

Archives and Canada's Official Air Force History

by W.A.B. DOUGLAS

“Official History” has its dangers, as Sir Herbert Butterfield has eloquently argued,¹ one of the greatest being a tendency to accept pedestrian writing and self-serving interpretations based on selective use of the sources. Intelligent and imaginative approaches to research combined with rigorous editing will best prevent that tendency and lead to lively and provocative historical writing. Indeed, lively writing is exactly what official history needs as it must not only provide a solid base of accurate fact — a framework for all other scholarship in the field — but also colourful detail to attract the attention of a wide-ranging and often sophisticated audience. This brief essay is an attempt to show how a team of researchers tried to achieve that objective with the second volume of the Royal Canadian Air Force (RCAF) history, *The Creation of a National Air Force*.

Canadian official historians look to C.P. Stacey as their model. He has been described as the most accomplished craftsman among Canadian historians of his time.² He set the pattern for official historians with his volumes on the Canadian Army in the Second World War.³ Moreover, it was he who formed the Directorate of History (DHist) as a successor to the long-established historical sections of the army, navy, and air force, after the integration of the Canadian Armed Forces in 1964, and set the agenda for their future official publications.⁴

Stacey identified his audience as the Canadian citizen. He wanted “to tell the Canadian citizen what his army accomplished in the last war, and to provide him, perhaps, with the means of forming an intelligent judgement on military issues that may confront him in the future.”⁵ After reading *Arms Men and Governments: The War Policies of Canada, 1939-1945*, published in 1970, four years after Stacey’s final retirement from the official historian’s job, Donald Creighton concluded that Stacey, his colleague at the University of Toronto and an old friend, had done much more; the book “was a vast, but sharply detailed, panorama which seemed to sum up Canada’s past and to forecast its future.”⁶ The official historians who followed in Stacey’s footsteps found that, despite his claim to have done nothing more than tell “simply and directly” the story of Canada’s military policies in the Second World War, he had established a knowledgeable audience in at least three categories: the general public; the participants in the events described, many of whom, either military or civilian, still served the Department of National Defence; and the academic community. It was quite an act to follow.

Stacey's successor in 1966, S.F. Wise, adapted Stacey's methodology to air force needs. The soldiers and sailors who joined the airmen in the integrated directorate learned, under Syd Wise's guidance, to be aviation historians. They cut their teeth on a complex task, the compilation of an official history about Canadian airmen who served not in Canadian but in British flying services.

When Wise's *Canadian Airmen and the First World War*⁷ was in its very early stages, Stacey was a frequent and welcome visitor to Ottawa who, when he was not absorbed in the diaries of Mackenzie King, kept in close touch with the official historians. We sensed a certain continuity, and tried to give it expression by our style of service to researchers and other clients as well as by the way in which we allocated research tasks to our own narrators. The task of the air historians, however, was somewhat different from that of the army historians. During the war there had been an air force historical section,⁸ but it had not functioned like Stacey's remarkable group of scholars. In the RCAF historical organization there had been no central control of narratives by a rigorous editorial staff overseas, because unlike Canadian Military Headquarters in Britain, which was the administrative command for all Canadian army units in Europe, Canadian air force headquarters overseas was more of a clearing house for Canadian units and personnel placed under strategic and tactical control of the Royal Air Force (RAF). RCAF Historical Officers posted to RAF operational commands produced nothing like the solid base of documents and narrative accounts which Stacey built up in the army for proceeding to a well-documented and useful official history. Our first task was therefore to create historical narratives comparable to those prepared by the historians working under Stacey's direction during the war.

The details of this process are described in the preface to the first volume of the RCAF history. The full story of Canadian airmen in the First World War was so impressive, and the need to record it so urgent — the evidence, both written and oral, was in danger of extinction — that it took precedence over all other major projects in the Directorate. We built up virtually from scratch the basic documentation for substantially more than twenty thousand Canadians who were scattered through some hundreds of units in the British air services. This included creating a computerized record of service for each Canadian identified,⁹ and copying several thousand documents from the Public Record Office in England. These documents have since been deposited in the National Archives.¹⁰

There were serious disadvantages in waiting so long to locate and examine the documents, and to interview the people we were writing about. Far outweighing those disadvantages, however, was the fact that, more than sixty years after the event, none of our critical judgements were going to affect reputations adversely. Moreover, so much was to be found in the secondary literature that, unlike the official historians writing immediately after the war, we enjoyed the benefit of many other minds at work on the military and historiographical problems surrounding the events we set out to describe. That was an important precedent for the historians who began work on the second and third volumes after the first volume was published in 1980.

