

AVIATION IN CANADA

BY

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A Thesis submitted for the degree

of

Bachelor of Arts

in the course in

Honour Political Economy

at

McMaster University

1942

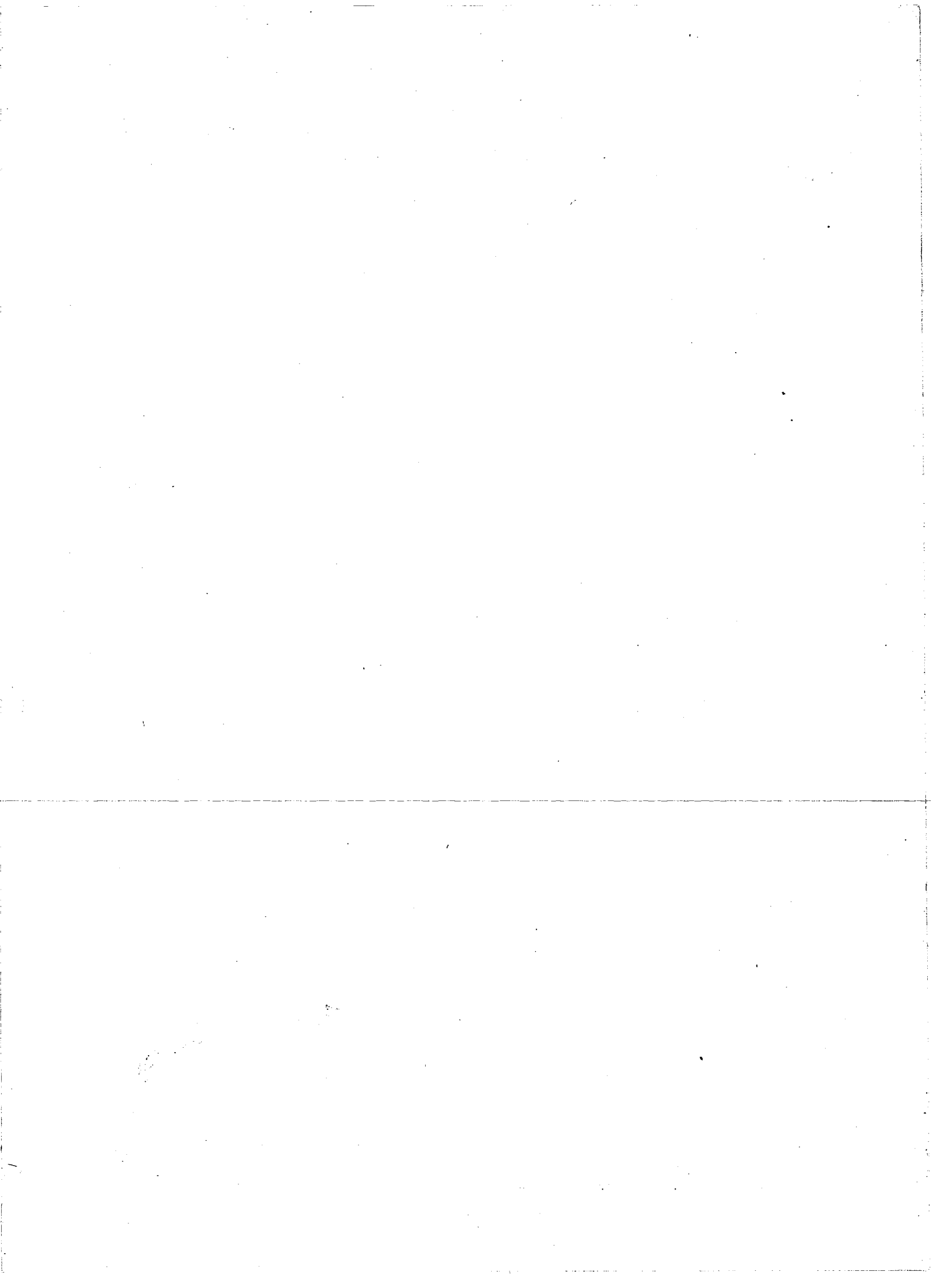


Table of Contents

Introduction

Chapter I	General History of Civil Aviation in Canada	1
Chapter II	Flying in the North	21
Chapter III	Trans-Canada Air Lines	30
	Control of the Trans-Canada System	
	Parliamentary Debate	
	Trans-Canada and the War	
Chapter IV	British Commonwealth Air Training Plan	48
Chapter V	Conclusion	61

Bibliography

INTRODUCTION

Aviation is everywhere the youngest form of transportation; but nevertheless the most significant, especially in countries, such as Canada, where distances are great, and so many areas are almost inaccessible by other means of transport. Canada with its innumerable waterways and wide prairies offers tremendous possibilities for civil aviation. The opening up of the Dominion's north-land has been closely connected with the development of flying. The aeroplane has replaced the dog sled and canoe, and the tempo of exploration in the North increased accordingly. Furthermore, this sub-arctic development has placed Canadian aviation on a sound basis. Flying for commercial purposes has spread from the North to the settled areas, where it has established itself firmly. In the second World War, as in the first, Canadians have distinguished themselves in the air forces. The whole story of aviation in the Dominion has been one of progress. Thus its comparatively short life history has meant much, and without doubt in the future, will mean even more to Canadians and Canada.

CHAPTER I

CHAPTER I

GENERAL HISTORY OF CIVIL AVIATION IN CANADA

The first flying in Canada was done as a result of the forming of the "Aerial Experiment Association" formed in 1907, and including Dr. Graham Bell, J. A. D. McCurdy, F. W. Baldwin, Glen Curtiss, and Lieut. Selfridge. The first flight of a heavier-than-air machine was made in Canada at Baddeck, N.S., on December 7, 1907, in the Cygnet, a tetrahedral kite, which was towed by a steam tug. On February 23rd, 1909, McCurdy's aeroplane, the Silver Dart, an advance on any aircraft previously flown, was taken out for tests on the ice at Baddeck. It flew for half a mile under its own power and rose 30 feet above the ice. This was the first aeroplane flight made by a British subject.

In 1909, the first effort to use an aeroplane for military purposes was made by McCurdy at Petawawa Camp. It resulted in a crash, and up until the outbreak of the Great War nothing further was accomplished toward establishing aviation in Canada, although progress throughout the world was rapid in the development of aircraft from 1908 until the beginning of 1914.

With the coming of the Great War, 1914-18, civil aviation throughout the world ceased abruptly, although

progress in military aviation was accelerated by the competition for air superiority and the wide field for experiment that war activities provided. Officially, Canada took little part in these developments, but many Canadians entered the flying service of Great Britain. During the War the R.A.F. established a number of training centers in Canada and many Canadian pilots were trained. Manufacture of aircraft was begun by Canadian Aeroplanes, Ltd. in Toronto, and many training planes were built for the use of the R.A.F. in Canada -- 2900 were built by the end of the War. The Royal Canadian Naval Air Service was formed and operated from Halifax and Sydney to combat the submarine menace in the Atlantic.

With the coming of peace, civil aviation was resumed, or begun on a practical scale, because the civil aviation existing before the war was of an experimental or sporting nature. After the Armistice, conditions were very different to what they had been in pre-war flying. Huge expenditures had resulted in tremendous development of aircraft. Their range, speed, power, manoeuvrability had all increased greatly.

Following the War, governments wished to dispose of surplus planes, and thousands of machines of all types were thrown on the market at scrap prices. In 1919, the British Government presented Canada with \$5 million worth of aerial equipment. Canada had also thousands of men with valuable aeronautical experience who were convinced that aircraft could be employed in many useful ways in peacetime. These men were full of enthusiasm for aviation and seeking

jobs along that line.

With all this aerial activity in the offing, it was realized that Canada needed some kind of air organization, and in July, 1919, the Air Board Act was passed. This Act instituted a board, presided over by a minister of the Crown, with full power for the control of aeronautics in Canada. In this manner supervision was provided for in the development of civil aviation in Canada. The first Air Board was appointed in 1919, and control of aviation was administered by the board until a new arrangement was made in 1923.

These immediate post-war circumstances of a large number of trained pilots and many surplus aircraft resulted in a boom in civil aviation. Much of this was in the way of exhibition flying, "joy-riding", and instruction, from which the novelty soon wore off. However, the foundations for real progress were laid by a few farsighted men who sought to apply the facilities of aircraft to practical purposes in forest reconnaissance, surveying, and transportation in inaccessible areas of the country.

A period of disillusionment followed the boom. Two essentials to success in aviation had been forgotten, both of which required time to build them up. One was public confidence and familiarity with aviation, and the other was the necessity of a solid ground organization. Time was required to permit the growth of civil air traffic organizations to take over the development of actual flying. No such systems had grown up. The public was still uneducated as to the value of aerial transport and mistrusted it. Thus it was inevitable that there should be an interim period during which civil

aviation might have time to create its ground organization and gain the confidence of the public. Another important factor tending to retard the spread of civil aviation was the high cost of flying. During the war, expense was not considered and the types of aircraft produced were not the most efficient from the point of view of civil aviation. In aerial transport, economy in first cost and operation was a vital factor, and in order to succeed aircraft had to be designed to give the utmost efficiency per horse-power. Failing that, their advantage in speed would not enable them to compete with the older forms of transport because the traffic would not bear the high cost of their organization.

Thus, when the Government faced the problem of civil aviation after the war, they decided that organized air routes were, for the time being, a luxury that the country could not afford. Their establishment would mean considerable capital expenditures, and high operating costs with little prospect of substantial revenue for some years to come. For these reasons, therefore, it was decided to postpone the establishment of regular air routes until conditions were better.

But surveyors, foresters, mining men, etc., watched with interest, the increase in the capacity and reliability of aircraft. They needed better transportation and the aeroplane could supply this, while at the same time increasing greatly their range of vision and the effectiveness of their work. Thus, although there was not yet a real use for air transport in the settled areas of the country, there was a great opportunity for its development in the northland where other means of travel were slow and inefficient. The northern

flying had a better chance of survival than that in the populated sections, because the flying boat, used in the North, performed a real service in providing safe, fast, and relatively cheap transportation, - a service that could not otherwise be met. Their work was chiefly in connection with the forest industries, but it increased from year to year and new activities opened up to them, as in mapping, etc.

Thus small aviation concerns for useless purposes were forced out of business for want of something to do, but the existing firms in the north could look forward to the future with confidence. The reductions in flying were largely in the western provinces where most of the flying was of an exhibition nature, and which died out. In eastern Canada, where more useful and profitable outlets for flying were found, there was a steady increase in the amount of work done.

The value of development and experimental work done in many fields of civil aviation by the Dominion Government was great. It blazed the trail for commercial flying in many phases that later became self-supporting. Private effort unassisted would have taken many years to establish such work and would have had to overcome the financial loss and discouragement which seemed inevitable in pioneer work. No subsidies were granted by the Government, and thus only where flying served a useful end, either more cheaply or more efficiently than other methods of transport, did it continue to be used.

Some Government operations undertaken for other Government Departments were civil in nature and closely allied to the work undertaken by the commercial aviation

firms. These operations, chiefly for the forest and survey services of the Dominion, were carried out for the purpose of increasing the efficiency of their work in the remoter parts of the country where communications were underdeveloped. When flying began to develop after the War, it was realized that many Government services could be materially assisted by the advent of flying. In 1919, successful flights were made for forest protection and survey work at Lac a la Tortue, in Quebec. In 1920, a preliminary survey of the country was made with a view to ascertaining what public services could be performed more satisfactorily and economically by air than by existing methods. The survey found that the Forest Branch would co-operate in experimenting to find the value of aircraft in fire detection patrols and in taking inventories of the Dominion's forest resources. The administrative sections were also interested in the possibilities of aerial transportation in remote areas. Faster transportation in these places would benefit them greatly. The possibilities of aerial photography in connection with exploratory surveys were also early recognized.

In the fall of 1920, three stations were established for experimental work, and the results were sufficiently encouraging to warrant the extension of the work in 1921 and 1922. Thus bases were established at various points across Canada from which forest patrols and survey work were carried on. Also, some large corporations, e.g. Laurentide Co. and Price Bros, established their own air services for forest patrol, survey, and transportation.

While the Air Board was in existence, these

Government services were carried out by a separate civil branch created for this purpose. When the Air Board's services were reorganized in 1923, this civil aviation branch was amalgamated with the R.C.A.F., and the work done during 1923 was carried out by Air Force personnel. The operations undertaken under this arrangement included work for the Department of the Interior, Marine and Fisheries Dept., Dept. of Agriculture, the British Columbia forest service, Dept. of Indian Affairs, Dept. of Mines, and the Dept. of Customs. Civil operations of this kind were a great asset to the Air Force. Apart from the direct value of the training in flying under varied conditions, they also received good practice in photography, navigation, and observation duties, as in wireless communication, and maintenance of aircraft and engines.

