



AIR TRANSPORT

PETER J. LYTH

Air Transport

Studies in Transport History

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Air Transport

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 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK

First published 1996 by Ashgate Publishing

Published 2016 by Routledge

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

711 Third Avenue, New York, NY 10017, USA

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing in Publication Data

Air Transport

(Studies in Transport History)

1. Aeronautics, commercial—Great Britain—History—20th century. 2. Airlines—Great Britain—History—20th century.

I. Lyth, Peter J.

387.7'0941

Library of Congress Cataloging-in-Publication Data

Air transport/edited by Peter J. Lyth

p. cm. (Studies in Transport History).

ISBN 1-85928-309-8 (cloth)

1. Aeronautics, commercial—Great Britain—History—20th century.

2. Aeronautics, commercial—United States—History—20th century.

I. Lyth, Peter J. II. Series.

HE9843.A3A36 1996

387'.087'0941'0904—dc20

96-22319

CIP

ISBN 9781859283097 (hbk)

ISBN 9781138272453 (pbk)

Transferred to Digital Printing in 2014

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Studies in Transport History

Series Editor's Preface

The idea for this series originated in a meeting of the Editorial Board of *The Journal of Transport History*. As part of the celebrations to mark the fortieth anniversary of the founding of the journal, a classified index of the articles appearing in each of the series was compiled by Julie Stevenson and published in the September 1993 number of the journal. This exercise revealed the wealth of material that lay in the journal but which was largely forgotten and relatively inaccessible, unless a full run of the journal was close to hand. The index took the first step in making it simpler to determine what was in the journal. The Editorial Board decided it should continue this process by making the best of the essays more readily available.

Hence it is proposed to issue a series of volumes, each containing a number of articles reprinted from *The Journal of Transport History*, dealing with a particular mode of transport. As initially planned there are eight volumes in this series, each covering one form of transport and edited by a different member of the Editorial Board. Each volume contains about ten articles, reprinted from *The Journal of Transport History*. The articles have been selected because they were seminal at the date of their publication and have stood the test of time. Hence they are still important contributions to the state of our knowledge on the topic.

Each volume also contains an introduction by the editor of the volume, which seeks to contextualise the articles selected; that is, to show how each contribution fitted into the state of knowledge at the time of its publication, to explain its importance, to indicate any more-recent literature on the topic that might moderate its findings, and suggest how the debate has moved since the initial publication. Each article retains its original pagination, as in the journal. This will allow citations to be made to the original source.

Thus this series aims to make easily available the most important essays which have appeared in *The Journal of Transport History* over the last forty years, collected together on a thematic basis. It is hoped that this will encourage and provoke further research into transport history, in order to carry the debates into the twenty-first century.

John Armstrong
1996

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Introduction: aspects of commercial air transport history

PETER J. LYTH

'The airlines, as they changed the shape of the world, were also locked into the ambitions of nations. They provide a kind of visual projection of changes on earth - the shifting political balances of power and wealth, the swings of economic beliefs, the technological developments coming up against political deadlocks and reactions'.¹

In its 75 year history the airline industry has developed from a technological curiosity and an adventure for the social élite, into the leading long-distance transport mode. Air travel has shrunk the globe and transformed the way we perceive its dimensions and, in doing so, it has become big business. In 1929, a decade after the first commercial air services began in Europe, world scheduled passenger traffic was a mere half million, and even in 1949 less than 30 million people flew on scheduled services. In 1990 total scheduled passenger traffic amounted to 1.16 billion - a fifth of the world's population.²

The history of the airline history seems to have a number of distinguishing features. First, until recently at least, the air transport and aircraft manufacturing industries have been concentrated in Europe and North America. This is not to ignore the important contributions that airlines have made to the development of regions with poor surface communications in Asia, South America, Australia and Africa, but rather to recognise the fact that air transport is dependent on a costly form of technology which has been largely restricted to advanced industrial economies.

Secondly, air transport has grown, and spectacularly so since 1950, because its costs and prices have risen more slowly than income levels, and this is mainly due to more efficient production and technology. However, the industry's very dependence on modern technology has caused it to be subjected to an extraordinary degree of old-fashioned government control.