For the second volume, the Directorate formed a team of six historians, including the author, and one cartographer. The composition of the team changed owing to retirements and appointments, and at one time or another involved a total of ten people. The Senior Archival Officer, who coordinates the acquisition, accessioning, and cataloguing of

primary and secondary sources for every project in the official histories programmes, and who is the authority in the Department of National Defence on the availability, provenance and archival merit of documentary sources to be used in those programmes, was also *ex officio* a member of the team. We embarked on a voyage of discovery, and set ourselves the task of bringing together, in one comprehensive volume, the story of the RCAF from its origins, at the end of the Great War, to the end of its participation in the Second World War. To keep the account manageable, we restricted ourselves to the western hemisphere. A separate volume would be devoted to the RCAF in other theatres between 1939 and 1945.

We were lucky to have a much better foundation of manuscript material in Canada than had been found for the first volume. RCAF records in the records of the Department of National Defence (Record Group 24) are voluminous, if incomplete in some vital areas. Cabinet War Committee Papers were indispensable. The W.L.M. King and J.L. Ralston Papers in Ottawa, and the C.G. Power Papers at Queen's University in Kingston, were also vital sources. Various provincial archives proved useful, particularly the Saskatchewan Archives Board, which contained important material on aspects of the British Commonwealth Air Training Plan, and the Public Archives of Nova Scotia, where we used the Angus L. MacDonald Papers. Documents from wartime commands in Canada, and from certain bodies like the Chiefs of Staff Committee, some of whose most valuable records have been rescued from oblivion by past military clerks and archivists at the Directorate of History, helped to fill large gaps in the National Archives of Canada holdings. Personal papers acquired by the Air Force Historian before integration, and by the Directorate of History since — for example, those of J.A. Wilson, first Secretary of the Air Board (the originals of which are now deposited in the National Archives) — provided important insights that were given added texture by oral interviews. Despite their merits, however, these sources alone were inadequate.

In the first place, because the RCAF was under army administration until 1938, and because it worked hand in glove with the Royal Canadian Navy during the war, we had to use the files of all three services. These were broken up between the Directorate of History, Central Registry at National Defence Headquarters (which is quite separate from the Directorate's archives), the Public Archives (now Ottawa Federal) Records Centre and archival collections of the Public (now the National) Archives. The files still in DND and at the Records Centre could only be accessed through the old card catalogues at National Defence Records Management Services, but the staff who had built those catalogues and knew their quirks and mysteries had long since gone. Most of the best files were at the National Archives, but they had been transferred in many cases in the 1950s and 60s when records retention rates were low, so that some important series were incomplete. In the thirty-five to forty years since the war, of course, a lot had also gone missing. We were never able to find the basic RCAF manual for maritime operations, or the operational research reports on the complex and interesting anti-submarine operations off the east coast in 1943-45.

The files at DHist that had been retrieved from Eastern and Western Air Commands after the war, even though they often helped fill the gaps, were far from complete and posed their own special problems. They were built on file systems that only approximately compared with that of Air Force Headquarters; the file manuals and card catalogues relating to them no longer existed, so far as we were able to discover. Other

documents incorporated into our collection, either by active acquisition or donation, have been accessioned and catalogued according to accepted archival principles.

Of course, decisions taken about the RCAF cannot be understood in isolation from developments in other part of the world, especially in Britain. Memoirs and histories of British aviation, useful and rich as some of them are, were particularly useful as guides to some of the British documents.¹¹ It was necessary to go through the various Class Lists for the Air Ministry and Admiralty, for Defence papers (especially for decrypts of German message traffic), the Cabinet, and the badly depleted records of the Dominions Office, all of which are held at the Public Record Office in London, and to select from them the documents that needed to be copied for our researchers. Here we found the work of other historians in related fields, especially J.L. Granatstein and Hector Mackenzie, extremely important, and we are most grateful for the information they passed on to us. Similarly, in using Canadian records, the work of Margaret Mattson on civil aviation between the wars paralleled ours, and helped to verify the sources available. The pioneer work of Wing Commander Fred Hitchins, the lone survivor of the wartime historical section who painstakingly put together a year-by-year record of RCAF activities before the Second World War, provided a foundation of the first importance for our work.¹²

William McAndrew's exhaustive studies of the RCAF before 1939, based on a patient scouring of the Canadian sources, with reference where necessary to material from Britain, lay behind the chapters in Part One, "Between the Wars." This is a case history in the early development of a national air force, showing the unique Canadian requirements, and consequently the unique subsequent characteristics, of the RCAF.