In addition to the civil operations undertaken by the Dominion Government for other government Departments, work was also undertaken for the provincial governments. Aviation played a large part in the conservation and development of their natural resources. The governments of the provinces were vitally interested in these aerial activities and played an important part in their development. In 1920-21 and 1922, the Dominion loaned the provinces aircraft and personnel to demonstrate the possibilities of aircraft in forest fire protection, forest survey, inventory work from the air by sketching and photography, and transportation in remote areas.

By 1923, flying done for the provincial governments had passed out of the experimental stage and proved its use-

fulness. Thus, the Air Force withdrew from this field and left it open to the commercial companies, except in the case of the three prairie provinces where control of the natural resources remained in the hands of the Dominion Government until 1930. In the other provinces where the natural resources were always within provincial jurisdiction, the work was then carried by the provinces themselves; in Ontario, after two years, by the formation of the Provincial Air Service as part of the Forest Service and in the other provinces by contract with commercial firms. In the prairie provinces of Alberta, Saskatchewan, and Manitoba, the work was carried on in co-operation with the Dominion Forest and other services.

In connection with Government services, every year, during the winter, a series of informal conferences was held by representatives of Government Departments interested in flying, and a tentative programme of work was drawn up for the following up summer.

In 1923, the Air Board was replaced by a new department formed under the Minister of National Defence. Under this system all air services were grouped under one directorate, as all the powers of the Air Board were transferred to the Department of National Defence. This form of organization continued until 1927.

There was a considerable increase in commercial aviation as applied to forestry work and photography in Eastern Canada during 1923. The aircraft industry was beginning to work on aircraft designed especially for forestry work in this country, and the problem of replacing war type aircraft with modern up-to-date machines more suited to

operations under Canadian conditions was beginning to give results. On the whole, the progress of aviation in the Dominion was satisfactory in 1923.

In 1924, one of the great handicaps of aviation in Canada was beginning to be overcome. This was the short operating season brought about by the winter. Most of the flying in the country had been possible only in the summer. This increased the overhead costs of aviation as during the winter months the organization earned nothing. But by this time efforts to develop winter flying were meeting with success, and it was shown that, with efficient management and the proper types of engines and aircraft, winter flying was practical.

In 1924, the first serious attempt was made by the Laurentide Air Service to establish a regular passenger, mail, and freight route. The support it received was good, and from the operating point of view, the project was considered as successful. The outstanding event of the year, however, was the definite entry of the Provincial Government of Ontario into the field of aviation. They decided to establish their own flying service in connection with the Forestry Branch rather than continuing to make contracts with commercial companies.

During the years since the war, work had gone forward slowly but steadily on the building up of ground organizations and in the production of more efficient aircraft. Up to this time flying in Canada was used principally as an improved method of observation and transportation in the north. But the year 1924 showed distinct progress and

there was reason to believe that the post war depression in aviation had reached its lowest point, and that from then on progress would be steady. The few commercial aviation firms existing up to this time had made some progress, but it was rather slow. However, they were in a position to take advantage of the expected advance in aviation.

In 1925 there was a steady and satisfactory progress in aviation, but it was rather a year of consolidation of the ground gained in the past and the improvement of the existing conditions. Services for forest protection and mapping were increased. The year also saw a distinct revival of pleasure and exhibition flying, use of aircraft for advertising, teaching of flying, and the institution of more regular transportation services from the railways to the mining camps.

The year 1926 marked the close of a distinct phase in the history of aviation in Canada. Up until then it was used principally as a method of transportation and observation by those engaged in the conservation and development of the natural resources in the remoter parts of the Dominion.

Unlike some countries, Canada had made no attempt to develop aerial transport between the centres of population. But the successful operation of air lines in the United States and Europe was beginning to have an effect on public opinion in Canada, and the problem of establishing similar facilities in Canada had now to be faced.

Aerial photography had made tremendous advances by this time, and in 1926, 70,000 square miles were photographed. It is probable that the only two self-sustaining air transport routes operated in the Empire during 1926 were in Canada. They

were on an absolutely commercial basis and had had no Government subsidies of any kind.

In 1927 there was a great awakening of public interest and support in civil aviation. The amount of flying done during this year showed an increase of more than 100% over any previous year. Commercial aviation was self-supporting, increasing in usefulness, and active as never before. The demand for flying during the period exceeded the capacity of the aircraft available and led to an increase in the quality and number of commercial machines in use. The variety and range of operations increased notably. Flying became recognized as part of practically every conservation, development, and engineering service in the country. Transportation, forest mapping, aerial photography, etc., were all well established and growing. A distinct revival of interest in pleasure, advertising, and exhibition flying was apparent.

The handicaps of winter flying were largely overcome, and all year round operation increased, greatly to the benefit of the operating companies which could then keep their aircraft in almost constant work. The operating records on the whole showed increasing efficiency due to the introduction of better aeroplanes and greater experience of their personnel. There were few accidents, and long and difficult flights were undertaken regularly. The growth of public interest in aviation in this year made it possible to consider the extension of air services, to the settled districts. A beginning was made in the organization of scheduled air routes.

On July 1, 1927, the organization of aviation in

Canada was once again changed. With the increasing importance and growth of both civil aviation and civil Government operations, and their gradual divergence from the military duties of the Air Force, a redistribution of duties became essential. The three main branches were again formed under the Minister of National Defence. Civil Government operations were separated from the Air Force under the Directorate of Civil Government Air Operations, and the control of civil aviation and the organization of airways was grouped in a third branch.

There was a sudden increase in the demand for light aircraft during 1927. They had been found to be very useful for fire patrols in Northern Ontario, and the satisfaction they gave there led to their adoption for other similar work. The low capital cost and maintenance cost of light planes insured a great reduction in the cost of such services. The increased activity of the year also led to the establishment of flying schools by commercial firms to fill the growing demand for pilots and air engineers.

Prior to 1927, there were no official air mail routes in Canada. But as the use of air transport grew, the demand for the carriage of mail by air to mining camps to which access by ground was slow and difficult, increased also, and with the permission of the Post Office Department, many such services were initiated by commercial companies in northern Ontario and Quebec. No payment was made by the Post Office for these services, but the operating companies were allowed to issue their own air mail stickers, or stamps, in payment for the carriage of mail. In 1927, the success of

these services and their growing use made it essential for the Post Office to recognize officially the new form of transport. Accordingly, in this year a system of air mails was inaugurated, serving first the remote communities to which ordinary mail services were slow, and then as conditions warranted, linking the main centres of population. Contracts for four winter mail services were awarded before the end of the year.

The air mail services fell into two classes - (1) serving the remoter communities, and (2) the inter-city services. The former were non-competitive, as they were the only satisfactory method of delivering the mail. No special charge was made for them. But the inter-city services were competitive. They had to compete with the railway mail service which was provided for by the ordinary postage chargeable on mail. Thus, an extra charge was made for inter-city air mail services. These services had to run at night to be efficient, otherwise the advantages of flying were lost. This meant that a very considerable expenditure had to be made on the ground for the necessary aids to navigation and to ensure safety. The different communities served entered wholeheartedly into the provision of these. They, along with the Dominion Government and the commercial companies worked hard for the establishment of aerodromes. Most of the work was done with a direct view to the development of a trans-Canada airway and obtaining air mail service for those communities which were spending their money. The desire of the country for inter-urban mail service was shown by the growing use of the air mails and the expenditures on

airports for its operation.

Thus the year 1927 was one of outstanding progress in aviation in Canada and much was accomplished in creating a sound basis for future growth of the industry.

In 1928, the Post Office, encouraged by the success of the air mail operations in 1927, commenced the organization of a trans-Canada service. Progress in the United States had been rapid and they were seeking to extend their system into Canada. Therefore, to retain the control of aviation in Canada, widespread air mail services were inaugurated, especially in the Prairie regions. All phases of aviation increased greatly and there were important new developments. Also, it was in this year that the Flying Clubs (see below) were brought into operation to train pilots and further interest in aviation.

The year 1929 showed a further great advance in aerial activity in all parts of the Dominion. Forest protection and survey work were continued on a greater scale than ever. Flying in the North had become an essential part of the transportation system. Air mail routes were continued and extended until the services spanned half the continent. An increased interest was shown in aerodrome building in all parts of the country. Support along this line was essential to progress. The only disquieting feature of the year was the unnecessarily large number of accidents.

In 1930 aviation felt the effect of the world wide depression in trade and industry. The rapid expansion of the past two years ceased, but there was no retrogression in any phase. The commercial operating companies were able to

maintain their services and Government and private flying continued. There was a further extension of the air mail services. Night flying was begun on the air mail route between Winnipeg and Calgary. Lighted airports were extended on the prairies, which then had fine airports. Total flying time for the year showed an increase of 15% over the previous year, but there was a drastic reduction of the air services estimates.

In the world at large during 1931, aviation was a notable exception to the general trend of falling returns in commerce, industry, and transportation. However, in Canada there was no expansion, rather the reverse. Air transport in the North showed great activity, but reduced appropriations for air mail had their effect in retarding progress. The use of air mail by the public showed a notable increase on those lines which were in operation. The Dominion and Provincial Governments also reduced their appropriations for forest services causing a reduction in this important class of flying. But aerial photography and transportation were on a wider scale than before. In this year, the Prairie Provinces, with the return of their natural resources, accepted the responsibility for their forest protection and arranged for the flying required on their own behalf. That the activity in all phases of the work was relatively so well maintained throughout the country proved the general soundness of Canadian development of aviation.

In 1932 the aviation industry hit a "low" that nearly put it out of business. In 1931, several air mail services had been withdrawn owing to economic conditions,

and in 1932 more of these were cancelled for the same reasons. The improvement following 1932 was bound up primarily with remarkable expansion of mining activity in this period. The amount of freight carried by aircraft grew rapidly, increasing from 2,372,467 lbs. in 1931 to a record of 26,279,156 lbs. in 1937. This was considerably more than carried in any other country, with the possible exception of Russia.

In 1933, there were 17 regular air mail services operated by commercial firms under Post Office contracts. By 1934, this number had grown until there were 26 regular air mail services.

In November, 1936, the control of civil aviation, previously administered by the Department of National Defence, was transferred to the newly created Department of Transport, because military and civil flying inevitably developed along different lines both in type of aircraft and training of personnel. Civil aviation had by now become so important a part of transportation facilities of Canada that it could best be administered by the department that had to do with railway, shipping, and highway services, to which aviation was complementary.

In 1937, freight and mail carried increased, freight reaching its peak in this year. Passenger traffic also increased but not at such a rate. The Act of Parliament which created T.C.A. was passed in 1937, and regular operations on the Western half of the line, from Vancouver to Winnipeg, were possible at the end of the year.

Toward the end of 1938, regular flying on the Montreal to Vancouver portion of the Trans-Canada Air Lines

was begun. Passenger and freight traffic showed a decrease this year, but the mail carried was increased. There was a big increase in the West due to the extension of air mail services on the Trans-Canada line.

In 1938, the Transport Act was passed, enlarging the jurisdiction of the Board of Railway Commissioners to include, among other things, the regulation of air transport. This Board was to co-operate with the Civil Aviation Branch in the regulation of air services in order to stabilize the industry by preventing destructive competition, and to ensure a higher standard of safety and efficiency in the operation of all regular air services in the Dominion. Licenses for air routes came under the control of the Board and they also had the power to pass on the tariffs charged for the carriage of passengers or goods by aircraft. The administrative duties under the Controller of Civil Aviation included the inspection and registration of aircraft and air harbours, the licensing of commercial and private air pilots, air engineers, and air navigators. In addition to these duties, the location and construction of air routes and any matters connected with airship service came under the administration of this branch.

In 1939, there was an increase in the number of passengers carried. In 1940, the mail carried increased while the freight showed a substantial drop.

Flying Clubs

Flying clubs were very important in the development of Canadian aviation and for that reason merit particular attention. The Light Aeroplane Club, or flying club, idea took shape late in 1927, when it seemed desirable to the Department of National Defence (then in control of aviation in Canada) to take steps to interest Canadians in flying. It was seen that there was a growing demand for young pilots because of normal expansion in flying, and also because the numbers of war-trained pilots, who had remained in aviation since 1919, could no longer meet the demand for flyers. Moreover, some of these veterans were getting beyond their best flying years and younger men were needed to replace them.

Accordingly, in 1928 the Department of National Defence was given authority to assist in the establishment of flying clubs in the principal cities of the Dominion, with the primary intention of maintaining public interest in flying, and building up a reserve of pilots and mechanics against a possible emergency. Co-incident with the encouragement of flying clubs, there was a movement to stimulate building - by government subsidy - of civil airports adjacent to municipalities in all parts of the country. Many of these civic airports were used by the flying clubs, and later they were used as key points in the Trans-Canada system when, through government assistance, they were brought up to the standard required by that system.

The general conditions under which the flying clubs were established were that any community pledging itself to

provide the services of an instructor, an air engineer, and a licensed aerodrome with adequate accommodation for the housing and maintenance of the machines, would be issued with two light aircraft by the Department in the first year, and in each subsequent year. If they supplied from their own resources a machine of an approved type, the Department would issue one further light aircraft. Further, the Department would pay to the club a grant of \$100 for each ab initio pupil to obtain a Private Pilot's Certificate,⁽¹⁾ Flying instructors in Canada had to be specially licensed for the job, and thus a high standard of tuition was set for the clubs.

