAF. While recruiting might appear unnecessary at a time when thousands of men and women were awaiting demobilisation, the RAF was laying the foundations of a permanent service which would need men to follow on from those who had already served. The first exhibition, in Newcastle upon Tyne, ran from 12 February to 1 April, moving to Leeds where it ran from 31 May to 15 July. The exhibition's broader remit included British aircraft, including two (a Royal Aircraft Factory RE 8 and a Sopwith Triplane) which were eventually acquired by the IWM, although the Triplane was eventually returned to the RAF.⁴⁶

From the early 1930s the Air Ministry was considering the creation of an Air Services Museum, which would cover both military and civil aviation; this issue is addressed in depth in Chapter 7. RAF units were required to provide lists of potential exhibits, but funding was not available to create the museum. The outbreak of war in 1939 created a need for a policy on collecting historical material and led to the issue of Air Ministry Order A.360/40, reminding units of the need to preserve historical records and setting out how 'museum material' would be collected and handled.⁴⁷ Whilst it gave only a broad indication of the type of material intended for museums, a draft letter – probably intended for circulation to units – from the AHB gave examples of relics 'for which museums have asked' including 'portions of historic aircraft and of notable captured aircraft [and] portions of aeroplanes associated with prominent

⁴⁶ Mick Davis, 'The RAF's First Airshow', *Cross and Cockade International*, 42 (2011), p.250
TNA AIR 2/510, Enclosure 30, List of IWM exhibits held at the Science Museum

⁴⁷ TNA AIR 2/10188 Enclosure 8A, Notes of a meeting held... to consider the collection and assembly of Historical Material for Museum purposes, 2 February 1940
RAF Museum, T804647, Air Ministry Order A.360/40, 'Collection and Preservation of Material for Historical and Museum Purposes', 6 June 1940

airmen'.⁴⁸ The specification of 'portions' of aircraft might be an acknowledgement that the IWM and other museums would not have space for complete aircraft, but could also relate to enemy aircraft that had been shot down. All material would be stored and, at the end of the war, would be allocated to museums by the Standing Commission on Museums and Galleries.⁴⁹

Only two years after the Battle of Britain, the RAF had realised that its victory would become strategically important in Whitehall and across the nation at large. Air Marshal Sir Richard Peck argued for the preservation of two German fighters, writing,

We shall need in the long and difficult years of penury after the war every resource we can devise for keeping the Battle of Britain, and through it the necessity for maintaining an adequate air defence, constantly before the British public and the British taxpayer.⁵⁰

Tony Pratley credits Peck – whom he identified as the RAF's head of public relations – with instigating the annual Battle of Britain celebrations held in September. As will be shown later, they would help to stimulate an interest in preserving historic aircraft.⁵¹ The list of aircraft selected by the RAF for preservation shows a strong bias towards the Battle of Britain. Six Spitfires, two Hurricanes (which bore the brunt of the Battle) and one Defiant (a type which fared badly in the Battle) were earmarked for preservation. As early as August 1940 – the height of the Battle – the

⁴⁸ TNA AIR 2/10183 Enclosure 32.

⁴⁹ RAFM T804647, Air Ministry Order A.360/40, paragraph 6.

⁵⁰ TNA AIR 2/10184, Minute 79, Peck (Assistant Chief of the Air Staff (General) to ACAS(Training), 17 August 1942.

⁵¹ Tony Pratley, 'The Supermarine Spitfire: Palimpsest, Performance, and Myth' (University of Kent, 2017), pp 142, 143 & 147

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AHB was seeking the allocation of two captured German aircraft (Messerschmitt 109 and 110) although their use in evaluation and training took priority.⁵² By November 1944 two Handley Page Hampdens, a Messerschmitt 109 and a Fiat C.R. 42 had been added.⁵³ At the end of the war Headquarters Bomber Command recommended the retention of Avro Lancaster R5868, and RAF Tempsford suggested one of its Westland Lysanders.⁵⁴ In addition to these RAF aircraft 'for future use as museum exhibits in museums in this country and the Dominions' a number of German and Italian aircraft were also being held in store.⁵⁵

The choice of aircraft is interesting: there is a predominance of fighters over bombers, and while the Hurricane, Spitfire and Defiant are closely associated with the Battle of Britain, there are no later fighter aircraft such as the Typhoon, and no maritime patrol aircraft, despite the RAF's key role in protecting convoys. Bombers were initially only represented by the Hampden and Armstrong Whitworth Whitley - the main types in service with Bomber Command at the start of the war - with the Hampden being identified as the type which carried out the first bombing operation of the war.⁵⁶ Attempts were made to preserve a Whitley, but it seems that most of them had been "reduced to produce" (scrapped) by 1945.⁵⁷ Only one of the three heavy bomber types – the Lancaster, specifically R5868 – was allocated for preservation. AHB agreed that it should 'prove of great value to any future RAF Museum'.⁵⁸ It was one of several Lancasters that had completed over 100 missions, but so had at least

⁵² TNA AIR 2/10184, Minute 31, 5 August 1940

⁵³ TNA AIR 2/10185 Enclosure 81A, Note by Flt Lt D G Jeffery, AHB, 30 November 1944.

⁵⁴ AIR 2/10185 Enclosure 202A, Postagram from HQ Bomber Command to Air Ministry, 14 July 1945 Enclosure 205A, Letter from Wg Cdr L F Ratcliff to AHB, 1 August 1945

⁵⁵ TNA AIR 2/10187 Enclosure 51A, Postagram from AHB to HQ No. 41 Group, 6 November 1945.

⁵⁶ TNA AIR 2/10182, Enclosure 79, Loose Minute from AHB to Air Ministry (OA 4), 4 April 1944

⁵⁷ TNA AIR 2/10187 Enclosure 38A, Loose Minute from DDO(A), 17 October 1945.

⁵⁸ TNA AIR 2/10185 Enclosure 202A, Postagram from HQ Bomber Command to Air Ministry DDO(A), 14 July 1945; Enclosure 207A, Postagram from AHB 4 to DDO(A), 30 July 1945

one Handley Page Halifax (named *Friday the 13th*) which was displayed in Oxford Street at the end of the war and then scrapped. The Short Stirling, less successful in the bomber role, was still in service as a transport, while the Halifax and Lancaster continued to serve until 1953. Given the large fleets of these aircraft it is possible that a decision to preserve was put off until it had proved too late, but such large aircraft represented a valuable source of aluminium which would be needed for the nation's rebuilding programmes, and this presumably took priority. All three heavy bomber types were much larger than the fighters and thus more difficult to house. Moreover, the bombing campaign has proved controversial; Churchill's VE Day speech made virtually no mention of the role played by Bomber Command, but it is unlikely that the RAF would entirely disown a campaign that contributed so much to victory.⁵⁹

By February 1946 the list of aircraft earmarked for the collection had grown to 19, which had been dismantled and stored in packing cases, plus the Lancaster.⁶⁰ One of the Hampdens had been sent to Australia and a Spitfire to Chicago, although the list also included a Sopwith Camel (actually the Sopwith Triplane originally intended for the IWM) which had been found in store at RAF Kemble, and seven captured German and Italian aircraft. The IWM received a Spitfire that had fought in the Battle of Britain, but no other aircraft from the Second World War – probably due to a lack of space in which to display or store exhibits, since the building had been damaged by German bombs. The collection of captured German and Japanese aircraft grew

⁵⁹ Henry Probert, *Bomber Harris. His Life and Times* (London: Greenhill Books, 2006), p.344

⁶⁰ TNA AIR 2/10187 Enclosure 123A, HQ Maintenance Command, 'Storage of Historical Aircraft', 1 February 1946.
Enclosure 92, Letter from AHB to Wg Cdr F A Pumphrey, RAF Kemble, 3 January 1946

once these types had been evaluated, and by 1962 AHB controlled 43 aircraft.⁶¹ Both Hampdens were eventually scrapped, by the RAF in 1955 and by the RAAF in 1954.⁶² The Science Museum received a Spitfire and Hurricane in 1954; while it can be argued that these aircraft represented the state of the art in fighter design in the late 1930s, the museum's Advisory Council reported that they would be displayed as 'examples of the machines with which the Battle of Britain was won in 1940.'⁶³ They gave the RAF a presence (in addition to the IWM) in a central London venue visited by thousands of people each year, who would be reminded of the RAF's key role in the defence of the UK. Campion feels that from 1965 the Battle of Britain began to lose its 'enchanted place in British popular memory' as the State retreated from commemoration and the private and third sectors took the initiative in 'establishing museums, heritage sites, monuments and statues.'⁶⁴ He notes the formation of the Battle of Britain Memorial Flight but makes no mention of other historic aircraft.⁶⁵ Tony Pratley argues that the RAF has exploited its airworthy Spitfires and Hurricanes as part of a 'Battle of Britain myth' and non-flying examples also serve – like HMS *Victory* – as tangible reminders of a great triumph.⁶⁶

An Air Ministry working party had concluded in 1957 that historic aircraft should be dispersed around the RAF, on the basis that storage at numerous locations would be easier to find than a large space to hold all the aircraft, and that necessary maintenance work would be undertaken by personnel at each station rather than

⁶¹ TNA AIR 20/12397 Enclosure 4 Appendix B 'List of aircraft controlled by the Air Historical Branch' See Appendix I

⁶² Harry Moyle, *The Hampden File* (Tonbridge: Air-Britain Historians, 1998), p.204

⁶³ Science Museum, *Report for 1954*, p.21

⁶⁴ Campion, *The Battle of Britain in the Modern Age*, Chapter 1, unpaginated ebook.

⁶⁵ Garry. Campion, *The Battle of Britain, 1945-1965: The Air Ministry and the Few* (Basingstoke: Palgrave Macmillan, 2015).

⁶⁶ Pratley, *The Supermarine Spitfire: Palimpsest, Performance, and Myth*

having to allocate (and fund) tradesmen specifically for the historic aircraft collection.⁶⁷ The Air Council concurred; the aircraft in the RAF's collection were to be dispersed to museums, RAF stations and other bodies; if a National Aeronautical Museum were eventually to be established, the aircraft would be recalled.⁶⁸ In 1962 the new Head of AHB commented that Air Ministry Order A360/40, which had authorised his predecessor 'to select for preservation such items as he considers to be of historical interest or of value for museum purposes', was 'couched in such general terms that it seems to give us sufficient authority to acquire almost anything.'⁶⁹ AHB therefore continued to build up its collection of RAF aircraft, although there is no evidence regarding the rationale for collecting specific aircraft. A few were aircraft that had gained the World Air Speed Record, or won races, while others were experimental aircraft that might be thought more relevant to the Science Museum, but there is no indication that they were being held on behalf of that museum. By 1972 the decision to disperse aircraft had been partly reversed, with the formation of four Regional Collections, at Colerne, Cosford, Finningley, and St Athan; located in Wiltshire, the West Midlands, Yorkshire and Wales respectively.⁷⁰ These collections would be open to visitors from time to time and thus offered access to the RAF's collection to a wider section of the population than could have travelled to a single site.

⁶⁷ TNA AIR 6/115, Air Council Memorandum AC(57)68; AHB HA 14 File DofSPol/66/7 Part A, Report by the 1972 Working Party on the Preservation of Historic Aircraft, paragraph 2

⁶⁸ TNA T 218/57, Letter from Airey Neave (Parliamentary Under Secretary of State, Air Ministry) to J E S Simon (Financial Secretary to the Treasury) 29 August 1959

⁶⁹ TNA AIR 20/12397 Enclosure 4, Note from L A Jackets to S4, 5 November 1962

⁷⁰ AHB HA 14 File DofSPol/66/7 Part A, Report by the 1972 Working Party on the Preservation of Historic Aircraft, Annex C

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After the opening of the RAF Museum in 1972, the increase in the number of historic aircraft controlled by the RAF to 173 led to a further Working Party being tasked to conduct a study and advise on future policy. In its report, the Working Party recommended dividing the collection into three classes:

1. Historic aircraft allotted on indefinite loan to the RAF Museum.
2. Those reserved for possible display by the Museum; where possible, these would be held in the Regional Collections.
3. Historic aircraft of lesser importance located at RAF units.⁷¹

This proposal was accepted, along with the formation of a Historic Aircraft Committee to consider problems and future policy.

By the mid-1980s defence cuts had led to the closure of several RAF stations holding historic aircraft, including the closure of Colerne; the Finningley collection had been dispersed (and some aircraft scrapped) partly in preparation for the 1977 Queen's Silver Jubilee Review of the RAF which was held there. Another Working Party was convened in 1987 and noted that the total number of historic and non-flying display aircraft had risen to 318, many of these being displayed as "gate guardians" at the entrance to RAF stations.⁷² This reflects the long-established tradition of military units displaying items relating to their history, such as an artillery piece, tank or ship's figurehead. It is not just a military practice: Mark Lambert, in his study of railway preservation, points out that the pre-1948 railway companies

⁷¹ 1972 Working Party Report, paragraph 5

⁷² AHB HA 14 File DofSPol/66/7 Part B, The Preservation of Historic and Non-Flying Display Aircraft: Report by the 1987 Working Party, Annex H

displayed old locomotives and rolling stock at their stations and in other public places.⁷³ A letter from Headquarters Support Command had argued in 1977 that the retention of gate guardians is wholly justified. This view holds good in respect of both flying and non-flying stations and also for civilian manned as well as service manned stations and units... There are strong emotional undercurrents supporting retention... the aircraft present a meaningful image of the Royal Air Force to the general public.⁷⁴

A further review was prompted partly by pressure on the RAF's budgets and personnel numbers, but also by a changed relationship with the RAF Museum. Chapter 7 discusses how the Museum, previously a part of the MOD, was devolved in 1984 to become a Non-Departmental Public Body. Expansion of the museum through the creation of two semi-independent museums had led to the Trustees incurring a significant debt; they sought financial help from the Treasury and the MOD carried out a management review of the Museum, which concluded that there was no likelihood of the Museum being able to add further display space in the foreseeable future. This meant that many of the aircraft earmarked for the Museum could not be accommodated.⁷⁵ By 1987, however, the British climate was taking its toll and the condition of many of these aircraft – especially Spitfires - was causing concern among the public.⁷⁶ The report recommended that:

⁷³ Mark Lambert, 'Ordering Expended Mobility: The Designation and Display of British Railway Heritage 1948-Present' (Unpublished doctoral thesis, University of Nottingham, 2017), p.96

⁷⁴ TNA AIR 2/19022 Enclosure 4, Letter from HQ Support Command to Ministry of Defence, DDO(RAF), 25 June 1974

⁷⁵ 1987 Working Party Report, p.2

⁷⁶ 1987 Working Party Report, p.3

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1. Only one example of each aircraft type that had made a major contribution to RAF history would be preserved, and that the RAF Museum must show that it could display or store the aircraft within its existing resources.
2. The Regional Collection at St Athan should be closed, and its aircraft amalgamated with the collection at Cosford.
3. Enemy aircraft that had played a part in the history of the RAF should be retained.
4. Aircraft that would become surplus through the rationalisation of the Regional Collections should, in order of priority, be sold, loaned to other museums, used as gate guardians, or where no alternative existed, be scrapped.
5. Stations would only be allowed one aircraft as their gate guardian.
6. Hurricanes and Spitfires, once refurbished, should never again be displayed in the open. Stations which had such aircraft would be encouraged to raise funds locally for a suitable building, or for fibreglass replicas.
7. A case would be prepared for the Treasury, to permit the sale of some historic aircraft to fund the buildings and/or replicas.⁷⁷

Although the report was accepted by the Air Force Board, the recommendation that sale should be the first priority for the disposal of surplus aircraft was found to be in conflict with existing MOD policy, although this is not clear.⁷⁸ It seems that loans to other museums took precedence.⁷⁹ The principle of retaining only one example of each type seems not to have been applied to Spitfires and Hurricanes – another

⁷⁷ 1987 Working Party report, pp 15-17

⁷⁸ AHB HA 14 File DofSPol/66/7 Part C, Enclosure 31, Gp Capt G R James to AUS(SO)(Air), 6 May 1988

⁷⁹ AHB HA 14 DofSPol/66/7 Part C, Enclosure 66, ACM Sir David Craig to MRAF Sir John Grandy, 29 June 1988

example of the special regard in which the RAF held these aircraft. An arrangement was made whereby three Spitfires would be exchanged for 10 Spitfire and two Hurricane glass-fibre replicas, for use as gate guardians.⁸⁰ The three Spitfires were subsequently restored to airworthy condition by their new owners. A small number of Spitfires, formerly gate guardians, were transferred to the RAF Museum to be used in exchanges for aircraft the museum hoped to acquire in future. Aircraft of a more recent vintage continue to be displayed by RAF stations. Instructions for their maintenance were issued in 1992 but the British climate continues to cause deterioration: the Handley Page Victor gate guardian at Marham, for example, had to be scrapped in 2020 due to its condition.⁸¹

The 1987 review made difficult decisions, particularly in setting out what aircraft would be kept, with only one example of each (although this has sometimes been 'honoured more in the breach than the observance') and it tackled the embarrassing problem of much-loved Spitfires and Hurricanes deteriorating in public view.

Air Ministry/MOD policy on disposals

For many volunteer-run museums, the main source of aircraft has been those retired by the flying services and made available as part of the Ministry's disposal programme. This section deals only with the RAF's fleet of aircraft, and it is possible that the Royal Navy and Army's aircraft disposal policies operated in different ways.

⁸⁰ AHB HA 14, DofSPol/66/7 Part C, Enclosure 46, Gp Capt G R James to the Air Member for Supply and Organisation, 6 June 1988

⁸¹ RAFM X003-5993, Air Publication 101A-1601-0, *Non-flying Display Aircraft: RAF Historic Aircraft Collection. Maintenance Schedule*, September 1992
RAF Marham, *The Disposal of the Victor Gate Guardian* [online], 12 February 2021, Available from <https://www.raf.mod.uk/our-organisation/stations/raf-marham/news/the-disposal-of-the-victor-gate-guardian/>, Accessed 25 October 2022

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Documents giving specific policy on aircraft disposals have proved elusive and were perhaps not widely circulated within the RAF and MOD, so information has had to be gleaned from several files held by the AHB, which have not previously been available to historians. An undated document, evidently written in 1970 or 1971 explains that

The ultimate disposal of aircraft takes many forms, including sales. Should the aircraft not be required for sale or for use in training establishments as [ground] instructional airframes, then spares common to other types of aircraft and, wherever necessary, special-to-type items are recovered, and the remaining airframe is used for fire fighting training or sold as scrap.⁸²

A letter in the same file states that since RAF aircraft 'are public property, we have a duty to ensure that the taxpayer receives good value for money when disposing of them.'⁸³

For many years after the war the RAF mounted a flypast in September to commemorate the Battle of Britain; it was usually led by a Spitfire and Hurricane until 1959.⁸⁴ In 1961 the Air Member for Supply and Organisation wrote to RAF Commands:

Since the war and particularly since the decision to withdraw the Spitfire from the annual Battle of Britain Fly-Past was publicised, members of the public and the authorities connected with museums and collections have displayed an increasing interest in measures which are being taken to preserve those

⁸² AHB HA 2, Draft Loose Minute to S9 (Air), undated

⁸³ AHB HA 2, Enclosure 28, Letter from F6t1(Air) to the Southampton Hall of Aviation, 14 December 1987

⁸⁴ 'Their Final Flights. Last of Wartime Aircraft', *The Times*, 76 (1959), p.6.

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Spitfires still in existence. We regularly receive enquiries from all kinds of people ranging from ex-RAF personnel to representatives of Institutions with international reputations, all of whom are anxious that the few remaining aircraft should not be allowed to disappear on the scrap heap.⁸⁵

In 1961 Peter Thomas wrote to the Air Ministry seeking aircraft for a proposed museum, and this led to discussion within the ministry regarding the rules for the disposal of aircraft. In essence, military aircraft could only be sold for scrap, an undertaking being obtained to that effect. This policy may have been influenced by an incident in 1948, when four Bristol Beaufighters, ostensibly sold to a film company, were flown to Israel and took part in its War of Independence.⁸⁶ After both the Air Ministry and Admiralty had reviewed their policy on aircraft disposal, a White Paper on the export of military equipment was eventually published in 1956, making it clear that the Government aimed 'to prevent an arms race in the Middle East'.⁸⁷ Aircraft with no war role – such as trainers or transport aircraft - could be offered for sale, perhaps to flying clubs or airlines. Invitations to tender for non-warlike aircraft would be sent to enquirers such as Mr Thomas. It was suggested that allowing Mr Thomas to bid for military aircraft might create administrative difficulties which could make it impossible for him to tender in the normal way and therefore it might 'be preferable for an offer to be made of specific aircraft and a price quoted which [the

⁸⁵ TNA AIR 2/15852, W H Merton to Air Officer Commanding-in-Chief, Technical Training Command, 29 November 1961 – the same letter was sent to all Commands in the UK

⁸⁶ Lon Nordeen, *Fighters over Israel* (London: Guild Publishing, 1991), pp 17-18
John F Hamlin, *Bristol Beaufighter: The Full Story*, ed. by Geoffrey Negus (Tonbridge: Air-Britain Historians, 2022), pp 130-131

⁸⁷ TNA ADM 1/27078 'Procedure for the disposal of aircraft and engines by the Admiralty and Air Ministry', 18 May 1952

TNA AIR 20/8746, Air Member for Supply and Organisation to Secretary of State, 21 February 1956 Cmnd. 9676, *Export of Surplus War Material. Presented to Parliament by the Secretary of State for Foreign Affairs and the Minister of Defence*. (London: HMSO, 1956).

Ministry] would be prepared to accept.⁸⁸ This latter method seems to have been the case in the early 1970s. John Berkeley recalled telephoning Department F6(t) in Harrogate; his contact there would take advice, possibly from local scrap merchants, to determine a price.⁸⁹ This process seems in effect to be a sale by private treaty. In March 1976 F6 responded to an enquiry regarding the gifting of a Meteor to a business park, stating that they could not 'conclude a private treaty sale as there is enough interest to make competitive tender essential.'⁹⁰ Gifting – presenting an aircraft free of charge – was tightly controlled. By 1985 the MOD had a delegated authority for the disposal of assets worth up to £100,000 but each case would have to be approved at Deputy Under-Secretary level. Assets valued above that limit, and potentially contentious cases, would need the Treasury's approval. Aircraft could only be gifted to Exchequer-funded museums in the UK. All other UK museums and aircraft preservation groups would have to pay the market price, established in competition.⁹¹

In the late 1960s the RAF had large fleets of aircraft such as Vampires, Canberras and Meteors, and the plentiful supply of redundant aircraft arguably kept prices low, but as the RAF reduced in size the relatively small numbers of aircraft available would have brought more competition and thus higher bids. Such bids did not only come from museums and preservation groups: the Folland Gnat was particularly desirable for wealthy individuals who aimed to fly the aircraft, whilst its association with the Red Arrows aerobatic team also made it an attractive addition to museums. It was suggested in 1985 that former Red Arrows Gnats with little or no flying

⁸⁸ TNA AIR 2/15954, Enclosure 1A, Loose Minute S8 to S4, 24 March 1964

⁸⁹ Interview with John Berkeley, 7 July 2001

⁹⁰ TNA AIR 2/19022, Enclosure 136, Loose Minute from R T Kenworthy to S4c, 2 March 1976.

⁹¹ AHB HA 5 DDO(RAF)/7/3, F6(Air)2 to Sec (AS) 2a, 23 August 1985

potential should be earmarked for loan to the RAF Museum, and potential sale to the Smithsonian Institution, Manchester Air and Space Museum, and the Royal Scottish Museum. Disposal of other Red Arrows Gnats should be on a case-by-case basis, not only to secure the best price... but also to ensure that the aircraft will be displayed in a suitably dignified fashion... To avoid a glut which could depress the price, it might be sensible to restrict the flow of the main body of Gnats to the market when they become available for disposal.⁹²

By 1989 the Ministry was considering replacing competitive tenders with auctions.⁹³ Using established auction houses would have relieved the MOD of the administrative burden involved in sending out invitations to tender, arranging viewing of the aircraft, processing the bids received and ensuring that the buyers collected their acquisitions, but it was also hoped that this process would result in higher prices.⁹⁴ Auctions eventually did replace the competitive tender process; the auction of ten aircraft in 1989 brought in £93,713, but the creation of the Defence Equipment Sales Authority [DESA] later brought aircraft disposals back under direct MOD control.⁹⁵ Concern was raised among the aviation preservation community in 2011, when virtually the entire RAF and Royal Navy fleet of Harriers was sold *en bloc* to the US Marine Corps, who would use the aircraft as a source of spare parts for their own fleet.⁹⁶

⁹² AHB HA 11, File DofSPol (RAF)/66/3, Part B, Enclosure 61, Loose Minute from DDO(RAF) to AMSO, 25 July 1985

⁹³ AHB HA 14, File DofSPol(RAF)/66/7 Part D, Enclosure 89, F6(T)(Air) to SPol38a(RAF), 6 February 1989

⁹⁴ AHB HA 12 File DofSPol(RAF) 66/3 Part F, Enclosure 57, F6(Air) to AUS(SO), 26 April 1989

⁹⁵ Defence Equipment Sales Authority, *DESA Sales Brochure* [online], Available from <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1023378/DESA_Sales_Brochure_2021_-_NEW.pdf>, Accessed 5 August 2022

⁹⁶ Richard Norton-Taylor, 'Redundant Harrier jump-jets sold to US Marines for spares', *The Guardian*, 24 November 2011

In the light of such sales, Aviation Heritage UK and the All-Party Parliamentary Group on General Aviation lobbied the MOD. Allan Winn, Chair of AHUK, explained that volunteer-run museums have felt disadvantaged, but the situation is changing.

I think there are five Tornados being allocated to museums and they made the decision to allocate a Tornado to a museum in each of the four nations, which is something that had never been considered before. And that is a real step forward; there are still extremely strict criteria on allocating aircraft to museums, but they're being far more understanding than they used to be. However, deep within MOD, there is still embedded this thing that we must monetize anything we possibly can coming out of the services.

Winn suggested that the MOD 'does not see its role as carefully selling off material that people in museums might want; they would far rather bundle it all up and sell 300 tons of spares as a job lot to a scrap dealer.'⁹⁷ In a lecture to the Royal Aeronautical Society a member of the RAF's Heritage Branch gave a rather different view. Sales to foreign governments (as was the case with the Harrier fleet) are given the highest priority, followed by ground training.⁹⁸ He explained that the retirement of the Tornado from RAF service in 2019 brought great interest from museums, with 63 requests for aircraft being received – more than the number of aircraft available. The policy in place at the time was that the Tornado fleet should be scrapped, but anecdotal information indicates that a senior officer – a former Tornado pilot, newly posted into the relevant MOD department - changed the policy. The Heritage Branch

⁹⁷ Interview with Allan Winn, 28 June 2021

⁹⁸ Lecture to the Heathrow Branch of the Royal Aeronautical Society, 23 February 2023, Synopsis available from <<https://www.aerosociety.com/events-calendar/heathrow-branch-preserving-the-heritage-of-the-raf-the-work-of-the-raf-heritage-team/>>. Accessed 23 February 2023

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need to make a case for disposals to museums, showing that the benefit to defence outweighs the scrap value of an aircraft; each Tornado was valued at £25,000 and HQ Air Command has authority to approve disposals valued up to £50,000. They take into account a museum's security of tenure (ownership of, or a lease for their site is required) and how the existing collection is stored and displayed. The museum should be able to interpret the aircraft for its visitors, telling stories about the aircraft and its role in the RAF. Financial considerations include the annual number of visitors and whether a museum has a viable business plan, and there should be opportunities to engage with local communities and thus aid recruitment. This helps to raise the RAF's profile across the UK, especially in those areas that have little contact with Defence.

The South Yorkshire Aviation Museum succeeded in bidding for a Hawk under the new system, after checks confirmed that:

we look after what we've got... that we work in an ethical manner and that it's not sort of suddenly they're going to give us something and we're going to bang that on eBay or something silly like that, and we're not after the money... I have to say the process has been... a year, I suppose, and now we've just been told today that we are definitely getting it, just sort out which one and when.⁹⁹

The aircraft received by museums will still be relatively bare shells, often with engines and any equipment which might be required to keep similar aircraft flying having been removed. Issues also arise with material governed by the International Traffic in Arms Regulations. However, it seems that the new policy will help

⁹⁹ Interview with Alan Beattie, 5 July 2022

volunteer-run museums to preserve the more recent types of aircraft which are being retired from military service.