British documents for the interwar years were essential to an understanding of how, to begin with, our miniscule air force made the transition from supporting civil aviation to conducting military operations, and then became responsible for the vast military air training scheme usually known to us as the British Commonwealth Air Training Plan (BCATP) and to other members of the Commonwealth as the Empire Air Training Scheme. Norman Hillmer's analysis of the documentation led us to resolve some incompatible differences in previous accounts about the origins of the Plan. Canada's High Commissioner in London, Vincent Massey, and the Australian High Commissioner, Stanley Bruce, who claimed credit for the idea, jointly put forward the proposal for what would become the BCATP.¹³

Part Two, devoted to the BCATP, reflects the research of Norman Hillmer, William McAndrew, Brereton Greenhous, and Vince Bezeau. They benefited from the earlier work of Fred Hatch, whose monograph, *Aerodrome of Democracy: Canada and the British Commonwealth Air Training Plan*, is a solid and lasting contribution to scholarship.¹⁴ The official history does not attempt to duplicate Hatch's work, but to place it in context with the history of the RCAF as an institution. Ben Greenhous, for instance, attempted an assessment of the training from comparative analysis of the BCATP and other training schemes for the Royal Air Force. And in this section of the book there is a happy combination of documentary and oral evidence, in order to convey to the reader the flavour of the subject. Seen through the eyes of two graduates of the Plan, it was hoped that aircrew training would come to life for the reader.¹⁵

The second half of the volume deals with policy and operations in the defence of Canada, and in defence of shipping in the North Atlantic, during the Second World War. This involved extensive research in American and British archives. Most important were

German operational records, found for the most part in copies of captured documents held by the Ministry of Defence's Naval Historical Branch in Britain, and the National Archives in Washington. British and American records of operations involving Canadian forces were found in the British Air Force and Naval Historical Branches, the Public Record Office and the Imperial War Museum; and in the United States, at the Air Force University at Maxwell Air Force Base, Alabama, at the US Air Force's Office of Air Force History, the United States Navy's Historical Division, and the National Archives in Washington. British Intelligence records, first opened up after the publication of Frederick W. Winterbotham's *The Ultra Secret* in 1974, were at the PRO. In Germany Professor Dr. Jürgen Rohwer of the Library of Contemporary History, Stuttgart, was a constant source of help and encouragement, and the Military History Research Institute at Freiburg provided some useful documents in the early stages of research. Second World War records in Freiburg, however, only recently returned by Britain and the United States, were still somewhat disorganised.

Perhaps the single most difficult question to answer about the RCAF in the Second World War is how and why it arrived at the policy of creating such a substantial Home War Establishment. Why did the Chief of the Air Staff in 1942 produce a scheme for forty-nine squadrons in defence of Canada, a force larger than the RCAF overseas? Nothing could illustrate more vividly the need for preservation of records, because every time we thought we were arriving at an answer to the question, the documents let us down. Stephen Harris devoted enormous efforts to tracking down evidence on the subject, and we eventually decided to approach the problem from the procurement angle, because it became clear from the files that the governing factor in the Air Council's decisions was the availability and suitability of aircraft for operations in North America. Moreover, the procurement files in RG 24 were extensive, rich with detail, and in the absence of records on policy decisions, offered the best chance of analysing the composition of the Home War Establishment.¹⁶

It must be said at this point that immediately after the war the RCAF historical section, hoping to produce a multi-volume official history, produced a series of narratives written by air force officers who had experience of the topics on which they were writing. These narratives were useful but limited. They were narrowly conceived and lacked documentation, so that it was difficult to verify the content, or to place it in context with other aspects of the air war. Clearly, the authors had not asked some of the questions we were asking, and they did not succeed in ensuring the survival of some key files. Another limitation may have lain in the paperwork of the air staff, which did not always lend itself to archival preservation. Many important decisions were made over the telephone, and there are very few transcripts of telephone conversations in air force records.¹⁷