Under these conditions, sixteen clubs were organized in 1928, and seven more were formed in the following year to make a total of twenty-three. Subsequently one of these was discontinued, and at the outbreak of war there were twenty-two Light Aeroplane Clubs in operation, associated with the principal centres of population.

The airports of the clubs provided the nuclei around which aviation activities have centred. In each of these centres, the movement resulted in greatly increased interest in aviation, in the establishment of good aerodromes, and the preliminary training of many young pilots. By 1939, the clubs turned out about 2800 pilots and in that year there were 1,180 flying and 1,026 non-flying members, 1,519 pupils given instruction, and 334 certificates granted.

(1) The detailed standard conditions for Light Aeroplane Clubs are in the Report on Civil Aviation, 1931, Page 45.

Before the war, a considerable number of these pilots were absorbed into the R.A.F.. Although a certain number of licenses were allowed to lapse each year, on the whole a reserve was created that has proved of immense value. After the outbreak of war the Light Aeroplane Clubs co-operated with the R.C.A.F. Twenty of the twenty-two clubs were called upon to undertake the formation of Elementary Flying Training Schools in various parts of Canada and by far the greatest part of the primary training of student pilots for the Air Training Plan was carried out by these clubs acting in their new role.

Flying Clubs in Canada

1. Halifax, N.S.
2. Cape Breton, N.S.
3. St. John, N.B.
4. Montreal, P.Q.
5. Ottawa, Ont.
6. Kingston, Ont.
7. Toronto, Ont.
8. Hamilton, Ont.
9. St. Catharines, Ont.
10. Brant & Norfolk, Ont. (Brantford)
11. Kitchener-Waterloo, Ont.
12. Border Cities, Ont.
13. London, Ont.
14. Fort William, Ont.
15. Winnipeg, Man.
16. Brandon, Man.
17. Regina, Sask.
18. Moose Jaw, Sask.
19. Saskatoon, Sask.
20. Calgary, Alta.
21. Edmonton, Alta.
22. Vancouver, B.C.
23. McGill University - since discontinued.

COMMERCIAL AVIATION IN CANADA 1921-1940

Year	Aircraft Hours Flown	Aircraft Mileage Flown	Passengers and Crew Carried	Freight & Express Carried (Lbs)	Mail Carried (Lbs)
1921		294,449	9,153	79,850	
1922		185,211	4,282	14,681	62,025
1923	2,830	118,098	2,238	17,600	
1924	4,389	294,778	5,314	77,385	1,221
1925	4,091	255,826	4,897	592,220	1,080
1926	5,860	393,103	6,436	724,721	3,960
1927	12,070	829,010	18,932	1,098,346	14,684
1928	43,071	2,728,414	74,669	2,404,682	316,631
1929	79,786	6,284,079	124,751	3,903,908	430,636
1930	92,993	7,547,420	124,875	1,759,259	474,199
1931	73,645	7,046,276	100,128	2,372,467	470,461
1932	56,170	4,569,131	76,800	3,129,974	413,687
1933	53,299	4,538,315	85,006	4,205,901	539,358
1934	75,871	6,497,637	105,306	14,441,179	625,040
1935	88,451	7,522,102	157,472	17,615,910	1,126,084
1936	101,953	7,803,942	118,660	25,387,719	1,161,069
1937	126,896	10,755,524	141,158	26,279,156	1,450,473
1938	133,168	12,294,088	139,806	21,704,587	1,901,711
1939	145,638	10,969,271	161,503	21,253,364	1,900,347
1940	98,837	11,966,790	159,781	16,686,214	2,737,122

CHAPTER II

CHAPTER II

FLYING IN THE NORTH

There have been two broad aspects to the development of civil aviation in Canada. The first of these was the growth of flying in the North, and it was followed after some years by the second, which consisted of the development of aviation in the settled areas of the Dominion.

North of the narrow strip along the southern border of Canada through which the railways pass was the vast extent of virgin country where modern means of transportation were unknown. This great area stretched for 3000 miles from coast to coast and to the North, for an average of 800 miles, to the Arctic. Travel there was largely confined to the great waterways, which gave easy but slow and limited access to its remotest regions. Nothing was known of thousands of square miles of this country, lying a few paces beyond the banks of the rivers and lakes through which the routes of travel passed.

The prospector and the mining engineer, and also surveyors and geologists, their interest in the North awakened by the great discoveries of the past generation in the copper-nickel areas of Sudbury, the silver mines of Cobalt, and the gold discoveries in the Yukon and at Porcupine, were

seeking better methods of transportation and exploration in this great area. The first necessities in developing this vast tract were improved methods of transportation and observation. Aviation was the logical means of filling this need.

Thus the basic reasons for the success of flying in the North were simple - the only other alternative means of transportation, which were the dog team and the canoe, were arduous, tedious, costly, and slow over long distances. The country was everywhere dotted with lakes which provided convenient landing fields for planes equipped with floats or skis. Therefore, being able to supply a real economic service in this region, the success of commercial aviation in the North was fairly well assured.

The discovery of crude oil at Fort Norman on the Mackenzie River in 1921 led to the first large-scale attempt to establish air transportation in the North by the Imperial Oil Co.. Further work was carried out in the Northwest Territories where the aeroplane was instrumental in the discovery of mineral deposits along the Mackenzie River system. The rapid extension of the Dominion Government aerial and topographical work, under the direction of the Department of Mines and Resources, and the publication of preliminary maps was of great service to the prospectors. Without this co-operation, the development work would not have been possible. The initial prospecting was largely done from the air, the mapping, transportation of food and supplies to all remote claims, and the removal of the bullion, were all carried on by use of the aeroplane.

The freight carried by aircraft consisted largely of machinery and supplies, etc. for the mines in northern Canada. Besides these items, such things as live chickens and even live cattle were transported by air.

These bush routes continued to be flown by a number of independent operators for some time, and the history of the northern services was not too bright financially. Few statistics were available on the unscheduled commercial operations in the North, but companies made profits only in occasional years. There was hard competition for traffic which resulted in rate cutting in many areas. The lack of adequate financial resources made it impossible for small systems to expand into an integrated air line, and these small competing firms resulted in much overlapping of routes. And beyond all these problems there were the natural problems of flying against the Northern elements.

Air transport in the North steadily gained in popularity, and besides being favoured by prospectors, mine operators, geologists, trappers and traders, it was also used by the Royal Canadian Mounted Police, missionaries, and doctors, in their work, some of the mercy flights in the Canadian North having won great renown.

Arctic pilots made many improvisations in their machines to make them more efficient for the environment in which they operated. Canadian manufacturers were able to adopt these improvements and thus turn out planes more suited for the work to be done in opening up the North.

On a ton-mile basis, the rates charged were high compared with the railways, but were much lower than the cost

of transport by canoe or dog-team, previously the only method of reaching these remote areas. Planes enabled exploitation to be carried on quickly over a wide area and with a minimum of fixed capital expenditure, e.g. if a prospective mine did not prove profitable, the equipment could be moved quickly and without much loss to a new area. A railway needed only be built if it was fully justified by operations at the mine, and aerial photography enabled the mine to be built quickly, and economically located. Thus the use of aircraft saved much needless building of railways in connection with mining projects. On the other hand, the expense of air transport made it possible to use it only in the mining of exceptionally high grade ores. Thus, adjoining low grade ores had to be left, although their exploitation would have been profitable under other conditions of transportation. But it might become possible to reduce the cost of and improve air transportation so that many ore deposits could be worked without undue loss of low-grade ore.

Northern flying was of the greatest importance, for it handled about 20,000,000 lbs. of freight per year at the time of consolidation of the Northern services by the C.P.R. in 1941. Canada was the greatest mover of air freight in the world, except for Russia, which passed the Dominion in the years preceding the Second War. But the Russian figures included a heavy volume of military freight.

In good years the dollar value of air freight in northern Canada amounted to about \$2 millions. As business increased there was a distinct shift in the division of revenues. Originally, 75% of northern airline revenue came

from freight, about 5% from mail, and the balance from passenger traffic. But when the greater proportion of mining communities became established, and because of the decrease of mining activities due to wartime restrictions, about 60% of total revenues came from passengers, 7% from mail, and about 33% from freight.

In the face of all its difficulties, flying in the North progressed and showed great future possibilities. Especially in the first two years, of the second World War, aviation developed at an amazing pace. It was well proved that big aircraft with a big payload capacity could be built. The public became air conscious in a way that might have taken years under peacetime conditions.

The growth of the Northern flying was of tremendous importance in Canada, because both the development of aviation in Canada and the exploitation of the riches of the northland have gone side by side. The one would not have been possible without the other. Without the aeroplane, fewer mines would have been discovered and without the freight and passenger traffic resulting from that development, Canadian aviation would have had very poor pickings.

In 1942, Northern flying was transformed into an efficient whole by the Canadian Pacific Railway Co. The Canadian Government and the Canadian National Railways gained control of inter-urban aviation when they formed and began to operate Trans-Canada Air Lines. The Canadian Pacific Railway declined to participate in that enterprise because of what it considered inadequate representation on the board. But with the increasing importance of aviation brought about

by the war, the C.P.R. began to look around for some way to gain some place in this growing industry. It became apparent that if it was to have a position in the air transport field after the war, it would have to get into the business at once. An Atlantic or a Pacific service was out of the question during the war. The trans-continental service was tied up by the government in T.C.A. The only services left were Canadian Airways, Limited, (by far the largest of the commercial companies and in which the C.P.R. had previously acquired a substantial minority interest) and a number of relatively small operators in eastern and western Canada. So, with the knowledge of Ottawa, the C.P.R. started negotiations and one by one, within a year or so, the individual operators released control to the Air Services Division of the railway. By the beginning of 1942, the C.P.R. operated extensive services throughout Canada, north and west of the St. Lawrence River. The air services taken over included: Yukon Southern Air Transport, Ginger Coote Airways, Starratt Airways, MacKenzie Air Services, Prairie Airways, Wings Ltd., Canadian Airways Ltd., Quebec Airways Ltd., Dominion Skyways Ltd., and Arrow Airways Ltd.. This nationwide network of air services was divided into two territories, Eastern and Western, with the dividing line at Port Arthur. The western territory was further divided into two districts. One of these consisted of four divisions: Vancouver, Yukon, MacKenzie, and Saskatchewan, and was administered from Edmonton. The other district comprised services in Manitoba, Western Ontario, and the northern territory contributory to both.

Thus the C.P.R. consolidated under its control all

major air services in the Dominion north of the Trans-Canada route. The prolonged negotiations culminated in the establishment of the C.P.R. as a powerful influence in the present and prospective development of Canada's non-military aviation, and as a matter of fact, virtually all non-military aviation in the country then came under control of the two railway companies and the Government. As a result of its move, the Canadian Pacific would be able to advance the interest of Canadian air transportation in the mineral and fur trade business of the northland, and possibly over the top of the world to the Orient and beyond.

The effect of the C.P.R. control of northern air service was seen in the salvation of the hard-pressed bush operations, elimination of duplicating services, the consolidation of management, and the appearance of new airline equipment to provide more efficient service. The powerful new financial backing made the purchase of new equipment possible.

The organization of this new air service was carried out by the bush operators themselves, for the company followed a policy of retaining the experienced personnel of the former individual flying concerns.

One of the initial moves made by the company was the merger of Mackenzie Air Service and Canadian Airways operations out of Edmonton and Prince Albert to form United Air Services Ltd. to serve most northern part of the country. This name was changed to Canadian Pacific Airlines Ltd. in February, 1942.

By far the largest single unit in the new set-up

was Canadian Airways Ltd., which accounted for about one half of the total northern air business handled and had a gross income in 1940 of better than one million dollars. This pioneer airline was founded in 1926 as Western Canada Airways and laid the groundwork in 1928 for the present trans-continental air mail route from Winnipeg to the Rockies.

Canadian Pacific Air Services became more extensive than any other air transport services in Canada in respect to actual mileage of scheduled routes. Difficulty was met in setting a mileage figure for northern routes because of duplication and also the important "spot charter", or taxi, services, in which planes were chartered by individuals for special flights. On main line schedule flights it was estimated that the northern air lines operated regularly on schedule, a mileage equivalent to about two round trips per day from Montreal to Vancouver. Some of the distances flown were great, e.g. White Horse to Edmonton is approximately 1000 miles, and Edmonton to Aklayik is about 1,570 miles.

Thus the oldest phase of Canadian commercial aviation came under a central control which should prove to be very much to its benefit, and which would provide it with the most modern equipment.

CHAPTER III

CHAPTER III

TRANS-CANADA AIR LINES

Air transportation between the centres of population forms the second broad aspect of aviation in Canada. It is faced with a situation entirely different from that met by flying in the North. In the settled regions aviation must compete with other forms of dependable and efficient transportation. The only advantage that flying can offer under these circumstances is a saving of time. Canada did not do much to develop aviation along this line, requiring as it did expensive ground facilities, until progress elsewhere could give a clearer indication of its value and success. Accordingly, in 1927 when it became apparent in Europe and the United States that such air lines were profitable, there was a reconsideration of the Dominion's attitude towards aviation, and work was undertaken on a number of landing fields which formed the nucleus around which Trans-Canada Air Lines, the national air service, was developed.