Discussions with staff at an American museum revealed a very different approach to the disposal of aircraft. The General Services Administration handles the disposal of redundant government-owned assets – from office equipment to ships and aircraft. The Pima Air and Space Museum qualifies as a charitable Not for Profit corporation and would be charged 1% of the original cost of an aircraft, with a maximum of \$1500. Aircraft acquired in this way must be kept by the museum for at least five years before being disposed of, and combat aircraft can only be disposed of by returning them to the government. This scheme, together with the USA's tax incentives for donations to non-profit organisations, means that museums can acquire aircraft much more easily than their British counterparts. Indeed, the Pima Air and Space Museum's collection includes a significant number of British military aircraft, bought from the contractors mentioned by Allan Winn with funding from wealthy donors.¹⁰⁰

Conclusions

The IWM and Science Museum were both suitable repositories for aircraft, but in the years immediately after the First World War they were both short of space. The IWM was seen by many as a place to commemorate the war dead, their sacrifice and achievements, while the Science Museum cultivated an ethos that celebrated the constructive uses of science and technology. A proposal to combine both museums'

¹⁰⁰ Discussion with Scott Marchand, Executive Director of the Pima Air & Space Museum, 2 September 2022; confirmed by email, 11 October 2022

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aeronautical collections failed: the Air Ministry, while accepting that there were arguments in favour of the merger, regarded the aeronautical collection as having been 'gathered together primarily as a memorial... they cannot but feel that some objection may be taken to an arrangement under which it is made to subserve the foreign though useful purpose of scientific or educational advancement.'¹⁰¹

During the Second World War the RAF focused on the Battle of Britain with carefully selected fighter aircraft, some of which were presented to museums in Australia and the USA; another was reportedly packed for despatch to Argentina, but there is no evidence of its subsequent fate. The RAF used its victory in the Battle as a key part of its strategy to ensure that it would be given sufficient resources to continue defending the country. Only one of the three heavy bombers – a Lancaster – was preserved, and that almost as an afterthought. It is tempting to suggest that the emphasis on fighters owed as much to their image as the saviours of Britain as it did to their relative size making them easier to store. Post-war, retired aircraft were used as 'gate guardians' at the entrance to RAF stations – sometimes on the initiative of station commanders, and later as official policy - although these aircraft suffered in the British climate until it was appreciated that Spitfire gate guardians – valuable both financially and in public relations terms - were becoming very shabby, and action was taken to replace them with replicas.

In the early post-war years, there seems to have been a culture of official apathy – verging on derision - towards aviation in the Treasury and Ministry of Works, with

¹⁰¹ TNA AIR 2/2538, Enclosure 57A, Letter from J A Webster [for the Air Council] to the Science Museum, 11 March, 1924

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officials implying that the relatively short history of aviation did not justify a museum. This view has probably mellowed somewhat with time. In particular, the attitude of Treasury officials seems hard to understand, going beyond a desire - or sense of duty - to curb expenditure.

Increasing interest in aviation history, together with growing numbers of aviation museums and demand for surplus aircraft seems to have caught the MOD by surprise: in 1989 the Ministry realised that it had no long-term policy on its relationships with National Museums. It had evidently focused on the RAF Museum and disregarded other institutions. As the RAF shrank in size – particularly after the Cold War – more aircraft became available, but volunteer-run museums were often unsuccessful in tendering or bidding at auction.

The 1987 study of the RAF's policy on historic aircraft was made necessary by changes in budgets and personnel establishments, prompting a realisation that it was no longer feasible to support so many aircraft. It can also be seen, however, as curbing the RAF Museum's plans – and its Director, John Tanner's, aspirations – to develop into a national aviation museum. Tanner retired at the end of 1987, with his dream of a national air museum unfulfilled.

The MOD is a major source of aircraft for museums, and the process of disposal has for many years been aimed at generating income, and museums were often outbid. This has changed slightly in recent years to enable Accredited museums to bid for aircraft, which are gifted, rather than loaned. The MOD's decision to loan aircraft to museums, evidently in force in the 1980s, seems to have been forgotten in recent

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years. A rather different process is used in the USA, where the disposal of government-owned equipment is less driven by the need to recoup costs.

The failure of proposals to create a national aviation museum is discussed in the next chapter. These failures, combined with the growth of volunteer-run museums, may have suggested a solution which has effectively delegated the preservation of some important aircraft types to volunteer-run organisations (such as the Duxford Aviation Society) or independent museums such as Brooklands. The call in 2020 for a national register echoes others made in the 1950s by Peter Masefield and the Royal Aeronautical Society, and since the 1970s by the BAPC – now Aviation Heritage UK. These registers have no formal status and attract no funding, although a museum can use them to support bids for Lottery support. DCMS has no plans to implement a national register and is apparently content for AHUK to act as a lead body for the sector.

Chapter 7 - Attempts to create a UK National Aviation Museum

Introduction

The United Kingdom has Government-funded museums of Science and Industry, Seafaring, Media, and Railways, but there is no National Aviation (or Aerospace) Museum. Attempts to create such a museum in the 1930s, 1950s and 1980s have not yet been examined by historians. This chapter discusses the roles of national museums and briefly describes the “National” sector of the UK museums community. Four case studies are presented, describing the origins of National Aviation Museums in France, the United States, Canada and Germany. Military aviation played a part in the creation of all these museums, but civil aviation is less well represented in Britain’s aviation museums; possible reasons for this are discussed.

Detailing – for the first time – the Royal Air Force’s attempts to set up an aviation museum in the 1930s, this chapter argues that it was part of a broader strategy to keep the RAF in the public eye. Other strands of this strategy are well known, but the intention to create a museum has not been previously recognised. The reasons for the RAF’s failure are identified. Voices from the aviation community called for a national aeronautical collection in the 1950s; the stimulus for this, the Royal Aeronautical Society’s response, and the Government’s reaction are discussed, and an argument is made that these schemes’ failure was primarily due to the economic climate of the time, together with Treasury officials’ rather hostile view of aviation. The RAF’s renewed call for a museum in the early 1960s led eventually to the founding of the RAF Museum; a detailed account is given of the Director’s expansion programme, aimed at creating a ‘museum of the air’ and his struggles with the

Ministry of Defence [MOD] and Office of Arts and Libraries [OAL]. Not only would the RAF have become overshadowed in a museum with wider scope, but financial issues again came into play. The elements required for such a major project to succeed are outlined. Finally, an argument is made for designating aircraft of national significance held in national and independent museums as part of a distributed national collection.

What is a National Museum?

The Museums and Galleries Commission [MGC] identified the following characteristics of National Museums:

- They have collections of national importance in terms of the United Kingdom or a part of the UK;
- They are vested in Trustees on the nation's behalf;
- They are wholly or mainly funded by the Government;
- The Government is able to call on their staff from time to time for such expert advice in their field as it may require.¹

The use of the word “national” in a museum title is not confined to those fulfilling the MGC criteria, and there seems to be no regulation of the term's use. In the UK the National Motor Museum, National Tramway Museum and the National Wool Museum (and others) have used this term, which arguably implies a certain status. The Arts Council's list of Accredited Museums includes 41 organisations with the word “National” in their title, and there are others which have not yet achieved Accredited

¹ Museums and Galleries Commission, *The National Museums* (London: HMSO, 1988) p.3

status.² Several of these are not government-funded, and in some cases “National” represents Scotland or Wales, rather than the United Kingdom. In this context it should be noted that the National Museum of Flight at East Fortune is part of National Museums Scotland – it does not imply that its remit is limited to Scottish involvement in aviation.³ Museums, libraries and archives whose collections are deemed to be of outstanding significance can apply to be recognised via Arts Council England’s Designation scheme.⁴

The MGC recognised 19 national museums in 1988, but today the National Museums Directors’ Council [NMDC] comprises ‘the Directors or Chief Executives of the UK’s national collections and major regional museums’ with 45 organisations represented.⁵ Some of these are funded by the Department for Digital, Culture, Media and Sport, while the Ministry of Defence funds the three Service Museums.⁶ National museums in Scotland, Wales and Northern Ireland are the responsibility of their respective Governments.⁷ Other organisations represented on the NMDC include regional museums services, university museums and major independent

² *List of Accredited museums in the UK, Channel Islands, and Isle of Man* [online]. Arts Council England, 6 April 2023, Available from <<https://www.artscouncil.org.uk/supporting-arts-museums-and-libraries/uk-museum-accreditation-scheme/about-accreditation#t-in-page-nav-4>> Accessed 9 May 2023

³ Interview with Ian Brown, Assistant Curator, 19 January 2021

⁴ *Designation Scheme* [online] Arts Council England, Available from <<https://www.artscouncil.org.uk/supporting-arts-museums-and-libraries/supporting-collections-and-cultural-property/designation>>, Accessed 9 May 2023

⁵ *Our members* [online] National Museum Directors’ Council, 2014 Available from: <<https://www.nationalmuseums.org.uk/members>> Accessed 11 October 2018

⁶ Departments, Agencies and Public Bodies, [online]. Available from: <<https://www.gov.uk/government/organisations>> Accessed 2 January 2019

⁷ *Annual report and accounts for the year ended 31 March 2017* [online]. National Museums Scotland, 2017, Available from <<https://www.nms.ac.uk/media/1155629/annual-report-and-accounts-2016-17.pdf>> Accessed 11 October 2018

Public Task Document [online], National Museum Wales Available from: <<https://museum.wales/freedom-of-information/public-task-document/>> Accessed 2 January 2019]. *Annual report and accounts 2016-2017* [online] National Museums Northern Ireland Available from: <<https://www.nmni.com/Corporate-information/Corporate-documents/Annual%20Reports/2016-17-NMNI-Annual-Report-and-Accounts.pdf>> Accessed 11 October 2018

museums. NMDC has evolved from a forum for the Directors of National Museums, to become a national forum for the directors of museums.⁸

National Museums play many roles. At the simplest level, they are 'Leisure Attractions' which individuals and families can visit for relaxation or informal learning. More formal learning is offered through organised visits (notably school parties), talks and lectures, and most National Museums have staff who undertake research based on their collections. These functions are also performed in other museums, at different levels, but National Museums have an important, less tangible role: through their exhibitions they display the nation's history and achievements, for visitors from both their own country (fuelling national pride) and overseas. David Rhees quotes a comment by the Secretary of the Smithsonian Institution in 1955, 'The airplane is in many respects the product of the genius of the American people.'⁹

Lending objects to overseas museums can also raise national prestige abroad.

Hermione Giffard describes how the British and German governments donated early jet engines to the Smithsonian Institution: the British engine was donated in 1949 to support the British claim that Frank Whittle invented the jet engine, but the (replica) jet engine donated by the Deutsches Museum in the 1970s was arguably intended to show that a German engine had been the first to fly, or at least to ensure that Hans von Ohain (by then living in the USA) had an equal right to be recognised.¹⁰ National

⁸ *About the NMDC*, [online] National Museums Directors' Council, Available from: <<https://www.nationalmuseums.org.uk/about/>>, Accessed 11 October 2018

⁹ David J. Rhees, 'Celebration or Education? The Goals of the U.S. National Air and Space Museum', in Brigitte Schroeder-Gudehus & Alex Roland, *Industrial society & its museums 1890-1990: social aspirations and cultural politics*, (Chur: Harwood Academic Publishers, 1993), p.82

Leonard Carmichael, *Smithsonian Annual Report*, (Washington DC: Smithsonian Institution, 1955) p.3

¹⁰ Hermione Giffard, 'The politics of donating technological artifacts: Techno-nationalism and the donations of the world's first jet engines', *History and Technology*, 30 (2014) pp.61-82

Museums' collections are not limited to artefacts produced in their own country.

Maurice Davy, the Science Museum's Curator of Aeronautics, wrote in 1944 that

an aeronautical museum must be international in scope, for science knows no boundaries and the ultimate effects of an invention go far beyond its place of origin. There are, however, national traditions in aeronautics — as exemplified by the accomplishments of distinguished research workers and designers, by the achievements of national air forces in war, and by the organisation of civil air services — which require and deserve special emphasis in the museums of their respective countries.¹¹

Outstanding aircraft and engines – such as the Concorde in the Smithsonian collection – earn their place, while some museums contrast “foreign” aircraft with indigenous designs that have a similar purpose. The most obvious example is that of captured enemy aircraft in the military sections of museums.

National Aviation Museums overseas: Case Studies

Only a few countries are known to have national aviation museums that meet the criteria set out earlier. This section examines the French Musée de l'Air et de l'Espace, the Smithsonian National Air and Space Museum (USA) and the Canada Aviation and Space Museum. In the 1930s Germany had a national aviation collection, based in Berlin, but many of the aircraft were destroyed during the Second World War, and aviation is now covered by museums of science and technology, such as the Deutsches Museum in Munich and the German Technology

¹¹ M J B Davy, 'The Aeronautical Museum: Its Function in Education and Culture', *Aircraft Engineering*, 16.(1944), p.290

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Museum in Berlin.¹² In South Korea, the national government opened a national aviation museum at Seoul in 2020, but few details are currently available.¹³

Argentina has its Museo Nacional de Aeronautica, but little information is available regarding its history.¹⁴ In Denmark the Danmarks Flymuseum is a commercial organisation. The status of *Aviodrome* in the Netherlands is unclear: it seems to be a charitable foundation, rather than one funded by the Government.¹⁵ Chile's Museo Nacional Aeronáutico y del Espacio is supported by the Ministries of Defence and Civil Aviation.

In France, aeroplanes had been displayed at the Conservatoire Nationale des Arts et Metiers in 1912.¹⁶ The Musée de l'Air has its origins an exhibition which opened in November 1921, under the control of the Service Technique de l'Aéronautique. The catalogue of the collection indicates that shortly after the Armistice in November 1918, Commandant Caquot obtained approval for the formation of a Conservatoire of Aeronautics. The collection included 22 aeroplanes, 72 aero-engines, large numbers of models, and other items - not limited to French material, but including

¹² Michael Hundertmark and Holger Steinle, *Phoenix aus der Asche. Die Deutsche Luftfahrt Sammlung Berlin*. (Berlin: Silberstreif, 1985)

Deutsches Technikmuseum, Aviation, [online] Available from <<https://technikmuseum.berlin/en/exhibitions/permanent-exhibition/aviation/>> Accessed 9 May 2023

¹³ Ko Jun-Tae, 'National Aviation Museum of Korea captures remarkable advances over the past 100 years', *Korea Herald* [online], 6 March 2021, Available from

<<https://technikmuseum.berlin/en/exhibitions/permanent-exhibition/aviation/>>

<<http://www.koreaherald.com/view.php?ud=20210303001048>>, Accessed 1 April 2021

¹⁴ Esteban Brea, 'Museo Nacional de Aeronáutica: Más de medio siglo de preservación' *Gaceta Aeronautica*, 13 March 2012, [online] Available from <<https://www.gacetaeronautica.com/gaceta/wp-101/?p=1009>> Accessed 1 February 2019

¹⁵ *About* [online] Danmarks Flymuseum, Available from: <http://flymuseum.dk/about> Accessed 9 May 2023

Rapport inzake jaarstukken 2017 [online], Stichting Collectie Aviodrome, Available from <<https://www.aviodrome.nl/wp-content/uploads/2018/07/stichting-collectie-aviodrome-2017.pdf>>

Accessed 1 February 2019]

¹⁶ 'Another Machine for French Museum', *Flight*, 4(1912), p.1208

objects from the German, Austro-Hungarian, British, Italian and American air arms.¹⁷

Jean-Paul Siffre points out that

although the creation of an aeronautical collection was the work of the Ministry of War, the project was not limited to a conservatory of military hardware. It was conceived within the framework of the major establishments concerned with scientific and educational heritage... [it is] a generalist museum whose domain encompasses the entire range of civilian and military aeronautical fields.¹⁸

The museum collection eventually outgrew the space available and much had to be kept in store until the new Charles de Gaulle airport, opened in 1974, reduced pressure on the older airport at Le Bourget, and the museum was able gradually to take over buildings there.

The Smithsonian Institution is responsible for 19 national museums and galleries covering a wide range of the United States' history; its interest in aeronautics dates back to 1861.¹⁹ Aircraft were originally displayed in the Smithsonian's Arts and Industries building, but in 1945 General "Hap" Arnold, the wartime head of the US Army Air Force, started to build a case for a National Air Museum, while assembling a collection of American, Allied and captured aircraft from the Second World War. The National Air Museum Act came into effect in August 1946; Arnold had envisaged a military aviation museum, but the emphasis shifted to include both civil and military

¹⁷ Service Technique de l'Aéronautique, *Les collections de l'Aéronautique*, (Paris: 1921), p.5

¹⁸ Jean-Paul Siffre, 'The Paris-Le Bourget Air and Space Museum: An Embarrassment of Riches', *Museum International*, 49. 3, (1997), pp.32-39

¹⁹ Tom D Crouch, 'Flight and the Smithsonian', in *Smithsonian National Air and Space Museum. An Autobiography*, ed. by Michael J Neufeld and Alex M Spencer (Washington DC: National Geographic, 2010), pp 20–26.

aviation.²⁰ Michael Neufeld suggests that Arnold was intending to use the museum to strengthen his case for an air force freed from army control.²¹ As will be shown later, the RAF had sought its own museum in the 1930s as part of its campaign to remain independent. Many of the aircraft collected by Arnold were transferred to a museum near Dayton, Ohio; it is now the National Museum of the United States Air Force.²² David DeVorkin and Neufeld cite a thesis by Joanne London, which argues that the Smithsonian resisted the idea of military museums on the National Mall in central Washington, and that the National Air and Space Museum [NASM] became ‘the most prominent surrogate for a military presence on the Mall’.²³ The museum adopted its current title in 1966, and NASM opened in a new building on the Mall on 1 July 1976 – one of the highlights of the United States’ bicentennial year.

It should be noted that some American museums use the word “National” in their title and are primarily funded by their government, but do not cover the whole realm of aviation or aerospace. Prime examples are the National Museum of the US Air Force and the National Naval Aviation Museum.²⁴ Others, such as the National Museum of World War II Aviation, seem to have adopted the word for the cachet it brings, with

²⁰ Dominick A Pisaro, ‘The long road to a new museum’ in controversy’ in Michael J Neufeld & Alex M Spencer, *National Air and Space Museum: An autobiography*, (Washington, DC: National Geographic, 2010), pp.182-246

²¹ Michael J. Neufeld, ‘The Smithsonian’s National Air and Space Museum and “The Romance of Technological Progress”’, *Journal of Educational Media, Memory, and Society*, 14 (2022), p.79

²² *Museum History*, [online], National Museum of the United States Air Force, Available from <<https://www.nationalmuseum.af.mil/Upcoming/Press-Room/Media-Kit/>>, Accessed 1 April 2021

²³ David H. DeVorkin and Michael J. Neufeld, ‘Space artifact or Nazi weapon? Displaying the Smithsonian’s V-2 missile, 1976–2011’, *Endeavour*, 35 (2011), p.187

Joanne M Gernstein London, *A modest show of arms: exhibiting the armed forces and the Smithsonian Institution, 1945–1976* (doctoral thesis, George Washington University, 2000)

²⁴ National Museum of the US Air Force, [online] Available from: <<https://www.nationalmuseum.af.mil/>> Accessed 16 October 2018

National Naval Aviation Museum [online]. Available from: <<http://www.navalaviationmuseum.org/>> Accessed 16 October 2018

little or no official endorsement.²⁵ Such apparent misuse of the word by British museums is noted earlier in this chapter.

Canada's National Aviation Museum has a somewhat convoluted history, which began with Canada's National Research Council [NRC] in the 1930s. John H Parkin was a member of the NRC's Associate Committee on Aeronautical Research [ACAR] who 'got the Committee interested in promoting an aviation museum and collecting artifacts for it before he joined the NRC, but certainly the Committee became more active in this field after his appointment.'²⁶ The first exhibits – aero-engines – were displayed at the NRC's headquarters in 1932 and the collection grew. An aluminium plaque was installed in the NRC's museum listing the members of the ACAR and the principal donors to "The Aeronautical Museum".²⁷ The outbreak of the Second World War brought the closure of the museum and its collections were put into store.

The Royal Canadian Air Force [RCAF] decided at the end of the war to preserve representative specimens of its aircraft, possibly following General Arnold's idea in the USA. There was little progress, however, with the ACAR museum, although a museum had been suggested at a conference in 1950 and discussed further the following year. A meeting of aviation organisations in Ottawa in September 1954, agreed that a national museum was required, to be located in Ottawa under the auspices of the NRC.²⁸ It first opened in 1960 in the terminal at Ottawa's Uplands

²⁵ National Museum of World War II Aviation [online]. Available from <<http://www.worldwariaviation.org/>> Accessed 16 October 2018

²⁶ K M Molson, *Canada's National Aviation Museum. Its history and collections*, (Ottawa: National Aviation Museum, 1988), p.17

²⁷ Molson, *Canada's National Aviation Museum*, p.20

²⁸ Molson, *Canada's National Aviation Museum*, pp 20-22

airport, displaying a collection of aircraft associated with “bush flying” (local transport flights between scattered communities, using small aircraft) and the country’s early aircraft manufacturers. In 1964 the RCAF base at Rockcliffe was due to close, and an RCAF officer proposed bringing together at Rockcliffe aircraft that had been stored in several locations. An agreement between the Department of National Defence [DND] and the Secretary of State Department (which oversaw the Canadian War Museum and the National Aviation Museum) united three aircraft collections at Rockcliffe. It is perhaps significant that, also in 1964, the Canadian government announced a reorganisation of its armed forces, to bring together its Army, Navy and Air Force into a unified organisation called the Canadian Forces.²⁹ Control of the RCAF’s historical collection was in effect taken away from it. Divorcing the RCAF from its tangible heritage in this way might have been done to help change the culture of the organisation, by making it focus less on its past and more on its future as part of the new unified force.

The new facility was formally opened in March 1965, and the term “National Aviation Collection” began to be used officially. In 1967 responsibility for the Collection was given to the director of the new National Museum of Science and Technology. There had been some opposition from the DND to the idea of mixing military and civil exhibits.³⁰ The title “National Aviation Museum” was re-adopted in 1982, remaining a subsidiary of the National Museum of Science and Technology – in the same way that the UK’s National Railway Museum is part of the Science Museum Group.

²⁹ *White Paper on Defence*, (Ottawa: Queen’s Printer, 1964) p.19 [online] Available from: <http://publications.gc.ca/collections/collection_2012/dn-nd/D3-6-1964-eng.pdf> Accessed 19 December 2018

Government of Canada, *National Defence Act 1985*, section 14 [online]. Available from <<https://laws-lois.justice.gc.ca/eng/acts/N-5/20030101/P1TT3xt3.html>> Accessed 19 December 2018

³⁰ Molson. *Canada’s National Aviation Museum*, pp 39-40

Canada's Museum Act 1990 set up the National Museum of Science and Technology Corporation, which in 2017 changed its name to "Ingenium – Canada's Museums of Science and Innovation".³¹

Germany's national aviation museum arguably had its origins in a row of cafés on the edge of the Johannisthal aerodrome south-east of Berlin. The airfield opened in 1909 and as flying progressed the cafés built up collections of photographs and relics. One café featured a "Schreckenskammer" – literally a chamber of horrors – featuring photographs of aircraft accidents, pieces of crashed aircraft and so on, arguably a modern cabinet of curiosities.³² The Reichspostmuseum opened a display of model airships and aeroplanes in 1910; postal museums have much in common with transport museums, and post or telecommunications museums make up around 20% of the members of the International Association of Transport and Communications Museums.³³

During the First World War aircraft were stored in sheds at Johannisthal, one that held captured aircraft being known as the 'Museum'. The City of Berlin Aviation Collection was opened in a temporary wooden building at the city's Tempelhof airport. The aim of founding a national museum was foiled by the Depression and

³¹ Ingenium, *Canada Aviation and Space Museum* [online]. Available from: <<https://ingeniumcanada.org/casm/about>> Accessed 16 October 2018
Government of Canada, *Museums Act*, 1990, [online]. Available from: <<https://laws-lois.justice.gc.ca/eng/acts/M-13.4/FullText.html>> Accessed 16 October 2018
Ingenium launched as a new national brand to preserve and share Canada's story of scientific and technological heritage [online]. 26 June 2017, Available from <<https://www.newswire.ca/news-releases/ingenium-launched-as-a-new-national-brand-to-preserve-and-share-canadas-story-of-scientific-and-technological-heritage-630896103.html>> Accessed 16 October 2018

³² Michael Hundertmark & Holger Steinle, *Phoenix aus der Asche. Die Deutsche Luftfahrt Sammlung Berlin*, (Berlin: Silberstreif, 1985) pp 30-31

³³ Hundertmark & Steinle, p. 32
Museums, [online]. International Association of Transport and Communications Museums, Available from: <<http://www.iatm.museum/museums/>> Accessed 19 November 2018

parts of the collection were displayed in other cities such as Düsseldorf and Munich. In 1928 the Minister of Transport and Berlin's Lord Mayor began planning a representative aviation museum in Berlin supported by ministries and universities. However, news that the government of the state of Württemberg was also planning a national air museum brought a reappraisal of the Berlin plan. The Zeppelin Museum in Friedrichshafen donated its collection as the basis of the new museum, as did the German Aviation Research Institute. The new museum opened in 1931 in Böblingen.³⁴

Plans for a larger building in Berlin were shelved. There was insufficient room at Tempelhof, and the collection was moved to two large buildings at Johannisthal. Georg Krupp had lobbied for some years for a Berlin air museum and had collected historic documents; he began building up the museum in a factory building at Johannisthal. Historic material was exhibited at the German Aviation Exhibition in October 1932, and Krupp's Luftfahrtmuseum opened on 15 November. Some 40 aircraft were displayed, but it closed after two years due to low visitor numbers and moved to a new site.³⁵ The Böblingen museum closed in 1935, and its collection was moved to Berlin, where the German Aviation Collection opened on 20 June 1936. It was believed to be the largest collection of its kind in the world.³⁶ Wolfhard Weber claims that the museum was 'aimed against the Allied prohibition on flying' - the Treaty of Versailles prevented Germany from maintaining an air force, but civil aviation was not mentioned, arguably because civil flying was in its infancy.³⁷

³⁴ Hundertmark & Steinle, p. 35

³⁵ Hundertmark & Steinle, p. 36

³⁶ Hundertmark & Steinle, p. 39

³⁷ Wolfhard Weber, 'The Political History of Museums of Technology in Germany Since the Nineteenth Century' in Brigitte Schroeder-Gudehus & Alex Roland, *Industrial society & its museums 1890-1990: social aspirations and cultural politics*, (Chur: Harwood Academic Publishers, 1993), p.16

In 1939 and 1940 the collection acquired captured examples of Czech, Polish, Russian and British aircraft. It was renamed the 'Museum of Aviation' in 1942 and the air ministry took over its management. The civil and military elements of the collection were to be split to create an 'Arsenal of the Air Force', but on the night of 23/24 November 1943 bombs damaged the building and destroyed most of the exhibits.³⁸ Nevertheless, more than 20 aircraft survive in the Polish Aviation Museum in Krakow.³⁹

Aviation in other National Museums

In the United Kingdom, and apparently in most other countries, aviation is represented in national museums with a wider remit, particularly military museums and museums of science and technology. For many years the Science Museum described its aviation collections as the "National Aeronautical Collection" and as was revealed in Chapter 2, discussions in 1924 might have led to the merger of the Science and Imperial War Museums' aviation collections.⁴⁰ Canada's National Aviation Museum is part of its science and technology museum. The Berlin Technical Museum and the Deutsches Museum in Munich include aircraft in their collections, but they are primarily science museums. Aviation is a comparatively young aspect of technology, which has developed greatly in little more than a hundred years, so in its

Treaty of Peace with Germany, Article 198. Available from <<https://www.loc.gov/law/help/us-treaties/bevans/m-ust000002-0043.pdf>> Accessed 29 April 2019

³⁸ Hundertmark & Steinle, p. 52

³⁹ Hundertmark & Steinle, pp 56-57

⁴⁰ Science Museum, *Aeronautics: heavier-than-air aircraft. A brief outline of the history and development of mechanical flight with reference to the National Aeronautical Collection*, by Maurice Davy (London: HMSO, 1949).

infancy aircraft and associated material would clearly have been of great interest to science museums.

Military museums have important functions in encouraging *esprit de corps* among members of the armed forces. Their collections are tangible reminders of achievements and traditions. Such museums also have a role in recruitment, and many have recently broadened this latter role to engage the general public, explaining the complex roles performed by land, sea and air forces, and aiming to gain the support of taxpayers. They can also act as a focus for commemoration. The Imperial War Museum was founded to commemorate the First World War; its remit has been broadened subsequently to embrace all wars in which British and Commonwealth forces (and civilians) have been involved, and it is arguably not a military museum but a museum of conflict. The physical expansion of the organisation, with sites in London, Manchester and at Duxford, brought a subtle change in name to the Imperial War Museums.