The third feature of its history therefore is that it has had a political and strategic importance independent of its commercial possibilities. Indeed one influential commentator has gone as far as to claim that the evolution of international air transport 'is less a function of aviation technology or conventional commercial traffic than an expression of political forces in specific historical periods. It has been the politics of expansionism, war preparation, diplomacy, economic doctrine, or other conditions not intrinsically related to air transport itself that have defined the development of international civil aviation'.³

It might be argued that the State has always taken a strong interest in national transport systems and, just as European governments, with the exception of Britain,

became involved in railway construction in the second half of the nineteenth century, so they assumed ownership of the national airline in the inter-war period. However whereas in the first case government participation can be seen as a contribution to the modernisation of the economy, in the second it was for prestige and, to some extent, strategic reasons. Air transport did not make much money for anyone in its first thirty years; the fact that in Europe direct state involvement continued for a further thirty, proves how important for national prestige has been the survival of the flag-carrier.

In the last twenty years the deep involvement of governments in international civil aviation has been questioned and, since the deregulation of the American domestic airline industry in 1978, increasingly challenged. A slow process of disengagement has begun which signifies that the industry has become mature and financially autonomous. In Europe prestige and strategic considerations are giving way to purely economic criteria in the formation of air transport policy, although some fierce opponents of liberalisation and deregulation remain, particularly among those countries whose flag-carriers are comparatively weak international airlines, or compelled for social or political reasons to fly loss-making routes.

Britain's attitude to liberalisation, or 'open skies', has not surprisingly changed over the years according to the relative strength of its air transport industry and the composition and commercial success of its flag-carrier. In the wake of the Second World War when its industry was weak and vulnerable to American domination, British policy towards international civil aviation was restrictive and aimed at achieving the maximum protection for the nationalised airlines British Overseas Airways Corporation (BOAC) and British European Airways (BEA). By the 1980s, and especially after the privatisation of the modern British Airways, British policy was less concerned with protection and more with the encouragement of competition in the industry. At least, as a recent addition to the literature has shown, this was true in so far as Britain's approach towards Europe was concerned; in its dealings with the United States it has remained fairly uncompromising in its efforts to limit competition from American carriers, particularly where vital 'fifth freedom' rights have been at stake.⁴

The vicissitudes of British policy towards air transport since 1919 reflect the changing course of the debate on its place in the national economy. Was it to be a comprehensive public service like the Post Office or the telephones? Or was it just another business sector to be exploited in the most profitable manner? The British Government has treated it as various combinations of these two extremes, with a propensity to draw a line between internal services (public service) and international operations (profit-seeking business). What is clear is that uncertainty over the question has been at the root of policy inconsistencies since the earliest days and is one of the reasons why fashions in airline ownership have swung from private to public and back again to private.⁵

The twelve articles in this volume, themselves the product of changing fashions in scholarship over a forty-year period, form an interesting and informative mosaic of civil aviation history. No apology is made for the fact that they concentrate largely on Britain, since Britain, if not the largest, has none the less been one of the key players in the historical development of the air transport and aircraft manufacturing industries. The eighty years which the articles cover can usefully be divided into five sections.

I

The early days of air transport were characterised by brave souls and primitive technology. Indeed the first generation of aviators seems to have been celebrated precisely because their craft were crude and unreliable; as Peter Fritzsche has noted in a telling phrase, 'virtue gathered only where technology failed'.⁶ In Britain, France, Germany and Holland the first airlines began carrying passengers soon after the end of the First World War. In the United States passenger services came only in the later 1920s, the first domestic air routes being for mail only. For the few intrepid passengers, conditions were spartan in the tiny, unheated cabins of what were little more than converted bombers. For the pilots it was a hazardous job with only the most rudimentary navigation and landing aids. For the airline entrepreneurs themselves there was little reward for their pioneer efforts and a fair likelihood of crash landing in bankruptcy. Some of the early airlines, like Junkers, Farman and Handley Page, were part of aircraft manufacturing companies which used the transport undertakings to showcase their creations. Other famous plane builders like de Havilland and Fokker concentrated on construction.