Natural conditions divide the Trans-Canada Air Lines route into four distinct regions: (1) the Mountain Region, from the Pacific coast to the foothills of Alberta; (2) the Prairie Region, from the foothills to the Ontario border; (3) the Laurentian Area, extending through western

Ontario as far as the Ottawa valley; (4) the Atlantic Section, which takes in the settled areas in the basin of the Great Lakes, Eastern townships, and the Maritimes.

The Prairie Region presented the simplest construction and operating problems. Precipitation is light, visibility normally good, and aerodrome sites requiring little development were obtainable everywhere. Surveys commenced here in the summer of 1928, and construction and lighting installation followed. By the end of 1929, there was a chain of lighted aerodromes from Winnipeg to Edmonton and a contract for mail was let to Canadian Airways Ltd. by the Post Office Department. Flying started in this region on March 1st, 1930, and continued until March 31st, 1932, when it was suspended for economic reasons. But the airway surveys then in hand in the mountains and in northern Ontario, Quebec, and the Maritime Provinces, were continued with a view to the eventual completion of the system from coast to coast.

The depression forced a drastic curtailment of the program, and in the long run most of the money previously spent could be considered as wasted because the route was predicated on the basis of a comparatively slow, single-motor plane of relatively short range and flying on a visual-contact, or light beacon, basis. When the program was resumed in 1935 fast twin-engine, long-range planes and radio beacons rendered most of the previous investment in lighting and in landing fields obsolete.

The necessity for finding useful employment for many single homeless men in all parts of the country led to

the establishment of aerodrome construction camps in the Rocky Mountain section, and in northern Ontario, Quebec, and the Maritimes. These camps resulted in much valuable work being performed for the trans-Canada service, and the system was continued until June 30th, 1936, when all labour camps were shut down and the construction work was continued either by contract or by day labour.

In July and August of 1937, following the passing of the Act governing Trans-Canada Air Lines on April 10th, 1937, a joint survey was made by the staff of the operating company and the Department of Transport to decide on air navigation facilities required to complete the airway. Larger airports with longer approaches and improved surfaces were needed. Construction and installation of the necessary radio range stations, enlargements of airports, and installation of lighting was begun in September 1937. Work was further advanced in the western section, and activities were concentrated there in order to bring it into operation as soon as possible. Meanwhile, the training of personnel, building of hangars, acquisition of aircraft, etc., was being carried on by T.C.A.

By January 1st, 1938, all this work was far enough advanced, due to so much preliminary work being accomplished before the passing of the Act, to permit commencement of experimental flying on a day-light schedule between Vancouver and Winnipeg. The results of these flights were so satisfactory that on March 4th, a beginning was made in carrying mails experimentally between Vancouver and Winnipeg. By October 1st, the necessary ground facilities were completed and a regular air mail service was formally inau-

gured on that date over this portion of the route. The northern connection from Lethbridge to Edmonton was opened at the same time. Soon after this, service was extended to passengers over this route.

In the meantime, work on the Winnipeg to Montreal section was proceeding rapidly. Work had commenced in northern Ontario as weather conditions permitted. Delivery of the ten main line aircraft from the United States was completed in September, and the construction work was so well advanced that on September 10th regular daily flights on schedule were inaugurated on this section of the route to train both flying and ground crews. An air express service between Montreal, Toronto, and Vancouver was inaugurated on October 17th. By December 1st, the construction and equipment of the airway was sufficiently advanced to justify the inauguration of a daily air mail service between Montreal and Vancouver, and this commenced on that date.

During 1939, the construction work on the last section of the airway from Montreal to the Atlantic Coast was completed. Trans-Canada commenced a mail service between Montreal and Moncton on November 1st, 1939, and three months later, passenger, mail, and express services were in full operation, thus adding the last link to the transcontinental service. The route was later extended to Halifax.

The transcontinental line, in 1941, ran from Halifax on the Atlantic to Vancouver on the Pacific. There was a link between Prince Edward Island and Moncton, the former eastern terminus of the line. Also, a line joined Toronto and New York, and another went from Toronto to

London to Windsor. There was another connection between Lethbridge, Calgary, and Edmonton. Connecting services operated by other companies crossed the Strait of Georgia from Vancouver to Victoria, and went from Regina to Moose Jaw, Saskatoon, etc., up into the mining territories of the north and on to the Arctic, and down into the U.S. Extensions to Alaska and Newfoundland were under consideration. T. C. A., in 1941, operated a fleet of 22 modern twin-engined airliners, built by Lockheed, and similar to those used on 31 of the world's major airlines. The maintenance base was at Winnipeg, which was the operating headquarters of the system. It operated two round trips daily across the continent, 5 daily between Montreal, Ottawa, and Toronto, 3 between Toronto and New York, 3 between Toronto, London, and Windsor, 2 between Lethbridge, Calgary, and Edmonton.

The traffic potential of Trans-Canada is much less than that on important United States lines, the "on-line" population in metropolitan centres in Canada being five millions, and the "off-line" population, served by connections, of about 250,000. In spite of these limitations, the operating results of Trans-Canada up to the present, at least, compare favourably with American systems. Speed, fares, and figures for schedules completed, are very similar. If the present records can be maintained and costs kept down, Trans-Canada Air Lines will fully justify their existence.

Control of the Trans-Canada System.

No sooner was the preliminary work brought to completion than the very serious question arose as to who should operate and finance Trans-Canada Air Lines. It could be managed in any one of three ways: (1) by an existing operator such as Canadian Airways with government subsidy, i.e. the American plan; (2) directly by the Government under a commission like the Canadian Broadcasting Corporation; (3) or by a quasi-private corporation with the details of operation under the Government's existing transportation agency - the Canadian National Railways. The last alternative was selected and the Trans-Canada Air Lines Act, 1937, set up a corporation, four of the directors of which were to be appointed by the shareholders and three by the Government. The authorized capitalization was \$5 million, of which \$2 million was to be held in reserve for future expansion, \$1,750,000 was to be issued at once and \$1,250,000 was to be sold if and when Canada assumed her obligations in the proposed trans-Atlantic service. Of the issued stock slightly less than half might be sold "to such persons engaged or interested in aviation as are approved by the Minister of Transport." The intention was to sell stock to existing air firms such as Canadian Airways, and so on, to the extent to which they wished to participate. However, the maximum profit was limited to 5%, operating control was vested permanently in the Government, and payment for Trans-Canada stock was required in cash. Accordingly, the Canadian National retained the stock and became the sole owner of Trans-Canada. The Government made

advances to the railway from the Consolidated Revenue Fund, which advances were subsequently "repaid" by the issue of Canadian National Railway bonds fully guaranteed by the Government. The company was to operate only the main line trans-continental service along with the Edmonton-Calgary-Lethbridge link. For a time at least, feeder lines were to be operated by private companies. This policy prevented following the American practice of using on the secondary lines equipment which had been discarded from the main line as being obsolescent though still serviceable. On the other hand, the policy guarded against the political pressure of cities anxious for regular air service and might prevent the unloading of "jerkwater" lines on the Government, as in the case of the railways. Passenger fares and express charges were to be on a competitive basis with other similar transportation services in North America. With regard to mail, a contract entered into by the Post Office Department and Trans-Canada in 1938 set the rate at 60¢ per mile up to 1939. For the initial period, i.e. to December 31, 1939, (later extended to December 1940) the Government was to bear net deficits directly. Thereafter, the mail subsidy was to be increased or decreased according to whether a deficit or a surplus had been earned in the preceding year. In no case, however, were mail subsidies to be lower than on American air lines. The Government was to provide landing facilities, beam and meteorological services without charge until the revenues of the corporation permitted a charge, not exceeding charges levied in the United States, to be made. In any event the Government either directly or through mail

subsidies guaranteed a return of 5% on the stock, which was really bonds guaranteed by itself.

The main features of the Act indicated clearly that Trans-Canada was to be operated with constant reference to United States lines. All the operating officials, with the exception of three, were Americans. The non-operating executives were Canadians employed jointly by Trans-Canada and the Canadian National Railways. The President and Chairman of the Railway became the President of Trans-Canada. The nucleus of pilots was provided by ten Canadian commercial pilots who were sent to the United States for transport flying courses. Later, some training of transport pilots and ground crews was carried on in Canada. Thus, though there were some changes in the organization, Trans-Canada continued to draw on the experience of United States operating experts and made use of the American operating technique.

Parliamentary Debate.

The Hon. C. D. Howe, on March 4, 1937, moved that the House go into committee at the next sitting to consider the following resolution: "That it is expedient to introduce a measure to incorporate a corporation to be known as Trans-Canada Air Lines with authority to establish and operate air lines and services across Canada and matters incidental thereto, also to authorize the Government to enter into a contract with the corporation providing for the organization and operation of such lines and services, including the transport of passengers, goods, and

mails, and for the payment of a subsidy to the corporation and for the operation and maintenance by the government of emergency landing fields and other specified services, and also to authorize the government at its discretion to acquire and pay for all of the shares of the capital stock of the corporation, and further to authorize the Board of Railway Commissioners to fix the rates to be paid to the corporation for its services." This was the beginning of the Trans-Canada Air Lines bill.

Mr. Howe stated that the purpose of the bill was to form a company to operate a first-class air service from coast to coast. Among the reasons which he gave for the necessity of such an air line, were the following: Canada was one of the few countries in the world without a national scheduled air service. Canada was second to none in air service to areas without other transportation, but woefully behind in air services between centres of population. Much air mail from Canada was routed across the border to U.S. planes and then brought back across the border at the point nearest its destination. Canadians had to use U.S. air services and demanded one of our own. Such a service would prove of immense value for national purposes. More travel would be possible and would help to improve relations within the country. During the debates on the bill, all members seemed to be in accord with the necessity for such an air service in Canada.

Mr. Howe explained how the air lines in the United States and Great Britain were operated. Great Britain developed its air services through Imperial Airways, Ltd..

The British Government acquired 25% of the capital stock of Imperial Airways and subsidized all operations undertaken by the Airways at the direction of the British Government. The United States developed air services along different lines. There, it was a matter of competition extending over 10 years. Companies were authorized to fly certain services and the lines were built up in that manner, the only form of subsidy being the contracts awarded for the carriage of mail. The Government subsequently took over the mails but the results were so poor that new contracts were let to private companies, and the U.S. began to operate on a very efficient basis. Mr. Howe felt that Canada could do better by profiting from the experience of others.

He pointed out that the company contemplated by this bill was to be organized as a private corporation. The C.N.R. was to organize the company and would underwrite its stock and distribute it among the firms then engaged in aviation in Canada, which wished to participate. These firms would be asked to state what they could contribute toward the enterprise in the way of experienced personnel and possibly equipment. The company would fly only the main artery of traffic across the country and such others as the government might designate as being of national importance. It did not intend to interfere with existing operations. The company would undertake only inter-urban services. It would have an exclusive contract to carry mails, passengers, and express over the specified routes. The government would pay the company's deficits for two years, at the end of which time it was expected that an efficient

service would be in operation. Subsequently, the company would receive an air mail contract the basis of which would be determined by the operations of the previous year. The set-up was such that the company would be protected against loss, but its profits would be strictly limited. In other words, it was organized to perform a certain national service and it was expected that the service would be performed at or near cost. It was estimated that the capital required to purchase the equipment necessary to perform the service in Canada was about \$1,750,000. The cost of operation of the coast to coast service was estimated at about \$1,000,000 a year. After 1940 the subsidy provision was to expire, and the mail contract would be on the basis of the cost of the service.

In the course of the subsequent debate Mr. Bennett agreed that an air service was necessary but doubted whether the government plan was the best way of obtaining it.

Mr. H. C. Green said that the bill laid down an air transport policy for Canada and it was bound to be a long term policy. The bill changed Canada's past policy in so far as it put the government into the actual business of operating the main-line airways, although this would be indirect at first through the C.N.R. The old policy was that the government should supply aids to navigation, leaving private companies to do the actual operations. He felt that the C.N.R. had all that it could handle at that time and thought that the government should take the lead in establishing the air service. He believed that at least

one of the private companies that had done so much in opening up the North should be active in the management of T.C.A. He said that unless there was a real company actually willing and able to co-operate, this bill would set up a trans-Canada air line which would be without life, without any punch, and which would not be in a position to give real leadership. He suggested the British plan of a private company subsidized by the government. (The Br. Govt. subsidized Imperial Airways, owned 25% of the shares, and was able to say what routes would be flown and what schedules maintained etc.) There were many good companies in Canada - e.g. Canadian Airways Ltd., with splendid records. Why could not the government pick one of these and subsidize it?

Mr. Woodsworth did not like to burden the C.N.R. with the air service, and suggested that the government should operate the airway through a commission like the Canadian Broadcasting Commission. He thought that the line must ultimately come under government control so why should it not be started off that way. He said that the government was virtually giving away a valuable franchise and what was in the nature of a monopoly, and thus the government should hold the majority of the stock.