Civil aviation is not well represented in museums. Colin Divall and Andrew Scott comment that 'the Military-Imperial dimension of civilian air transport has always strongly marked the evolution of museums in this sector.'⁴¹ Transport - whether by land, sea or air – relies on science and technology, hence its strong representation in science museums; it has also had serious impacts on society. The National Railway and Maritime Museums tell many stories, including the use of railways and shipping for leisure and the movement of goods, but little attention has been paid to the use of

⁴¹ Colin Divall and Andrew Scott, *Making Histories in Museums: Making Histories in Transport Museums* (Leicester: Leicester University Press, 2001), p. 27.

aircraft for such purposes. In the early 2000s the RAF Museum developed a proposal for *Divided World – Connected World*, an exhibition which would explain both the story of air power in the Cold War and the story of commercial aviation, but this did not proceed.⁴² Airliners are larger than most military aircraft, and thus present problems in terms of storage space and preservation, particularly since aircraft deteriorate if stored outside in the British climate. The IWM's remit does not allow it to embrace civil aviation, but it has developed the Duxford site through partnership with a range of organisations – notably the Duxford Aviation Society, which owns the airliners displayed there - giving a broader collection with seamless boundaries not always appreciated by casual visitors.

The 1930s – the RAF seeks an Air Museum

The initial proposal for a national museum seems to have come from the Royal Air Force. In November 1931 the Air Council – comprising senior RAF officers and civil servants in the Air Ministry, together with the Secretary of State and Under-Secretary for Air – discussed a paper *The institution of an Aeronautical Museum*.⁴³ Its purpose was to ascertain 'what, if any, museums are practicable to preserve the material records of the development and history of the Air Services.' The phrase "material records" was meant mostly to denote equipment (such as aircraft) but also embraced 'all other such distinctive things as would appropriately form part of a national Air Service collection'. Until 1945 the Air Ministry was responsible for both military and civil aviation, and so "Air Service" would arguably include both. The paper noted that the IWM and Science Museum were already exhibiting aircraft and added that

⁴² RAFM KE 1/23, Royal Air Force Museum annual report, 2002-2003

⁴³ TNA AIR 6/22, Air Council Memorandum 552,

valuable records were held in private hands. The Royal United Services Institution [RUSI] had recently included aeronautical exhibits in its centenary exhibition, but this was felt to demonstrate the difficulty of finding adequate space for the air services in a “mixed” museum. The paper continues ‘for one thing, full-scale aircraft require disproportionate space, and... the very distinctive character of the Service requires a well-organised museum of its own, not conditioned by the exhibits of the other Services.’ Alys Cundy includes a plan of the IWM’s galleries at the Crystal Palace (see Figure 24): the space allocated to the Air Force is only about 20% of that allocated to the Army and Royal Navy. The IWM’s South Kensington site – in the Western Galleries of the Imperial Institute - was smaller and dominated by heavy weaponry.⁴⁴ When the IWM moved to its current Lambeth site in 1935-36 the area allocated to the Air Services was much less than that occupied by the Army and Naval displays.

⁴⁴ Alys Cundy, ‘Thresholds of Memory: Representing Function through Space and Object at the Imperial War Museum, London, 1918–2014’, *Museum History Journal*, 8 (2015) pp 255-261

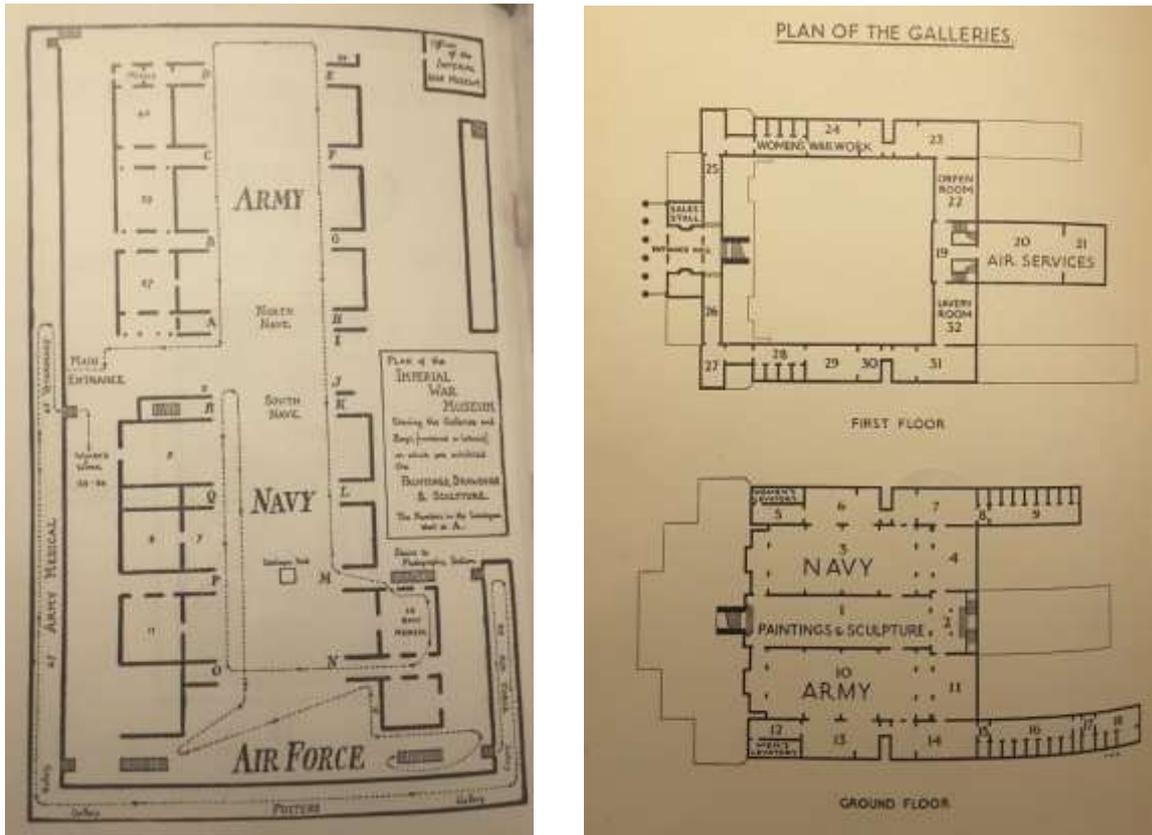


Figure 24: IWM galleries (left) in the Crystal Palace, 1920; (Right) Lambeth, 1938⁴⁵

Although this desire for a dedicated museum might seem simply a question of corporate vanity, it probably has a much deeper root. For most of its life the RAF has faced calls from the Army and Navy for it to be disbanded and its resources allocated to the services from which it was formed. Sophy Gardner has detailed the way in which the RAF, as the junior service, fought to establish its national identity in the 1920s and 1930s. This was particularly important as much of the RAF's work was overseas in areas such as Iraq, Transjordan and the Northwest Frontier, and it was felt necessary to keep the RAF in the public eye. She details various ways in which this was achieved, including air displays at Hendon, and the Schneider Trophy

⁴⁵ Imperial War Museum, *Catalogue of Paintings, Drawings and Sculpture* (London: Imperial War Museum, 1920)
Imperial War Museum, *A Short Guide to the Imperial War Museum* (London: HMSO, 1938)

aces, in which the RAF flew the British aircraft.⁴⁶ Whilst this campaign is a generally recognised aspect of RAF history, the proposed creation of an Air Service Museum has been overlooked as a further stage in the campaign waged by Marshal of the Royal Air Force Sir Hugh Trenchard and Sir Samuel Hoare to maintain the RAF as an independent force.

Trenchard was Chief of the Air Staff – the titular head of the service – from January to April 1918 and from March 1919 to January 1930. He is widely regarded as the “Father of the RAF”. Hoare had been Secretary of State for Air from October 1922 to January 1924, and from November 1924 to June 1929. It seems likely that Trenchard or Hoare could have set in train the process which led to the submission of Air Council Memorandum 552.

The memorandum acknowledged that the ideal – a full scale Air Services Institution or Museum - was clearly impracticable in the current circumstances: the Depression had left the UK struggling for funds. It set out temporary measures, including a survey of historical records held by various institutions and by RAF stations, and some space might be available ‘at certain Air Force Stations where items could be temporarily stored.’ The document closed with general questions:

- Should the scheme include both the Fighting Service and Civil Aviation? It acknowledged the argument that the latter could be covered by the Science Museum, but there were ‘arguments both ways’.

⁴⁶ Sophy Gardner, ‘The prophet’s interpreter: Sir Samuel Hoare, Hugh Trenchard and their campaign for influence’, *Air Power Review*, 21 (2018), pp 48-72
Sophy Gardner, *The early years of the RAF: a cautionary tale of history in the making*, RAF Museum Trenchard Lecture, 15 February 2018]. Podcast available from:
<<https://www.aerosociety.com/news/audio-the-early-years-of-the-raf-a-cautionary-tale-of-history-in-the-making-raf-museum-trenchard-lectures/>>, Accessed 5 November 2018

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- What should be the relation of the scheme to the IWM, which covered only the First World War period? Some war period material would be appropriate for the Air Ministry scheme.
- How should the scheme relate to other Service museums?

It also noted that 'the ultimate scheme would presumably be "Imperial" as well as "British"' which suggests that it would include the air forces founded in Australia, Canada, India and New Zealand in the 1920s and 1930s. The Air Council approved in principle 'the institution of an aeronautical museum as an ultimate ideal to be aimed at in the future' and to store suitable exhibits at RAF Cardington.

Some four years later the Council discussed *The Museum Interests of the Air Ministry*.⁴⁷ It reported on the IWM's planned move to Lambeth and noted that only three aircraft could be accommodated in its Air section, with one more in each of the Naval and Army sections. Four more aircraft would revert to RAF ownership 'for the Air Services Museum' and it was suggested that a system be set up to earmark specimens of aircraft and engines as they pass out of service. The paper pointed out that the Army and Navy's representation on the IWM's board of trustees overshadowed that of the RAF, and gave brief comments on the Science Museum, RUSI and the 'Civil Aviation Collection' of 'models of historical and current interest' gathered by Major Villiers. The paper concluded that the Science Museum and RUSI were 'already collecting items for which an Air Services Museum, if it existed, would have first claim' and reported that the former was reversing its policy of reducing the more specialised aviation exhibits to a minimum. It was seeking to take over a large

⁴⁷ TNA AIR 2/2470, Enclosure 4A, Air Staff Memorandum 570, 'The museum interests of the Air Ministry', 4 March 1935

part of the collection that it had stored on behalf of the IWM. The Scottish National Naval and Military Museum, being formed at Edinburgh, had Air Council recognition, and would receive 'duplicates of any item which can properly be spared.'

The Air Council agreed that there was no possibility of obtaining a suitable building for the museum, and it would seek the appointment of a retired RAF officer on the IWM's board of trustees. The general aim of the Museum should be a compromise between the broader interests of the general public and the Flying Services, and the specialised interests of service technique. No public announcement regarding a museum would be made. Material currently held in stores depots would be retained, and the selection of material for preservation would continue.⁴⁸ The Air Ministry wrote to the IWM, Science Museum, RUSI and the Scottish National Naval & Military Museum, stating that the Council's ultimate ideal was 'the creation of a separate Air Services Museum [but] action... must be limited to such measures as are possible to preserve and store exhibits which might be of value if and when [such a museum] becomes an immediately practicable aim.'⁴⁹

Once again, the time was not right to create a museum. The rise of Hitler and German rearmament had brought a change in defence policy, and in 1934 the first of several RAF Expansion Schemes had been announced. Building up numbers of aircraft, personnel and the associated infrastructure was obviously a much higher priority, and very expensive. The Air Estimates for 1935 sought a total of £20.65 million – later increased to £25.99 million – an increase of nearly 48% on the £17.56

⁴⁸ TNA AIR 2/2470, Extract from the Air Council Minutes, 154th Meeting

⁴⁹ TNA AIR 2/2470, Enclosures 7A, 7B, 9A & 9B, 9 March 1936

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million requested for 1934.⁵⁰ The Air Services Museum project had, once again, to go on the back burner.

As described in Chapter 6, during the Second World War the Air Historical Branch [AHB] collected material of historic interest, primarily documents (for use in writing official histories and then for preservation in the Public Record Office) and artefacts (including aircraft) which would be offered to the IWM and other museums.⁵¹ As with General Arnold's plan in the USA, the end of the war prompted efforts to record the contribution of aviation to victory. When the AHB asked for the first British jet-powered aircraft – the Gloster E.28/39 – to be transferred from the Ministry of Aircraft Production, an MAP official asked:

Does the Minister intend that we should enter into competition with the Air Ministry in setting up museums? Should we not try to persuade all users of aircraft – RAF, Fleet Air Arm and Civil Aviation – to collaborate in setting up a comprehensive museum?⁵²

In 1945 control of civil flying was moved from the Air Ministry to the new Ministry of Civil Aviation [MCA], leaving the former in charge of military flying – although the Admiralty and War Office also represented the air interests of the Royal Navy and Army. The MAP suggested a meeting between the Air Ministry, Admiralty, MCA, and the Ministry of Education, which was responsible for the IWM and Science Museum. It was felt that the War Office might not warrant inclusion as the Army's involvement

⁵⁰ *Statement on the Air Estimates for 1935*, (London: HMSO, 1935) p.3
Supplementary Estimate, Air Services 1935, (London: HMSO, 1935) p.9

⁵¹ RAFM T804647, Air Ministry Order A.360/40, 6 June 1940

⁵² TNA AVIA 15/3832, Minute 1, 9 March 1945

in aviation during the war had been relatively small.⁵³ The Head of AHB, J C Nerney, was deputed to act for both his ministry and the MAP. It was noted that the Admiralty were making their own collection of material, which would include the Fleet Air Arm.⁵⁴ A letter sent to aircraft manufacturers in April 1945 asked for details of 'potential museum pieces which will probably be housed in... the IWM, the Science Museum or some central Aeronautical Museum.'⁵⁵ The Royal Aeronautical Society was approached by the engine designer Roy Fedden, who suggested 'a permanent aeronautical exhibition' that would enable aircraft engineers and designers to study developments made during the war by British and other countries' engineers. Fedden admitted that his paper was 'badly worded' but it also seems to be rather optimistic with regard to the resources required.⁵⁶ The Society of British Aircraft Constructors felt that it would not be 'practical to organise such an exhibition' citing the expense and the need for constant care and supervision to ensure that it was kept up to date.⁵⁷ Nevertheless, in 1947 Fedden wrote that he and two colleagues 'had a good scheme prepared, employing one of the wartime aerodromes, which I believe would have been of immense value to the coming generation of the Aircraft Industry and the R.A.F., and by correct planning and organisation could have been made mainly self-supporting.'⁵⁸

⁵³ AVIA 15/3832, Enclosure 2

⁵⁴ AVIA 15/3832, Enclosure 11

⁵⁵ AVIA 15/3832, Letter dated 18 April 1945

⁵⁶ NAL, Box 113, File 7, Letter from Fedden to Captain J Lawrence Pritchard, undated (received 31 January 1946) enclosing 'A post-war permanent aeronautical exhibition for aircraft engineers and designers'

⁵⁷ NAL, Box 113, File 7, Letter from H R Gillman, SBAC Secretary, 17 December 1945

⁵⁸ Roy Fedden, 'War Aircraft Museum', *Aeronautical Journal*, 51.442 (1947), 863.

With the country trying to recover from the physical and economic legacy of the war, an aviation museum – whether focused on the RAF, civil aviation, or both – was unlikely to receive much support.

The Royal Aeronautical Society takes the initiative

In 1949 a member of the RAeS lobbied the Society for ‘the formation of a British aeronautical archive’. The Secretary was generally supportive, while pointing out the resources that such a project would require.⁵⁹ In December 1953 an editorial in *The Aeroplane* called for improvements in the Science Museum’s aeronautics display, stating ‘it would be hard to find a much more dreary setting than that in which our museum of aviation finds itself in this fiftieth anniversary year’ and pointing out that the Aeronautical Collection was housed, not in the main museum building, but ‘in the so-called Western Galleries... in Imperial Institute Road.’⁶⁰

⁵⁹ NAL, Box 113, File 7, Correspondence between D S Griffin and Captain J L Pritchard, 5 March to 1 November 1949

⁶⁰ Thurstan James, ‘Wanted – a new home’, *The Aeroplane*, Volume 85 (1953) p.779

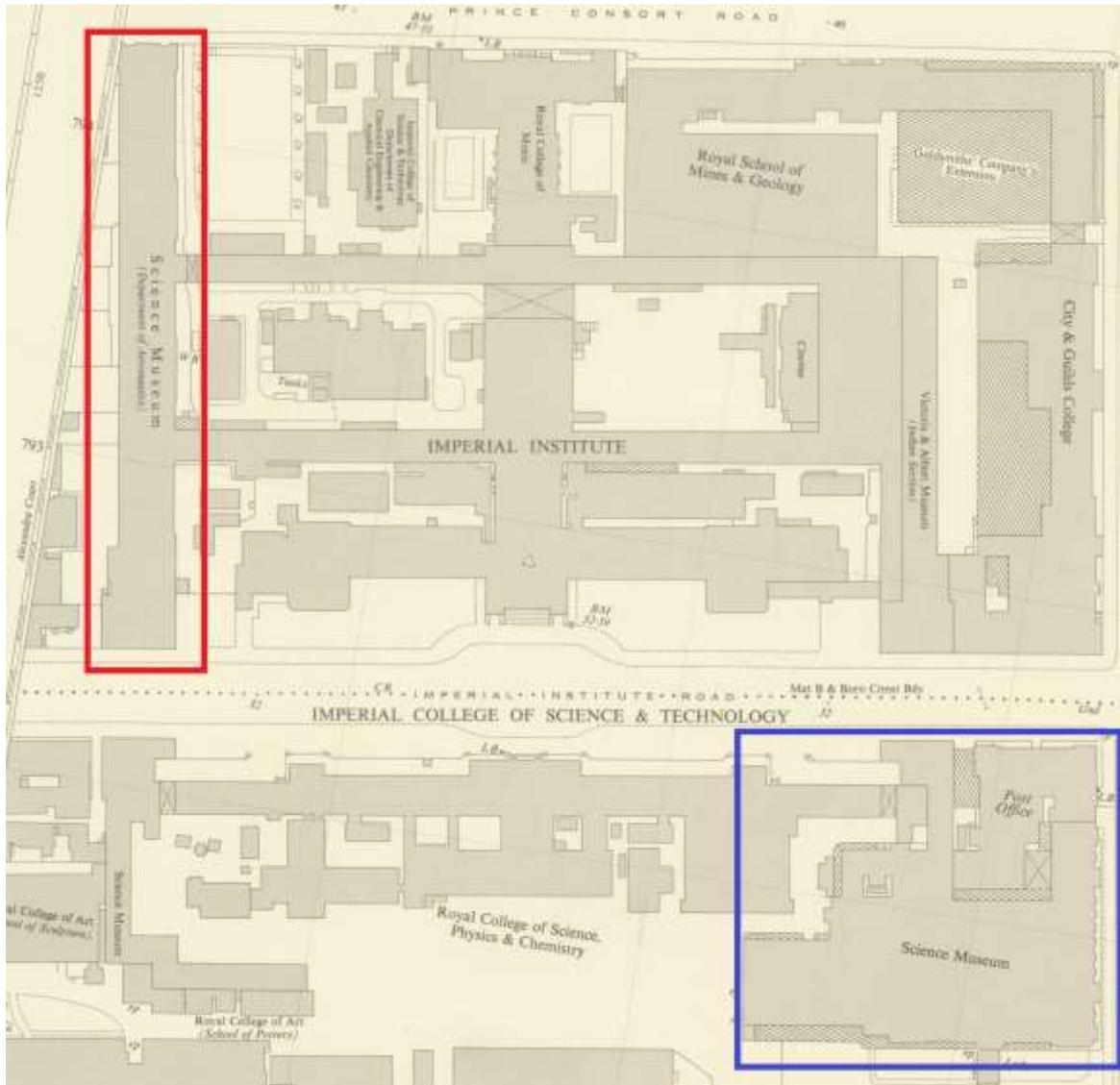


Figure 25: The Western Galleries (highlighted in red) were physically separate from the main Science Museum building (in blue). Ordnance Survey plan TQ 2679 SE, 1952, reproduced with the permission of the National Library of Scotland

A major, albeit unconnected, impetus had come when the RAeS announced that it had agreed to purchase the Nash Collection of historic aircraft. During 1953 Richard Nash had decided to dispose of his collection; in November he had received an offer 'from America' and fears were expressed that his aircraft might vanish overseas.⁶¹ Nash had presumably approached the Shuttleworth Trust, since Air Commodore

⁶¹ 'A home for veteran aircraft', *The Aeroplane*, 84 (1953) p.722
Christopher Clarkson, 'Keep them at home', *The Aeroplane*, 84 (1953), p.863
'Nash Collection for R.Ae.S.', *Flight*, Volume 65 (1954), p.58.
'A worthwhile acquisition', *The Aeroplane*, 86 (1954), p.89

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Allen Wheeler (a trustee) had written an article the previous November discussing the need for a national museum.⁶² Whilst almost half the article is devoted to the Trust's work, Wheeler emphasised the need for 'a comprehensive museum of aviation organized nationally.' He noted the difficulty of selecting artefacts and suggested concentrating on 'the early monoplane era' as 'it is always easier to assess what is a genuine milestone when technical achievements are viewed in retrospect over at least ten years.' Wheeler admitted that setting up a museum might prove difficult but:

a combined effort by all interested, sponsored by the Royal Aero Club, might go a long way to launching this project. In the meantime the most pressing need is to collect... all the items which should go into such a museum. They could be listed as the property of a national museum when it is finally formed.⁶³

In response, Nash explained that in the late 1940s he had proposed an exhibition at the Crystal Palace site, London [Heathrow] Airport and in central London.⁶⁴ He suggested that a national museum should cover the period to 1945, and then include 'landmarks up to the ending of the jet era and the initial atomic-powered period.'⁶⁵

A further response, by Graeme Weir, was published in January 1954.⁶⁶ He took the view that 'if those who should do the job [the Air Ministry or some such body] cannot (or will not) take action, why not do it for them? In other words, let the public look

⁶² Allen H Wheeler, 'A national museum of aircraft?', *Flight*, 64 (1953), p.625

⁶³ Wheeler, 'A national museum of aircraft?'

⁶⁴ R G J Nash, 'That national museum', *Flight*, 64 (1953), p.705

⁶⁵ Nash, 'That national museum'

⁶⁶ Graeme Weir, 'Preserving historic aircraft. Another call for action – with some detailed suggestions', *Flight*, 65 (1954), pp 91-92

after the aircraft.' Weir proposed forming an association to operate historic aircraft, but he seems to rely on the Air Ministry's support in terms of providing aircraft and allowing the use of an airfield – of sufficient size to be used by large aircraft – 'at a reasonable rent'. As will be shown later, the Treasury would oppose this. The association would use experienced volunteers to maintain the aircraft, with the support of aircraft manufacturers and maintenance companies at reduced rates. Finance would come from subscriptions, admission fees and through fees for the aircraft appearing in other organisations' flying displays. This approach seems rather naïve and simplistic, and apparently was not taken further, but it foreshadows the volunteer-run museums which came into being some ten years later.

The RAeS took up the idea of a national museum, with Peter Masefield (later to become the Society's President) writing a paper in January 1954.⁶⁷ A meeting, chaired by Masefield, was called in October 1954 to consider the creation of a National Aeronautical Collection of historical aircraft. The 17 organisations attending included Government Departments, National Museums, and various aviation groups.⁶⁸

Masefield had already written to Lord Trenchard and other senior officers seeking their support for 'the foundation of a National Aeronautical Collection on similar lines to the National Maritime Museum and Trust'.⁶⁹ Trenchard duly wrote to the Chief of the Air Staff expressing his support. The meeting agreed that some form of National

⁶⁷ NAL, Box 113, File 7, 'Brief History of National Aeronautical Museum Correspondence', c.1957

⁶⁸ TNA AIR 2/14352, Minute 1, by Air Commodore H E Nowell, 27 October 1954

AIR 20/12053, 'Interim report on the formation of a National Aeronautical Collection', February 1956

⁶⁹ TNA AIR 2/14352 'Historic Aircraft Collection: minutes of meeting', Enclosures 7D and 7B, letters dated 17 May and 4 August 1954 respectively.

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Collection was desirable, and Masefield suggested that it could be located at Croydon Airport, Gatwick, or RAF Hendon.⁷⁰ A working party was formed to carry the project forward. Although the Air Ministry supported the project, there were dissenting voices: Air Vice Marshal R B Jordan drew attention to the need for hangar space, which would grow as more aircraft joined the collection, and suggested that using models and photographs would be more attractive than aircraft, concluding that 'a hangar in the winter... is a cold, damp and draughty place, and I cannot see crowds of people trooping out to this kind of hangar at Hendon to see a National Collection of Historic Aircraft.'⁷¹ Dismissing the appeal of aviation seems hard to understand: 'Airmindedness' had been carefully fostered during the 1930s, with large crowds 'trooping out... to Hendon' for the annual RAF and Empire Air Day displays.⁷² The RAF resisted the proposal, putting forward several reasons why the former Grahame-White hangar at Hendon would not be practicable, including the need for a separate entrance to the site to maintain security, and the cost of refurbishing the building, despite the RAeS offering to 'man, heat and re-decorate the hangar.'⁷³

There was a fear that important artefacts from Britain's heritage would be lost overseas. *The Times* reported in November 1955 that the Assistant Air Attaché at the American Embassy was seeking British, German and French aircraft of the First World War for a museum funded by the US Air Force which would be used in the training of young members of the service.⁷⁴ This brought a further call for a national

⁷⁰ TNA AIR 2/14352, Minute 1, paragraph 4;

'Museum for planes soon', *Daily Telegraph and Morning Post*, 22 February 1960, p.16

⁷¹ TNA AIR 2/14352, Minute 2, by AVM R B Jordan, 29 October 1954

⁷² Andrew Renwick, *RAF Hendon. The Birthplace of Aerial Power*, (Manchester: Crécy Publishing, 2012), pp 66-81

⁷³ TNA AIR 2/11682, Loose Minute from the Private Secretary to the Under Secretary of State for Air, to the Air Member for Supply and Organisation, dated 9 May 1958

⁷⁴ 'Historic Aircraft Sought by U.S.', *The Times*, 15 November 1955, p.10

aviation museum in the UK.⁷⁵ The RAeS continued discussions with the Air Ministry and drafted lists of aircraft and engines that could form the national collection. The aircraft lists were eventually published in 1959, as the Society announced the formation of its Historical Group. Plaques would be presented to the owners of aircraft 'considered to be of historic importance'.⁷⁶ Many of the aircraft listed still survive; some are in museums and others are still flying. They are listed in Appendix G.