One of the first aircraft manufacturers in Britain was the north London company of Claude Grahame-White. As A. D. George shows, the firm began building military aircraft for the Government with the outbreak of the First World War, but like many of the early aircraft builders its existence was precarious; while its neighbour Handley Page was able to make the switch to civilian transport types after the end of hostilities, Grahame-White fell victim to its dependence on government contracts. The most valuable part of the undertaking seems to have been its premises at Hendon which passed to the Royal Air Force on the company's dissolution and is now near the site of the present-day RAF Museum.

The early airlines in Britain fared little better. In his two articles on British civil aviation between 1919 and 1924, E. Birkhead highlights the confusion in government policy towards air transport and the inadequacy of its various subsidy schemes. Although it was comparatively easy to establish an airline, it was much more difficult to survive at a time when air transport was fundamentally unprofitable. Indeed the lack of profits makes one wonder what it was that motivated the early entrants in the first place. In the case of Daimler Airway the introduction of a new subsidy scheme in the spring of 1922 seems to have been one factor, although as Birkhead explains, the heavy competition on the short service to Paris and the totally uneconomic nature of the aircraft, meant that the chances of achieving unsubsidised operations at that stage were virtually nil. The fact that Daimler earned £114,000 in its two-year history, of which no less than 80 per cent was in the form of government subsidy - and even then it lost money overall - must have had a salutary effect on other intending airline entrepreneurs and probably influenced the outlook of its managing director (Colonel Frank Searle) and general manager (George Woods-Humphery) when they moved to Imperial Airways in 1924.

Britain's first scheduled passenger air service, provided by Air Transport and Travel (AT&T) in 1919, was from London to Paris. It had the obvious advantage of a sea crossing and was about the right distance for the aircraft of the time, ie. 200 miles, but

the traffic potential of the two capitals was never realised and high fares made air travel a poor alternative to first class rail travel. Moreover demand was highly seasonal and practically dried up in the winter months - a feature that was to plague short-haul airlines for many years to come. Even after the introduction of the 'permanent subsidy scheme' in March 1922 and the doubling of passenger traffic in the following year, airlines still could not make a profit.⁷

The basic problems of low traffic volume and high unit costs seemed intractable. The aircraft were so expensive to operate that they would have had difficulty breaking even with passenger load factors of 100 per cent, as it was the airlines were lucky to take off with their planes half-full. In his second article Birkhead notes the paradox that although the operations of airlines like Daimler, Instone and Handley Page were too small to cover their fixed costs, none the less the available traffic did not justify the size they had reached. In his breakdown of Daimler's costs he shows what a high proportion of the total was spent on advertising: at 13.7 per cent it was over six times greater than that spent by BEA forty years later. The reason, of course, was the pressing need to get people to fly - in 1922 air travel was a complete novelty and demand had to be created from scratch.

With competition not working and no prospect of unsubsidised air travel in sight, the Government appointed a committee in January 1923 under the chairmanship of Sir Herbert Hambling to look into the future of British civil aviation and advise on the best method of securing its future. The Hambling Committee's report concluded that the benefits of competition under the prevailing circumstances in the air transport market were 'illusory' and it recommended that all British private airlines be merged to form a single monopoly or 'chosen instrument'.⁸ The committee's advice was followed and in March 1924 a new company called Imperial Airways was founded.

II

The formation of 'chosen instruments' to guide the national air transport effort was a common development in Europe in the industry's first fifteen years. Besides Imperial Airways (1924), the Belgian airline SABENA was formed in 1923, Deutsche Lufthansa in 1926, Swissair in 1931 and Air France in 1933; the Dutch carrier KLM takes the honour of being the first, having begun operations in 1920. Even in the United States, where an oligopolistic structure was adopted for the development of the domestic market, international air services were entrusted to the chosen instrument Pan American Airways after its formation in 1929.