Hon. R. B. Bennett was of the same general opinion. He said that the government should own the air line from the start. As the government was creating the air line, it should hold it, and if in the future it was found better that management and operation should pass to other hands, then let it pass. The C.N.R. would have to get the money from the government, so why not have the government own the

enterprise now. He asked that the bill be modified so that ownership of the air line would rest with the government. This would enable the airway to make contracts with the C.N.R. and C.P.R. if they so desired, the same as was done in other countries to correlate their carrying activities with those of the railways.

Hon. H. H. Stevens said that since the government was going to the expense of providing many of the necessary ground facilities, why not have public ownership all the way. He thought that the provision to pay the deficit amounted to telling the corporation to spend what it liked.

It was pointed out that if the government wanted to take over the air line it could buy back the shares at book value. But Members pointed out that the book value of shares could be very high and thus the cost to the government might be large. Therefore, why should the airline not be kept in government hands as it had cost them nothing so far.

In reply to these members, Mr. Howe pointed out that the bill would introduce a new kind of aviation to Canada - a service between the centres of population. It must be highly efficient. He had talked with the heads of many airlines, both American and British and he firmly believed that the proposed plan was the best. He said that it seemed only reasonable that the railways should have a part in the development of air transportation - because they were in the transportation business and had common problems. The facilities of the railways could be used also by the airway - e.g. ticket offices, express offices, etc. It had

been expected that the two big railways would be shareholders in the enterprise, but one of these declined to do so and it was necessary to revise the bill so that the other would control the enterprise. U.S. Companies offered all help in getting the service off to a good start. After consideration, the government decided that its agency for transportation, the C.N.R., should be the means of organizing this company, just as it was used as the means for operating such shipping as the government owned, and the means of operating other government transportation facilities. It was intended that the C.N.R. would retain at least 51% of the stock of the company. The government would have three directors, the railway three, and any private aviation interests three. This would give government control always. In regard to the participation of private aviation interests, he said that they didn't need to be invited - they came from all parts of Canada and the U.S. in the most persistent lobby in Ottawa that he ever saw. In regard to the book value, he said that the value of the franchise would not be considered in obtaining the book value.

Mr. Bennett did not think that the air companies would take up the 49% of the stock. He still maintained that since the government was spending public money to finance the airway, it should retain ownership and control for the public.

Mr. Howe said that they wanted the best aviation experience available in the country and thus it was important to have ownership representation of the companies now performing aviation services in Canada. He did not think

that there would be any difficulty in getting the aviation companies to subscribe to the 49% of the stock. He came to the conclusion that the corporation must be set up before the aviation companies could be dealt with. Then the company could say to them, "This is the company - what part do you like and what do you have to offer." He was satisfied that this was the best way to go about the matter. He said that American companies were greatly interested in the efficiency of the Canadian airway, because an accident here would mean as much to them as if it happened on their own lines. They offered to put all their technical advice at our service and also to give us the benefit of their organization.

Mr. Church pointed out the bitter experience of this country with the C.N.R. in every department of its service - railways, ocean service, and hotels. He said that the T.C.A. could not be any better under the same system. He said that the company should be completely owned by the public because the public was going to put up the deficits.

Mr. Barber asked if the services from the prairies to the coast could be carried out all winter long in the face of storms and fog. Mr. Howe replied that they expected to be able to fly 12 months of the year through Crow's Nest Pass.

In reply to a question by Mr. Pelletier about the probable patronage of the line, Mr. Howe replied that a careful analysis of air mail revenue had been made. It was a regular revenue, and the Post Office Dept. estimated that by the third year, under the prevailing traffic conditions, this

line would pay for itself through the carriage of mail alone, without any revenue from passengers or express. In regard to passenger revenue, he said that the three trans-continental lines in the U.S. had not been able in the last year to provide sufficient equipment to accommodate those who wished to fly. We could look forward with confidence to considerable travel on our line. He believed that costs in Canada would be entirely competitive with those in the U.S.

Mr. Howe pointed out that there was a difference between Trans-Canada Air Lines (the corporation) and trans-Canada Lines. They wished to subsidize or provide a mail subsidy to trans-Canada Lines. It might happen that the corporation should engage in other services. If so, they wished to have nothing in the way of guarantee on that operation. He also pointed out that the rates for air mail after the initial period would be adjusted to cover operating expenses and provide a return of 5% on the capital. If there was a deficit the 5% would still be paid.

~~Mr. Howe said that it was the intention to have~~
as few stops on the line as the requirements of the Post Office would permit. The main line would terminate for the present at Vancouver in the west. The company was given the power to operate anywhere in Canada, but it could operate only on services designated by the government. The service between Toronto, Montreal, and Ottawa was to be a branch line but might be made part of the main line later.

Following these debates the bill was passed by the House, and the Senate passed it with a few changes which were concurred to by the House.

Trans-Canada and the War.

By its very nature, Trans-Canada formed an essential part of Canada's war effort - that is, in providing quick transportation across the country. Also, many of its employees were given leave of absence to join the fighting forces. The instrument shop at Winnipeg was doubled in capacity and worked full time on repair and overhaul of R.C.A.F. aircraft instruments. A shop for the overhaul and repair of military aircraft was put into operation at Malton Airport, Toronto. Also, the airline's facilities at various airports across Canada were extensively used for military aircraft.

JANUARY 5, 1942

TRANS-CANADA

Air Lines

Canada's
NATIONAL AIR SERVICE

Time Table No. 14

TRANS-CANADA AIR LINES

COAST TO COAST INTER-CITY

TRANSCONTINENTAL SERVICE

Miles	WESTBOUND Read Down	Time Zone	Trip No. 9-3 Daily	Trip No. 1 Daily
0	Lv. HALIFAX.....	AST	4.00PM	For local services see page two
118	Ar. Moncton.....	AST	4.55PM	
	Lv. Moncton.....	AST	5.10PM	
562	Ar. MONTREAL.....	EST	7.05PM	
	Lv. MONTREAL.....	EST	8.15PM	8.00AM
657	Ar. Ottawa.....	EST	9.00PM	8.45AM
	Lv. Ottawa.....	EST	9.10PM	8.50AM
885	Ar. TORONTO.....	EST	10.45PM	10.25AM
	Lv. NEW YORK.....	EST	8.00PM	8.00AM(b)
885	Lv. TORONTO.....	EST	11.05PM	10.40AM
1072	Ar. North Bay.....	EST	12.25AM	
	Lv. North Bay.....	EST	12.35AM	
1340	Ar. Kapuskasing.....	EST	2.20AM	1.25PM
	Lv. Kapuskasing.....	EST	2.30AM	1.35PM
2007	Ar. WINNIPEG.....	CST	5.35AM	4.40PM
	Lv. WINNIPEG.....	CST	5.50AM	4.55PM
2340	Ar. Regina.....	MST	6.50AM	5.55PM
	Lv. Regina.....	MST	7.00AM	6.05PM
2707	Ar. Lethbridge.....	MST	9.25AM	8.25PM
	Lv. Lethbridge.....	MST	9.45AM	8.55PM
3176	Ar. VANCOUVER.....	PST	11.35AM	10.45PM

Miles	EASTBOUND Read Down	Time Zone	Trip No. 2 Daily	Trip No. 4 Daily
0	Lv. VANCOUVER.....	PST	6.00AM	5.00PM
469	Ar. Lethbridge.....	MST	9.30AM	8.30PM
	Lv. Lethbridge.....	MST	9.50AM	8.50PM
836	Ar. Regina.....	MST	11.55AM	10.55PM
	Lv. Regina.....	MST	12.05PM	11.05PM
1169	Ar. WINNIPEG.....	CST	2.55PM	2.00AM
	Lv. WINNIPEG.....	CST	3.15PM	2.15AM
1836	Ar. Kapuskasing.....	EST	7.35PM	6.35AM
	Lv. Kapuskasing.....	EST	7.45PM	6.45AM
2104	Ar. North Bay.....	EST	9.25PM	
	Lv. North Bay.....	EST	9.35PM	
2291	Ar. TORONTO.....	EST	10.55PM	9.20AM
2656	Ar. NEW YORK.....	EST	1.30AM(b)	12.35PM
2291	Lv. TORONTO.....	EST	11.15PM	9.35AM
2519	Ar. Ottawa.....	EST	12.45AM	11.05AM
	Lv. Ottawa.....	EST	12.50AM	11.10AM
2614	Ar. MONTREAL.....	EST	1.35AM	11.55AM
	Lv. MONTREAL.....	EST	1.45AM	
3058	Ar. Moncton.....	AST	5.10AM	For local services see page two
	Lv. Moncton.....	AST	5.20AM	
3176	Ar. HALIFAX.....	AST	6.15AM	

NEW YORK - TORONTO

Miles	NORTHBOUND Read Down	Time Zone	No. 21 Daily Ex. Sun.	Trip No. 23 Daily	Trip No. 25 Daily
0	Lv. NEW YORK ..	EST	8.00AM	2.30PM	8.00PM
365	Ar. TORONTO.....	EST	10.15AM	4.45PM	10.15PM

Miles	SOUTHBOUND Read Down	Time Zone	Trip No. 22 Daily	Trip No. 24 Daily	No. 26 Daily Ex. Sat
0	Lv. TORONTO	EST	10.35AM	5.00PM	11.30PM
365	Ar. NEW YORK....	EST	12.35PM	7.00PM	1.30AM

MONTREAL - OTTAWA - TORONTO

Mls	WESTBOUND Read Down	Trip No. 1 Daily	Trip No. 5 Daily	Trip No. 7 Daily	Trip No. 9 Daily	Trip No. 3 Daily
0	Lv. MONTREAL ..	8.00AM	10.35AM	4.15PM	7.15PM	8.15PM
95	Ar. Ottawa.....	8.45AM	11.20AM	5.00PM	8.00PM	9.00PM
	Lv. Ottawa.....	8.50AM	11.25AM	5.05PM	8.05PM	9.10PM
323	Ar. TORONTO...	10.25AM	1.00PM	6.40PM	9.40PM	10.45PM

Times shown are Eastern Standard

Mls	EASTBOUND Read Down	Trip No. 6 Daily	Trip No. 4 Daily	Trip No. 8 Daily	Trip No. 10 Daily	Trip No. 2 Daily
0	Lv. TORONTO ..	8.00AM	9.35AM	2.35PM	5.15PM	11.15PM
228	Ar. Ottawa.....	9.30AM	11.05AM	4.05PM	6.45PM	12.45AM
	Lv. Ottawa.....	9.35AM	11.10AM	4.10PM	6.50PM	12.50AM
323	Ar. MONTREAL ..	10.20AM	11.55AM	4.55PM	7.35PM	1.35AM

Times shown are Eastern Standard

See following pages for additional Trans-Canada services and connections.


PAGE ONE


HALIFAX - MONCTON - MONTREAL - OTTAWA - TORONTO

Miles	WESTBOUND Read Down	Time Zone	Trip No. 5 Daily	Trip No. 9 Daily
0	Lv. HALIFAX.....	AST	7.00AM	4.00PM
118	Ar. Moncton.....	AST	7.55AM	4.55PM
	Lv. Moncton.....	AST	8.10AM	5.10PM
562	Ar. MONTREAL.....	EST	10.05AM	7.05PM
	Lv. MONTREAL.....	EST	10.15AM	7.15PM
657	Lv. Ottawa.....	EST	11.05AM	8.05PM
885	Ar. TORONTO.....	EST	12.40PM	9.40PM

Miles	EASTBOUND Read Down	Time Zone	Trip No. 6 Daily	Trip No. 2 Daily
0	Lv. TORONTO.....	EST	8.00AM	11.15PM
228	Lv. Ottawa.....	EST	9.35AM	12.50AM
323	Ar. MONTREAL.....	EST	10.20AM	1.35AM
	Lv. MONTREAL.....	EST	10.30AM	1.45AM
767	Ar. Moncton.....	AST	1.55PM	5.10AM
	Lv. Moncton.....	AST	2.05PM	5.20AM
885	Ar. HALIFAX.....	AST	3.00PM	6.15AM

MONTREAL - OTTAWA - TORONTO - LONDON - WINDSOR - DETROIT - CHICAGO

Miles	WESTBOUND Read Down	Time Zone	Trip No. 1-11 Daily	Trip No. 7 Daily
0	Lv. MONTREAL.....	EST	8.00AM	4.15PM
95	Lv. Ottawa.....	EST	8.50AM	5.05PM
323	Lv. TORONTO.....	EST	10.45AM	6.50PM
412	Ar. London.....	EST	11.30AM	7.35PM
	Lv. London.....	EST	11.35AM	7.40PM
518	Ar. WINDSOR.....	EST	12.30PM	8.35PM
			AA Trip 11 Daily ex. Sun.	AA Trip 45 Daily
	Lv. WINDSOR.....	EST	1.04PM	9.05PM
	Ar. Detroit.....	EST	1.15PM	9.16PM
	Lv. Detroit.....	EST	1.27PM	10.29PM
	Ar. CHICAGO.....	CST	2.15PM	11.31PM