Figure 26: Plaque intended for the AW 52 tailless glider. The aircraft was scrapped before it could be fitted. (Author's photograph)

The discussions with the RAeS evidently made the RAF and Air Ministry reconsider their historic aircraft. Criticism had been voiced in 1956 regarding the condition of aircraft in the annual Battle of Britain display on Horse Guards Parade in London and the future of the display was in doubt.⁷⁷ Some of the public relations damage was offset by forming a Historic Aircraft Flight, with one Hurricane and three Spitfires, following

the withdrawal of the last Spitfires from RAF service; it later became the Battle of Britain Memorial Flight. The possibility of lending some of the Second World War aircraft to the Shuttleworth Trust was considered but the Trust was not keen; its role was to preserve and operate the early aircraft collected by the late Richard Shuttleworth, and it was felt that the Trust's tradesmen did not have the skills

⁷⁵ 'National Aviation Museum' – an urgent need', *Flight*, 68 (1955), p.801

⁷⁶ TNA AIR 2/14352 Enclosure 9A, 'National Air Museum. List of historic aircraft still in existence (sic)' 'Historical Group', *Journal of the Royal Aeronautical Society*, 63 (1959), pp 479-482

'Registering the famous', *Flight*, (1959), p. 42

⁷⁷ TNA AIR 2/14625, Enclosure 13A, 'A meagre RAF Exhibition', *Daily Telegraph*, 11 September 1956 Enclosure 1A, 'Historical Aircraft – policy', Letter from Maintenance Command, 20 October 1956

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required to deal with relatively modern aircraft. Ironically, Nash had written to Shuttleworth in December 1939: 'After this war, we will have to try and add a Heinkel, Messerschmitt, Spitfire and Hurricane to our collections, as these in twenty or thirty years' time will be just as ancient as our Pups and Camels etc.'⁷⁸ The Trust would need more hangar space 'for which [the Air Ministry] might have to foot the bill indirectly.' Some of the RAF's wartime aircraft could go to the Science Museum, but it would be difficult to borrow them back. The RAeS was offered a Spitfire and Hurricane which the RAF could exhibit every September, but the offer was later withdrawn.⁷⁹

The Ministry of Education supported the idea, noting that the Science Museum had to be highly selective in its aircraft exhibits and the Air Ministry would apply different criteria, which presumably would enable a broader selection of aircraft.⁸⁰ Chapter 6 explained that the Treasury seems to have regarded aviation as of little interest, and was reluctant to fund a new national museum. Similarly, there was little enthusiasm in the Ministry of Works (responsible for the national museums' premises) for another museum. Officials were sceptical about the appeal, since aviation had a relatively brief history. They were also concerned that the creation of 'an air museum' would encourage the Army to demand similar treatment and feared that their funding would suffer.⁸¹ It was acknowledged, however, that Britain was 'playing a leading

⁷⁸ Kevin Desmond, *Richard Shuttleworth, an illustrated biography*, (London: Jane's, 1982), p.164

⁷⁹ TNA AIR 2/14625, Minute 14, 17 April 1957; Enclosure 16A, Letter from Air Commodore W S Hebden to the RAeS, 10 May 1957

TNA AIR 2/15425 Enclosure 3A, Letter from A M Ballantyne, RAeS Secretary, to Head of AHB, 23 December 1959

⁸⁰ TNA T 218/57, Letter from Sir Edward Boyle (Parliamentary Secretary) to J E S Simon, 10 October 1958

⁸¹ TNA WORK 17/336, Enclosure 4, A W Cunliffe to F J Root, 14 October 1958

part in aeronautics and it may be that eventually there ought to be some sort of museum of this kind.’⁸²

The causes of railway and canal preservation were somewhat more successful, perhaps due to the backing of the British Transport Commission. Mark Lambert describes the process by which railway artefacts were selected for preservation in the period from nationalisation in 1947 to the opening of the National Railway Museum at York in 1975.⁸³ In December 1958 representatives of railway societies met to discuss preservation issues and composed a letter to the BTC, which called, *inter alia*, for instructions to be issued to all British Rail Regions, telling them not to destroy any item scheduled for preservation, the establishment of a committee to find a site for a transport museum, and for items intended for the museum to be stored where they could be viewed by the public and kept in good condition. Echoing one of Masefield’s committee’s actions, metal plates would be fixed to larger scheduled items.⁸⁴ The BTC was abolished in 1962 but one of its successors, the British Waterways Board, opened its Canal Museum at Stoke Bruerne in 1962; the British Transport Museum opened at Clapham the following year.⁸⁵ The Canal Museum also supported the BWB’s reorientation of its network towards leisure use.

⁸² TNA WORK 17/336, Enclosure 5, F J Root to Sir Eric Seal, 15 October 1958

⁸³ Mark Lambert, *Ordering Expended Mobility: The designation and display of British railway heritage in the post-war decades*. (unpublished doctoral thesis, University of Nottingham, 2017)

‘Historical Group’, *Journal of the Royal Aeronautical Society*, 63 (1959), pp 479-482

⁸⁴ ‘Call to Establish Railway Museum’ *The Times*, 19 December 1957, p.6;

Lambert, p.225

⁸⁵ Divall and Scott. p.24;

Lambert, p.307

The RAF renews its search for a museum

Around this time the Air Ministry was preparing to move into new accommodation in Whitehall, now the Ministry of Defence Main Building. Its Historic Aircraft Working Party, set up in 1957, proposed in 1959 that displays should be set up in the Reception Hall and the Air Council Suite.⁸⁶ The former, initially intended to include three aircraft, was later slimmed down to models and photographs. The three aircraft (presumably either suspended or raised on pillars to above head height to allow movement through the hall) represented the RAF's role in the two World Wars and the intervening period; other aircraft were represented by models. Aero engines were displayed below the aircraft and cases along the walls displayed documents, uniforms and flying clothing. The exhibition would be open to the public at weekends, presumably to help recruiting, but this was ruled out in 1960 as it would be too small and objections were raised about 'turning part of the Air Ministry into a peepshow' together with concerns over 'small boy trouble'.⁸⁷ The Air Council agreed that the RAF's collection of historic aircraft should be distributed '... subject to return in the event of a National Aeronautical Museum being established.'⁸⁸

⁸⁶ TNA AIR 6/117, Air Council Memorandum AC(59)62, Working Party on Historic Aircraft: Final Report; Note by P.U.S.

⁸⁷ TNA AIR 20/12073 Enclosure 2A, Note on the proposed exhibition in the new Whitehall Building, 4 August 1960

⁸⁸ TNA AIR 6/117, Air Council Memorandum AC(59)64 Storage and Display of Aircraft and Other Items of Historic Value, 13 July 1959; TNA AIR 6/112. Air Council Conclusions of Meeting 17(59) 23 July 1959

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expressing concern about both the requirement for hangar space and the danger that the project might be used as a means of keeping open an airfield which could otherwise be disposed of.⁹² Kenneth Couzens, who had previously argued against setting up a National Army Museum and written disparagingly about the Masefield proposal, was again critical. As described in Chapter 6, he felt that 'we have enough museums already'.⁹³ Nevertheless, Treasury approval in principle was granted in 1962, and the committee searched for a site. RAF stations at Upavon in Wiltshire and Henlow in Bedfordshire were considered, although the Treasury was expected to be concerned that the cost had risen from £13,000 to £151,000.⁹⁴ It was proposed that the Museum would open in 1968 to mark the 50th anniversary of the RAF's formation.

The committee also stressed the need to appoint a curator, and Dr John Tanner was appointed in 1963. Tanner had been the Librarian at the RAF College, Cranwell, and had created its museum. He had written to Boyle regarding the RUSI closure, and in May 1962 sent him a paper outlining his thoughts on how an RAF Museum might be created.⁹⁵ Tanner pointed out that there was much public interest in the RAF and that 'a Royal Air Force Museum would in time be a major public attraction, and one that could yield benefits to the Service disproportionate to its cost.' The RAF would reach its 50th anniversary in 1968 and 'the time to start a Service museum is when the service is young, not when much of the material has been given time to

⁹² TNA 225/2799, Note by R C Griffiths, 20 September 1962.

TNA 225/2799, Note by DMK, 25 September 1962.

⁹³ TNA T 218/57, Couzens to Mr Griffiths, c. November 1958;

TNA T 225/2799, Manuscript note on a paper by Mary Loughnane, 24 April 1964.

⁹⁴ AIR 20/12073 Enclosure 85A, Air Council Paper AC(64)16, 'The Royal Air Force Museum: note by Permanent Under-Secretary';

TNA T 225/2799, Paper by W A Allman, 13 May 1964.

⁹⁵ RAFM, Unreferenced file headed "Director", 'A museum for the Royal Air Force', May 1962

disappear.’ He argued strongly for siting the museum at Cranwell, pointing out that the Royal Military Academy at Sandhurst was home to the National Army Museum. A museum at Cranwell would have recruiting power, as visitors included large numbers of air cadets and ‘parties of influential headmasters’ who might be persuaded to recommend an RAF career to their pupils. Exhibits might include personalia, documents, uniforms and decorations but there was no suggestion that aircraft would be included - the spaces Tanner identified were far too small for even the smaller aircraft - and he put emphasis on using modern display techniques including dioramas and working models.

Boyle became the first Chairman of the Museum’s trustees; a briefing paper for his successor, written by Tanner, states that Tanner’s 1962 paper was on ‘the need for a national air museum and how it could be started’ (but his paper is only about an RAF museum) and ‘this paper was adopted as basic policy.’⁹⁶ The briefing paper continued,

The name was a problem: logically it should be “The National Aviation Museum” but the bulk of air history is linked closely with the Royal Air Force; it became clear that the best site was in the hands of the RAF, as were the majority of those items needed for the initial displays; furthermore, the Service’s emotive appeal would make it easier for the necessary capital of one million pounds to be raised by public subscription.⁹⁷

⁹⁶ RAFM [Uncatalogued], ‘RAF Museum Chairman’s aide memoire’, 1975, p.1
Donald Adamson, ‘Tanner, John Benedict Ian’, *Oxford Dictionary of National Biography*, (Oxford: Oxford University Press, 2008)

⁹⁷ ‘Chairman’s aide memoire’, p.3

This suggests that Tanner's original intention may have been to create the RAF Museum [RAFM] as the thin end of a wedge which would broaden out a wider remit; alternatively, he may have exploited the very positive public response to the RAFM's opening.

In January 1963 Boyle wrote to the ministry's Permanent Under-Secretary, suggesting that a Historic Aircraft Museum be formed at Henlow 'as a separate project from the [RAFM]' and noting that the location could attract a large audience if 'the display of these aircraft to the public ...were deemed desirable.'⁹⁸ Discussions within the ministry led to support for such a collection, as a training aid for engineers. This might have been an alternative to the idea of an RAF Museum, or a "Trojan horse" attempt by Sir Dermot to get a foothold on a site suitably close to London. He had written to Allen Wheeler the previous October, outlining 'the sort of shape of things to come'. This included an RAF museum with only one or two aircraft, which would ultimately be in London but initially would be elsewhere in the country, and a 'historic aircraft museum' for the static display of aircraft, located on a suitable airfield. It might be possible to fly some of the aircraft, but that would depend on suitable financial arrangements.⁹⁹ It is noteworthy that Henlow is close to the Shuttleworth Collection's site at Old Warden. The Museum's archives include rough drawings for the Henlow museum and there is a model in the Museum's reserve collection.¹⁰⁰ In 1964 it was announced in Parliament that the RAFM would be sited at Henlow.¹⁰¹ The Royal Navy was planning an exhibition to mark the 50th

⁹⁸ TNA AIR 2/17692 enclosure 19, Letter from Sir Dermot Boyle to Sir Maurice Dean, 4 January 1963

⁹⁹ RAFM, file headed "Historic aircraft", letter dated 24 October 1962

¹⁰⁰ Drawings: T214680, T214681, T214685; T214687 & T214688; Model 72M1552; All produced by the Ministry of Public Buildings and Works in 1963 and 1964

¹⁰¹ Hansard, Official Report, Commons, 9 March 1964 Volume 691, Column 160

anniversary of naval aviation in 1964, which would become a permanent Fleet Air Arm Museum. A proposal for this museum was submitted to the Admiralty Board in January 1964.¹⁰² It seems unlikely that either the RAF or the Royal Navy knew of the other's ambitions, and the RAFM has always included in its remit both the Royal Naval Air Service (1912-1918) and the inter-war period when RAF pilots and ground crew served aboard aircraft carriers.

The RAFM was still hopeful of obtaining a site in London although government policy preferred siting major national institutions in the provinces 'to stimulate the cultural life of the regions'.¹⁰³ Locations that were declined included the disused Brompton Underground station and a space at Kensington Palace.¹⁰⁴ Much energy was expended on campaigning for a site on the Mall, which is now occupied by the Institute of Contemporary Arts: it could not accommodate aircraft, which would be made available (at Henlow) for research by 'serious students'.¹⁰⁵ Negotiations with the Crown Estate Commissioners dragged on into 1966. Tanner, whilst stating 'it is not my intention to denigrate the work of the ICA', wrote a vitriolic paper (apparently sent to the Minister for the RAF) which leaves no doubt regarding his opinions.¹⁰⁶

Peter Masefield also contributed to the search for a site, suggesting in a letter to *The Times* that there was a site 'which appears to be unused and suitable, in the museum area of South Kensington – the site once reserved for the National Theatre,

¹⁰² TNA ADM 1/29067 & ADM 1/27889

¹⁰³ TNA T 225/2673 Enclosure 108, Letter from George Brown (First Secretary of State, Department of Economic Affairs) to Denis Healey (Secretary of State for Defence), 25 November 1965

¹⁰⁴ TNA AIR 20/12074 Letter from Ministry of Public Buildings and Works, 18 December 1964
TNA AIR 20/11494 Tanner to Head of S4(Air), 2 December 1965

¹⁰⁵ TNA AIR 20/12075 Enclosure 39B, Minutes from Minister (RAF) to the Chief Secretary of the Treasury, 3 June 1965

¹⁰⁶ TNA AIR 20/11494, 'Confidential notes on the Federation of British Artists and the Institute of Contemporary Arts', 7 May 1965

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now to be elsewhere.¹⁰⁷ Intriguingly, the Museum's archive includes drawings, dated 1965, of an RAF Museum building on the site *currently* occupied by the National Theatre, on the South Bank.¹⁰⁸ No other reference to this proposed site has been found in either the National Archives or the Museum's trustees' minutes. The plan is complemented by an elevation showing the main building to have several floors, with a main exhibition hall at ground level and five further aircraft galleries. Storage for reserve collections was provided in the basement, as was parking for cars and coaches. Whilst this site would have doubtless drawn good visitor numbers, there would have been little or no space for expansion as the RAF's history progressed.

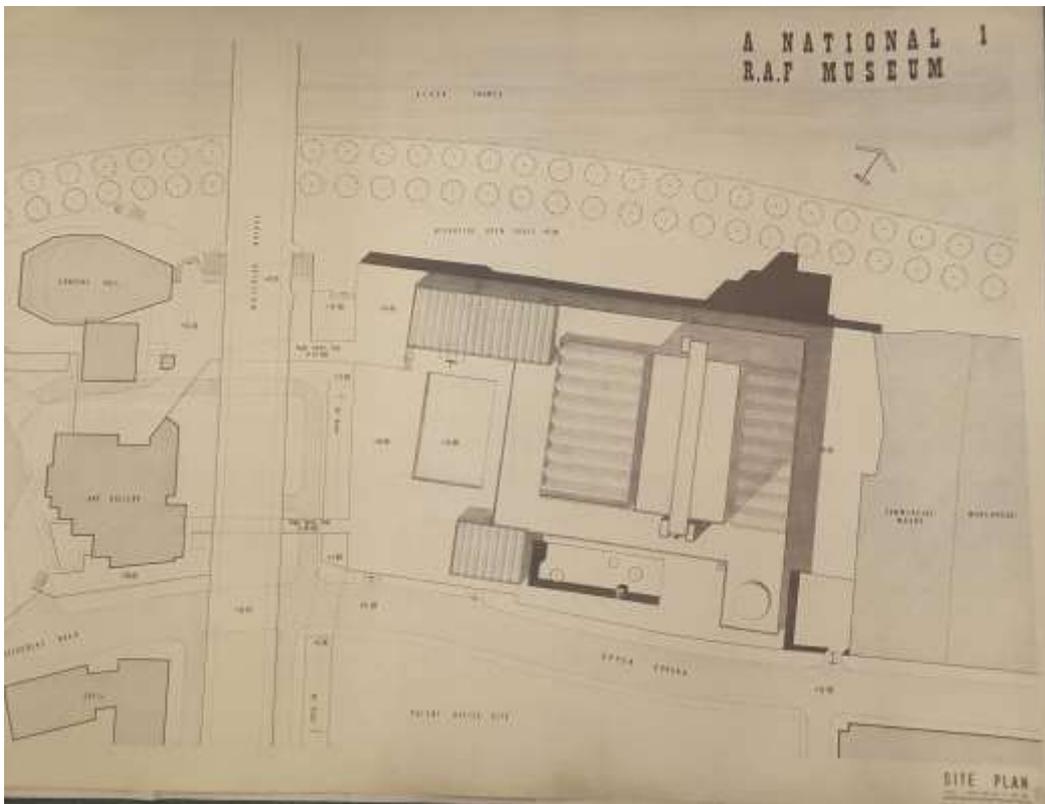


Figure 28: Plan showing an RAF Museum on the site now occupied by the National Theatre (RAF Museum, T214682)

Finally, in May 1967 the Treasury agreed that the Museum would be sited at RAF Hendon, which had a rich history dating from its foundation as the London

¹⁰⁷ Peter G Masefield, 'Royal Air Force Museum', *The Times*, 1 March 1966, p.13

¹⁰⁸ RAFM T214682, 'A national RAF museum'

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Aerodrome in 1910.¹⁰⁹ The site would be made over to the Trustees for 99 years by deed of gift, the construction of the building funded by an appeal and the running costs paid from Ministry of Defence votes; the Air Ministry had been absorbed into the MOD in 1964.¹¹⁰

The RAF Museum was opened by Her Majesty the Queen on 15 November 1972 and immediately proved very popular. The Treasury declined a request for funds to build more toilets, citing the agreed principle that the museum's capital costs should not come from the Exchequer. A Treasury official stated, 'If we give an inch with Dr



Figure 29: The Queen with John Tanner at the opening of the RAF Museum, 15 November 1972 (RAF Museum PRB 2606-23)

¹⁰⁹ Andrew Renwick, *RAF Hendon. The birthplace of aerial power*, (Manchester: Crécy Publishing, 2012), p.20

¹¹⁰ TNA AIR 20/12077 Letter from G W Reynolds, Ministry of Defence, to John Diamond (Chief Secretary to the Treasury) 16 May 1967 and reply dated 25 May; TNA T225/3339, 'Copy of a Treasury Minute dated 16 October 1969 concerning the conditional gift of land and buildings to the Trustees of the Royal Air Force Museum.'

Tanner, we are likely to be asked for a mile.'¹¹¹ With large numbers of visitors confirming that there was indeed interest in historic aircraft, Tanner set about the RAF Museum's enlargement.

Expanding the RAF Museum

In January 1972 the Ministry of Defence had raised with the Department of Education and Science (DES) the possible transfer of the RAFM and National Army Museum to the DES, as the MOD felt that it was 'not naturally organized to look after museums'.¹¹² Such a change would have removed the MOD's control over the RAFM and made it easier to broaden its scope to cover all forms of aviation. The idea was rejected, partly because the two museums and 'some scattered naval museums' were too small and specialised, and there were 'important effects upon the Imperial War Museum.'¹¹³

The DES convened a meeting in September 1974 between the RAFM, Science Museum, IWM and MOD to discuss future acquisition policy and the relationships between the museums. It also addressed the question of whether civil aircraft should be displayed at airports or alongside military aircraft. Options included 'a federal structure with [a] coordinating board [or] a unitary structure: a National Aviation Museum, with various sub sites.'¹¹⁴ In 1975 the DES expressed concerns that the Treasury would want it to take on the MOD's other major museums; the DES might then insist on amalgamating all the Service museums with the IWM, under a single

¹¹¹ TNA T 225/4060, B P Smith to Mr Winnard 16 April 1973

¹¹² TNA ED 245/30, Letter from Sir Arthur Drew (Permanent Under-Secretary of State (Administration), MOD to C W Wright, DES, 17 January 1972

¹¹³ TNA ED 245/30, Loose Minute, G J Spence to Mr MacDowall, 12 July 1973

¹¹⁴ TNA AIR 20/13344, Ewen Broadbent (Deputy Under-Secretary of State (Air) MOD) to Head of S4(Air), 13 September 1974

body of trustees.¹¹⁵ Tanner had written a lengthy paper outlining a plan for the RAFM's future, calling for:

1. The establishment of the National Air Museum, 'an umbrella title sheltering several bodies that would together form the National Air Museum, each having separate geographical titles.' The RAFM would retain its name, with the sub-heading 'The National Air Museum'.
2. Expansion of the RAFM using sites at Biggin Hill and Gaydon. The RAF's regional collections at Colerne, Finningley and St Athan would be disbanded, and the aircraft moved to Biggin Hill and Gaydon.
3. No expansion at Hendon until the 1980s, when the RAF was scheduled to leave the site and the museum could take over some of the buildings.¹¹⁶

In July 1975 the RAFM's Chairman 'mentioned [to Trustees] the desirability of limiting the proliferation of aircraft museums and MOD's declining activity in the museum field: this intensified the need to consider the Museum's wider role.'¹¹⁷

The announcement in the 1975 Defence Review that the RAF would leave Biggin Hill, one of the most famous airfields involved in the Battle of Britain, led to a proposal by Tanner to set up a Battle of Britain Museum there.¹¹⁸ He produced a 12-page paper, in which he stated, 'what this country needs and will have is a National Air Museum' [emphasis in the original] and warned that the RAFM was in danger of being outstripped: 'other institutions – and one great one in particular – will quite

¹¹⁵ TNA ED 245/30, Letter from C W Wright to Ewen Broadbent, 25 July 1975

¹¹⁶ TNA AIR 20/13344 Enclosure 10, "The Royal Air Force Museum – its future", pp.3-6

¹¹⁷ RAFM KE 2/1, Minutes of Trustees' meeting, 2 July 1975

¹¹⁸ TNA ED 245/30 "RAF Museum – Battle of Britain extension", 3 February 1977

properly try to assume the task.¹¹⁹ This evidently alludes to the IWM's expansion of its Duxford site. In April 1974 he had written to the Greater London Council outlining a scheme for a Battle of Britain display at Alexandra Palace.¹²⁰ Neither project went ahead, but the RAFM's trustees approved the creation of a building at Hendon dedicated to the Battle of Britain. The MOD refused to fund either the construction or running costs, so it became a separate organisation - the Battle of Britain Museum - with the same trustees as the RAFM; it opened in 1978. An appeal raised money for its construction; the running costs were covered by admission charges, but entry to the RAFM remained free.

Tanner's 1975 *Aide Memoire* for the new Chairman of Trustees states that the Trustees had agreed that the RAF Museum should '[do] for the air what the National Maritime Museum does for the sea' and tell 'the story of the flying Services as they, and the RAF in particular, [emphasis added] created most aviation history.'¹²¹ The National Maritime Museum was conceived in 1927 as a 'national naval and nautical museum' although the Royal Navy had established a museum at Portsmouth in 1911.¹²² The appeal leaflet issued in 1964 to raise funds for the RAFM had stated that the museum was 'the only national museum concerned solely with aviation. The many aspects covered include the military and civil ...The emphasis is naturally on the unique great achievements, in peace and war, of the Royal Air Force.'¹²³

¹¹⁹ TNA AIR 20/12664, The Battle of Britain Museum, the future of Biggin Hill and the Diamond Jubilee of the RAF, c. June 1975

¹²⁰ TNA AIR 20/13345 Enclosure 3, Letter to the Chairman, GLC Arts and Recreation Committee, 8 April 1974

¹²¹ Tanner, 'Chairman's aide memoire', p.3

¹²² *History of the National Maritime Museum* [online]. National Maritime Museum, Available from: <<https://www.rmg.co.uk/national-maritime-museum/history>> Accessed 22 November 2018]

About the National Museum of the Royal Navy [online]. National Museum of the Royal Navy Available from: <<https://www.nmrn.org.uk/about-national-museum-royal-navy-0>> Accessed 22 November 2018

¹²³ RAFM KE 2/1, Minutes of Trustees meeting, 12 September 1974, paragraph 6
RAFM T834579, *Royal Air Force Museum, Hendon, London NW9*

This dictum that the museum should cover all aspects of aviation is reflected in some of its acquisitions. Amongst the groups of papers added to the archive collection in the early 1970s are several which have little or no connection with the RAF: these include the papers of the aviatrixes Amy Johnson, Jean Batten and Sheila Scott, and the extensive archive of the Royal Aero Club, which coordinates air sports within the United Kingdom.¹²⁴ Arguably, some of these collections were “rescued” when no other suitable home could be found: the RAeC was leaving its London home and downsizing, whilst the papers of Lord Brabazon of Tara, a polymath who had helped to develop aerial photography and went on to become Minister of Aircraft Production, were sold after his death.¹²⁵ When these records were acquired, many of the senior officers from the Second World War – most of whom had also served in the First World War – were coming to the end of their lives and significant groups of records were acquired from them or their families. It was evidently not difficult to fill the shelves with RAF-related material, so the acquisition of material from the wider world of aviation must have been done through choice, rather than a shortage of suitable donors.

Chapter 6 described a meeting called by the Standing Commission on Museums and Galleries, attended by the museums associated with aviation.¹²⁶ The MOD’s Deputy Under Secretary of State (Air) who attended the meeting, later expressed his view that ‘there is no prospect of the [RAFM] becoming the national aviation museum.

¹²⁴ RAFM AC77/30, AC72/25, AC77/27 & AC75/21 respectively

¹²⁵ RAFM AC71/3

¹²⁶ *Standing Commission on Museums and Galleries, 10th report, 1973-1977*, (London: HMSO, 1977), p.63

TNA AIR 20/13345, ‘Record of a meeting on Aviation Museums’, 30 November 1978

Chapter 7 - Attempts to create a UK National Aviation Museum

There will be a national collection ...in which the [RAFM] can play a significant part.¹²⁷ Tanner nevertheless continued to expand the RAF Museum over the next five years: the suggestion of a museum in the North of England led to a joint venture between the RAFM and Manchester City Council - the Manchester Air and Space Museum – which opened in 1983.¹²⁸ It became the Air and Space Gallery of the Museum of Science and Industry, part of the Science Museum Group, with many aircraft on loan from the RAFM, but problems with the building led to its closure in late 2021.¹²⁹ In 1979 the RAFM took over the running of the RAF's regional collection at Cosford, under a management agreement. Tanner was an honorary museum adviser to British Airways; some of the company's retired airliners were displayed at Cosford, and there was a small exhibition at Hendon.¹³⁰ Tanner's 1975 plan had included Gaydon as the RAFM's Midlands branch, and Cosford fulfilled this role.

The RAFM trustees agreed in 1980 to set up a National Air Museum Trust, probably in reaction to advice from the Treasury Solicitor that the RAFM's deed of trust could not be changed, but it could cooperate with another charity.¹³¹ Tanner had argued that

the name of the main Museum remains a problem; it does not define the Trust's intended role, and sounds purely military in context; [which] makes giving difficult for many companies and impossible for numerous Trusts... I

¹²⁷ TNA AIR 20/13345, Loose minute from Head of S4(Air), 30 November 1978

¹²⁸ RAFM R014708, *Manchester Air & Space Museum pocket guide*, c.1983

¹²⁹ Ellis, *Wrecks & relics*, 28th edition, p.154

Science & Industry Museum, *Air and Space Hall (Closed)* [online], Available from <<https://www.scienceandindustrymuseum.org.uk/about-us/we-are-changing/air-and-space-hall>>, Accessed 7 November 2022

¹³⁰ RAFM file 17/1, "The future of the RAF Museum", 14 April 1976, paragraph 3

¹³¹ RAFM KE 2/1, Minutes of Trustees meeting, 11 April 1980, paragraphs 12-28

TNA AIR 20/13345, Letter from the Treasury Solicitor to Head of S4(Air), 16 March 1979

think the answer is to extend the name to: Royal Air Force Museum of Aviation History.¹³²

It seems, however, that this did not proceed.

The final expansion at Hendon during Tanner's directorship was to have been a National Air Museum building, which would include a Bomber Command Hall.¹³³

Pressure from the Bomber Command Association (a veterans' group) persuaded the trustees to give precedence to the "Bomber Command Museum".¹³⁴ This opened in 1983 and - like the Battle of Britain Museum – it was the subject of a separate trust, relying on an appeal for its construction costs and admission fees for income. In the economic climate of the 1980s it proved impossible to pay off the loans raised to cover its construction and in 1987 the MOD agreed a rescue package. The Ministry provided some £1.8 Million to clear the debt, to be recovered via reductions in the Museum's Grant-in-Aid over five years.¹³⁵ A single admission fee was introduced to cover the three museums at Hendon, and work began to amalgamate the three trusts. The reduced Grant-in-Aid was not restored at the end of the five-year period.¹³⁶

As explained in Chapter 2, the National Heritage Act 1983 changed the way in which national museums (including some armed forces museums) were managed and governed.¹³⁷ The passage of the Bill revived discussions between MOD and the

¹³² TNA AIR 20/13345, Letter from Tanner to all Trustees, February 1979

¹³³ RAFM KE2/1, Minutes of Trustees meeting, 14 January 1981, paragraphs 25-26

¹³⁴ RAFM KE2/1, Minutes of Trustees meeting, 8 April 1981, paragraphs 19-22

¹³⁵ RAFM KE 2/2, Minutes of Trustees meeting, 15 February 1988

¹³⁶ RAFM KE2/1, Minutes of Trustees meeting, 14 September 1987, paragraphs 5.1-5.14

¹³⁷ National Heritage Act 1983, [online] Available from <<https://www.legislation.gov.uk/ukpga/1983/47/introduction>> [Accessed 27 April 2019]

OAL regarding the possible transfer of the three Service museums. Tanner had argued for a change; the Air Force Board were apparently content to consider any proposal from the Trustees, while the MOD saw devolution under the proposed Act as a welcome reduction in the number of MOD civil servants.¹³⁸ MOD's intention was to devolve the RAFM and consider transfer to the OAL after a few years.¹³⁹ The Minister for the Arts wrote to the Chairman of the RAFM's trustees explaining that he would consider a transfer of responsibility for the museum, if appropriate financial arrangements were made, but he doubted that it would be 'appropriate for OAL to maintain a Museum of the RAF as such' and would prefer a 'Museum of the Air comparable to the existing National Maritime Museum... or the National Railway Museum for the railways.'¹⁴⁰ A lengthy paper, ostensibly by Cameron but bearing hallmarks of Tanner's drafting, reiterates the aim of parity with the National Maritime Museum and compares the MOD's treatment of the Museum with the benefits apparently enjoyed by OAL's museums; a note in the margin indicates that OAL staff found it 'simply unbelievable'.¹⁴¹

The RAFM was devolved from the MOD under the National Heritage Act 1983 with effect from 1 August 1984, and became a Non-Departmental Public Body, sponsored by the MOD.¹⁴² Grant-in-Aid is intended to provide "core funding", supplemented by the museum's own fundraising programmes.