The chosen instruments had a number of things in common. They enjoyed monopoly rights, at least at the outset, combined with an exclusive claim on government subsidy; indeed the concept of the chosen instrument is synonymous with subsidy and their creation amounts to a recognition by governments that air transport would not survive without financial support from the state. The chosen instrument was also an overt means for projecting national prestige and an expression of nationalist competition in the inter-war years. As a consequence, much of the effort and resources expended on them went into developing air communications with colonial possessions. For Britain's aptly-named

Imperial Airways this meant building up services to India, South Africa and eventually Australia. For the French it meant air links to West Africa and Indochina, for the Dutch, the East Indies, Surinam and Curaçao, and for the Belgians, the Congo. For the Germans, without any formal colonies since the Treaty of Versailles, routes to South America and the Far East acted as a substitute.

There was another, more practical reason why the new national flag-carriers devoted themselves, with such jingoistic acclaim, to forging links to far-flung colonies and dominions. It was already obvious that air transport showed itself to maximum advantage over long distances and where geographical obstacles had to be crossed; in other words the benefits of air travel were more obvious on a flight from London to Karachi than one to Paris or Amsterdam, and competition from surface transport was much less intense. For Imperial Airways, which although a subsidised monopoly was nevertheless a privately owned airline, the chances of achieving profitability and rewarding its shareholders were much greater operating over the great expanses of Africa and southern Asia than the short stages between European capitals.

As A. J. Quin-Harkin stresses in his reminiscences, Imperial Airways, under the management of Woods-Humphery, was successful in achieving profitability within three years and paid annual dividends of up to 6 per cent after 1927. This was an extraordinary achievement given the inherently unprofitable nature of the industry, but it also begs the question of whether one can speak of a company being truly 'profitable' when it is receiving, in incremental payments, up to £1 million in government subsidy. And this was one of the issues taken up by parliamentary critics at the time of the Cadman Report on British civil aviation in 1938: was it not wrong for taxpayers' money to be redistributed by Imperial Airways to its shareholders in the form of private dividends?

It is likely that Imperial Airways would have been able to rebut its critics in the 1930s and point convincingly to a subsidy-free future, had there not been two further areas of complaint against the airline, both of which brought into question its success as a promoter of national prestige. First, its British aircraft were noticeably outdated, particularly in comparison with the new Douglas and Lockheed models used by other European flag-carriers such as KLM and Swissair. Quin-Harkin rightly praises the achievement of Imperial Airways in establishing one of the longest route networks in the world, and the success of the Empire Mail Scheme and the creditable performance of the Short Empire flying boats in the latter half of the 1930s is beyond question. However the Handley Page HP42, a lumbering four-engined biplane designed in 1929 and the mainstay of Imperial's fleet throughout the 1930s, was barely 20 m.p.h. faster than the HP 0/400 bomber of the First World War. It was infinitely more luxurious of course, and may have offered the 'safety, regularity, comfort and silence' that Quin-Harkin claims for it, but it was years behind the level of aeronautical technology being achieved in the United States and Germany at the time. As one writer on the industry has put it, 'both in terms of type and quantity of aircraft ordered, Imperial Airways was not able to offer the stimulus to the British aircraft industry that would enable its many gifted designers to produce path-breaking large civil airliners'.⁹

The second major criticism being levelled against Imperial Airways by the mid-1930s was that, in its devotion to the task of establishing colonial air routes, it was seriously neglecting Europe and simply not 'showing the flag' at many of the major airports on the Continent. This was undoubtedly true but probably inevitable given its limited size and resources, and the fact that its long-haul colonial routes were more likely to yield a satisfactory return for its investors than competing on the crowded airways of Europe. However the Cadman committee, whose report came out in March 1938, seems to have taken a harsh view of Imperial's failure in Europe and accused its manager, Woods-Humphery, of taking 'a commercial view of his responsibilities that was too narrow'.¹⁰ Within fifteen years of Imperial's creation as a monopoly chosen instrument, British air transport was ready for competition again, this time from an airline which was willing to carry the flag back to Europe in modern aircraft.

British Airways Ltd was formed from a merger of three British independent airlines and began operating passenger services to northern Europe in 1936. When the Government favoured it with a mail contract and a subsidy for the route from London through Amsterdam to Hamburg, Copenhagen and Malmo, it was in effect giving Britain its second chosen instrument. As R. Higham points out, it was a condition of the subsidy that British Airways used 200 m.p.h. aircraft - fast by the standards of the day and certainly faster than any available British types. This led to its decision to acquire American Lockheed Electras, the first time that a subsidised British airline had been allowed to buy foreign aircraft. There were rumblings in Parliament when Neville Chamberlain went to Munich to see Hitler in a British Airways Electra in 1938, but the precedent had been set and in the post-war period the purchase by the British flag-carrier of American equipment became a more frequent necessity.