Defence of the Pacific and Atlantic coasts was an important function of the RCAF, and Alaskan operations provided the opportunity to participate in US Army Air Force (USAAF) operations against the Japanese in the Aleutians. The most useful records in Ottawa for these topics were found in the Directorate of History's holdings of Eastern and Western Air Command files. The finding aids, however, were peculiar. For years the Air Historian and his tiny staff at Victoria Island, in Ottawa, had maintained a simple system — "under the teapot on the third cabinet from the left" was the sort of instruction one is said to have expected — and after the integration of the air force historical section with those of the other two services in 1964 an attempt was made to combine the air force files with those the army's Canadian Military Headquarters Overseas, using the Kardex

system already in place. Constant use taught us to rely on the shelf list rather than Kardex, but we were rewarded with a rich source that complemented RG 24 better than we had expected. Vince Bezeau also found material of great value in US Air Force records.¹⁸

It gave me much satisfaction to write the history of the Home War Establishment for the first time, because the men who served in this theatre had always been in the shadow of those who risked their lives in the RCAF overseas, and had never received the recognition they deserved. This was particularly true of Eastern Air Command. The Battle of the Atlantic is always thought of as a naval operation, in much the same way that the Battle of Britain is considered an air force achievement. The truth is that the air force played a decisive role in the defeat of the enemy attack on shipping during the Second World War; Eastern Air Command, moreover, provided the key to success by making it possible to provide continuous air cover for convoys on the northern Atlantic routes in 1943.

Some of the story was to be found in Air Force Headquarters and Eastern Air Command files; the Squadron Record Books and Daily Diaries are sometimes uneven in quality, but they provide essential evidence about the movements and the readiness of aircraft.¹⁹ Operational signals that have been preserved over the years, and key files that have survived much abuse, give us a solid base for analysis.²⁰ For the policy that lay behind operational decisions, however, Canadian records had to be complemented by British and American records. "The RAF in Maritime War," an unpublished narrative by Captain D.V. Peyton-Ward written after the war for the Air Historical Branch, was given to us before a copy was deposited in the Public Record Office,²¹ and showed the value of well-staffed and properly documented historical studies prepared very soon after the event (The contrast with RCAF narratives prepared at the same time was noticeable). But to answer the most important operational question in the book — why the RCAF did not acquire Very Long Range Liberators before March, 1943, when the U-boats were on the verge of their initial defeat — we had to go beyond Captain Peyton-Ward, as well as other British and American official historians, to sources they apparently had not used.

This posed a research problem that was typical of the entire project. By mutual consent, Liberators were not included in the Home War Establishment procurement requests from Air Force Headquarters in Ottawa to the supply boards in London and Washington. Information on the initial acquisition was missing, consequently, from the procurement files in RG 24. This meant that our account of the struggle to procure Liberators for the RCAF, and its significance, would have to be based on a wide variety of British, American, and Canadian sources.

In Britain, the information was to be found in Coastal Command Records (Air 15), especially in copies of the voluminous signal traffic between the RAF delegation in Washington and the Air Ministry concerning the convoy conferences of 1943, in records of Air Ministry Directorates (Air 20), in Cabinet Anti-U-Boat Committee Proceedings (Cab 86), and in the papers of the First Sea Lord, at that time Admiral Sir Dudley Pound (Adm 205). In the United States the most illuminating single source was General H.H. 'Hap' Arnold's papers at the Library of Congress, but vital information was also found in the US Naval History Division's Strategic Plans Papers.

It was German naval records that provided conclusive evidence about the effectiveness of air operations in the western Atlantic. The war diary of the Flag Officer Submarines (Befehlshaber der U-boote, or BdU), made available to us in translation by the Naval Historical Branch in London, and the logs of U-boats themselves, also made available by

the NHB, allowed an unprecedented degree of certainty about the importance of VLR operations. We were able to verify Coastal Command Operational Research findings of late 1943, which suggested air support was decisive in defeating the U-boat, in a most satisfactory manner.²²

In November 1942 Canada urged the allocation to Eastern Air Command of the latest version of the Liberator, which had been modified to give it an effective range of seven hundred to one thousand miles. Neither the RAF nor the USAAF would give up any of their own Liberators, and there was no other source to which to go.²³ The documents made it clear that the refusals resulted from American inter-service rivalry, and British preference for the Bay of Biscay offensive over shipping protection on the convoy routes. Besides, both RAF and USAAF observers doubted the effectiveness of RCAF performance in the western Atlantic. Some of these critics did not know much about actual operating conditions or Canadian activities in that region. They certainly did not acknowledge the fact that, when Churchill asked Mackenzie King to provide very long range coverage of convoys with the Canso amphibians then available, the RCAF made modifications to their Cansos that gave them an effective range of over 650 miles, greater than any other PB-Y flying boat or amphibian then flying. Analysis based on all the sources available allowed us to say that, based on the Canso's performance, even one operational Liberator flying out of Newfoundland in February and March 1943 could have prevented the terrible losses in the so-called "crisis convoys" of those months.