¹³⁸ TNA ED 245/30 Letter from Sir Frank Cooper, Permanent Under-Secretary of State, MOD, to Sir James Hamilton, Permanent Secretary, DES, 12 November 1982, paragraph 2

¹³⁹ TNA ED 245/30, Letter from OAL to Treasury Solicitor 25 November 1983, paragraph 7

¹⁴⁰ TNA ED245/30, Letter from Paul Channon to MRAF Sir Neil Cameron, dated 10 May 1983

¹⁴¹ TNA ED 245/30, 'The RAF Museum – a note by the retiring chairman', Undated, circa November 1983

TNA ED 245/30, Note by M W Hodges, Head of the Office of Arts & Libraries, 8 November 1983

¹⁴² Statutory Instrument 1984 No 422, *The Armed Forces Museums (Designation of Institutions) Order 1984*, 27 April 1984

Why did Tanner fail?

The crucial factors in the failure of Tanner's bid to develop the RAF Museum into the National Air Museum were funding and the scope of the museum, together with question of who should administer it. Who should pay for it, and what would they want from it in return? The OAL was unwilling to run a purely RAF Museum, while the MOD did not want to broaden the RAFM's remit – not least because any expansion of the museum would result in extra costs, to be met from the Defence budget. The MOD repeatedly argued that the RAFM's Trust Deed restricted its operations to RAF history, and the RAF was concerned that if it lost direct control of the museum it would impact on recruitment, which had been an important driver for the museum since it was first conceived in the 1930s.¹⁴³ Other parties such as the OAL and DES, who would have been interested in a wider remit for the museum, were concerned about taking on extra liabilities without guarantees from the MOD.¹⁴⁴ The debt incurred through the Bomber Command Museum project was a concern for both parties. As might be expected, the MOD was reluctant to see any reduction in its budgets.

After fighting for some 25 years to establish a national air museum, Tanner retired at the end of 1987 and was succeeded by Dr Michael Fopp. Under Fopp the RAFM continued to collect civil aircraft and used the marketing strapline "Britain's national museum of aviation" but this was eventually dropped. A changing relationship with the MOD enabled the museum to acquire further land at Hendon when the closed

¹⁴³ TNA AIR 20/13344 Enclosure 107, 'Record of a meeting to consider the establishment of a national air museum', 25 November 1978

¹⁴⁴ TNA ED 245/30 Letter from the Deputy Under-Secretary of State (Air) MOD, to Hodges, 19 May 1983, paragraph 2a

RAF station was sold, and funding from the Heritage Lottery Fund, the MOD and other sponsors led to the final expansion in 2003 when the *Milestones of Flight* building was opened to mark the centenary of the Wright Brothers' pioneering flight. At the same time, the Grahame-White Hangar – which the RAeS had seen as a potential museum in the 1950s – was rebuilt on the expanded site. The RAF Museum's focus is now firmly on the Royal Air Force, rather than aviation in general, with its stated purpose being 'to share the story of the Royal Air Force, past, present and future – using the stories of its people and our collections in order to engage, inspire and encourage learning.'¹⁴⁵

Conclusions

Military aviation has played a leading role in the evolution of national air museums. War drives technology development – key examples are radar and the jet engine – because the urgency brings extra resources for research. Some of these developments are carried over to civil aviation. The foundations of the Musée de l'Air were laid at the end of the First World War, when civil aviation was almost non-existent, and the war's end gave time to reflect on the work of air forces and the equipment they used. In Canada during the Second World War the RCAF built up a representative collection of aircraft, which formed the nucleus of the national collection; the USAAF assembled a similar collection, although the Smithsonian resisted the move towards a military museum. Goering's move to split the civil and military elements of the German national museum's collection was probably aimed at focussing attention on the Luftwaffe and bolstering the German war effort.

¹⁴⁵ RAF Museum, *Our purpose and vision*, [online] Available from <<https://www.rafmuseum.org.uk/about-us/>> Accessed 9 September 2019

Starting a new national museum is a major task, rarely undertaken in the UK. Those set up in the last hundred years (such as Tate Modern and the National Railway Museum) have been outstations of existing museums, while other museums whose titles include “National” are not funded by the government. It requires a great deal of support from Government, in terms of both goodwill and funding. A site has to be acquired, probably reusing existing public buildings, which would need adapting to the new purpose. The RAF Museum utilised hangars dating from 1917, with galleries and offices in a new concrete-framed structure wrapped around them. Constructing new facilities may be less expensive: the National Army Museum (founded by a Royal Charter in 1960) moved from Sandhurst to Chelsea in 1971, into purpose-built accommodation. In both cases the Government undertook to meet the running costs, but public appeals raised money for the necessary building works.¹⁴⁶ The Smithsonian National Air and Space Museum, part of what may be the world’s largest museum organisation, had a long struggle for funding in the 1960s until pride in Apollo 11’s great achievement broke the logjam.¹⁴⁷

If such large projects are to succeed, they need a visionary and/or champion, and the time has to be right. Colonel Caquot founded in 1918 what would become the Musée de l’Air, while in Germany in the 1930s Georg Krupp built up a national aviation collection. The early push for a National Air Museum in the United States came from General Arnold, although his aim was apparently primarily to create a

¹⁴⁶ John Tanner, ‘The Royal Air Force Museum’, *Aeronautical Journal*, 72, (1968), p.290
‘National Army Museum Building Appeal’, *Annals of the Royal College of Surgeons of England*, 38 (1996), p.370

¹⁴⁷ Dominick A Pisano, ‘The long road to a new museum’ in Michael J Neufeld & Alex M Spencer, *National Air and Space Museum: An autobiography*, (Washington, DC: National Geographic, 2010), pp 188-246; Roland, *Celebration or education?*, p. 83

military aviation museum, to support the creation of an independent US Air Force. The collection was built up over 50 years by Paul E Garber, who had joined the Smithsonian in 1920.¹⁴⁸ In the United Kingdom, Peter Masefield lobbied hard for a national museum in the 1950s; it is difficult to discern what role was envisaged for the museum beyond preservation, since neither Masefield's letters nor the minutes of the meetings indicate whether the aim was to commemorate British achievements in aviation, inspire young people to take up careers in the field, or some other purpose. Although Masefield was ultimately unsuccessful, the work on identifying aircraft worthy of preservation, begun by his group, has been supplanted by the British Aviation Preservation Council (now Aviation Heritage UK) which has compiled and published its own register.¹⁴⁹ There is no way of knowing whether John Tanner was aware of Masefield's earlier attempts when he wrote his 1962 paper advocating an RAF Museum – or indeed, whether his aim at that stage was to broaden the scope of that museum to embrace all forms of flight – but he came very close to achieving that broader aim.

The birth of a new museum usually comes about through significant national events: the Imperial War Museum was founded to commemorate the First World War, and the Musée de l'Air grew from a collection of aircraft and equipment from that conflict. Similarly, the Second World War led General Arnold to assemble a representative collection of aircraft. Germany's national aviation collection opened in 1936, at a time when national pride in Germany was increasing and its air force was being rebuilt. In

¹⁴⁸ F Robert van der Linden, 'Building a collection' in Michael J Neufeld & Alex M Spencer, *National Air and Space Museum: An autobiography*, (Washington, DC: National Geographic, 2010), pp 104-168

¹⁴⁹ *National Aviation Heritage Register* [online]. Aviation Heritage UK, Available from: <<https://aviationheritageuk.org/registers/>>, Accessed 18 December 2018

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Canada, the reorganisation of the country's armed forces may have provided the impetus to bring together three collections to form a single national collection. The initial announcement of the founding of the RAF Museum stated that it would open in 1968, to mark the 50th anniversary of the formation of the RAF. Although the NASM was created in 1946, the opening of its new building in Washington DC was part of the USA's bicentennial celebrations in 1976.

What, then, are the factors that have *opposed* the founding of a national museum?

The prime factor has been economic: in 1931 the Depression curtailed Government spending, and in 1934 Britain's rearmament programme meant that no money could be spared. In the 1950s the post-war economic situation, with the UK struggling to rebuild, meant that money for museums was limited. Although the economy was recovering in the late 1950s and early 1960s, the money needed to build the RAF Museum had to be raised by a public appeal; funding from Central Government was not available for such capital projects until the advent of the Heritage Lottery Fund. The reduction in size of the armed forces and civil service of the 1980s and 1990s, and the tightening of budgets led to increased competition for funds. Whilst the MOD had been willing to see responsibility for the RAF Museum transfer to the Office of Arts and Libraries, perhaps with a wider remit, it was reluctant to lose some of its budget to the OAL as a "dowry". The RAF was concerned that its image might be lost among a collection of civil aircraft and others operated by the Fleet Air Arm and Army Air Corps, at a time when recruiting was becoming more difficult. The Treasury, which would arguably have the final say on funding, had expressed concerns throughout Tanner's expansion programme about the rising costs associated with the RAFM's aspirations for a wider remit.

The view expressed by the Standing Commission at a meeting of museum directors in 1978 - that the national collection could not be brought together under a single museum – has prevailed.¹⁵⁰ Staff from the relevant national museums meet periodically, and while their marketing departments may compete to attract visitors, there is much cooperation between the curatorial staff. The lists of historic aircraft first compiled by Masefield's RAeS committee have been supplanted by lists produced by BAPC and its successor AHUK. These detail aircraft held in museums – almost all of which were founded after Masefield's time – which could be used to designate the most significant aircraft as a national collection distributed across many sites.

In the first half of the 20th century flying was seen as a new, glamorous, emerging technology, but by the 1950s it had – for some – lost some of its appeal. An editorial in *The Aeroplane* stated that 'People sometimes tell us that the country is no longer interested in aviation affairs.'¹⁵¹ In contrast, the railways and canals were seen as modes of transport with established history, with the railways particularly having had a far larger impact on the population at that time than aviation. These factors, together with the backing of the British Railways and Waterways Boards may have helped to release funding for the new museums at Clapham and Stoke Bruerne. The view expressed in 1958 that 'air travel... could hardly compete [with maritime history]' has been overtaken by the passage of time: flight has a longer history, and aviation museums are very popular with the public in the UK and overseas.¹⁵² It

¹⁵⁰ TNA AIR 20/13345, CD (78)44, 'Record of a meeting on aviation museums', 30 November 1978, p.2

¹⁵¹ Thurstan James, 'Wanted - a New Home', *The Aeroplane*, 85 (1953), p.779

¹⁵² TNA WORK 17/336, A W Cunliffe to F J Root, 14 October 1958.

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seems that with transport – as with many things in life - enthusiasm for the new gives way to familiarity (perhaps breeding contempt) before nostalgia emerges for what was once familiar.

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Powered flight has a relatively short history of some 120 years, during which time it has evolved from an emerging technology to become a means of transporting people and goods, waging war, and aiding humanitarian work. From the outset aviation has appealed to people's curiosity and museums have collected and displayed aircraft and associated objects. However, not everyone – especially officials in the Treasury – has shared this interest. This study has investigated the way in which Britain's aviation heritage has been preserved by both public bodies and volunteer-run museums, and has set out the previously unknown story of the failed attempts to set up a national air museum. It has also examined the ways in which government departments and the Royal Air Force have influenced aviation heritage, and revealed the cynical attitude of Treasury officials in the 1950s and early 1960s.

Museums run by volunteers, rather than local or central government, have their roots in the 1930s, when interest in local history flourished. The growth of local museums continued in the 1950s, gathering pace in the 1960s and – as part of the “memory boom” - increasing further in the 1980s and beyond. This study has identified a larger number of aviation museums than the *Mapping Museums* study; it has therefore been able to throw light on a well-defined and consistently reported sector of the UK museums community which has not previously been studied. The number of volunteer-run aviation museums started to grow in the 1970s and gathered pace in the 1980s and 1990s. This growth began later than other volunteer-led activities such as canal restoration and heritage railways, and the number of aviation museums grew at a steadier pace than the overall trend for museums in general. The number of aircraft in museums has also grown, perhaps inevitably, in proportion to the

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number of museums – it is easier for an existing group to acquire a new aircraft than to establish a new museum. Nearly a third (29%) of the museums studied had closed, noticeably higher than the 18.7% for museums of all kinds found by *Mapping Museums* but close to that study's figure of 28% for transport museums. The average number of aircraft per museum has doubled from its lowest point (10.2 in 1963) to 20.5 in 2020. There is some duplication of aircraft between museums – for example, there are three Avro Lancasters at Hendon, Duxford and East Kirkby. Aircraft which have retired more recently, and thus were available in larger numbers (such as the Gnat) are well represented in museums.

In addition to museums that have been started by enthusiasts, collections of aircraft have been built up by wealthy individuals, apparently for a variety of reasons: Richard Shuttleworth evidently enjoyed restoring and flying his aircraft, while Richard Nash's collection started with the intention of preserving early aircraft and cars that might otherwise have disappeared. Nash then found that his collection could be hired out for plays and films. Later collectors probably started – like Shuttleworth - with a desire to own and fly classic aircraft; an increase in the number and scale of air displays (and audiences attending them) from the 1970s created a demand for such flying, which could generate income for aircraft owners. This thesis argues that such demand for flying has led to an industry which restores aircraft to airworthiness and supports them through the provision of spare parts and specialist services. As interest in old aircraft increased, Doug Arnold acted as a speculator and dealer, exchanging and selling aircraft.

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Interest in local history can be a contributory factor in the creation of some aviation museums. The preponderance of museums in Southeast England is at least partly due to the Battle of Britain; wartime crash sites there fired curiosity and work to recover wreckage, which was then displayed. As resources grew, larger objects could be acquired, although these often include replica Spitfires, Hurricanes, and Messerschmitts: original examples would demand very high prices. Similarly, Lincolnshire has a long association with the RAF, and East Anglia with the USAAF, which has led to the creation of museums and heritage centres. Other museums have been established to record aviation in their area, sometimes reflecting industrial heritage such as the de Havilland Museum at London Colney, and the Jet Age Museum at Gloucester. Peter Thomas's Skyfame museum – one of the earliest to be founded - was originally intended as a memorial to his brother Desmond, who was killed flying in the RAF in 1941.

In the aftermath of the First World War there was an opportunity to create a national aviation museum, by combining the collections of the Science and Imperial War Museums. It was not taken up due to the perceived different roles of the two museums: the former's emphasis on technology was deemed incompatible with the latter's role as a place of commemoration. Although the Treasury had indicated, as early as 1927, that the IWM would be able to collect material from conflicts after the First World War, this was not taken forward. The idea of an aeronautical museum was revisited by the RAF in the 1930s and refused to die, although by the time Peter Masefield and John Tanner were making their cases in the 1950s and 1980s, the idea was a lost cause, due to the Treasury's unwillingness to provide funds. When Nash announced in 1953 that he would be selling his collection, it acted as a wake-

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up call, and the Royal Aeronautical Society (no doubt prompted by Masefield) stepped in to purchase Nash's aircraft.

Masefield was by no means the first person to suggest a national museum in the 1950s – representations had been made to the RAeS since the end of the Second World War – but he was clearly the driving force for the project. He was a 'Whitehall warrior' with experience of work on the influential Brabazon Committees in the 1940s, yet he was unable to use this experience to overcome the Treasury's cynical opposition to his creating a national aircraft collection or museum. Tanner had a grand vision and could write and speak eloquently, but he too was unable to persuade government departments to fund his proposals. As Otto Mayr pointed out, 'no museum can win a direct confrontation with its chief financial supporters'.¹ The MOD and Treasury would have to be convinced to fund the museum and both were opposed to the RAF Museum expanding to become a National Aviation Museum. Robert Post's comment about the first curators at the Smithsonian National Air and Space Museum - 'nearly everyone believed that aeronautics... was *intrinsically* [emphasis in original text] exciting and shared a sense of awe at the exploits of "magnificent men in their flying machines"' - can also be applied to Masefield and Tanner.² They were, in effect, enthusiasts. Enthusiasts might want to preserve examples of every aircraft type, but they might not be able to appreciate the costs involved and that those who hold the purse strings – like Kenneth Couzens in the Treasury - do not see aircraft in the way they do.

¹ Otto Mayr, 'The Enola Gay Fiasco: History, Politics, and the Museum', *Technology and Culture*, 39 (1998), p.464

² Robert C Post, *Who Owns America's Past?: The Smithsonian and the Problem of History* (Baltimore: Johns Hopkins University Press, 2013), p.162

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The plans for a national air museum put forward by Masefield and Tanner would have involved significant capital and running costs, to be met from the public purse. Tanner's proposals also drew criticism from both the Ministry of Defence and Office of Arts and Libraries: the MOD did not want the RAF to become less prominent in a museum with a broad view of aviation, and the OAL did not want to fund a museum solely dedicated to the RAF. The OAL and its parent ministry would require some funding to be transferred from the MOD budget, which was another stumbling block since the RAF was unwilling to lose even a relatively small part of its budget. In contrast, the Inland Waterways Association's groups of volunteers, led by Robert Aickman, undertook work on canals that would in many cases have had to be done at public expense, and would effectively save the government money by taking over its obligation to keep certain canals navigable. The IWA also benefitted from the appreciation that canals could be an amenity as well as an effective way to transport water that was needed for consumption by both the population and industry.

Both aircraft and railway enthusiasts seem to have started their preservation work in reaction to the imminent loss of the objects that were the focus of their enthusiasm. As Figure 23 illustrates, several factors combined to give aircraft (and railway) enthusiasts the motivation, means and opportunity to preserve aircraft and locomotives. These were: *Technology Change* - the retirement of several types of military aircraft (and the withdrawal of steam locomotives from British Railways) which inspired a desire to prevent them being scrapped and therefore lost. *Disposable Income* increased, enabling individuals and groups to gather sufficient funds to purchase aircraft at scrap value – often relatively low due to the large numbers available – and increased *Leisure Time* due to shorter working hours

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enabled them to raise funds and work on their acquisitions. The campaign in the 1950s for a National Air Museum seems not to have gained much publicity, even in the aviation press, but the opening of the Shuttleworth Collection in 1964 showed what might be achieved. The 1969 film *Battle of Britain* would have caught people's attention, and the opening of the RAF Museum in 1972 added further inspiration for aviation enthusiasts.

Railway preservation by groups of individuals began in the early 1950s, even before British Railways' Modernisation Scheme was announced. The idea of owning a locomotive or helping to run a railway would surely have appealed to the large population of railway spotters of all ages. In due course the locomotives stored in the Barry Island scrapyard proved a bountiful store for preservation groups. The British Transport Commission took heed of concerns expressed by railway enthusiasts and compiled a list of locomotives to be preserved. The aircraft listings compiled by Masefield's committee have been updated by BAPC and AHUK but, rather than receiving official endorsement, the aircraft lists have only had slight recognition through being used to support bids for funding by museums that hold significant aircraft.

In comparison to both canal and railway preservation, aircraft preservation started relatively late. The population of aircraft spotters would have been smaller than their railway counterparts, not least because railways had been generating interest as far back as the 19th century. Interest in aviation seems to have been inspired by contact with aircraft, particularly among those who lived near airports and RAF stations, but these were often in thinly populated areas and aircraft at height are less visible and

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thus attract much less attention than the passage of a steam train through a town.

The rapid development of aviation brought a realisation that earlier, less potent aircraft might disappear, prompting the formation of preservation groups which slowly grew into museums. Such aircraft were available in large numbers and thus could be obtained at scrap value, once funds had been raised. What, then are the factors that have inspired enthusiasm for aviation and motivated enthusiasts to set up and run museums?

Technology and machines – whether aircraft, locomotives, telephone exchanges or other devices – have a power to fascinate and enthral people. Although many of those interviewed for this study found it difficult to explain what it is about aircraft that captured their interest, several indicated that their enthusiasm began with exposure to aviation at a relatively early age. Some lived near airfields and experienced aircraft flying over their homes, and the skies over the UK were much busier during the Cold War years. Books, films and models – whether flying models made of balsa and tissue paper, or plastic kits from firms like Airfix, Frog and Heller - helped to plant the seeds of enthusiasm, and the materiality of aircraft – factors such as the sight, sound and smell - can help those seeds to grow.

This study has also investigated volunteers' motivation. Volunteering has helped many different organisations – from hospitals and charities to sports clubs and libraries – to function, and most of the museums on which this study has focussed rely on volunteers. Many scholars have studied volunteers, particularly looking at their motivation and the rewards that they gain from their involvement with museums and other organisations. Interviews conducted for this study indicate that the rewards

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received by volunteers in aviation museums are generally consistent with those reported in the literature. They cover a wide range, including social interaction with like-minded people, opportunities to use skills from former employment or develop new skills, and having special access to objects for which they may have had a lifelong passion.

As the aviation museum community grew, it became more organised. BAPC evolved from a networking organisation that enabled the sharing of information and parts between its member groups, to one which aimed to improve standards in aviation museums. An emphasis on preservation techniques brought a series of *Stop the Rot* conferences and eventually the National Aviation Heritage Skills Initiative. This initiative focused not only on preservation but also took a wider view with training in areas such as customer care and Health and Safety. The organisation developed a National Aviation Heritage Strategy in the late 1990s, which aimed *inter alia* to raise the profile of the UK's aviation heritage. While some progress was made, the strategy has, in effect, lapsed and BAPC's successor – Aviation Heritage UK – seems not to have a similar document.

The Royal Air Force's desire for an air services museum in the 1930s was arguably a part – not previously identified – of its more recognised fight to gain public support and make a case for its survival as an independent branch of the UK's armed forces. Economic forces prevented the founding of such an institution until the 1960s but the RAF, via the Air Historical Branch, built up a collection of aircraft in anticipation that the time would come. The RAF's selection of aircraft to represent its work in the Second World War focussed on the Battle of Britain, again emphasising the need for

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a separate air force to defend the UK's skies. Bomber aircraft, admittedly more difficult to house, were allocated a much lower priority. Archival sources give no indication of the rationale behind AHB's decisions to preserve specific examples of post-war aircraft types – there seems not to have been any formal criteria that would qualify an aircraft for inclusion in the AHB collection. From the early 1960s the development of the RAF Museum has provided a means for the preservation of a core of historic aircraft. Many RAF stations displayed obsolete aircraft at their entrance as a reminder of the RAF's history, but in time this created problems as the number of stations and service personnel reduced. It became harder to find the manpower to maintain these "gate guardians" which gradually deteriorated due to exposure to the weather. Two formal reviews in 1972 and 1987 reduced the number of old aircraft for preservation, primarily to keep the fleet to a manageable number, but they can also be seen as curbing John Tanner's plans to expand the RAF Museum.

Previously unexplored files have yielded valuable information on the MOD's policy on the disposal of redundant aircraft. Until recently the process has prioritised the generation of income, which passes back to the Treasury. The large fleets in service in the 1950s and 1960s meant that plenty of aircraft were available once they were declared obsolete, and this kept prices low. They were replaced by smaller numbers of more potent aircraft and the MOD tried replacing its original sealed tender process with auctions. Recent changes have allowed museums to bid for an example of a recently retired aircraft type, which can be donated to them.

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The circumstances that led to the establishment of so many aviation museums in the UK can be summarised as follows: The 1960s and 1970s brought a time of change, when new technology led to the replacement of older aircraft and steam locomotives by newer, more effective aircraft types and diesel locomotives. Individuals reacted to this time of change and began to take control of – or at least exert influence on – their history, through the growth of industrial archaeology and calls for the preservation of aircraft and locomotives that had historic value. Groups of volunteers, seemingly provoked by the possible disappearance of these objects which had fascinated them, and with more leisure time and disposable income, began to take the action propounded by Graeme Weir: ‘if those who should do the job [the Air Ministry or some such body] cannot (or will not) take action, why not do it for them? In other words, let the public look after the aircraft.’³ Dennis Dunstone’s comment about railway preservation can also apply to aviation: ‘the state is reluctant to pay for preservation so private individuals have to.’⁴

Should the UK have a national aviation museum?

The United Kingdom has an impressive record in aerospace, in terms of innovation and achievement. Although the comment made in 1955 that ‘the airplane is in many respects the product of the genius of the American people’, is certainly justified, the UK has contributed much by way of technology – the invention of the jet engine, in-flight refuelling, radar, the first jet airliner, and automatic landing, among many others – and has produced a wide range of aircraft, many of which have served with

³ Graeme Weir, ‘Preserving Historic Aircraft. Another Call to Action - with Some Detailed Suggestions’, *Flight*, 65 (1954), pp 91–92.

⁴ Dunstone, p.50

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distinction.⁵ Whilst the technological aspects fall within the Science Museum's remit, and the IWM and the three Service museums cover the military use of aircraft, there is no nationally-funded museum that deals with civil aviation in the way that the National Maritime Museum handles commercial shipping and boating for recreation. It appears that civil aircraft are less well represented in volunteer-run aviation museums than military types.

How can this situation be rectified? The evidence from previous attempts to set up a national museum suggests that there is very little chance of funds being made available for a new national museum, particularly in the current economic and political climate. Those who were interviewed for this study were asked for their views on the need for a national museum dedicated to aviation. Their responses suggest that establishing such a museum would be difficult, firstly because of expense: the site required to house the collection would be large. The collection would have to be housed under cover, which means that probably several large buildings would be needed. Siting the museum also brings challenges: in which part of the country might such a museum be located? To attract sufficient visitors, it would have to be a location with good transport links and within easy reach of a substantial population. The National Railway Museum in York is well-placed, on the East Coast Main Line and in the centre of a city which already attracts tourists, but an aviation museum in an urban location like Hendon would struggle to bring in new exhibits and could well soon find itself cramped. The NASM outgrew its original home in central Washington and in 2003 opened another site – the Udvar-Hazy

⁵ David J. Rhees, 'Celebration or Education? The Goals of the U.S. National Air and Space Museum', in Brigitte Schroeder-Gudehus & Alex Roland, *Industrial society & its museums 1890-1990: social aspirations and cultural politics*, (Chur: Harwood Academic Publishers, 1993), p.82

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Center – on the periphery of Dulles Airport, which enabled aircraft that had been in store for decades to be put on display. Access to the airport allows new aircraft to be delivered by air, but the site is difficult to reach for those who need to use public transport. Airfields of reasonable size in the UK are rapidly becoming scarce, none are easy to reach without a car, and runways need to be maintained. There is also a strong argument that spreading a national collection around the country would give a wider audience access to historic aircraft than if the collection were to be concentrated on one or two sites.

Obtaining aircraft to display in the museum could be politically difficult, since it would mean, in effect, taking the best aircraft from various existing museums' collections. As an example, there are three Avro Lancasters in the UK, but only one – the RAF Museum's R5868 – has actually flown on operations. With over 100 operational flights, the aircraft has much to say in explaining the RAF's role in the Second World War: there is a strong argument for it to remain in the RAF Museum, rather than being transferred to a national air museum. Museums would face losing their star exhibits and the visitors who might be attracted by them. This might in turn lead to some museums becoming unable to survive financially. Concern was also expressed regarding the risk of a major incident – such as a fire – leading to the loss of all the UK's most important aviation artefacts. Such fires are rare, but they have happened – at the San Diego Air and Space Museum in 1978, the Musée de l'Air (1990), Canadian Warplane Museum (1993), the Yankee Air Museum (2004) and others. The current situation, with aircraft dispersed in many museums around the country, reduces the risk of losing treasures.