One of the independent airlines which was eventually absorbed into the British Airways group was Highland Airways, a regional carrier offering air services in the north of Scotland. Highland was the creation of Edmund Fresson, one of the first generation of pioneer British airline entrepreneurs.¹¹ As A. J. Robertson shows in his polished article, Fresson was a capable businessman and a skilled pilot - which he needed to be as his aircraft 'flew over some of the most daunting and forbidding country in Europe'. Domestic airlines in Britain started later than the international carriers and, competing with an extensive rail network, had a long climb to get themselves established. Where they did achieve a measure of success was in areas where geography presented serious obstacles to surface transport and particularly where a sea crossing was involved. The chief attraction for passengers of Highland Airways was the dramatic reduction in the time required to cross the turbulent Pentland Firth from mainland Scotland to the Orkney Islands. A further characteristic of outlying air transport services like Highland's, which it shared with similar 'outback' airlines in Australia, Canada and South America, was the broad range of passengers it carried: according to Robertson the typical Highland Airways passenger list included businessmen, politicians, admirals *en route* to Scapa Flow, tourists, crofters with their produce and 'fisher lassies'!

III

The Second World War revolutionised air transport. It hastened the development of the world's most prestigious and profitable long-haul route - the North Atlantic. It brought forth new radio and navigational aids, as well as bigger four-engined aircraft like the Douglas DC4 and Lockheed Constellation with higher wing loadings, more powerful engines, nose-wheel undercarriages, and pressurised cabins (Constellation).¹² These innovations meant that more passengers could be carried further and, for the first time, on a commercial basis. Not only aeronautical technology received new impetus from the war; the air-consciousness of the Western world was transformed by the Blitz and Pearl Harbor. The experience of aircraft and flying was widened beyond the confines of a small social élite to form the basis of a future mass transport system. As Roger Bilstein notes, even Hollywood got in the act: Michael Curtiz's 1942 film *Casablanca* recognized that the age of the train, and of farewells in steamy stations, had given way to the age of the plane when Humphrey Bogart watched Ingrid Bergman disappearing into the clouds in an Air France Lockheed Electra.¹³

International civil aviation in the post-war era was obviously going to be more important, but just how was it to be organised? During the 1930s aviation in Europe and America had taken very different courses. Over the vast distances of the United States air transport had developed swiftly within a structure of regulated competition, halving the journey times between major cities. In Europe aviation had received less help from geography and more competition from the railways; and air transport had been entrusted to monopolies. When an international assembly of nations gathered in Chicago in late 1944 to work out a governing regime for post-war civil aviation, the gap between a dominant United States and an exhausted Britain could hardly have been greater. The Americans had an overwhelming technological and commercial lead which they were anxious to extend around the world. They wanted freedom to carry all the international traffic they could, the British by contrast wanted a breathing space to rebuild their air transport industry and produce their own aircraft; in the meantime they wanted tight control of rates, rights and routes.¹⁴

The Chicago conference failed to produce any multilateral agreement on these issues and they were carried over to the Anglo-American bilateral negotiations at Bermuda in 1946, the results of which set a model for the rest of the post-war world to follow. D. Mackenzie demonstrates that Britain's bargaining position at Bermuda was weakened by its desperate need for American financial aid after the end of the war. However, Bermuda was not a total defeat for the British, for although they were forced to give way on capacity and frequencies, including the granting of generous Fifth Freedom rights on the North Atlantic, the strict control of international air fares by the International Air Transport Association (IATA) was accepted by the United States. The striking thing about the Bermuda agreement, considering the extent to which its outcome was determined by factors within the wider context of Anglo-American relations at the time, is how long it lasted as a regulatory basis for international air transport. It was only in 1977 that its provisions were renegotiated, at Britain's request, in what became known as the *Bermuda 2* agreement.¹⁵