Miles	EASTBOUND Read Down	Time Zone	AA Trip 42 Daily ex. Sun.	AA Trip 44 Daily
	Lv. CHICAGO.....	CST	9.20AM	5.30PM
	Ar. Detroit.....	EST	11.56AM	8.20PM
	Lv. Detroit.....	EST	12.08PM	8.30PM
	Ar. WINDSOR.....	EST	12.19PM	8.41PM
			Trip No. 8 Daily	Trip No. 12-2 Daily
0	Lv. WINDSOR TCA. §	EST	12.45PM	9.00PM
106	Ar. London.....	EST	1.35PM	9.50PM
	Lv. London.....	EST	1.40PM	9.55PM
195	Ar. TORONTO.....	EST	2.25PM	10.40PM
423	Ar. Ottawa.....	EST	4.05PM	12.45AM
518	Ar. MONTREAL.....	EST	4.55PM	1.35AM

EDMONTON - CALGARY - LETHBRIDGE

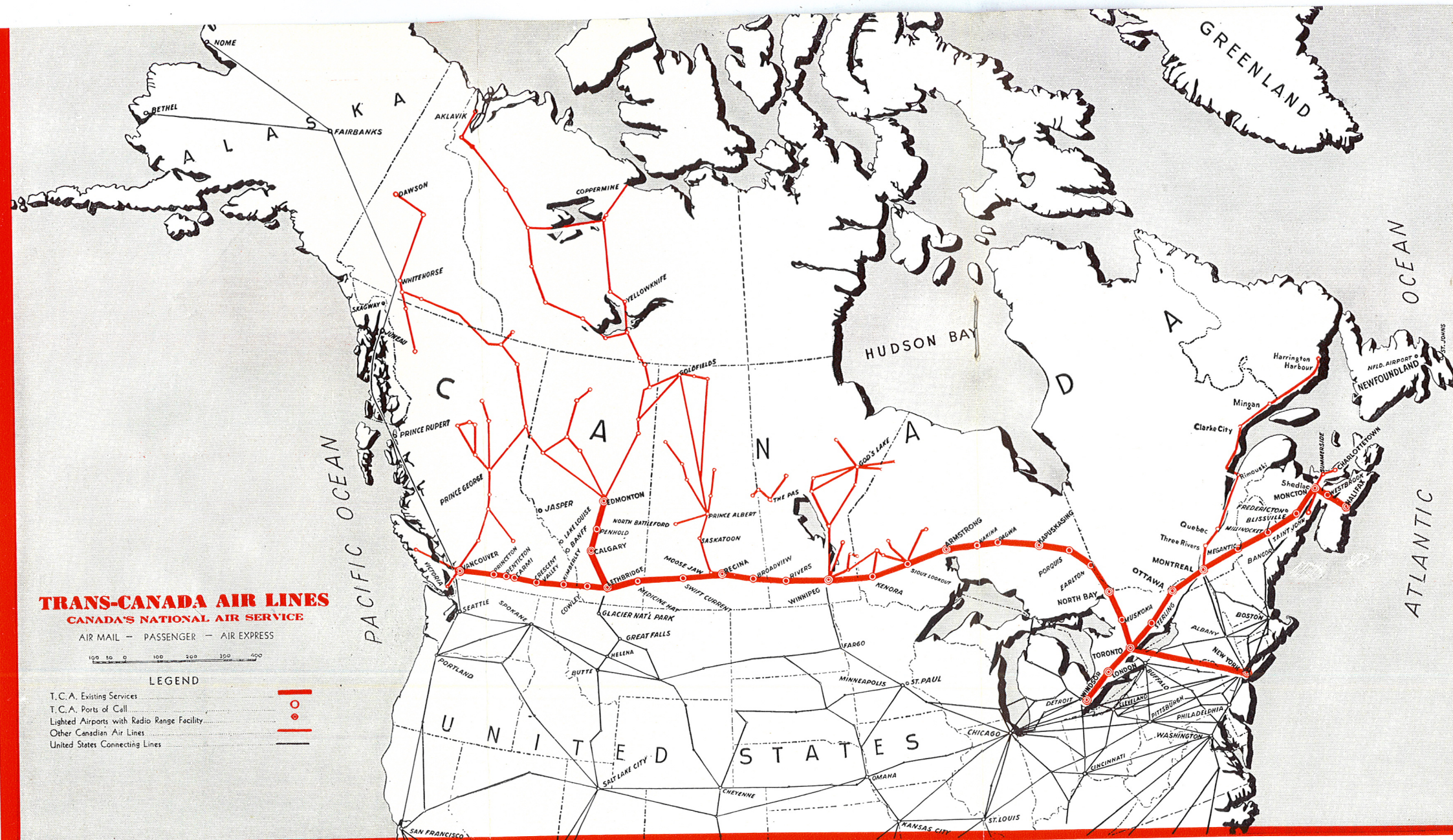
Miles	SOUTHBOUND Read Down	Time Zone	Trip No. 32 Daily	Trip No. 34 Daily
0	Lv. EDMONTON.....	MST	7.15AM	6.15PM
175	Ar. CALGARY.....	MST	8.25AM	7.25PM
	Lv. CALGARY.....	MST	8.30AM	7.30PM
288	Ar. LETHBRIDGE.....	MST	9.20AM	8.20PM
757	Ar. Vancouver.....	PST	11.35AM	10.45PM
988	Ar. Winnipeg.....	CST	2.55PM	2.00AM
2110	Ar. Toronto.....	EST	10.55PM	9.20AM
2475	Ar. New York.....	EST	1.30AM(b)	12.35PM
2338	Ar. Ottawa.....	EST	12.45AM	11.05AM
2433	Ar. Montreal.....	EST	1.35AM	11.55AM
2995	Ar. Halifax.....	AST	6.15AM	.....

Miles	NORTHBOUND Read Down	Time Zone	Daily	Daily
0	Lv. Halifax.....	AST	.....	4.00PM
562	Lv. Montreal.....	EST	8.00AM	8.15PM
657	Lv. Ottawa.....	EST	8.50AM	9.10PM
	Lv. New York.....	EST	8.00AM(b)	8.00PM
885	Lv. Toronto.....	EST	10.40AM	11.05PM
2007	Lv. Winnipeg.....	CST	4.55PM	5.50AM
0	Lv. Vancouver.....	PST	5.00PM	6.00AM
2707	Lv. LETHBRIDGE.....	MST	Trip 31 9.00PM	Trip 33 9.55AM
2820	Ar. CALGARY.....	MST	9.50PM	10.45AM
	Lv. CALGARY.....	MST	9.55PM	10.50AM
2995	Ar. EDMONTON.....	MST	11.05PM	12 Noon

PAGE TWO

AIR LINE CONNECTIONS IN CANADA & UNITED STATES

VANCOUVER — VICTORIA										
Vancouver	CNA.....	Lv.	PST	@ 4.30 AM	b 8.30 AM	12 Noon	b 2.50 PM			
Victoria	.....	Ar.	PST	5.00 AM	9.00 AM	12.40 PM	3.30 PM		
LOS ANGELES — SEATTLE — VANCOUVER										
Los Angeles	UAL.....	Lv.	PST	7.00 AM	11.15 PM	.....	.....	
San Francisco	.....	Lv.	PST	9.10 AM	2.03 AM	.....	.....	
Portland	.....	Lv.	PST	2.05 PM	6.55 AM	.....	.....	
Seattle	.....	Lv.	PST	3.40 PM	8.30 AM	11.00 AM	1.00 PM		
Vancouver	.....	Ar.	PST	4.35 PM	9.25 AM	11.53 AM	1.55 PM		
LOS ANGELES — LETHBRIDGE										
Los Angeles	WAL.....	Lv.	PST	11.00 PM	.....	.....	.....
Salt Lake City	.....	Lv.	MST	7.00 AM	.....	.....	.....
Great Falls	.....	Lv.	MST	11.45 AM	.....	.....	.....
Lethbridge	.....	Ar.	MST	1.25 PM	.....	.....	.....
VANCOUVER & EDMONTON — PEACE RIVER — YUKON										
Vancouver	YST.....	Lv.	PST	Mon. Wed. Sat.	Mon. Wed. Sat.					
Edmonton	.....	Lv.	MST	9.30 AM	7.30 AM				
Grand Prairie	.....	Lv.	MST	11.40 AM	.....				
Ft. St. John	.....	Lv.	MST	1.00 PM	1.00 PM				
Whitehorse	.....	Ar.	YT	3.30 PM	3.30 PM				
REGINA — MOOSE JAW — SASKATOON — PRINCE ALBERT — NORTH BATTLEFORD										
Regina	(Prairie Airways)	Lv.	MST	7.10 AM	b 12.20 PM					
Moose Jaw	.....	Lv.	MST	7.45 AM	12.50 PM				
Saskatoon	.....	Lv.	MST	9.00 AM	ar. 1.50 PM				
Prince Albert	.....	Lv.	MST	9.50 AM	.....				
North Battleford	.....	Ar.	MST	10.35 AM	.....				
CHICAGO — WINNIPEG										
Chicago	NWA.....	Lv.	CST	4.00 AM	9.45 PM					
Minneapolis (St. Paul)	.....	Lv.	CST	7.05 AM	12.25 AM				
Fargo	.....	Lv.	CST	9.05 AM	2.25 AM				
Winnipeg	.....	Ar.	CST	10.55 AM	4.15 AM				
NEW YORK — MONTREAL										
New York	CAN.....	Lv.	EST	b 7.40 AM	1.45 PM	5.00 PM	8.00 PM			
Albany	.....	Lv.	EST	8.43 AM	.....	Non	.....		
Burlington	.....	Lv.	EST	9.48 AM	3.40 PM	Stop	9.55 PM		
Montreal	.....	Ar.	EST	10.23 AM	4.15 PM	7.10 PM	10.30 PM		
BOSTON — MONTREAL										
Boston	NEA.....	Lv.	EST	7.20 AM	6.30 PM					
Burlington	.....	Lv.	EST	9.00 AM	8.06 PM				
Montreal	.....	Ar.	EST	9.35 AM	8.41 PM				
BOSTON — MONCTON										
Boston	NEA.....	Lv.	EST	9.30 AM	1.15 PM					
Bangor	.....	Lv.	EST	11.25 AM	3.10 PM				
Moncton	.....	Ar.	AST	1.50 PM	5.35 PM				
MONCTON — SUMMERSIDE — CHARLOTTETOWN & SAINT JOHN										
Moncton	MAL.....	Lv.	AST	b 8.30 AM	b 11.00 AM	b 2.30 PM	b 5.10 PM			
Summerside	.....	Ar.	AST	.....	11.40 AM	.....	5.45 PM		
Charlottetown	.....	Ar.	AST	.....	12.15 PM	.....	6.20 PM		
Saint John	.....	Ar.	AST	9.30 AM	.....	3.30 PM	.....		
WASHINGTON — BALTIMORE — PHILADELPHIA — NEW YORK										
Washington	.....	Lv.	EST	AA 5.58 AM	EAL 12.00 N'n	AA 6.05 PM	.....		
Baltimore	.....	Lv.	EST	.....	12.25 PM	.....	.....	
Philadelphia	.....	Lv.	EST	6.57 AM	.....	7.04 PM	.....		
New York	.....	Ar.	EST	7.43 AM	1.45 PM	7.50 PM	.....		
BOSTON — NEW YORK										
Boston	AA.....	Lv.	EST	12.40 PM	6.20 PM(c)	.....	.....	
New York	.....	Ar.	EST	2.16 PM	7.40 PM	.....	.....	
VICTORIA — VANCOUVER										
Victoria	CNA.....	Lv.	PST	@ 5.15 AM	b 9.30 AM	b 1.30 PM	4.00 PM			
Vancouver	.....	Ar.	PST	5.45 AM	10.00 AM	2.00 PM	4.40 PM		
VANCOUVER — SEATTLE — LOS ANGELES										
Vancouver	UAL.....	Lv.	PST	10.00 AM	7.05 PM	2.30 PM	1.30 PM			
Seattle	.....	Lv.	PST	11.30 AM	8.55 PM	ar. 3.25 PM	3.00 PM		
Portland	.....	Lv.	PST	12.40 PM	10.05 PM	.....	4.10 PM		
San Francisco	.....	Lv.	PST	5.30 PM	2.55 AM	.....	8.30 PM		
Los Angeles	.....	Ar.	PST	7.30 PM	5.31 AM	.....	10.30 PM		
LETHBRIDGE — LOS ANGELES										
Lethbridge	WAL.....	Lv.	MST	2.50 PM	.....	.....	.....
Great Falls	.....	Lv.	MST	4.55 PM	.....	.....	.....
Salt Lake City	.....	Lv.	MST	11.00 PM	.....	.....	.....
Los Angeles	.....	Ar.	PST	1.50 PM	.....	.....	.....
YUKON — PEACE RIVER — EDMONTON & VANCOUVER										
Whitehorse	YST.....	Lv.	YT	Thur. Sun. Tues.	Thur. Sun. Tues.					
Ft. St. John	.....	Lv.	YT	8.00 AM	8.00 AM				
Grand Prairie	.....	Lv.	MST	2.30 PM	2.25 PM				
Edmonton	.....	Ar.	MST	3.25 PM	.....				
Vancouver	.....	Ar.	PST	5.00 PM	5.30 PM				
NORTH BATTLEFORD — PRINCE ALBERT — SASKATOON — MOOSE JAW — REGINA										
North Battleford	(Prairie Airways)	Lv.	MST	.....	1.45 PM				
Prince Albert	.....	Lv.	MST	.....	2.40 PM				
Saskatoon	.....	Lv.	MST	b 10.20 AM	3.25 PM				
Moose Jaw	.....	Lv.	MST	11.25 AM	4.30 PM				
Regina	.....	Ar.	MST	11.45 AM	4.50 PM				
WINNIPEG — CHICAGO										
Winnipeg	NWA.....	Lv.	CST	5.30 AM	5.25 PM					
Fargo	.....	Lv.	CST	7.40 AM	7.25 PM				
Minneapolis (St. Paul)	.....	Lv.	CST	9.20 AM	9.15 PM				
Chicago	.....	Ar.	CST	11.45 AM	11.30 PM				
MONTREAL — NEW YORK										
Montreal	CAN.....	Lv.	EST	b 7.00 AM	1.00 PM	5.00 PM	8.00 PM			
Burlington	.....	Lv.	EST	7.45 AM	Non	5.45 PM	8.45 PM		
Albany	.....	Lv.	EST	8.45 AM	Stop	.....	.....	
New York	.....	Ar.	EST	9.40 AM	3.10 PM	7.30 PM	10.30 PM		
MONTREAL — BOSTON										
Montreal	NEA.....	Lv.	EST	10.00 AM	9.00 PM					
Burlington	.....	Lv.	EST	10.35 AM	9.35 PM				
Boston	.....	Ar.	EST	12.15 PM	11.17 PM				
MONCTON — BOSTON										
Moncton	NEA.....	Lv.	AST	2.10 PM	5.55 PM					
Bangor	.....	Lv.	EST	2.41 PM	6.26 PM				
Boston	.....	Ar.	EST	5.00 PM	8.40 PM				
SAINT JOHN & CHARLOTTETOWN — SUMMERSIDE — MONCTON										
Saint John	MAL.....	Lv.	AST	b 7.00 AM	b 9.45 AM	b 12.45 PM	b 4.00 PM			
Charlottetown	.....	Lv.	AST	.....	.....	.....	.....
Summerside	.....	Lv.	AST	7.35 AM	.....	1.20 PM	.....		
Moncton	.....	Ar.	AST	8.15 AM	10.40 AM	2.00 PM	4.50 PM		
NEW YORK — PHILADELPHIA — BALTIMORE — WASHINGTON										
New York	.....	Lv.	EST	AA 1.05 PM	AA 10.00 PM	EAL 8.15 AM	.....		
Philadelphia	.....	Ar.	EST	.....	11.07 PM	.....	.....	
Baltimore	.....	Ar.	EST	.....	.....	9.35 AM	.....		
Washington	.....	Ar.	EST	2.35 PM	12.14 AM	10.00 AM	.....		
NEW YORK — BOSTON										
New York	AA.....	Lv.	EST	1.02 PM	7.32 PM	3.10 AM(b)	.....		
Boston	.....	Ar.	EST	2.17 PM	9.03 PM	5.04 AM	.....		
EXPLANATION OF REFERENCE MARKS										
AA	— American Airlines, Inc.			NWA	— Northwest Airlines, Inc.			§	— Refreshments after leaving station shown.	
CNA	— Canadian Airways Ltd.			TCA	— Trans-Canada Air Lines.			b	— Daily except Sundays.	
CAN	— Canadian Colonial Airways, Inc.			UAL	— United Air Lines Transport Corp.			c	— Daily except Saturdays.	
MAL	— Maritime-Central Airways Limited.			WAL	— Western Air Lines.			@	— Air Mail and Express carried only.	
NEA	— Northeast Airlines, Inc.			YST	— Yukon Southern Air Transport Ltd.				Unless otherwise indicated services are daily.	