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Perhaps the most realistic solution would be a scheme to designate specific aircraft in a range of museums across the country as part of the national collection, which was suggested in 2020.⁶ This seems to have been the approach favoured by the Standing Commission in 1978.⁷ Such designation would help the museums to bid for funding to support preventive conservation and maintenance on these aircraft and thus ensure their preservation; DCMS has not taken up the proposal. The Secretary of the RAeS perhaps had a point when he wrote in 1949 'It may well be that half a dozen people or societies will each have to collect what they can until the time is right for an amalgamation.'⁸

Perhaps the most frustrating part of the story of aircraft preservation in the United Kingdom is that various bodies – the RAeS, the Standing Commission, BAPC, and the AAPG on General Aviation - have drawn up, or called for, lists of historic aircraft. The aim has been to give listed aircraft some sort of protection, yet these bodies have apparently unaware of previous attempts to create such a list, and there seems to be no appetite in government bodies to offer resources beyond funding for specific projects via the Heritage Lottery Fund.

Looking forward

And what of the future of aviation museums? The sector has strengths and weaknesses, and there are both opportunities and threats.

⁶ All-Party Parliamentary Group on General Aviation, *APPG calls for 'national secretariat' to protect historic aircraft* [online], 17 July 2020, Available from <<https://generalaviationappg.uk/appg-calls-for-national-secretariat-to-protect-historic-aircraft/>> Accessed 30 July 2020

⁷ TNA EB 5/41, Commission Document (78/44), Record of a meeting on Aviation Museums, 30 November 1978, p.2

⁸ NAL, Box 113, File 7, Letter from J L Pritchard to D S Griffin, 1 November 1949

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Strengths include the enthusiasm and dedication of the large number of volunteers who are involved in the sector. AHUK's role as a coordinator and voice for the sector is also important.

Weaknesses are primarily related to the volunteer workforce: concern has been expressed that the average age of volunteers is increasing, and demographic changes suggest that there will be fewer potential volunteers in younger generations. People with the skills needed to restore and care for old aircraft are becoming harder to find. The funding of volunteer-led museums – especially those at the smaller end of the scale – can be precarious. At the start of the pandemic fears were expressed that some museums would be unable to survive as visitor income dried up; fortunately the grants which were made available seem to have prevented closures.

Opportunities include the UK's recent emphasis on promoting education in Science, Technology, Engineering and Mathematics (STEM) which has created opportunities for museums to broaden their appeal. Aviation has clear links to these subjects; museums can use this as a key to help unlock funding from sponsors and the National Lottery to improve facilities. Museums offer the opportunity to examine aircraft at close quarters, something which has become much harder as airfields and airports have had to restrict access on security grounds.

Threats include reductions in the numbers of both visitors and potential volunteers. Visitors have changed: where aviation museums were once able to attract large numbers of former servicemen (and, occasionally, women) that audience has shrunk, and museums can no longer expect their visitors to come with first-hand knowledge of the exhibits. Many museums have reacted to this by offering events to attract families and making interpretation panels more understandable for the general visitor. Changes in military flying give less exposure to powerful aircraft that

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can inspire interest and enthusiasm, while flying in airliners has lost much of its glamour and has become a more commonplace experience.

Threats with the greatest potential impact are the lack of secure tenure for a museum's site – museums which rent their sites can be given notice if the landowner desires to sell or build on the land - and the number of aircraft that are stored in the open where severe weather can cause damage. Even mild, damp weather can lead to corrosion. Covered storage is a long-term necessity.

Perhaps the greatest weakness is the apparent lack of an overall strategy for the aviation museum community, which should include provision to ensure that if a museum has to close, its collections can be redistributed among other museums rather than simply being scrapped. AHUK acts as a clearing house for museums offering or seeking material, but the costs associated with moving aircraft can be substantial and the provision of some form of emergency funding would help in this regard. The case cited in Chapter 4, where the Cornwall Aviation Heritage Centre had to sell some of its aircraft to pay for the scrapping of others, emphasises this need.

The large military fleets of the Cold War period are long gone, which means that there will be fewer aircraft for museums to acquire when they reach the end of their active lives, and the use of modern materials such as carbon fibre may make the preservation of such aircraft more difficult than those already in museums. Even older aircraft may have an uncertain longevity: although aluminium is by far the largest constituent of aircraft from the 1930s onward, other metals such as titanium

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are used for special components, and dissimilar metals coming into contact can lead to corrosion, possibly leading in turn to structural weakness. The time may come when the BAPC/AHUK lists will have to be used to select the best example of an aircraft type to be preserved, if museums have to close for economic, demographic or other reasons. It may be that wooden structures – such as the Wright Flyer and First World War aircraft – will prove the most durable.

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Appendix A

Appendix A – Questionnaire sent to Museums, and Interview Questions

Museum Survey Questionnaire – to be administered by post or email

Name of Museum/Group: _____

Address for correspondence (post or email): _____

Website: _____

Year founded: _____

Number of complete aircraft in your collection: _____ On Display: _____

Number of major components (e.g. cockpits): _____ On Display: _____

What was the first aircraft you acquired, and when? _____

Does the Museum/Group have a specific aim? Yes/No

If Yes, please describe it: _____

Is there a formal Collecting Policy? Yes/No

If Yes, please attach a copy to this questionnaire, or email to the address below.

How many people are involved with running the Museum (for example, restoring exhibits, guided tours, admissions etc.)?

Paid: _____ Volunteers: _____

Appendix A

Approximately how many visitors come to the museum each year? _____

We would like to interview someone associated with the museum who can talk about its history and their own interest in aviation, at a time and place convenient to them. Please give below contact details for one or two people who would be prepared to spend around an hour doing this.

Person completing this questionnaire: _____

In case we need to clarify the information given, please give a contact phone number or email address:

Thank you for your cooperation.

Appendix A

Interview Questions

Please introduce yourself and tell me about your role

How long have you been involved?

How did you become involved in aviation?

I'd like to focus initially on [your museum]. Can you tell me something about the museum – how it started, something about how it has grown over the years?

With a focus on military aircraft, how does the museum acquire its aircraft? What is the MOD's attitude to museums?

Volunteers – what do they do, what sort of people volunteer, male/female

The visitors at [your museum] – what are they like?
(enthusiasts/general/families/male vs female)

What is the most popular aircraft in your collection? Different reactions to civil and military aircraft?

Questions: about the aviation museum community

Who are aviation museums for – visitors or volunteers?

How important is it for exhibits to be truly authentic?

What do you think about replicas?

In your opinion, why do people find aircraft interesting? Visitors vs staff/volunteers

The UK doesn't have a National Aviation Museum: what is your view?

How do you see the future of aviation museums in the UK?

Appendix A

Are there any aspects of the museum, or your involvement, that haven't been covered in this interview?

Are there other people in the broader aviation museum world that I should talk to?

In the light of this discussion, would you be happy to be named in the thesis , or would you prefer to be cited as "Interviewee X" or similar?

Appendix B

Appendix B - Interviewees

- A. Ken Ellis: Compiler of *Wrecks and Relics* and former editor of the magazine *Flypast*
- B. Andrea Tanner: Widow of Dr John Tanner, founding Director of the RAF Museum
- C. Ian Brown: Curator, [Scottish] National Museum of Flight
- D. Trev Clark: Former Curator, Tangmere Military Aviation Museum and Consultant, Pembroke Dock Heritage Centre
- E. Steve Bell: Chairman of the trustees of the Norfolk and Suffolk Aviation Museum
- F. Trevor Woodgate: Museum Manager and General Secretary for the Robertsbridge Aviation Society
- G. Andy Saunders: Founder of Tangmere Military Aviation Museum
- H. Allan Winn: Retired Director of Brooklands Museum, and Chair of Aviation Heritage UK
- I. John Berkeley: Chairman, the Midlands Aircraft Preservation Society, 1972-1993, also Chairman of the British Aircraft Preservation Council [now Aviation Heritage UK]
- J. Ted Inman: Retired Director of Imperial War Museum Duxford
- K. Alan Beattie: Chairman, South Yorkshire Aviation Museum
- L. Wishes to remain anonymous: Volunteer, de Havilland Aircraft Museum

The previous Chairman of AHUK, Robert Fleming agreed to be interviewed, but died suddenly before an interview could be arranged.

Appendix C

Appendix C: Changes of Name and Changes of Location

From	Date	To
British Rotorcraft Museum	1989	International Helicopter Museum
International Helicopter Museum	1996	The Helicopter Museum
Brenzett Aeronautical Museum Trust	c.2014	Romney Marsh Wartime Collection
Caernarfon Airport Airworld Museum		Caernarfon Aircraft Museum, <i>later</i> Snowdon Mountain Aviation
Cornwall Aeronautical Park/Flambards Experience <i>then</i> Flambards Triple Theme Park		Flambards Village Theme Park
Humberside Aviation Museum	1981	Bomber County Aviation Museum
Hunter One Collection		Jet Heritage?
North East Vintage and Veteran Aircraft Association	1976	Northumberland Aeroplane Collection
Northumberland Aeroplane Collection	1980	North East Aircraft Museum
North East Aircraft Museum	2012	North East Land, Sea and Air Museum
Mitchell Memorial Hall	1984	Southampton Hall of Aviation
Southampton Hall of Aviation	2004	Solent Sky
Mosquito Aircraft Museum	1990s	De Havilland Aircraft Museum
Loughborough & Leicestershire Air Museum and Preservation Society	1983	Bruntingthorpe Aviation Collection

Museum	From	Date	To
Humberside Aviation Museum, <i>later</i> Bomber County Aviation Museum	Goxhill	1981	Cleethorpes
	Cleethorpes	1989	Hemswell
Loughborough & Leicestershire Air Museum and Preservation Society	Castle Donington	1983	Bruntingthorps
Northumberland Aeroplane Collection	Lambton Castle	1977	Usworth
South Yorkshire Aircraft	Nostell Priory	1982	Firbeck
	Firbeck	1999	Doncaster

Appendix C

Preservation Society			
Yorkshire Helicopter Preservation Group	Elvington	2002	Doncaster

Appendix D

Appendix D: Summary of Data from *Wrecks and Relics*

Edition	Year	Aviation Museums	Growth in Museums	Aircraft in Museums	Increase in Aircraft	Aircraft per museum
1	1961	7		116		16.6
2	1963	11	4	112	-4	10.2
3	1968	13	2	236	124	18.2
4	1974	25	12	490	254	19.6
5	1976	35	10	590	100	16.9
6	1978	45	10	678	88	15.1
7	1980	48	3	752	74	15.7
8	1982	48	0	825	73	17.2
9	1984	61	13	960	135	15.7
10	1986	65	4	1007	47	15.5
11	1988	68	3	1072	65	15.8
12	1990	67	-1	1092	20	16.3
13	1992	68	1	1207	115	17.8
14	1994	84	16	1377	170	16.4
15	1996	85	1	1453	76	17.1
16	1998	92	7	1686	233	18.3
17	2000	83	-9	1596	-90	19.2
18	2002	85	2	1716	120	20.2
19	2004	93	8	1797	81	19.3
20	2006	99	6	1935	138	19.5
21	2008	94	-5	1831	-104	19.5
22	2010	104	10	1912	81	18.4
23	2012	100	-4	1911	-1	19.1
24	2014	99	-1	2007	96	20.3
25	2016	101	2	2105	98	20.8
26	2018	105	4	2155	50	20.5
27	2020	104	-1	2233	78	21.5

Average No. of Aircraft per Museum = 17.8

Appendix D

Museums with Aircraft or Major Components

Museum	Place	County	Comments
College of Aeronautics	Cranfield	Beds	1961-1978
Shuttleworth Collection	Old Warden	Beds	
British Balloon Museum & Library/West Berks. Museum	Newbury	Berks	1980-2002
Museum of Berkshire Aviation	Woodley	Berks	1993-
Blue Max Movie Aircraft Museum	Booker	Bucks	1994-1998
Booker Aircraft Museum	Booker	Bucks	1986? Collection disposal by 19th edn
Chiltern Historical Aircraft Preservation Society	Booker	Bucks	1984
Trenchard Museum	Halton	Bucks	2008-
Aces High	Duxford	Cambs	
Aircraft Restoration Company	Duxford	Cambs	
Anglia Aircraft Restorations	Duxford	Cambs	
B-17 Preservation Ltd	Duxford	Cambs	
British Aerial Museum	Duxford	Cambs	
Classic Aviation	Duxford	Cambs	
Duxford Aviation Society	Duxford	Cambs	
Historic Aircraft Collection	Duxford	Cambs	
Historic Flying	Duxford	Cambs	
Imperial War Museum	Duxford	Cambs	
Lindsay Walton	Duxford	Cambs	
Old Flying Machine Company	Duxford	Cambs	
Ormond Haydon-Baillie	Duxford	Cambs	Died 1977
Plane Sailing	Duxford	Cambs	1988-
Rob Lamplough	Duxford	Cambs	1978-82

Appendix D

Russavia	Duxford	Cambs	1978-1988
Spitfire Ltd	Duxford	Cambs	
The Fighter Collection	Duxford	Cambs	1988-
Vintage Aircraft Team	Duxford	Cambs	
Hack Green Secret Nuclear Bunker	Nantwich	Cheshire	
Hooton Park Trust	Hooton Park	Cheshire	
Macclesfield Historical Aviation Society	Chelford	Cheshire	Military Aircraft Preservation Group; 1992-1994
RAF Burtonwood Heritage Centre	Burtonwood	Cheshire	2008-
Stockport Aircraft Preservation Society	Handforth	Cheshire	Folded 1977
The Aeroplane Collection	Congleton, Warmingham, Wigan	Cheshire	Moving to Hooton Park; Dispersed by 15th edn
Classic Air Force	St Mawgan	Cornwall	1994-2014; moved back to Coventry
Cornwall Aeronautical Park/ Flambards Experience	Helston	Cornwall	1976-2014; Flambards Triple Theme Park, then Flambards Village Theme Park
Cornwall At War Museum/Davidstow Airfield	Davidstow	Cornwall	2008-
Cornwall Aviation Heritage Centre	St Mawgan	Cornwall	2016- ; grew from Classic Air Force
Spitfire Corner	St Mawgan	Cornwall	2014- Owner died 2018, Future in doubt
RAF Millom Museum Project/South Copeland Aviation Group	Haverigg	Cumbria	1988-2008
Solway Aviation Group/Society	Crosby-on-Eden	Cumbria	1976-
Walney Aviation Heritage Museum	Barrow	Cumbria	Launched 2005 - on hold 2010
Dunkeswell Heritage Centre	Dunkeswell	Devon	
Dunkeswell Memorial Museum	Dunkeswell	Devon	1988-2008
South West Aviation Heritage	Eaglescott	Devon	1996
Torbay Aircraft Museum	Barton Pines/Higher Blagdon	Devon	1974; Disposal announced August 1993

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Flying Aces Museum	Compton Abbas	Dorset	Opened 2003
Bournemouth Aviation Museum	Hurn	Dorset	1999-2007; relocated on site 2008
Hunter One Collection	Hurn	Dorset	1984: Sold 1987; Became Jet Heritage
Jet Heritage	Hurn	Dorset	Museum opened 1998, ceased trading 1999. Became Bournemouth Aviation Museum
Fishburn Historic Aviation Centre	Fishburn	Durham	Open 2020?
North East Vintage and Veteran Aircraft Association	Lambton Castle, Chester-le-Street	Durham	Formed 1974. Became Northumberland Aeroplane Collection in 1976, then North East Aircraft Museum in 1980. NELSAM from 2012. Moved to Usworth 1977
Robertsbridge Aviation Centre	Robertsbridge	East Sussex	1986-
Shoreham Aviation Heritage Centre	Shoreham	West Sussex	1994-1998; opened Nov 98
Fort Paull Armouries	Paull	East Yorkshire	2008-2020
Real Air Museum/Real Aeroplane Company	Brighton	East Yorkshire	1994-
East Essex Aviation Museum	Clacton	Essex	1992-
Historic Aircraft Museum	Southend	Essex	1968; Collection sold 1983
North Weald Aircraft Restoration Flight	North Weald	Essex	1982; Wound up 1988
Rebel Air Museum	Earls Colne/Andrewsfield	Essex	1980; Moved to Earls Colne 1986; Closed 1997
Stow Maries	Stow Maries	Essex	2014-
Thameside Aviation Museum	East Tilbury	Essex	1988-2014
Vulcan Restoration Trust	Southend	Essex	1994-

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Aerospace Bristol	Filton	Glos	2002-
Bristol Aero Collection	Kemble	Glos	Merged into Aerospace Bristol
Bristol Britannia XM496 Restoration Society	Kemble	Glos	1998-
Concorde Visitor Centre	Filton	Glos	Run by Bristol Aero Collection; opened 2004. Part of Aerospace Bristol
Cotswold Aircraft Restoration Group	Innsworth	Glos	1980-1998 Ellis says 1979-2007
Delta Jets	Kemble	Glos	1998
Jet Age Museum	Staverton	Glos	2002-
Skyfame	Staverton	Glos	Closed 1978
Avro Heritage Museum	Woodford	Greater Manchester	1998-
Barton Aerodrome Visitor Centre	Barton	Greater Manchester	1996-
Imperial War Museum North	Manchester	Greater Manchester	2002-
Museum of Science and Industry	Manchester	Greater Manchester	Manchester Air & Space Museum opened 1983
Runway Visitor Park	Ringway	Greater Manchester	2008-
Farnborough Air Sciences Trust	Farnborough	Hants	2002-
Gliding Heritage Centre	Lasham	Hants	2014-
Mitchell Memorial Hall	Southampton	Hants	1976- ; Became Southampton Hall of Aviation, then (2004) Solent Sky
Museum of Army Flying	Middle Wallop	Hants	1974-
RNAY Fleetlands Museum	Gosport	Hants	1992-1998
Second World War Aircraft Preservation Society	Lasham	Hants	1974-2008; dissolved from 2009
Mosquito Aircraft Museum	London Colney	Herts	De Havilland Aircraft Museum

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Manx Aviation and Military Museum	Ronaldsway	Isle of Man	
Island Aeroplane Company Collection became Front Line Aviation Museum; closed December 1999	Sandown	Isle of Wight	Planned to open 1996
Wight Aviation Museum	Sandown	Isle of Wight	
Brenzett Aeronautical Museum Trust	Brenzett	Kent	Now Romney Marsh Wartime Collection
Kent Battle of Britain Museum	Hawkinge	Kent	
Lashenden Air Warfare Museum	Headcorn	Kent	
Medway Aircraft Preservation Society	Rochester	Kent	
RAF Biggin Hill	Biggin Hill	Kent	
RAF Manston History Museum	Manston	Kent	
Shoreham Aircraft Museum	Shoreham	Kent	Shoreham Aircraft Preservation Society
Hurricane & Spitfire Memorial Museum	Manston	Kent	
Helicopter Museum of Great Britain	Heysham	Lancs	To open 1986? Closed 1992
Manchester Vulcan Bomber Society	Blackpool	Lancs	
Merseyside Aviation Society	Speke	Lancs	
Pennine Aviation Museum	Bacup	Lancs	Opening 1978? Dispersed by 1996
Spitfire Visitor Centre	Squires Gate	Lancs	
Aeropark	Castle Donington	Leics	Opened 1984
Beech Restorations/ Tomcat T6 Restoration	Bruntingthorpe	Leics	
British Aviation Heritage	Bruntingthorpe	Leics	
Bruntingthorpe Aviation Collection	Bruntingthorpe	Leics	Formerly LLAMPS. Phoenix Aviation Museum?

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Classic Aviation Projects	Bruntingthorpe	Leics	
Cold War Jets Collection	Bruntingthorpe	Leics	Formerly LLAMPS. 1983-
Leicester Aircraft Preservation Group	Leicester	Leics	
Lightning Preservation Group	Bruntingthorpe	Leics	
Loughborough & Leicestershire Air Museum and Preservation Society	Castle Donington, Bruntingthorpe	Leics	Opened 1979 Moved and became Bruntingthorpe Aviation Collection
Phantom Restoration Group	Bruntingthorpe	Leics	
The Buccaneer Aviation Group	Bruntingthorpe, Kemble	Leics	Buccaneer Preservation Society
Vulcan Operating Company	Bruntingthorpe, Finningley	Leics	
Bomber County Aviation Museum	Elsham Hall, Cleethorpes, Hemswell	Lincs	Formerly Humberside Aviation Museum
Cranwell Aviation Heritage Centre	Cranwell	Lincs	First reported 14th edition
Lincolnshire Aviation Heritage Centre	East Kirkby	Lincs	
Lincolnshire Aviation Museum	Tattershall	Lincs	Not in 1990 edn
Metheringham Airfield Visitor Centre	Metheringham	Lincs	
NATO Aircraft Museum/Museum of Weapon Technology	New Waltham	Lincs	
North Coates Heritage Collection	North Coates	Lincs	
RAF Cranwell	Cranwell	Lincs	
Thorpe Camp Visitor Centre	Woodhall Spa	Lincs	Thorpe Camp Preservation Group
Croydon Airport Visitor Centre	Croydon	London	
Imperial War Museum	Lambeth	London	

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RAF Museum	Hendon, Henlow & Cardington	London	
Science Museum	Kensington	London	
Science Museum store	Hayes	London	Moved to Wroughton 1970s? Closed by 15th edn
Whitehall Theatre of War	Westminster	London	1983-85
Britannia Aircraft Preservation Trust	Liverpool	Merseyside	
Jetstream Club	Liverpool	Merseyside	Branch of the Wirral Aviation Society. Renamed Speke Aerodrome Heritage Group, 2010
Speke Aerodrome Heritage Group	Liverpool	Merseyside	
93rd Bomb Group Museum	Hardwick	Norfolk	
City of Norwich Aviation Museum	Horsham St Faith	Norfolk	
Fenland and West Norfolk Aviation Museum	Wisbech/West Walton Highway	Norfolk	Formerly Fenland APS, Wisbech
Ludham Control Tower & Military Museum	Ludham	Norfolk	
RAF Sculthorpe Heritage Centre	Sculthorpe	Norfolk	Opened 2019
Yorkshire Air Museum	Elvington	North Yorkshire	
Carpetbaggers Secret Warfare Museum	Harrington	Northants	
Sywell Aviation Museum (1)	Sywell	Northants	Opening 1 May 76; later Nene Valley Aviation Society, moved to Sibson 1984; Closing 1986?
Sywell Aviation Museum (2)	Sywell	Northants	Opened 2001
North East Land, Sea and Air Museum (NELSAM)	Usworth/ Sunderland	Northumberland	Originally the Northumberland Aeroplane Collection; NELSAM from 2012
Newark Air Museum	Winthorpe	Notts	

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South Yorkshire Aviation Society	Firbeck	Notts	SYAPS? From Nostell Priory to Firbeck 1982
Boulton Paul Society/BP Aircraft Heritage Project	Wolverhampton/Cosford	Salop	Started 14th edition
RAF Museum (includes Stafford store)	Cosford	Salop	Previously an RAF Regional Collection and then the Aerospace Museum. Data includes items in store at Stafford.
Wartime Aircraft Recovery Group Museum	Sleap	Salop	
Bristol Aero Collection	Banwell	Somerset	Opened at Filton 2017
Fleet Air Arm Museum	Yeovilton	Somerset	
The Helicopter Museum	Weston-super-Mare	Somerset	Previously the British Rotorcraft Museum and the International Helicopter Museum
South Yorkshire Aircraft Museum/Aeroventure	Doncaster	South Yorkshire	Moving Firbeck to Doncaster 1999/2000
Yorkshire Helicopter Preservation Group	Doncaster	South Yorkshire	Formed Elvington 1994; Moved to Doncaster 2002
Staffordshire Aviation Museum	Seighford	Staffs	
390th BG Memorial Air Museum/Parham Airfield Museum	Framlingham/Parham	Suffolk	
Bentwaters Cold War Museum	Bentwaters	Suffolk	
Blyth Valley Aviation Collection	Walpole	Suffolk	
Norfolk & Suffolk Aviation Museum	Flixton	Suffolk	Opening 1 May 1976
Suffolk Aviation Heritage Museum	Foxhall	Suffolk	Established 2002, due to open 2007
Wattisham Airfield Museum	Wattisham	Suffolk	
Brooklands Museum	Weybridge	Surrey	

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Dunsfold Airfield Museum	Dunsfold	Surrey	
Gatwick Aviation Museum	Charlwood	Surrey	Peter Vallance Collection
Wings World War Two Remembrance Museum	Redhill/Balcombe	Surrey/West Sussex	
Classic Air Force Airbase/Air Atlantique Historic Flight	Baginton	Warks	Air Atlantique Historic Flight
Delta Engineering Aviation	Wellesbourne Mountford	Warks	XM655 Maintenance & Preservation Society
Jet Aviation Preservation Group	Long Marston	Warks	Previously Vampire Preservation Group
Midland Air Museum	Coventry	Warks	Opening 1976? Opened April 1978
Midland Warplane Museum	Hatton/Baxterley	Warks	
Nimrod Preservation Group	Coventry	Warks	
Shackleton Preservation Group	Coventry	Warks	
Stratford Aircraft Collection	Long Marston	Warks	Opening 1990?
Wellesbourne Aviation Group	Wellesbourne Mountford	Warks	
Midland Aircraft Preservation Society	Coventry	West Midlands	See Midland Air Museum
Staffordshire Aircraft Restoration Team	Wolverhampton/ Cosford	West Midlands	
Tettenhall Transport Heritage Centre	Tettenhall	West Midlands	Began 2016, opened 2017
Balloon Preservation Group	Lancing	West Sussex	1998
Museum of D-Day Aviation	Apuldram/ Shoreham	West Sussex	Moved from Apuldram 1993; to 1998
Tangmere Military Aviation Museum	Tangmere	West Sussex	

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Avon Air Museum	Monkton Farleigh/ Yatesbury	Wilts	No trace 1996
Boscombe Down Aviation Collection	Old Sarum	Wilts	
Nash Collection	Upavon	Wilts	
RAF Regional Collection	Colerne	Wilts	
Science Museum store	Wroughton	Wilts	
RAF Defford Museum	Defford	Worcs	
Nostell Aviation Museum (SYAPS)	Nostell Priory	Yorks	
RAF Regional Collection	Finningley	Yorks	Dispersed 1977 to make space for the Royal Review
South Yorkshire APS	Misson/Firbeck	Yorks	Store?
Yorkshire Aircraft Preservation Society	Acaster Malbis	Yorks	Folded 1977
Air Historical Branch	Various		
Dundonald Aviation Centre	Dundonald	Northern Ireland	
Ulster Aviation Collection/Society	Langford Lodge/Long Kesh/Lisburn	Northern Ireland	
Ulster Folk and Transport Museum	Hollywood	Northern Ireland	
Aircraft Preservation Society of Scotland	East Fortune	Scotland	From 1996 included in East Fortune
Dumfries & Galloway Aviation Museum	Dumfries	Scotland	Due to open 2004
Highland Aviation Museum	Inverness	Scotland	Closed 2019
Montrose Air Station Heritage Centre	Montrose	Scotland	Founded 1983
Morayvia	Kinloss	Scotland	
Museum of Flight	East Fortune	Scotland	
Scottish Aircraft Collection Trust	Perth	Scotland	Closed 1988

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Stoneykirk Aviation Museum			
Strathallan Aircraft Collection	Strathallan	Scotland	No trace 1996
Caernarfon Airport Airworld Museum	Llandwrog	Wales	Caernafon Aircraft Museum; Snowdon Mountain Aviation due to open 1987, then 1989
Carew Control Tower Group	Carew Cheriton	Wales	
RAF Regional Collection	St Athan	Wales	Dispersed 1989
South Wales Aviation Museum	St Athan	Wales	Opened 2019
Sunderland Trust	Pembroke Dock	Wales	
Wales Aircraft Museum	Rhoose/Cardiff	Wales	South Wales APS; Closed 1996
Welsh Spitfire Museum	Haverfordwest	Wales	

Opening & Closing Dates: *Wrecks & Relics* vs *Mapping Museums*

Museum	Place	County	First Entry in W&R	Last Entry	Mapping Museums: Open	Mapping Museums: Close
	denotes closed					
	included in <i>the Mapping Museums</i> database					
British Rotorcraft Museum	Weston-super-Mare	Avon	1980	1988	See The Helicopter Museum	
RAF Museum	Cardington	Beds	1976	2000		
Cranfield	Cranfield	Beds	1961	1978		
RAF Museum	Henlow	Beds	1961	2000		
Shuttleworth Collection	Old Warden	Beds	1961	Current	1963	Open