This portion of the project offered scope for original research in other areas as well. Roger Sarty, thoroughly exploiting all available sources in the National Archives and the Directorate of History, did the first documented study of what we call "The Battle of the St. Lawrence," relating naval and air operations, and tying them into Intelligence data that has not previously been open to researchers. We rebuilt the intelligence picture, in many cases, from the ground up, using thousands of transcribed naval and air force radio signals, as well as decrypts of German naval signals, and tying them in with U-boat logs. Carl Christie compiled a detailed synthesis of RCAF submarine attack reports by aircrews immediately on return from their sorties. These reports were in Eastern Air Command files. We also built up an incident file, with the help of German documents and of Dr. Jürgen Rohwer, that identified each U-boat attacked.²⁴ The result was an essentially new account of anti-submarine operations, not only in the Gulf but in oceanic confrontations between U-boats and Allied forces. We were also able to build on earlier studies done by J.D.F. Kealy and a statistician, Robert Baglow, to relate Eastern Air Command performance to U-boat records in the period during which statistical records were not being kept in Canada.²⁵ Detailed analysis of key convoy battles, using all the German and Intelligence sources now available, then permitted us to produce accounts that for the first time were able to give adequate explanations of certain RCAF operations.

In order to give coherence to our description of the RCAF in the Battle of the Atlantic we ventured beyond the western hemisphere to include the operations of RCAF squadrons with Coastal Command. This provided a useful basis for comparison, and we did our best to exploit it. After 1943, particularly, when anti-submarine warfare became much more like its modern equivalent, we were able to show the relative success of RCAF operations, in contrast to earlier unfavourable comparisons we had been obliged to make. We were also able to explain in a way that has not previously been possible the technological problems facing the RCAF, and the degree to which they were solved.²⁶

Whether we succeeded in our objective of producing a lively and provocative account of the RCAF in the western hemisphere must be judged by the reader. The book we produced certainly contains information available in no other publication, and I am confident it will be a useful reference to the various people who, we expect, will consult its pages. Perhaps, from the archivist's point of view, the most important thing we have done is to provide a finding aid to a wide variety of primary sources, many of which would not have been preserved without the intervention of official historians.

The title of this volume in the official history of the RCAF conveys my own sense of what the book is all about. The RCAF came into being and matured as a national institution between 1918 and 1945. The war made it one of the most significant air forces in the world, as the third volume in the series will undoubtedly confirm. Without the massive research effort involved in compiling such accounts, and the care taken to ensure that certain historical records are preserved when no longer in active use, there would be no adequate reference point for later generations. In particular, we have been able to assemble important collections of documents from varied sources that would otherwise have disappeared or remained difficult of access. Thanks to the remarkable cooperation that has always existed between the official historians of the Department of National Defence and the staff of the National Archives of Canada, we are building up the kind of archival record necessary for reliable and accomplished historical writing about our national military institutions.