Above the Weather!



● Up above, where T.C.A. planes fly, there's bright sunshine. It is crisp and clear; there's a brilliance to familiar landscapes and winter takes on a new sparkle. It may be very different on the ground, but with up-to-the-minute flight information disclosing good conditions aloft T.C.A. planes take off and, in a few minutes you are above it all.

Don't put off your business trip by air! You'll find Winter travel delightful. Regardless of outside temperature, it's warm and comfortable in an air-conditioned T.C.A. airliner. In Winter as in Summer, you save time when you go by T.C.A.

GENERAL INFORMATION

ANIMALS — Animals, birds and reptiles will not be carried.

AIR EXPRESS — Air Express is carried on all flights. Free pick-up and delivery service—for further information inquire at Canadian National or other express Agency.

BAGGAGE — Forty (40) pounds of baggage carried free on any ticket. The term "baggage" shall mean all luggage including brief cases, portfolios, packages, parcels, typewriters, camera equipment and accessories, and similar articles. Individual books, magazines, and coats will not be considered as baggage for the purposes of weighing and may be carried by passengers in the cabin without charge. Baggage in excess of forty (40) pounds will be charged for at the rate of 1/2 of 1% of the published one way fare per pound, with a minimum total charge of 25 cents. Special baggage allowance is granted Trans-Oceanic and Pan American Airways' passengers—inquire of any company representative for further details.

The liability of the carrier for loss of or damage to baggage and/or personal property is limited to the amount of One Hundred Dollars (\$100.00) unless a higher valuation is declared and insurance paid therefore. Excess valuation is limited to Two Thousand Five Hundred Dollars (\$2,500.00) on each ticket.

CAMERAS — Defense of Canada Regulations prohibit passengers from using cameras on board T.C.A. aircraft. Cameras may be included with checked baggage or surrendered to the custody of Stewardesses when boarding planes.

FARES — Fares and other information published herein are subject to tariff regulations and change without notice. Current tariffs are maintained at all Traffic and Airport Offices of the Company and are open to public inspection.

Children — Children under two years of age for whom seats are reserved and children two years of age and under twelve years of age, will be charged one-half of the applicable adult fare. ONE child under two years of age and not occupying a seat, will be carried free with each accompanying passenger twelve years of age or over. Children under eight years of age must be accompanied by a passenger twelve years of age or over. **Round Trip Fares** — A substantial saving is made by purchasing a round trip or circle trip ticket.

Limits and Stopovers — Tickets are valid for a period of four months from date of issue and are non-transferable. Stopovers are permitted within the limit of the ticket. **GENERAL** — The use of alcoholic beverages is not permitted on board planes.

GRATUITIES — Passengers are requested to refrain from offering gratuities to personnel of Trans-Canada Air Lines; Company regulations prohibit their acceptance.

GROUND TRANSPORTATION — T.C.A. has made ground transportation available for airline passengers at special rates through cab operators, between city pick-up points and airports, at all cities served. Complete information is furnished when reservations are made; limousine service at destination should be arranged for at departure point, or through the stewardess en route. Limousines will be despatched at scheduled times and accommodation for late passengers arranged by special cab at their own expense. Refer to table of ground transportation charges, page six.

Passengers using their own transportation direct to airports are requested to report to the airport agent at least 15 minutes prior to departure time to permit weighing of

baggage, etc. **FLIGHT DEPARTURES WILL NOT BE DELAYED TO ACCOMMODATE LATE PASSENGERS.**

HOTELS — T.C.A. Offices will assist passengers in arranging hotel reservations.

IMMIGRATION REGULATIONS — Canadian citizens travelling to destinations in the U.S.A., via T.C.A. or connecting airlines, must have in their possession (a) Valid Canadian Passport; (b) U.S. Visa or Border Card; (c) Canadian Travel Permit Form "H"—obtainable through Canadian banks and other designated sources.

INSURANCE — Trip insurance is available at all airline offices at the same rates applying to other transportation.

LOST ARTICLES — Inquiries regarding lost articles should be directed to the "Lost and Found Department, T.C.A., Stevenson Airport, Winnipeg, Man."; for articles lost at airports, direct enquiry to Airport Manager. Lost tickets should be reported immediately to the nearest T.C.A. Office.

PASSAGE CANCELLATION — By the Passenger — RESERVATIONS MUST BE CANCELLED AT LEAST THREE HOURS PRIOR TO TRIP DEPARTURE. Your cooperation is requested in this regard, so that any "waiting list" passengers may be accommodated.

Tickets endorsed for reservations will not be honored on subsequent flights unless such reservations are cancelled in accordance with Company regulations.

By the Company — The Company reserves the right to cancel bookings before passage or en route whenever such action is deemed advisable or necessary. In all such cases

the passenger's sole recourse shall be to obtain a refund of the value of the unused portion of the passage ticket.

REFRESHMENTS — Refreshments served aloft are complimentary.

REFUNDS — Application for ticket refunds may be made to the issuing agent or any T.C.A. office. Passengers may receive a refund for an unused ticket provided that it is surrendered and any reservation the passenger may hold CANCELLED AT LEAST THREE HOURS PRIOR TO TRIP DEPARTURE TIME.

RESERVATIONS — As all seats are reserved, reservations must be made in advance through the T.C.A. office or your Travel Agent. RESERVATIONS WILL NOT BE HELD UNLESS TICKETS ARE PURCHASED OR VALIDATED PRIOR TO A REASONABLE TIME LIMIT SPECIFIED BY THE COMPANY WHEN RESERVATIONS ARE CONFIRMED.

STEWARDESS SERVICE — Stewardesses are in attendance on all T.C.A. flights and their services are at your disposal to add to the pleasure of your trip.

TELEGRAMS — T.C.A. has arranged for messages to be transmitted from planes by radio, free of charge, for re-transmission by commercial telegraph service at regular rates from ground stations. Ask the Stewardess for this service.

TIME — All times shown are Standard Time. All flights are daily except as noted.

SCHEDULES ARE SUBJECT TO CHANGE WITHOUT NOTICE

Trans-Canada Air Lines will not be responsible for damages resulting from the failure of planes to arrive or depart at time stated in the enclosed timetables, nor for errors herein. Arrival time and connections with other transportation services cannot be guaranteed.

T.C.A. TRAFFIC OFFICES AND GROUND SERVICE


City	Reservations City Traffic Offices	Telephone	Airport Office	Telephone	Miles City to Airport	Taxi-Cab Company	Driving Time [#] (Mins.)	Cab Fare	City Terminals for Cab Pick-up
CALGARY, ALTA.	218-8th Ave. W. M-7991		Municipal Airport R-1096		6	Brewster Taxi.	40	.75	TCA office, 218-8th Ave., West, and leading hotels.
DETROIT, MICH.	CH 8573		(Windsor Office - 39 Park Street, West, Windsor, Ont.)						
EDMONTON, ALTA.	Macdonald Hotel 2-3448		Edmonton Airport 82212		3 1/4	McNeill's Taxi.	30	.90-1	45-2, 30-3 or more. TCA office, Macdonald Hotel.
HALIFAX, N.S.	The Nova Scotian B-7245		Dartmouth H2168		7	Airport Transfer Co.	45	1.00	Nova Scotian Hotel
KAPUSKASING, ONT.			Kapuskasing 42 r 4		3	Valley Taxi.	15	.50-1	25-2 or more. Kapuskasing Inn.
LETHBRIDGE, ALTA.			Kenyon Field 3145		6	Marquis Taxi.	40	.75	Marquis Hotel.
LONDON, ONT.	430 Richmond St. MEtcalfe 542		London Airport FAirmount 3524		7	National Cab.	25	.75	TCA office, 430 Richmond St. and London Hotel.
NEW YORK, N.Y.	673 Fifth Ave. Plaza 3-6141		LaGuardia Field		8	Carey Limousine Service	40	1.00	TCA office, cor. 53rd St. & 5th Ave.
NORTH BAY, ONT.			North Bay Airport 249		4 1/2	DeLuxe Transportation Co.	25	.50	DeLuxe Transportation Co. office.
MONCTON, N.B.			Moncton Airport 6125		6	White Central Cab Co.	45	.75	Brunswick Hotel.
MONTREAL, QUE.	1465 Peel St. PLateau 8284 (Mount Royal Hotel).		Montreal Airport. DExter 8411 (Dorval)		14	Murray-Hill Taxi.	45	1.00	TCA office, 1465 Peel Street, Mount Royal Hotel.
OTTAWA, ONT.	Chateau Laurier. 3-1161		Ottawa Airport 5-1423		8	Red Line Taxi.	40	.75	TCA office, Chateau Laurier Hotel.
REGINA, SASK.			Regina Airport 8514		3	Moore's Taxi.	30	.50	Saskatchewan Hotel.
SEATTLE, WASH.	1329 Fourth Ave. MAin 2553								
TORONTO, ONT.	Reservations & Information } Adelaide 5233 Royal York Arcade Adelaide 4415 King & Yonge Sts. Adelaide 8525		Malton Airport		18	Cadillac Livery	60	1.00	TCA office, Royal York Arcade also King Edward Hotel.
VANCOUVER, B.C.	Hotel Vancouver Pacific 2345		Vancouver Airport LAngara 0111		9	MacLure's Taxi	40	.75	TCA office, Lobby - Hotel Vancouver or downtown points.
VICTORIA, B.C.	911 Government St. E-2341								
WINDSOR, ONT.	39 Park St. W. 4-8626		Windsor Airport 4-8661		6 1/2	Yellow Cab.	30	.75	TCA office, 39 Park St. W.; Prince Edward Hotel; Norton-Palmer Hotel
WINNIPEG, MAN.	396 Main Street 93366 General Traffic Dept 96431		Stevenson Field 62361		4	Moore's Taxi.	40	.50	TCA office, 396 Main Street, and leading hotels.