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British Balloon Museum & Library/West Berks. Museum	Newbury	Berks	1980	2008		
Museum of Berkshire Aviation	Woodley	Berks	1992	Current	1993	Open
Blue Max Movie Aircraft Museum	Booker	Bucks	1994	1998		
Booker Aircraft Museum	Booker	Bucks	1986	1994		
Chiltern Historical Aircraft Preservation Society	Booker	Bucks	1984	1984		
Trenchard Museum	Halton	Bucks	2008	Current	1999	Open
6 private owners	Duxford	Cambs				
Aces High	Duxford	Cambs	1990	?		
Aircraft Restoration Company	Duxford	Cambs	1992	Current		
Anglia Aircraft Restorations	Duxford	Cambs	2018	Current		
B-17 Preservation Ltd	Duxford	Cambs	1986	Current		
British Aerial Museum	Duxford	Cambs	1986	Current		
Classic Aviation	Duxford	Cambs	2016	Current		
Duxford Aviation Society	Duxford	Cambs	1978	Current		
Historic Aircraft Collection	Duxford	Cambs	2006	Current		
Historic Flying	Duxford	Cambs	2006	2010		
Imperial War Museum	Duxford	Cambs	1974	Current	1976	Open
John Allison/Mike Searle	Duxford	Cambs	1988	1988		
Lindsay Walton	Duxford	Cambs	1988	1994		
Old Flying Machine Company	Duxford	Cambs	1988	Current		
Ormond Haydon-Baillie	Duxford	Cambs	1978	1980		
Plane Sailing	Duxford	Cambs	1988	Current		
Rob Lamplough	Duxford	Cambs	1978	1982		

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Russavia	Duxford	Cambs	1978	1988		
Spitfire Ltd	Duxford	Cambs	2008	2010		
The Fighter Collection	Duxford	Cambs	1988	Current		
Vintage Aircraft Team	Duxford	Cambs	1980	1980		
Fenland Aircraft Preservation Society	Wisbech	Cambs	1990	1996		
RAF Burtonwood Heritage Centre	Burtonwood	Cheshire	2008	Current	2000	Open
Macclesfield Historical Aviation Society	Chelford	Cheshire	1992	1994		
The Aeroplane Collection	Congleton, Warrington, Wigan	Cheshire	1978	Current		
Stockport Aircraft Preservation Society	Handforth	Cheshire	1976	1977		
Hooton Park Trust	Hooton Park	Cheshire	1994	Current		
Hack Green Secret Nuclear Bunker		Cheshire	2002	Current		
Cornwall At War Museum/Davidstow Moor RF Memorial Museum	Davidstow	Cornwall	2008	Current		
Cornwall Aeronautical Park/Flambards Experience	Helston	Cornwall	1976	2014		
Classic Air Force	St Mawgan	Cornwall	2014	2014?		
Cornwall Aviation Heritage Centre	St Mawgan	Cornwall	2016	Current	1960 – an error. [2015]	2017
Spitfire Corner	St Mawgan	Cornwall	2014	Current		
Solway Aviation Group/Society	Crosby-on-Eden	Cumbria	1976	Current	1989	Open

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RAF Millom Museum Project/South Copeland Aviation Group	Haverigg	Cumbria	1988	2008	1992	2010
Torbay Aircraft Museum	Barton Pines/ Higher Blagdon	Devon	1974	1992	1971	1988
Dunkeswell Heritage Centre	Dunkeswell	Devon	2018?			
Dunkeswell Memorial Museum	Dunkeswell	Devon	1998	2010		
South West Aviation Heritage	Eaglescott	Devon	1996	1996		
Bournemouth Aviation Museum	Hurn	Dorset	2008	Current		
Hunter One Collection	Hurn	Dorset	1984	2002		
Jet Heritage	Hurn	Dorset	1984	1998		
North East Vintage and Veteran Aircraft Association	Lambton Castle, Chester-le-Street	Durham	1976	Became North East Land, Sea and Air Museum at Usworth in 1980		
Balloon Preservation Group	Lancing	East Sussex	1998	2006?		
Robertsbridge Aviation Centre	Robertsbridge	East Sussex	1986	Current		
Shoreham Aviation Heritage Centre	Shoreham	East Sussex	1994	2010		
Real Air Museum/Real Aeroplane Company	Brighton	East Yorkshire	1994	Current		

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Fort Paull Armouries	Paull	East Yorkshire	2008	2020?		
East Essex Aviation Museum	Clacton	Essex	1992	Current	1986	Open
Rebel Air Museum	Earls Colne/Andrewsfield	Essex	1980	1996		
Thameside Aviation Museum	East Tilbury	Essex	1988	2014		
North Weald Aircraft Restoration Flight	North Weald	Essex	1984	1988		
Historic Aircraft Museum	Southend	Essex	1968	1986	1972	1983
Vulcan Restoration Trust	Southend	Essex	1994?	Current		
Stow Maries	Stow Maries	Essex	2014	Current	2008	Open
Aerospace Bristol	Filton	Glos			2017	Open
Gloucestershire Aviation Collection	Gloucester	Glos	1994	1998		
Cotswold Aircraft Restoration Group	Innsworth	Glos	1980	2006?		
Bristol Aircraft Collection	Kemble	Glos	1998	See Aerospace Bristol		
Bristol Britannia XM496 Restoration Society	Kemble	Glos	1998	Current		
Delta Jets	Kemble	Glos	1998	2010		
Jet Age Museum	Staverton	Glos	2002	Current	2013	Open
Skyfame	Staverton	Glos	1968	1976		
Barton Aerodrome Visitor Centre	Barton	Greater Manchester	1996	2002		

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Imperial War Museum North	Manchester	Greater Manchester	2002	Current	2002	Open
Museum of Science and Industry	Manchester	Greater Manchester	1984	Current		
Runway Visitor Park	Ringway	Greater Manchester	2006	Current		
Avro Heritage Museum	Woodford	Greater Manchester	1998	Current	2015	Open
Farnborough Air Sciences Trust	Farnborough	Hants	2002	Current	2000	Open
RNAY Fleetlands Museum	Gosport	Hants	1992	1998		
Gliding Heritage Centre	Lasham	Hants	2014	Current		
Second World War Aircraft Preservation Society	Lasham	Hants	1980	2008		
Museum of Army Flying	Middle Wallop	Hants	1974	Current	1947	Open
Mitchell Memorial Hall/Southampton Hall of Aviation/Solent Sky	Southampton	Hants	1976	Current	1984	Open
Mosquito Aircraft Museum	London Colney	Herts	1961	Current	1959	Open
Manx Aviation and Military Museum	Ronaldsway	Isle of Man	2006	Current		
Island Aeroplane Company Collection	Sandown	Isle of Wight	1996	1998		
Wight Aviation Museum	Sandown	Isle of Wight	2018	Current		
RAF Biggin Hill	Biggin Hill	Kent	1961	By 1992		

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Brenzett Aeronautical Museum Trust	Brenzett	Kent	1980	Current	1972	Open
Kent Battle of Britain Museum	Hawkinge	Kent	1984	Current		
Lashenden Air Warfare Museum	Headcorn	Kent	1978	Current	1970	Open
RAF Manston History Museum	Manston	Kent	1998	Current		
Spitfire and Hurricane Memorial Museum	Manston	Kent	1982	Current		
Medway Aircraft Preservation Society	Rochester	Kent	1986	Current		
Shoreham Aircraft Museum	Shoreham	Kent	1992	Current		
Pennine Aviation Museum	Bacup	Lancs	1978	1994		
Manchester Vulcan Bomber Society	Blackpool	Lancs	1984	Scrapped 2006		
Helicopter Museum of Great Britain	Heysham	Lancs	1986	1988		
The Aeroplane Collection	Peel Green, Wigan and others	Lancs	1974	1996		
Merseyside Aviation Society	Speke	Lancs	1976	1978		
Spitfire Visitor Centre	Squires Gate	Lancs	2016	2018		
Beech Restorations/ Tomcat T6 Restoration	Bruntingthorpe	Leics	2002	2014		
British Aviation Heritage	Bruntingthorpe	Leics	1994	1998		
Bruntingthorpe Aviation Collection (later Cold War Jets?)	Bruntingthorpe	Leics	1984	1998	1983	Open
Classic Aviation Projects	Bruntingthorpe	Leics	1996	1998		
Cold War Jets Collection	Bruntingthorpe	Leics	2002	2020?		

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Lightning Preservation Group	Bruntingthorpe	Leics	1990	Current		
Phantom Restoration Group	Bruntingthorpe	Leics	1994			
The Buccaneer Aviation Group	Bruntingthorpe	Leics	1996	Current		
Vulcan Operating Company/Vulcan to the Sky Trust	Bruntingthorpe	Leics	2002			
Aeropark	Castle Donington	Leics	1986	Current	2001	Open
Loughborough & Leicestershire Air Museum and Preservation Society	Castle Donington	Leics	1978	1984		
Leicester Aircraft Preservation Group	Leicester	Leics	1992	1992		
Bomber County Aviation Museum	Cleethorpes, Hemswell	Lincs	1982	2005	1960-1981	2006
Cranwell Aviation Heritage Centre	Cranwell	Lincs	2002	Current	1992	Open
RAF Cranwell	Cranwell	Lincs	1963			
Lincolnshire Aviation Heritage Centre	East Kirkby	Lincs	1988	Current	1988	Open
Humberside Aviation Museum	Elsham Hall	Lincs	1978	1980		
Metheringham Airfield Visitor Centre	Metheringham	Lincs	2008	Current	1994	Open
NATO Aircraft Museum/Museum of Weapon Technology	New Waltham	Lincs	1992	1998		
North Coates Heritage Collection	North Coates	Lincs	1998	Current		

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Lincolnshire Aviation Museum	Tattershall	Lincs	1974	1986		
Thorpe Camp Visitor Centre	Woodhall Spa	Lincs	1996	Current		
Croydon Airport Visitor Centre	Croydon	London	1998	Current		
Science Museum store	Hayes	London	1976	1994		
RAF Museum	Hendon	London	1972	Current	1972	Open
Science Museum	Kensington	London	1961	Current		
Imperial War Museum	Lambeth	London	1961	Current		
Whitehall Theatre of War	Westminster	London	1984			
Britannia Aircraft Preservation trust	Liverpool	Merseyside	2008	Current		
Jetstream Club	Liverpool	Merseyside	2008			
Speke Aerodrome Heritage Group	Liverpool	Merseyside	2014	Current		
93rd Bomb Group Museum	Hardwick	Norfolk	2010? 2014	Current		
City of Norwich Aviation Museum	Horsham St Faith	Norfolk	1982	Current	1977	Open
Ludham Control Tower & Military Museum	Ludham	Norfolk	1998	?		
Fenland and West Norfolk Aviation Museum	West Walton	Norfolk	1998	Current	1987	Open
Yorkshire Air Museum	Elvington	North Yorkshire	1988	Current	1985	Open
Northants Aviation Museum	Harrington	Northants	2002			
Sywell Aviation Museum (1)	Sywell	Northants	1982	1986	2001	Open
Sywell Aviation Museum (2)	Sywell	Northants	2002	Current		

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South Yorkshire Aviation Society	Firbeck	Notts	1984	1996		
Newark Air Museum	Winthorpe	Notts	1968	Current	1973	Open
RAF Museum (includes Stafford store)	Cosford	Salop	1961	Current	1979	Open
Wartime Aircraft Recovery Group Museum	Sleap	Salop	2008	Current		
Boulton Paul Society/BP Aircraft Heritage Project	Wolverhampton/ Cosford	Salop	1998	2016		
Bristol Aero Collection	Banwell	Somerset	1996	See Aerospace Bristol	2000	2011
The Helicopter Museum	Weston-super-Mare	Somerset	1990	Current	1978	Open
Fleet Air Arm Museum	Yeovilton	Somerset	1961	Current	1964	Open
South Yorkshire Aircraft Museum	Doncaster	South Yorkshire	2002	Current	1986	Open
Yorkshire Helicopter Preservation Group	Doncaster	South Yorkshire	2002	Current		
Staffordshire Aviation Museum	Seighford	Staffs	1990	?		
Bentwaters Cold War Museum	Bentwaters	Suffolk	2006	Current	2007	Open
Norfolk & Suffolk Aviation Museum	Flixton	Suffolk	1976	Current	1972	Open
Suffolk Aviation Heritage Museum	Foxhall	Suffolk	2002-2008	Current		
390th BG Memorial Air Museum/Parham Airfield Museum	Framlingham/Parham	Suffolk	1998	2002		

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Blyth Valley Aviation Collection	Walpole	Suffolk	1992	2002/ppo		
Gatwick Aviation Museum	Charlwood	Surrey	1992	Current	1999	Open
Dunsfold Airfield Museum	Dunsfold	Surrey	2014	Current		
Wings Museum	Redhill	Surrey	2006	2008	2007	Open
Brooklands Museum	Weybridge	Surrey	1984	Current	1987	Open
North East Land, Sea and Air Museum	Usworth/ Sunderland	Tyne & Wear	1980	Current		
Classic Air Force Airbase/Air Atlantique Historic Flight	Baginton (Coventry)	Warks	1998	2014-2016		
Midland Air Museum	Baginton (Coventry)	Warks	1974	Current	1978	Open
Nimrod Preservation Group	Baginton (Coventry)	Warks	2016	Current		
Shackleton Preservation Group	Baginton (Coventry)	Warks	2016	Current		
Midland Warplane Museum	Hatton/ Baxterley	Warks	1992	2006		
Jet Aviation Preservation Group	Long Marston	Warks	1974	2008		
Stratford Aircraft Collection	Long Marston	Warks	1990	1996		
Delta Engineering Aviation	Wellesbourne Mountford	Warks	1986	Current		
Wellesbourne Aviation Group	Wellesbourne Mountford	Warks	1984	Current	1985-1989	Open
Midland Aircraft Preservation Society	Coventry	West Midlands	1974	Became Midland Air Museum in 1978		
Tettenhall Transport Heritage Centre	Tettenhall	West Midlands	2016	Current		

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Museum of D-Day Aviation	Apuldram/ Shoreham	West Sussex	1992	1998		
Wings World War Two Remembrance Museum	Balcombe	West Sussex	2014	Current	2007	Open
Tangmere Military Aviation Museum	Tangmere	West Sussex	1984	Current	1982	Open
RAF Regional Collection	Colerne	Wilts	1968	1974		
Avon Air Museum	Monkton Farleigh/Yatesbury	Wilts	1990	1994		
Boscombe Down Aviation Collection	Boscombe Down/Old Sarum	Wilts	2002	Current	2012	Open
Nash Collection	Upavon	Wilts	1961	1963		
Fleet Air Arm Museum store	Wroughton	Wilts	1978	1998		
Science Museum store	Wroughton	Wilts	1980	Current		
RAF Defford Museum	Defford	Worcs	2016	Current		
Yorkshire Aircraft Preservation Society	Acaster Malbis	Yorks	1974	1976		
RAF Regional Collection	Finningley	Yorks	1968	1976		
South Yorkshire APS	Misson/ Firbeck	Yorks	1976	1998		
Nostell Aviation Museum (SYAPS)	Nostell Priory	Yorks	1978	1982		
Air Historical Branch	Various		1963			
Dundonald Aviation Centre	Dundonald	Northern Ireland	2002			
Ulster Folk and Transport Museum	Hollywood	Northern Ireland	1980	Current		

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Ulster Aviation Heritage	Langford Lodge	Northern Ireland	1994	2002		
Ulster Aviation Collection	Long Kesh	Northern Ireland	1992	Current	1968	Open
Ulster Aviation Collection/Society	Newtownards	Northern Ireland	1984	Current		
Dumfries & Galloway Aviation Museum	Dumfries	Scotland	1978	Current	1977	
Aircraft Preservation Society of Scotland	East Fortune	Scotland	1984	1998		
Museum of Flight	East Fortune	Scotland	1974	Current		
Highland Aviation Museum	Inverness	Scotland	2006	Current	2005	
Morayvia	Kinloss	Scotland	2016	Current		
Montrose Air Station Heritage Centre	Montrose	Scotland	1994	Current	1992	
Scottish Aircraft Collection Trust	Perth	Scotland	1984	1990		
Strathallan Aircraft Collection	Strathallan	Scotland	1974	1998	1974	1988
Wales Aircraft Museum	Cardiff	Wales	1984	1994		
Welsh Spitfire Museum	Haverfordwest	Wales	2014	Current		
Caernarfon Airport Airworld Museum	Llandwrog	Wales	1986	Current	1988	Open
Sunderland Trust	Pembroke Dock	Wales	1963	1968		
South Wales APS	Rhoose/ Cardiff	Wales	1976	1982		
RAF Regional Collection	St Athan	Wales	1974	1992		

Appendix E

Appendix E: Questionnaires sent to museums

Museum	Sent	Response received
Museum of Berkshire Aviation	December 2019	January 2020
Duxford Aviation Society	December 2019	June 2020 – unable to help
Robertsbridge Aviation Society	December 2019	December 2019
Stow Maries	December 2019	January 2020
Jet Age Museum	December 2019, April 2020 & June 2022	No response
Solent Sky	December 2019 & April 2020	No response
De Havilland Museum	2020	2020
Norfolk & Suffolk Aviation Museum	January 2020 & March 2021	March 2021
Dumfries & Galloway Aviation Museum	2020	2020
Midland Air Museum	January 2020 & April 2020	No response
City of Norwich Aviation Museum	January 2020 & April 2020	No response
Montrose Air Station Heritage Centre	January 2020 & April 2020	No response
The Helicopter Museum	January 2020, April 2020 & June 2022	June 2022, but no response to a request for interview
Ulster Aviation Collection	April 2020	April 2020
Thorpe Camp Visitor Centre	April 2020	No response
Lashenden Air Warfare Museum	April 2020	No response
Tangmere Military Aviation Museum	April 2020	No response
South Yorkshire Aircraft Museum	April 2020 & June 2022	Telephone response in April 2020; interview conducted mid-2022
Newark Aviation Museum	April 2020 & June 2022	No response
NELSAM	April 2020 & May 2022	No response
Gatwick Aviation Museum	April 2020 & June 2022	No response
East Midlands Aeropark	April 2020	Contact made in June 2022, but no response to a request for interview
Sywell Aviation Museum	June 2022	No response
Jet Age Museum	June 2022	No response
Yorkshire Air Museum	June 2022	No response

Appendix E

Volunteer and visitor numbers

Museum	Paid staff	Volunteers	Visitors (pre-pandemic)
Robertsbridge Aviation Society	0	10	300
Museum of Berkshire Aviation	0	15-20	5000
Ulster Aviation Society	0	85	5000-6000
Dumfries & Galloway Aviation Museum	0	24	8500
Stow Maries	4	160	15,000
De Havilland Aviation Museum	5	80	16,000
City of Norwich Aviation Museum	6	70	16,500

Appendix F

Appendix F: Heritage Lottery Fund grants to Aviation Museums¹

Award Date	Museum	Project	Grant (£)
July 1995	Imperial War Museum		6,500,000
July 1995	Yorkshire Air Museum	Acquisition and erection of a wartime hangar	135,800
February 1997	Aerospace Museum, Cosford	New visitor centre	1,520,222
January 1998	Fleet Air Arm Museum	Exhibition and collection store	3,700,000
May 1998	Brooklands Museum	Purchase of the Mike Beach Aircraft Collection	
December 1998	Helicopter Museum, Weston-super-Mare	Development	334,500
December 1998	Royal Air Force Museum	Hendon Development (Phase 1)	79,200
February 1999	(Royal Scottish) Museum of Flight	Air displays at Scottish airfields and a programme of exhibitions, talks and films	36,195
June 1999	Montrose Air Station Trust	Printing and production costs [for an exhibition?]	3,365
November 1999	Yorkshire Air Museum	Acquisition of a 1903 Wright Flier Replica	10,000
March 2000	Imperial War Museum	Duxford outreach programme	63,000
September 2000	Aerospace Museum Society	Printing and distribution of leaflets to recruit new members	1,700
September 2000	Aviation Preservation Society of Scotland	Purchase of exhibition materials	4,169
October 2000	Science Museum	Purchase of Helen Sharman's space suit	35,000
October 2000	Duxford Aviation Society	Restoration and preservation of airliners	314,500

¹ Extracted from TNA PF 1/1, National Lottery Awards Database: 2001 snapshot and PF 1/2, 2006 snapshot.

Appendix F

November 2000	Royal Air Force Museum	Hendon Development (Phase 2)	4,772,000
June 2002	Assault Glider Association	Materials and tools for the construction of a replica aircraft	5,000
October 2002	Robertsbridge Aviation Society	Expanding displays	5,000
January 2003	Ulster Aviation Society	Seminars marking the centenary of powered flight	4,338
February 2003	Norfolk & Suffolk Aviation Museum	New hangar	77,000
March 2003	Newark Air Museum	Aircraft display hall	453,000
May 2003	National Museums & Galleries of Northern Ireland	Redevelopment of the existing Flight Experience exhibition	231,041
November 2003	Jet Age Museum	PPG permanent home for the museum	15,700
December 2003	Dumfries & Galloway Aviation Museum	Road signs to attract more visitors	3,525
February 2004	Montrose Air Station Museum	Education provision and interpretation	2,500
September 2004	British Aviation Preservation Council	National Aviation Heritage Skills Initiative	569,500
September 2004	Highland Aviation Museum	Improve access to the museum	3,456
February 2005	Dumfries & Galloway Aviation Museum	Commemoration event	10,000
March 2005	Carew Cheriton Control Tower Group	Acquisition and transport of an aircraft	3,351
March 2005	Imperial War Museum	Redevelopment of the Airspace hangar at Duxford	137,831
May 2005	De Havilland Aircraft Museum	Commemoration ceremony and reception	9,250
May 2005	Wartime Aircraft Recovery Group	Purchase of display equipment	2,484
May 2005	South Yorkshire Aircraft Museum	Opening ceremony	8,550

Appendix F

May 2005	Martlesham Heath Aviation Society	1. Not specified 2. 1940s Day	1. 3,798 2. 2,500
May 2005	Ulster Aviation Society	Commemorative events	6,300
May 2005	South West Aviation Trust	Commemorative events and exhibition	20,000
July 2005	Boxted Airfield Historical Group	Commemorative event	5,000
July 2005	North East Aircraft Museum	Display cabinets and mannequins	9,391
July 2005	Suffolk Aviation Heritage Group	3 one-day exhibitions	1,000
May 2006	Ulster Aviation Society	Educational DVD for schools	5,000
		TOTAL	28,206,253

Appendix G

Appendix G: Reasons for Closure

Name	Location	First W&R Entry	Last Entry/Closure	Reason
Sunderland Trust	Pembroke Dock	1963	1968	Uneconomic
RAF Regional Collection	Colerne	1968	1974	Rationalisation
Yorkshire Aviation Preservation Society	Acaster Malbis	1974	1976	Moved?
RAF Regional Collection	Finningley	1968	1976	Rationalisation
Skyfame	Staverton	1968	1976	Uneconomic
College of Aeronautics	Cranfield	1961	1978	Obsolete
Ormond Haydon-Baillie	Duxford	1978	1980	Owner died
Vintage Aircraft Team	Duxford, then Cranfield	1980	1980	Premises
Nostell Aviation Museum	Nostell Priory	1978	1982	Moved to Firbeck
South Wales APS/Wales Aircraft Museum	Rhoose (Cardiff)	1976	1994	Premises
Chiltern Historical APS	Booker (High Wycombe)	1984	1984	
Loughborough & Leicestershire Air Museum & PS	Castle Donington	1978	1985	Moved & became Bruntingthorpe Aviation Collection
Whitehall Theatre of War	London	1984	1985	Uneconomic
Historic Aircraft Museum	Southend	1968	1986	Uneconomic
Sywell Aviation Museum/Nene Valley Aviation Society	Sywell	1982	1986	Premises
Lincolnshire Aviation Museum	Tattershall	1974	1986	
Russavia	Duxford	1978	1988	Market change
Helicopter Museum of Great Britain	Heysham	1986	1988	Collection moved to store due to owner's business needs

Appendix G

North Weald Aircraft Restoration Flight	North Weald	1984	1988	Death
Scottish Aircraft Collection Trust	Perth	1984	1990	“Folded”
Torbay Aircraft Museum	Higher Blagdon	1974	1992	Uneconomic
Leicester APG	1992	1992		
RAF Regional Collection	St Athan	1974	1992	Rationalisation
Booker Aircraft Museum	High Wycombe	1986	1994	Sold
Macclesfield Historical Aviation Society	Chelford	1992	1994	Premises
Avon Air Museum	Yatesbury	1990	1994	Prior Permission
South West Aviation Heritage	Eaglescott	1996	1998	
Rebel Air Museum	Andrewsfield	1980	1997	
Stratford Aircraft Collection	Long Marston	1990	1993?	“Collapsed”
Aircraft Preservation Society of Scotland	East Fortune	1984	1998	Collection merged with Museum of Flight
RNAY Fleetlands Museum	Gosport	1992	1998	Premises?
NATO Aircraft Museum/Museum of Weapon Technology	New Waltham	1992	2000	Moved, then Prior Permission
Island Aeroplane Company Collection	Sandown	1996	1999	Uneconomic
Strathallan Aircraft Collection	Strathallan	1974	1988	Uneconomic
390 th BG Memorial Museum/Parham Airfield Museum	Framlingham/Parham	1998	2003	Only aircraft was removed
Bomber County Aviation Museum	Cleethorpes/Hemswell	1982	2005	“Various Reasons”
Midland Warplane Museum	Hatton/Exterley	1992	2008	Prior Permission
RAF Millom Museum Project/South Copeland Aviation Group	Haverigg	1988	2008	?
Second World War APS	Lasham	1980	2010	Death

Appendix G

Jet APG	Long Marston	1974	2008	?
British Balloon Museum & Library/West Berks. Museum	Newbury	1980	2008	Premises?
Dunkeswell Memorial Museum	Dunkeswell	1998	2010	No aircraft?
Historic Flying	Duxford	2006	2010	Prior Permission
Spitfire Ltd	Duxford	2006	2010	Prior Permission
Delta Jets	Kemble	1998	2010	Prior Permission
Shoreham Aviation Heritage Centre	Shoreham	1994	2010	?
Beech Restorations/Tomcat T6 Restoration	Bruntingthorpe	2002	2014	?
Boulton Paul Society/BP Aircraft Heritage Project	Wolverhampton/Cosford	1998	2016	Premises
Spitfire Visitor Centre	Squires Gate	2016	2018	?
Aces High	Duxford/North Weald	1990	?	Prior Permission
Ludham Control Tower & Military Museum	Ludham	1998	?	
Blyth Valley Aviation Collection	Walpole	1992	2002	Prior Permission
Cotswold Aircraft Restoration Group	Innsworth	1980	2007	Premises; age
Balloon Preservation Group	Lancing	1998	2006?	
Classic Air Force	St Mawgan	2014		Uneconomic?
Cold War Jets Collection	Bruntingthorpe	2002	2020?	
Fort Paul Armouries	Paull	2008	2019	Death; Age
Cornwall Aviation Heritage Centre	St Mawgan	2016	2023	Premises

Appendix H

Appendix H: The Masefield Committee's Lists of Historic Aircraft

Category A: Aircraft of Major Historic Importance; Category B: Other Historic Aircraft¹

	Category	Manufacturer	Type	Identity	Owner	Location in 2018	Plaque No.
British	A	Airspeed	Horsa				
British	A	ANEC	II	G-EBJO	Shuttleworth Collection	Shuttleworth Collection	3
British	A	Avro	504K	G-EBJE	Nash	Hendon?	
British	A	Avro	504K	D7560	Science Museum	Science Museum	
British	A	Avro	504K	H2311	Nash	MOSI	
British	A	Avro	504K	F3404 (now E273)	Shuttleworth Collection	Shuttleworth Collection	
British	A	Avro	Anson I	"One example"			
British	A	Avro	Avian	G-ACGT	B Murphy	may be at Yeadon	
British	A	Avro	Lancaster	R5868	Air Ministry	Hendon	7
British	A	Avro	Tutor	G-AHSA	Shuttleworth Collection	Shuttleworth Collection	70
British	A	Blackburn	Monoplane Type B	725	Shuttleworth Collection	Shuttleworth Collection	8
British	A	Boulton Paul	Defiant	N1617	Air Ministry	Cosford	71
British	A	Bristol	Bulldog	G-ABBB	Bristol Aircraft	Hendon	
British	A	Bristol	Fighter	E2581	IWM	Duxford	
British	A	Bristol	Fighter	D8096	Shuttleworth Collection	Shuttleworth Collection	10
British	A	Bristol	Blenheim	No UK example	Finland	Central Finland Aviation Museum	