Notes

- 1 Sir Herbert Butterfield, "Official History: Its Pitfalls and Criteria", in his *History and Human Relations*, (London, 1951).
- 2 Stacey's books "were characterised by a painstaking exactitude and a precision of expression that conveyed the meaning of this tremendous experience ... [He] revealed himself to be the country's finest practitioner of technical history." Carl Berger, *The Writing of Canadian History: Aspects of English Canadian Historical Writing, 1900-1970* (Toronto, 1976), p. 172.
- 3 C.P. Stacey, *The Canadian Army, 1939-1945* (Ottawa, 1948); *Official History of the Canadian Army in the Second World War: volume I, Six Years of War* (Ottawa, 1955); volume III, *The Victory Campaign: Operations in North-West Europe, 1944-1945* (Ottawa, 1960). See also G.W.L. Nicholson, *Official History of the Canadian Army in the Second World War*, volume II, *The Canadians in Italy* (Ottawa, 1956).
- 4 C.P. Stacey, *A Date with History: Memoirs of a Canadian Historian* (Ottawa, 1983), pp. 255-57.
- 5 Stacey, *The Canadian Army, 1939-1945*, p. xi.
- 6 D.G. Creighton, "Charles Perry Stacey," in Michael Cross and Robert Bothwell, eds. *Policy by Other Means: Essays in Honour of C.P. Stacey* (Toronto, 1972), p. 17.
- 7 S.F. Wise, *Canadian Airmen and the First World War: The Official History of the Royal Canadian Air Force*, volume I (Toronto, 1980).
- 8 K.B. Conn, "The Royal Canadian Air Force Historical Section," *Canadian Historical Review*, 26, no. 3, (September, 1945), pp. 246-54.
- 9 Wise, *Canadian Airmen*, pp. 633-49, Appendix C, "Canadians in the British Flying Services," explains the methods by which we built up and exploited the data bank.
- 10 These records have been accessioned into Manuscript Group 40 D1.
- 11 See for example, H. Montgomery Hyde, *British Air Policy Between the Wars, 1918-1939* (London, 1976); Andrew Boyle, *Trenchard* (New York, 1962); F.H. Sykes, *Aviation in Peace and War* (London, 1922); John Slessor, *The Central Blue: Recollections and Reflections* (London, 1956).
- 12 Margaret Mattson, "The Growth and Protection of Canadian Civil and Commercial Aviation, 1919-1930," unpublished Ph.D. thesis, University of Western Ontario, 1979; F.H. Hitchins, *Air Board, Canadian Air Force and Royal Canadian Air Force*, Canadian War Museum, Mercury Series (Ottawa, 1972).
- 13 W.A.B. Douglas, *The Creation of a National Air Force: The Official History of the RCAF*, volume II (Toronto, 1986), p. 205.

- 14 F.J. Hatch, *Aerodrome of Democracy: Canada and the British Commonwealth Air Training Plan, 1939-1945* (Ottawa, 1983).
- 15 Douglas, *Creation of a National Air Force*, chapter 8.
- 16 Douglas, *Creation of a National Air Force*, chapter 9; National Archives of Canada, RG 24, vols. 5305, 5395, and 5397 were particularly important.
- 17 The only telephone conversations used in this volume were recorded in the H.H. Arnold Papers in the Library of Congress and the C.G. Power Papers at Queens University. See Douglas, *Creation*, pp. 405 and 413.
- 18 The principal unpublished American sources used were: "History of the Eleventh Army Air Force," copy in DHist 80/176; United States, 11th fighter Squadron, "History of Eleventh Fighter Squadron," *ibid.*; United States, Army Historical Section, "The Aleutian Campaign," copy in DHist 80/192.
- 19 Squadron Record Books and Daily Diaries are held in the Directorate of History. Like the army's War Diaries and the navy's ships logs, they will ultimately be deposited in the National Archives; microfilm copies are available for research at both the Directorate of History and the National Archives.
- 20 Most of these files are in the Kardex collection and the Naval Historian's files (NHS series). They are in constant demand for the official history of Canadian naval operations, 1939-1945, now in preparation. Professor Michael Hadley, while preparing his *U-Boats Against Canada* (Vancouver, 1986), also turned up invaluable material from his personal contacts with U-boat commanders in Germany. We owe him a particular debt.
- 21 Public Record Office, Air 41, vols. 45-49.
- 22 Operational Research Section, Coastal Command, Report No. 256, "Air Operations in Support of Convoys 1942-May 1943," Part I, Air 15/732; Part II, Air 15/733, September, 1943.
- 23 Douglas, *Creation*, pp. 478, 536-51, 561-68; W.A.B. Douglas and David Syrett "Die Wende in der Schlacht im Atlantik: Die Schliessung des 'Grönland-Luftlochs', 1942-43" ("The Turning Point in the Battle of the Atlantic: Closing the Greenland Air Gap, 1942-43"), tr. Jürgen Rohwer, *Marine Rundschau*, 83, nos. I, II and III (1986).
- 24 DHist 85/77.
- 25 R. Baglow and J.D.F. Kealy, "A statistical Analysis of the Performance of RCAF Aircraft, Dec 42 - Nov 43," DHist 80/151.
- 26 Douglas, *Creation*, chaps. 16 and 17.