Britain's preparations for post-war civil aviation focused on the development of a number of new airliners in the Brabazon Programme and the drawing up of plans for new chosen carriers. In the wake of the 1938 Cadman Report the decision had been taken by the Conservative Government to combine Imperial Airways and British Airways to form a new nationalised airline: BOAC. However, by the time it was ready to begin flying in the spring of 1940, the skies over Britain were already full of combat aircraft and for the rest of the war BOAC's operations were determined by military rather than commercial considerations. P. J. Lyth traces the origins of the post-war arrangements of the coalition government that were formulated during 1944-45. The idea for three separate airlines, with different spheres of operation, was mooted in the plan of the first Minister of Civil Aviation Lord Swinton; with the Labour victory in the summer of 1945 the plan was adopted with the elements of private ownership favoured by Swinton replaced with total nationalisation.¹⁶ The 1946 Civil Aviation Act marked one more shift in Britain's policy on civil aviation: after subsidised private monopoly (Imperial Airways, 1924), subsidised private duopoly (the addition of British Airways, 1936) and state-owned monopoly (BOAC, 1939), there was now to be three nationalised 'instruments'. In fact the number was quickly reduced to two after the ill-fated British South American Airways was taken over by BOAC in 1949.

The other airline created in the 1946 legislation was BEA. It is typical of the zig-zag course of British policy-making that the privately owned British Airways, subsidised after 1936 and on course to become a second chosen instrument the equal of Imperial Airways, disappeared in the merger that created BOAC and yet reappeared only six years later as the publicly owned BEA. BEA's history between 1946 and its merger with BOAC in 1974 was largely successful, indeed probably more so than BOAC's. Above all it had greater luck in aircraft procurement: while its big sister was floundering in the wake of the 1954 Comet crashes, BEA was introducing the turbo-prop Vickers Viscount, the most successful British airliner ever built. Unfortunately BEA's happy experience with the Viscount, which like the Comet had been conceived in the wartime Brabazon Programme, was not to be repeated when the airline ordered its second generation aircraft in the late 1950s. As Lyth argues in his contribution to this volume, the reason for the relative lack of commercial success with the Vanguard and the Trident lies in the 'over-tailored' specifications which BEA forced on its suppliers, a phenomenon which in itself was the result of BEA's singular creation as a short-haul carrier in Europe.

BOAC's chequered history and the enormous amount of money that it had cost the taxpayer by 1960, can be attributed partly to weak management, but mainly to the lack of clear direction from the Government. Not only was it required to operate costly and unproven British aircraft (Comet, Britannia, VC10 and finally Concorde), but it was also compelled to fly uneconomic routes for prestige reasons - a relic of policy from the 1930s - as well as subsidise colonial and Commonwealth airlines on the grounds that they would feed traffic into BOAC's main trunk routes. Only in 1964, after a major shake-up in the corporation's management, did the new chairman, Sir Giles Guthrie, obtain not only a government write-off of BOAC's massive debt, but also a written undertaking that the airline would in future be run as a commercial enterprise, with any

deviation from this policy, on grounds of national interest, requiring a specific directive from the responsible Minister.

IV

Broadly speaking, up until the 1970s the performance of international scheduled airlines was subject to a number of distinct market features which had grown out of the settlements reached at Chicago and Bermuda, that is, restriction of competition to the two relevant flag-carriers, fare levels determined by IATA, low seating density and flights scheduled at frequent intervals throughout the year. The result was not especially good economics, and capacity tended to run in advance of demand, but this hardly mattered since nearly all flag-carriers were state-owned and their losses were covered by the taxpayer. Average passenger load factors were low but the impact of this on revenue was eased by pooling agreements between rival carriers. In general the system worked well and provided a strong element of stability during the growth years of the industry in the 1950s and 1960s. Working through IATA, the scheduled carriers were able to expand and democratise the market for air travel, using periodic fare reductions to increase the flow of traffic.