¹ Compiled from RAeS NAL

Appendix H

British	A	Cierva	C.30A	G-ACWP/AP507	Science Museum	Science Museum	74
British	A	Cierva	C.30A	G-AHMJ	Shuttleworth Collection	Fantasy of Flight, Florida	75
British	A	Cierva	C.30A	G-ACUU	G S Baker	Withdrawn from use	14
British	A	Cody	Biplane	304	Science Museum	Science Museum	15
British	A	De Havilland	DH 9	F1258	Musée de l'Air	Musée de l'Air	86
British	A	De Havilland	DH 53 Humming Bird	G-EBHX	Shuttleworth Collection	Crashed 2012	17
British	A	De Havilland	DH 60 Moth	G-EBLV	de Havilland	Shuttleworth Collection	
British	A	De Havilland	DH 60G Gipsy Moth	G-AAAH	Science Museum	Science Museum	19
British	A	De Havilland	DH 80A Puss Moth	G-AAZP	G W Hall	Still on UK register	23
British	A	De Havilland	DH 84 Dragon	G-ACIT	Air Navigation & Trading	Science Museum Wroughton	25
British	A	De Havilland	DH 88 Comet	G-ACSS	de Havilland	Shuttleworth Collection	
British	A	De Havilland	DH 98 Mosquito	W4050	de Havilland	de Havilland Museum	
British	A	De Havilland	DH 100 Vampire	LZ551	Science Museum	Loan to Fleet Air Arm Museum	88
British	A	English Electric	Wren	4	Shuttleworth Collection	Shuttleworth Collection	30
British	A	Fairey	Swordfish	NF370	IWM	Duxford	76
British	A	Fairey	Swordfish	?	Royal Navy	Fleet Air Arm Museum	31

Appendix H

British	A	Fairey	Swordfish	G-AJVH	Fairey Aviation	RN Historic Flight	32
British	A	Gloster	Gladiator	K8042	Air Ministry	Cosford	38
British	A	Gloster	Gladiator	L8032/K8032/G-AMRK	Gloster Aircraft	Shuttleworth Collection	37
British	A	Gloster	F.9/40	DG202	Air Ministry	Cosford	90
British	A	Gloster	Meteor F.4	EE549	Air Ministry	Tangmere	39
British	A	Gloster	E.28/39	W4041	Science Museum	Science Museum	89
British	A	Hafner	Revoplane		R Hafner	Helicopter Museum	40
British	A	Handley Page	Gugnunc	G-AACN	Science Museum	Science Museum	41
British	A	Hawker	Cygnets	G-EBMB	Hawker Aircraft	Cosford	42
British	A	Hawker	Hart	G-ABMR	Hawker Aircraft	Hendon	43
British	A	Hawker	Hurricane I	L1592	Science Museum	Science Museum	62
British	A	Hawker	Hurricane I	P2617	Air Ministry	Hendon	63
British	A	Hawker	Hurricane IIc	LF363	Air Ministry	BBMF	64
British	A	Hawker	Hurricane IIc	G-AMAU	Hawker Aircraft	BBMF	65
British	A	Jap-Harding	Monoplane Type B		Science Museum	Science Museum	44
British	A	Parnall	Pixie III	G-EBJG	D St Cyrien	Midland Air Museum (remains)	
British	A	Percival	Gull	G-ADPR	Hunting Aircraft	Auckland Airport	50

Appendix H

British	A	Pilcher	Hawk glider		Royal Scottish Museum	National Museums of Scotland	52
British	A	Pilcher	Hawk glider	reproduction	Science Museum	Possibly at Duxford	53
British	A	Roe	Triplane		Science Museum	Science Museum	1
British	A	Royal Aircraft Factory	B.E. 2c	2699	IWM	Duxford	78
British	A	Royal Aircraft Factory	R.E. 8	F3556	IWM	Duxford	79
British	A	Royal Aircraft Factory	S.E. 5a	G-EBIA	Shuttleworth Collection	Shuttleworth Collection	
British	A	Royal Aircraft Factory	S.E. 5a	G-EBIC	Nash	Hendon	
British	A	Royal Aircraft Factory	S.E. 5a	G-EBIB	Science Museum	Science Museum	
British	A	Saunders-Roe	S.R./A1	G-12-1	College of Aeronautics	Solent Sky	
British	A	Short	Seaplane (184?)	remains	IWM	On loan to Fleet Air Arm Museum	80
British	A	Short	Sunderland	"One example" [eventually allocated to ML824]	Sunderland Trust	Hendon	108
British	A	Sopwith	Baby seaplane		Nash	Fleet Air Arm Museum	
British	A	Sopwith	Camel	H508	Nash	Hendon	
British	A	Sopwith	Camel	N6812	IWM	IWM	81
British	A	Sopwith	Pup	G-EBKY/N5180	Shuttleworth Collection	Shuttleworth Collection	82
British	A	Sopwith	Triplane	N5912	Air Ministry	Hendon	93

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British	A	Supermarine	S.6B	S1595	Science Museum	Science Museum	56
British	A	Supermarine	S.6B	S1596 (actually N248)	Southampton Corporation	Solent Sky	95
British	A	Supermarine	Spitfire I	P9444	Science Museum	Science Museum	57
British	A	Supermarine	Spitfire I	R6915	IWM	IWM	
British	A	Supermarine	Spitfire I	K9942	Air Ministry	Cosford	
British	A	Supermarine	Spitfire I	X4590	Air Ministry	Hendon	
British	A	Supermarine	Spitfire I		Shuttleworth Collection	?	
British	A	Supermarine	Spitfire XI	LT-	Shuttleworth Collection	Sold France, crashed	
British	A	Vickers	Vimy		Science Museum	Science Museum	69
British	A	Vickers	Wellington	MF628	RAeS	Cosford	
British	A	Vickers	Viscount 700	G-AMAV	Vickers-Armstrong	Scrapped c.1961	
British	A	Westland-Hill	Pterodactyl	J8067	Science Museum	Science Museum	
British	A	Westland	Lysander IIIA	R9125	Air Ministry	Cosford	94
Foreign	A	Antioinette	Monoplane Type B		Science Museum	Science Museum	83
Foreign	A		Baka ²		Science Museum	No trace. Other examples are held by the IWM and RAF Museum	

² Baka was the Allied name; It was manufactured by Yokosuka and known to the Japanese as the Okha.

Appendix H

Foreign	A		Baka		RAF College	RAF Museum, on loan to the Pima Air & Space Museum	
Foreign	A	Bleriot	XI	14	Shuttleworth Collection	Shuttleworth Collection	84
Foreign	A		XI bis	16	Nash	Hendon	
Foreign	A		XXVII	433	Nash	Hendon	
Foreign	A	Caudron	G.III	OO-ELA	Nash	Hendon	
Foreign	A	Chanute	glider		Science Museum	Hendon (RAeC)	
Foreign	A	Deperdussin			Shuttleworth Collection	Shuttleworth Collection	85
Foreign	A	FIAT	C.R. 42	BT474	Air Ministry	Hendon	34
Foreign	A	Fieseler	Storch	VP546	Air Ministry	Cosford	
Foreign	A	Flettner	282 Kolibri		College of Aeronautics	Midland Air Museum (remains)	
Foreign	A	Focke-Achgelis	FA 330	100509	Science Museum	Science Museum Wroughton	
Foreign	A	Focke-Achgelis	FA 330	1. 100406 2. 100545	College of Aeronautics	1. Hubschrauber Museum, Germany 2. Fleet Air Arm Museum	
Foreign	A	Focke-Wulf	Fw 190A-9	584219	Air Ministry	Cosford	
Foreign	A	Fokker	E.1 monoplane		Science Museum	Science Museum	
Foreign	A	Fokker	D.VII		Nash	Hendon	
Foreign	A	Heinkel	He 111H		Air Ministry	Cosford	
Foreign	A	Heinkel	He 162		RAF College	Duxford	

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Foreign	A	Junkers	Ju87		Air Ministry	Hendon	
Foreign	A	Junkers	Ju 88		Air Ministry	Cosford	
Foreign	A	Lilienthal	glider	reproduction	Science Museum (RAeS)	Science Museum	
Foreign	A	LVG	CVI		Air Ministry	Cosford	
Foreign	A	Maurice Farman	F.40	F-HMFI	Nash	Sold to New Zealand	
Foreign	A	Messerschmitt	Me 163		RAF College	Possibly returned to Germany	
Foreign	A	Messerschmitt	Me 163		Science Museum	Science Museum	
Foreign	A	Messerschmitt	Me 163	191659/AM215	College of Aeronautics	East Fortune	
Foreign	A	Messerschmitt	Bf 109E		Air Ministry	Hendon	
Foreign	A	Messerschmitt	Bf 109G		Air Ministry	Cosford	
Foreign	A	Messerschmitt	Bf 110		Air Ministry	Hendon	
Foreign	A	Messerschmitt	Me 262		Air Ministry	Cosford	
Foreign	A	Messerschmitt	Me 410		Air Ministry	Cosford	
Foreign	A	Nakajima	Ki-43 Oscar			?	
Foreign	A	Sikorsky	R.4B/Hoverfly		College of Aeronautics	Hendon	
Foreign	A	Fieseler	Fi 103/V-1	442795	Science Museum	Science Museum	
Foreign	A	Fieseler	Fi 103/V-1		IWM	Duxford	
Foreign	A		V-2		Science Museum		
Foreign	A		V-2		IWM		
Foreign	A	Wright	Flyer (reproduction)		Science Museum	Science Museum	59

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Foreign	A		Zaunkoenig	G-ALUA	P J Sullivan	Sold to Ireland	60
Foreign	A	Mitsubishi	A6M Zeke		Air Ministry	Possibly IWM (cockpit)	
British	B	Airspeed	Oxford	G-ALTP	Air Service Training	Damaged Beyond Repair 1962	2
British	B	Armstrong Whitworth	AW 52G	RG324	Armstrong Whitworth	Scrapped	4
British	B	Arrow	Active	G-ABVE	N Jones	Brighton	5
British	B	Avro	Avian	G-ABEE	P J Houston	On current UK register	6
British	B	Avro	Cadet	G-ADIE	M Marron	Sold in Ireland 1960	107
British	B	Avro	Lincoln	PW932	College of Aeronautics	Scrapped	
British	B	B.A.	Swallow	G-ADPS	Walker & Thompson	On current UK register	12
British	B	Blackburn	B.2	G-AEBJ	Blackburn Aircraft	Shuttleworth Collection	9
British		Bristol	173	G-ALBN/XF785		Aerospace Bristol	99
British	B	Bristol	Britannia	G-ALBO	Bristol Aircraft	Scrapped	11
British	B	Chilton	D.W. 1	G-AFGH	F P Massey-Dawson	Newbury Aeroplane Co.	13
British	B	Cierva	C.24	G-ABLM	Science Museum	de Havilland Museum	73
British	B	Comper	Swift	G-ABUS	A L Cole	On current UK register	16
British	B	Comper	Swift	G-ABUU	A Imrie	Withdrawn from use 1999	
British	B	De Havilland	DH 60X Moth	G-EBWD	Shuttleworth Collection	Shuttleworth Collection	22

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British	B	De Havilland	DH 60G Gipsy Moth	G-ABYA	M C Harley	On current UK register	21
British	B	De Havilland	DH 60G Gipsy Moth	G-AAWO	J F W Reed	On current UK register	18
British	B	De Havilland	DH 60G Gipsy Moth	G-ABJJ	R K Dundas	On current UK register	20
British	B	De Havilland	DH 82A Tiger Moth	G-ACDC	N Jones	On current UK register	24
British	B	De Havilland	DH 83 Fox moth	G-ACEJ	Giro Aviation	On current UK register	
British	B	De Havilland	DH 83 Fox moth	G-ACCB	Giro Aviation	On current UK register	
British	B	De Havilland	DH 83 Fox moth	G-AOJH	H Paterson	On current UK register	87
British	B	De Havilland	DH 85 Leopard Moth	G-ACMA	W T Scott	On current UK register	26
British	B	De Havilland	DH 86 Express	G-ACZP	V H Bellamy	Withdrawn from use 1961	
British	B	De Havilland	DH 87B Hornet Moth	G-ADKC	V H Bellamy	On current UK register	
British	B	De Havilland	DH 89A Rapide	G-ADYL	F C Fox	Withdrawn from use 1963	27
British	B	De Havilland	DH 94 Moth Minor	G-AFNG	Blackpool & Fylde Aero Club	Sold to France	28
British	B	Desoutter	I	G-AAPZ	Shuttleworth Collection	Shuttleworth Collection	29
British	B	Fairey	Fulmar	G-AIBE	Fairey Aviation	Fleet Air Arm Museum	33
British	B	General Aircraft	Cygnet	G-AFVR	F T W Gunton	Destroyed 1969	36

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British	B	General Aircraft	Cygnet	G-AGBN	Mrs J E Jones	East Fortune	
British	B	Firth	Helicopter	G-ALXP	College of Aeronautics	Scrapped	
British	B	Foster-Wikner	Wicko	G-AFJB	N B Stephenson	On current UK register	35
British	B	Hawker	Tempest II	LA607	College of Aeronautics	Fantasy of Flight, Florida	
British	B	Hawker	Tomtit	G-AFTA	Hawker Aircraft	Shuttleworth Collection	66
British	B	Heath	Parasol	G-AFZE	D St Cyrien	On current UK register	91
British	B	Hinkler	Ibis			Scrapped 1959	
British	B	Kay	Gyroplane	G-ACVA	D Kay	National Museum of Scotland	45
British	B	Kronfeld	Drone	G-AEKV	J S Thorpe	Gliding Heritage Centre	
British	B	Luton	Minor	G-AFIR	F J Parker	On current UK register	
British	B	Miles	Hawk Major	G-ADMW	J P Gunner	Montrose	97
British	B	Miles	Hawk Speed Six	G-ADGP	R R Paine	On current UK register	49
British	B	Miles	Hawk Trainer/Magister	G-AFBS	Denham Flying Club	Duxford	48
British	B	Parnall	Elf	G-AAIN	Shuttleworth Collection	Shuttleworth Collection	77
British	B	Percival	Mew Gull	G-AEXF	F Dunkerley	Shuttleworth Collection	51

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British	B	Percival	Q.6	G-AEYE	J B Peak	Withdrawn from use 1964	67
British	B	Reid & Sigrist	Desford	G-ACOS	Film Aviation	Windmill Aviation	96
British	B	Robinson	Redwing	G-ABNX	P J Houston	Aero Antiques	92
British	B	Short	S.B.5	WG768	Ministry of Aviation	Cosford	109
British	B	Short	Scion	G-AEZF	B M H Winslett	MAPS	98
British	B	Southern	Martlet	G-AAYX	Shuttleworth Collection	Shuttleworth Collection	54
British	B	Spartan	Arrow	G-ABWP	R P Green	On current UK register	
British	B	Supermarine	Spitfire T.8	G-AIDN	V H Bellamy	On current UK register	
British	B	Supermarine	Spitfire XIV	G-ALGT	Rolls-Royce	Crashed 1992	
British	B	Taylor-Watkinson	Dingbat	G-AFJA		Registration cancelled 2014	
British	B	Supermarine	Type 545	XA181	College of Aeronautics	Scrapped 1967	
British	B	Weir	W.2 autogiro	W-2	Science Museum	East Fortune	58
British	B	Westland	Welkin		Westland Aircraft	Scrapped	
British	B	Westland	Wyvern	VR137	College of Aeronautics	Fleet Air Arm Museum	
Foreign	B	Chance-Vought	Corsair	KD431	College of Aeronautics	Fleet Air Arm Museum	
Foreign	B	Curtiss	Sea Gull	remains	Science Museum	?	

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Foreign	B	Mitsubishi	Ki-46 Dinah		Air Ministry	Cosford	
Foreign	B	Douglas	DC-3	"One example"			
Foreign	B	Klemm	L.25.1A	G-AAHW	R H Grant	Sold to Germany	46
Foreign	B	Klemm	L.25.1A	G-AAXK	C C R Vick	Registration expired 1991	47
Foreign	B	Mignet	Flying Flea	G-AEHM	Science Museum	M Shed, Bristol	
Foreign	B	Stinson	Reliant	G-AFVT	Fairey Aviation	Sold to USA	55
Foreign	B	Tipsy	Trainer	G-AFWT	J A Overton	On current UK register	68
British		Hawker	Hurricane IV	KX829	Loughborough College of Technology	Thinktank, Birmingham	100
British		Hawker	Sea Hurricane	Z7015	Loughborough College of Technology	Shuttleworth Collection	101
British		Supermarine	Spitfire V	AR501	Loughborough College of Technology	Shuttleworth Collection	102
Foreign		Grumman	G-36 [Wildcat]	AL246	Loughborough College of Technology	Fleet Air Arm Museum	103
British		Miles	Sparrowjet	G-ADNL		Burnt in hangar fire	104
British		De Havilland	Leopard Moth	G-ACLL	Derby Aviation	On current UK register	105
British		Avro	Cadet	G-ACIH/EI-ALU		Sold to Ireland, 1961	106

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British		Comper	Swift	G-ACTF		Shuttleworth Collection	110
Foreign	B	Chance-Vought	Corsair	KD431	College of Aeronautics	Fleet Air Arm Museum	
Foreign	B	Curtiss	Sea Gull	remains	Science Museum	?	
Foreign	B	Mitsubishi	Ki-46 Dinah		Air Ministry	Cosford	
Foreign	B	Douglas	DC-3	"One example"			
Foreign	B	Klemm	L.25.1A	G-AAHW	R H Grant	Sold to Germany	46
Foreign	B	Klemm	L.25.1A	G-AAXK	C C R Vick	Registration expired 1991	47
Foreign	B	Mignet	Flying Flea	G-AEHM	Science Museum	M Shed, Bristol	
Foreign	B	Stinson	Reliant	G-AFVT	Fairey Aviation	Sold to USA	55
Foreign	B	Tipsy	Trainer	G-AFWT	J A Overton	On current UK register	68

Appendix I

Appendix I - Aircraft collected by the Imperial War Museum after the First World War¹

Aircraft	Serial No.	Original IWM No.	Current location	Museum Accession No.
Bristol Fighter	E2581	10323	IWM Duxford	2010.45.2
Royal Aircraft Factory BE 2c	2699	10320	IWM Duxford	2010.250.1
Royal Aircraft Factory RE 8	F3556	10322	IWM Duxford	2010.250.2
Short 184	8359	10322	Loaned by IWM to Fleet Air Arm Museum	2010.268.1
Sopwith Camel	N6812	10321	IWM London	2010.275.1
Sopwith Triplane	N5912	10324	RAF Museum	74/A/19
Roland Scout	D7315	10326	Unknown	
LVG C.VI	4503	10327	RAF Museum	1996/0163/A
Fokker Eindecker		10328	Unknown	

¹ TNA AIR 2/510 Enclosure 51A, Imperial War Museum: Air Service Exhibits. Note of meeting held... August 23rd 1933

Appendix J

Appendix J – the Air Ministry’s collection

November 1944¹

Nationality	Manufacturer	Type	Serial number	Note
British	Boulton Paul	Defiant	N1671	RAF Museum
British	Handley Page	Hampden	P1310	Scrapped 1955
British	Handley Page	Hampden	AE384	Sent to Australia, scrapped 1954
British	Hawker	Hurricane	L1592	Science Museum
British	Hawker	Hurricane	P2617	RAF Museum
British	Supermarine	Spitfire	K9942	RAF Museum
British	Supermarine	Spitfire	P7973	Australian War Memorial
British	Supermarine	Spitfire	P8092	Sent to Argentina?
British	Supermarine	Spitfire	P9444	Science Museum
British	Supermarine	Spitfire	R6915	IWM
British	Supermarine	Spitfire	X4590	RAF Museum

1962²

Nationality	Manufacturer	Type	Serial number	Note
British	Avro	Lancaster	R5868	RAF Museum
British	Boulton Paul	Defiant	N1671	RAF Museum
British	De Havilland	Mosquito	TJ138	Negotiations in progress for a second example
British	Gloster	Gladiator	K8042	RAF Museum
British	Gloster	F.9/40	DG202	RAF Museum
British	Gloster	Meteor	EE549	RAF Museum, loan to Tangmere
British	Hawker	Hurricane	L1592	Science Museum
British	Hawker	Hurricane	P2617	RAF Museum
British	Sopwith	Triplane	N5912	Originally selected for IWM, 1918; found in storage in 1944
British	Supermarine	Spitfire	K9942	RAF Museum
British	Supermarine	Spitfire	P9444	Science Museum
British	Supermarine	Spitfire	R6915	IWM
British	Supermarine	Spitfire	X4590	RAF Museum

¹ TNA AIR 2/10185 Enclosure 81A, Note by Flt Lt D G Jeffery, AHB, 30 November 1944.

² TNA AIR 20/12397 Enclosure 4 Appendix B ‘List of aircraft controlled by the Air Historical Branch’

Appendix J

British	Westland	Lysander	R9125	RAF Museum
British	Vickers	Wellington	MF628	On loan from RAeS, later sold to the RAF and transferred to the RAF Museum
German	Fieseler	Storch	475081	RAF Museum
German	Focke-Wulf	Fw 190A-8	733682	RAF Museum
German	Focke-Wulf	Fw 190F-8	584219	RAF Museum
German	Heinkel	He 111	701152	RAF Museum
German	Heinkel	He 162	120227	RAF Museum
German	Junkers	Ju 87	494083	RAF Museum
German	Junkers	Ju 88	360043	RAF Museum
German	LVG	C.VI	7198/18	Originally selected for IWM, 1918; found in storage in 1944. RAF Museum
German	Messerschmitt	109E	4101	RAF Museum
German	Messerschmitt	109G	10639	RAF Museum
German	Messerschmitt	110	730301	RAF Museum
German	Messerschmitt	163	191614	RAF Museum
German	Messerschmitt	163	191316	Science Museum
German	Messerschmitt	163	191659	National Museum of Flight Scotland
German	Messerschmitt	262	112372	RAF Museum
German	Messerschmitt	410	420430	RAF Museum
German		V-1		5 examples, one each loaned to IWM and Science Museum
		V-2		2 examples, one each loaned to IWM and Science Museum
Italian	FIAT	CR 42	MM5701	RAF Museum
Japanese	Yokosuka	MXV-7 Oka	10461	Allied name "Baka" RAF Museum
Japanese	Yokosuka	MXV-7 Oka	?	Allied name "Baka"
Japanese	Mitsubishi	Ki-46	5439	Allied name: "Dinah" RAF Museum
Japanese	Kawasaki	Ki-100	16336	Originally identified as a Nakajima Ki-43 "Oscar". RAF Museum

Appendix K – Glossary

Aerospace	Used to embrace both <i>Aviation</i> in the earth’s atmosphere, and spaceflight.
Aircraft	A device intended to fly; most aircraft will carry one or more people. Unmanned “Drones” are referred to as Unmanned Aerial Systems (UASs), Remotely Piloted Vehicles (RPVs) or Remotely Piloted Air Systems (RPAS).
Airliner	An aircraft designed to carry fare-paying passengers, usually over relatively long distances.
Airship	An aircraft which gains lift from one or more fabric containers (gasbags) containing a gas which is lighter than air, such as Hydrogen or Helium. It has one or more engines turning propellers or fans to move it through the air.
Artefact	In this study, Artefact is used for an <i>Object</i> (q.v.) with aeronautical connections.
Autogiro/ Autogyro	An aircraft which gains lift from <u>unpowered</u> rotors turned by the airstream. Can be confused with <i>Helicopter</i> (q.v.).
Aviation	General term for flight in the earth’s atmosphere.
Balloon	An aircraft which gains lift from a fabric container (the Envelope) containing gases which are lighter than the surrounding air. Most modern balloons use hot air, but 19 th and early 20 th century balloons used coal gas or hydrogen. A balloon travels as the result of the wind pushing against the envelope.
Colour Scheme	This may be military camouflage, an airline’s livery or another paint scheme chosen by the manufacturer or owner.
Flying Flea	Henri Mignet designed the <i>Pou-du-Ciel</i> – a small, single-seat aircraft – to make flying affordable for a large proportion of the population, as it could be built by competent woodworkers. Unfortunately, the design was aerodynamically flawed due to its unconventional layout, and after a number of accidents in the 1930s the type was banned in the UK.
Glider	An unpowered fixed-wing aircraft. <i>Sailplanes</i> are high-performance gliders. <i>Hang gliders</i> have minimal structure, from which the pilot hangs.
Helicopter	An aircraft which gains its lift from <u>powered</u> rotors, turned by one or more engines.
Light aircraft	A relatively small, powered aircraft designed for recreational use and pilot training.
Mark	The original form of an aircraft is referred to as Mark 1. Subsequent significant changes (such as changes in dimensions, role or engines) may create Mark 2 and so on. See the example of the Vampire.
Markings	These may include the <i>Registration</i> or <i>Serial Number</i> and any distinctive codes used to distinguish a particular aeroplane from another of the same type. See <i>Colour Scheme</i>
Microlight	A powered aircraft with a very light structure, capable of carrying not more than two people. They may be similar in form to

Appendix K

	conventional light aircraft (known as “3-Axis”) or to a Hang Glider (“Weight-Shift”).
Military aircraft	Aircraft operated by an Army, Navy or Air Force. Such aircraft may have been designed for a military role, or a civilian aircraft used for a role broadly similar to that for which it was designed, such as training or the transport of personnel.
Object	In this study <i>Object</i> is used for an item, collected by museums or individuals, which has no aeronautical connections. It is a broader term than <i>Artefact</i> .
Radial engine	A piston engine in which the cylinders are arranged in a circle, radiating out from the centre. The cylinders do not move.
Registration	Civil aircraft are required to display a Registration, in the same way that cars carry number plates. British registrations are in the form G-****, where G denotes that the aircraft is on the British register. “Plane Spotters” record the registrations and <i>Serial Numbers</i> of aircraft that they have seen.
Rotary engine	The cylinders of a rotary engine are arranged in the same way as those of a <i>Radial engine</i> , but the cylinders rotate with the propeller.
Rotors	The long, rotating wings that enable helicopters and autogyros to fly.
Rotorcraft	Aircraft which gain lift from rotating wings (rotors); subdivisions are <i>Helicopters</i> and <i>Autogyros/Autogyros</i> .
Sailplane	See <i>Glider</i> .
Serial Number	British military aircraft are given unique Serial Numbers, which act in the same way as car registration numbers. Until the early 1940s, serial numbers took the form of a single letter and four digits; once Z9999 had been reached they continued as two letters and three digits, such as WK640.
Ultralight	American term for <i>Microlight</i> (q.v.)

Aircraft names:

Comet	de Havilland built a piston-engined Comet for the 1934 MacRobertson Air Race from the UK to Australia: this aircraft is commemorated at the Comet Hotel in Hatfield. Their later Comet was the world’s first jet airliner.
Vampire	de Havilland’s first jet aircraft was primarily a fighter, but later marks included a two-seat trainer. It was the latter aircraft which were transferred to enthusiast groups, arguably encouraging the growth of aviation museums in the 1970s.

Appendix L - Abbreviations

ACAR	Associate Committee on Aeronautical Research [Canada]
AHB	Air Historical Branch, part of the Air Ministry/Ministry of Defence
APPG GA	All-Party Parliamentary Group on General Aviation
BAPC	British Aircraft [later, Aviation] Preservation Council; became Aviation Heritage UK
BTM	British Transport Museum
BTS	British Transport Commission
BWB	British Waterways Board
CAF	Confederate [now Commemorative] Air Force
CEMA	Council for the Encouragement of Music and the Arts
DAS	Duxford Aviation Society
DCMS	Department for Culture, Media and Sport with a rebranding in 2017 adding 'Digital' to the name
DES	Department of Education and Science
DESA	Defence Equipment Sales Authority
DND	Department of National Defence [Canada]
EAAS	East Anglian Aviation Society
HAA	Historic Aircraft Association
ICA	Institute of Contemporary Arts
IFS	Institute for Fiscal Studies
IWA	Inland Waterways Association
IWM	Imperial War Museum, later rebranded to "Imperial War Museums"
LEAs	Local Education Authorities
MA	Museums Association

Appendix L

MAP	Ministry of Aircraft Production
MAPS	Midland Aircraft Preservation Society
MCA	Ministry of Civil Aviation
MGC	Museums and Galleries Commission
MOD	Ministry of Defence
MRAF	Marshal of the Royal Air Force
NASM	[Smithsonian] National Air and Space Museum
NMDC	National Museums Directors' Council [originally, Conference]
NRC	National Research Council [Canada]
OAL	Office of Arts & Libraries
RAeS	Royal Aeronautical Society
RAF	Royal Air Force
RAFM	Royal Air Force Museum
RCAF	Royal Canadian Air Force
RIBA	Royal Institute of British Architects
RUSI	Royal United Services Institution
SVAS	Shuttleworth Veteran Aeroplane Society
USAAF	United States Army Air Forces [from 1948, the United States Air Force]