However, the greatest impetus to the popularisation of air transport in Europe came from outside the scheduled system altogether, from the rapid growth in the 1960s of non-scheduled airlines specialising in Inclusive Tours. This was a sector of the industry, led by British independent airlines, which exploited the general rise in living standards to create a major portion of the modern leisure air business.¹⁷ As the two articles by B. K. Humphreys make clear, these independent operators came from modest beginnings in the postwar Labour administration. Initially they were the product of ex-servicemen and cheap war surplus machines, typically Douglas Dakota C-47s, the military version of the DC3. At first the shortage of capacity at BOAC, and particularly BEA, led to agreements whereby they performed services on behalf of the new corporations, and quite a few of them were saved from impending bankruptcy in 1948 by participation in the Berlin Air Lift. For a number of years the British independents led a precarious existence, although a few became larger and more established, eg. Airwork, Skyways and Hunting. The return to Conservative government in 1951 did not in itself improve their situation greatly, despite the expectation among many of them that more competition to the nationalised air corporations would be allowed. Instead, what revived their fortunes was the Korean War and the bright idea of someone in Whitehall that troops could be more swiftly conveyed to international troublespots and Britain's remaining colonial garrisons by air than by sea.

Air trooping contracts kept British independents airborne in the 1950s; as Humphreys puts it, it was their 'bread and butter'. Trooping was easy: the contracts were large, the costs were low and the load factor was guaranteed to be 100 per cent. Moreover it was the one area of the air transport business from which the air corporations were specifically excluded, making it in effect a means by which the Government could provide private airlines with an indirect subsidy. Although BOAC and BEA had an unassailable monopoly on scheduled passenger traffic, new investment flowed steadily

into the independent air transport sector from British shipping interests who were anxious to diversify and were preparing for the day when the government was ready for more competition in the air. By the early 1960s the number of independent airlines had shrunk and British United Airways and Cunard Eagle had emerged as major players. While troopings had contracted along with the closure of Britain's overseas bases, a whole new tourist industry was growing in its place around the Inclusive Tour operations of charter airlines such as Britannia Airways.

The formation of British Caledonian (BCal) from the merger of Caledonian Airways and British United Airways in 1970, created a competitive airline of sufficient size to compete with BOAC, ready to fly scheduled services as a 'second force' in line with recommendation of the Edwards Report of 1969. With the addition of Freddie Laker's Skytrain in 1977, the new British Airways, which had been formed from the merger of BOAC and BEA in 1974, found itself in a considerably more competitive environment. British air transport policy had evolved from the era of prestige and 'chosen instrument' monopolies to an acceptance of greater competition and the recognition that the old regulated system could no longer continue in the face of mounting consumer protest about the high cost of air travel in Europe compared to deregulated America.¹⁸

V

In 1919 an Airco DH-4 of AT&T with a single Rolls-Royce Eagle engine carried two passengers at about 100 m.p.h. and took well over two hours to travel from London to Paris. Fifty years later a Hawker Siddeley Trident of BEA with three Rolls-Royce Spey engines carried 100 passengers at 600 m.p.h. and took fifty minutes for the trip. Aircraft speed had increased sixfold over half a century, but the time taken to cover the distance on this blue-riband route had only been cut by a factor of three. Moreover by the time the passenger had travelled from city centre to airport and back again, the journey time in 1969 showed little improvement over 1919. A critical weakness in air transport had revealed itself: over very short stages flying with conventional fixed-wing aircraft did not offer much, if any, advantage over surface transport. Air transport is optimised over long distances - George Woods-Humphery of Imperial Airways understood this in the 1920s - but does that mean that the short intercity journeys that are typical of the Europe network should be left to the train and car?

One solution is the helicopter. Sikorsky's first successful machine flew in 1939 and was quickly improved during the Second World War. After 1945 the Americans addressed themselves to the question of how the helicopter could be used for civilian purposes and, as A. G. Peters and D. F. Wood describe, helicopter airlines were established to provide shuttle services around the airports of four metropolises: Los Angeles, New York, Chicago and San Francisco. It seems in retrospect however that helicopter airlines were a false trail as far as regular passenger services were concerned. They had difficulty surviving without subsidy and relied to a large extent on carrying mail for the US Post Office. Their chief advantage over fixed-wing airlines was their ability to deliver passengers to city centres, often onto the roof of major down-town buildings like the Los Angeles Post Office, or the Pan American Building in New York.