Cable Address "TRANSCAN"

Average cab transit time between city terminal and airport prior to trip departure.

Light Face Figures
One Way Fares

Bold Face Figures
Round Trip Fares



Edmon-
ton

10.50
18.90

Halifax

156.10
281.00

Kapus-
kasing

88.80
159.85

Leth-
bridge

6.80
12.25

London

117.75
205.30

Mon-
ton

149.00
268.20

Mont-
real

123.30
221.95

New
York

131.90
230.75

North
Bay

104.90
188.85

Ottawa

116.70
210.05

Regina

28.80
51.85

Toronto

112.40
195.65

Van-
couver

34.90
62.80

Wind-
sor

124.10
216.70

Win-
nipeg

48.80
87.85

Calgary

Edmonton

Halifax

Kapuskasing

Lethbridge

London

Moncton

Montreal

New York

North Bay

Ottawa

Regina

Toronto

Vancouver

Windsor

TRANS-CANADA

AIR LINES

PASSENGER FARE TABLE

Fares subject to change without notice — please confirm with any office of Trans-Canada Air Lines, or your agent.

Fares paid in Canada subject to 10% Canadian Government tax; fares paid in United States payable in U.S. funds and subject to 5% Federal Transportation Tax.

SAVE 10% — BUY RETURN TICKET

Fares subject to change without notice — please confirm with any office of Trans-Canada Air Lines, or your agent.

Fares paid in Canada subject to 10% Canadian Government tax; fares paid in United States payable in U.S. funds and subject to 5% Federal Transportation Tax.

SAVE 10% — BUY RETURN TICKET

PAGE SIX



In War Time...
more than ever
SPEED is VITAL

AIRMAIL RATES OF POSTAGE



NORTH AMERICA

Postage, including fees for all air mail services available

1. Canada, Newfoundland or any place in North America not mentioned in Groups 3, 5 and 6..... 6¢ first ounce; 5¢ each ounce after.
3. United States..... 6¢ each ounce.
5. West Indies and British Guiana, Mexico, Cuba, Central America..... 10¢ each quarter ounce.
6. Bermuda..... 15¢ each quarter ounce.



SOUTH AMERICA

Postage, including fees for all air mail services available

9. (a) Colombia, Ecuador, Venezuela, Dutch Guiana and French Guiana..... 25¢ each quarter ounce.
- (b) Argentina, Bolivia, Brazil, Chile, Paraguay, Peru and Uruguay..... 35¢ each quarter ounce.



EUROPE

Postage, including fees for all air mail services available

2. Great Britain and Northern Ireland, Eire — Air Service in Canada only..... 6¢ first ounce; 5¢ each ounce after.
 - Including trans-Atlantic Air conveyance 30¢ each half ounce.
 4. Europe (except places mentioned in Group 2) — Air Service in Canada only..... 10¢ each ounce.
 - Including trans-Atlantic Air conveyance 30¢ each half ounce.
- The England-India-Malaya-Australia-New Zealand and England-East Africa-South Africa Air Mail Services are suspended.



ASIA

Postage, including fees for all air mail services available

7. The rate by the U.S. "Clipper" Service from San Francisco to

Hawaii.....	30¢ each half ounce.
Guam.....	50¢ each half ounce.
Philippine Islands.....	75¢ each half ounce.
Macao.....	90¢ each half ounce.
Hong Kong.....	90¢ each half ounce.

Ordinary Stamps
and Envelopes
May be Used

Drop in Nearest
Mail Box

Registration, if desired, is additional to the above



AUSTRALASIA

Postage, including fees for all air mail services available

8. The rate by the U.S. "Clipper" Service from San Francisco to

Hawaii.....	30¢ each half ounce.
Canton Island.....	45¢ each half ounce.
New Caledonia.....	60¢ each half ounce.
New Zealand.....	75¢ each half ounce.
Australia.....	90¢ each half ounce.

For
Faster Delivery
Use
"Special Delivery"
(10¢ Extra to Canadian and U.S. Points)

Trans-Canada Air Lines

<u>Revenue:</u>	<u>1939</u>	<u>1940</u>
Passenger	643,915.48	1,574,217.00
Mail	1,632,873.00	2,832,363.00
Express	23,613.01	39,488.00
Other	50,072.48	146,315.00
<u>Total</u>	<u>\$2,350,473.97</u>	<u>\$4,592,383.00</u>

<u>Expenses:</u>		
Aircraft operation and maintenance	1,724,153.50	2,637,313.00
Ground operation and maintenance	636,256.94	794,645.00
Other	401,720.12	621,162.00
<u>Total</u>	<u>\$2,762,130.56</u>	<u>\$4,053,120.00</u>

Result of year's operations:

In 1939 a deficit of \$411, 656.59

In 1940 a surplus of \$539, 263.00

	<u>1939</u>	<u>1940</u>	<u>1941</u>
Passengers carried -	21,569	53,180	85,154
Air mail carried -	452,000 lbs.	927,037 lbs.	1,389,614 lbs.
Express carried -	45,819 lbs.	88,214 lbs.	173,192 lbs.

CHAPTER IV

BRITISH COMMONWEALTH AIR TRAINING PLAN

Canada's main contribution to the war in the air was the planning and organization of the British Commonwealth Air Training Plan. In fact, according to the Prime Minister, the Plan was the greatest and most vital of all Canada's military commitments in the war.

The Dominion was chosen as the base for the plan by the British Government for a number of reasons, the most important of these being that it was about 3000 miles from the theatre of war and thus immune from attack. Other reasons for this choice were its central geographical position within the Empire, its nearness to the productive industries of the United States, its fine air record in the war of 1914-1918, and subsequent development of its civil aviation, which had provided a considerable number of airports and other facilities readily available for military purposes.

Britain declared war on September 3rd, 1939, and the proposal for the Plan was made to the Governments of Canada, Australia, and New Zealand, on September 26th, 23 days after the declaration of war, by the Government of the United Kingdom. The proposal was accepted by the Can-

adian Government two days later, and shortly after by Australia and New Zealand. This paved the way for further discussion, and the representatives of the various governments arrived in Canada by the first of November to arrange the details of the Plan. In this regard, there was much to do, and it was not until November 27 that a basis of agreement was reached for submission to the Governments concerned. On December 16th, approval was received from the four countries participating in the training scheme.

The Plan was announced by the Canadian Prime Minister on the 17th of December, 1939. He said that the United Kingdom, Australia, New Zealand, and Canada had made an agreement by which personnel for the Empire air forces would be trained. In its broadest form, it called for a rapid and extensive increase in the air training programmes of each of the three Dominions, continuance of the present training activities in England, and joint training in Canada in the more advanced stages. Besides this, Canada would have to conduct the training of her own recruits and a good number that the United Kingdom proposed to send over. The R.C.A.F. was to be the nucleus of the Plan. It would involve a large majority of Canadian personnel - about four Canadians to one from the other three countries combined.

The original scheme called for the construction of 64 flying training schools, of which 20 were to be opened in 1940, 36 in 1941, and the remainder in 1942. It was estimated that \$600,000,000 would be required to carry out the scheme in Canada for the duration of the agreement, which was to terminate on March 31, 1942. Each of the

four nations involved was to share in this cost in proportion to the use which it made of the scheme. Canada's share would be about \$350,000,000. The United Kingdom was to supply the bulk of the advanced training aircraft, equipment, and armament. Apart from the equipment supplied from Britain, light aircraft for elementary training and a portion of the heavier planes were to be made in Canada. The cost of these was to be included with the other costs of the joint programme which were to be divided proportionally amongst the participants.

Besides the flying schools, there were several required for the training of instructors and administrative staffs, and for repair and equipment depots. Fifty-eight schools were to be used for the training of air crew - pilots, observers, and air gunners, and the remainder for ground crews and maintenance staffs.

The Plan was to be administered by the Government of Canada with the organization and executive command entrusted to the Royal Canadian Air Force. For general supervision a Supervisory Board was established in Canada under the chairmanship of the Minister of National Defence, and composed of the Ministers of Transport, Finance, the representatives of the Governments of the United Kingdom, Australia, New Zealand, the Deputy Minister for Air, the Chief of the Air Staff, and the Ministry's Financial Adviser.

In regard to numbers, the announcement said only that many thousands of pilots, about three-fifths as many observers, and a slightly larger number of air gunners than pilots would be trained. The number of men required to

instruct them would be about 40,000.

The early months of the Plan in 1940 were occupied largely in preparing aerodromes, training instructors, and ordering equipment. The selection of sites, and preparation flying fields, was placed in the hands of the Civil Aviation Branch of the Department of Transport. In this way the Air Force was relieved of a great and onerous task for which it was ill equipped and was able to concentrate on training men to fly, and other problems such as discipline and tactics.

The Civil Aviation Branch had had its engineers busy building the Trans-Canada Air Lines system for the past eight years and were familiar with conditions and problems in the different parts of Canada. Thus the formation of a suitable engineering organization to carry out the construction work required for the Plan was simplified through the use of this existing organization. But this staff was small and it was necessary to enlarge it greatly. For this reason two organizations were formed, the main body of the Airway engineering staff being used to improve existing airfields, and a second temporary new body which was to be responsible for all new aerodromes, to be assisted by key men from the permanent staff. The airports of the T.C.A. system, and those in preparation for its extension were suitable for Elementary Training and Air Observer Schools. The sites had been carefully selected and planned for future development, and to adapt these airports to Air Force use for these schools was comparatively simple.

Thus the preliminary work was carried out, and

preparations made for the training of the airmen. In April, 1940, the first class of British Commonwealth Air Training Plan students, as such, commenced training at the Initial Training School at Toronto.

Just as the Plan was beginning to function a crisis arose in May and June of 1940, with the German drive to the Channel Ports. When this happened, the United Kingdom called upon Canada to send all available assistance while maintaining, as well as possible, the schedules of the Air Training Plan. At the same time, Britain announced that as a precautionary measure, she was suspending for the time being, the supplying of aircraft which, according to the agreement, she was to send for training purposes as her contribution towards the cost of the enterprise.

It was necessary that the framework of the training plan be maintained so that it could be resumed with full strength as soon as possible, yet it was also necessary to give Britain what help she needed. Thus the authorities had to take action which would give the best results for both situations. This state of affairs placed Canada fairly well on her own in the development of the Plan and gave her a chance to show just what she could do to overcome the difficulties facing her.

It was plain to everyone that the plan must be enlarged as well as speeded up. The original schedule was designed on a system of gathering momentum as it went along. But the sudden turn of the war changed all that. A number of pilots who had been trained as instructors were sent overseas to help in Britain. Sweeping changes were made in

the plans which had been based on a war of attrition. The order of the day was speed at all costs. In May, 1940, a bill was rushed through the House of Commons, creating the Department of Defence for Air, with the Honourable C. G. Power as Minister, with full authority over matters affecting the R.C.A.F. and the Air Training Plan. Special measures were taken to fulfill the undertaking in quick order. Immediate action was taken to expand the Canadian aircraft industry in order to take the place of the machines which had been expected to come from Britain, and also to provide an increasing number of planes to send overseas. In order to lessen inevitable delays, the Department of Transport and Department of Munitions and Supply were given special powers in letting contracts for aerodromes, buildings, manufacture of aircraft, etc.. The problem of getting aircraft and engines was met by placing orders in the United States for new and used planes and taking over as well orders which had been placed by the French Government. Plans were made to construct in Canada advanced trainer aircraft. There never was a shortage of elementary planes because Canada had always made these for herself and was not counting on British supply. A few months later, Britain was able to resume the supplying of aircraft.

It was necessary that all training facilities be put into service. The flying clubs formed Elementary Flying Training Schools in various parts of the country, and the greatest part of the primary training of students for the Plan was carried out by these clubs. Also, a considerable number of private commercial aviation companies were organ-

ized for carrying out both elementary and advanced training. The large operating companies undertook to give instruction in elementary air navigation and the operation of the Air Observer Schools. In this way, civil aviation supplemented the work of the R.C.A.F. by carrying out those portions of the training for which it was qualified, a course of training which the Air Force, through the magnitude of the Plan, could not otherwise have undertaken for a long time.

Thus the plan was expanded and accelerated in order to meet the situation that had arisen. But with this there came greater costs, and in May 1941, the Minister for Air announced that the Plan would cost \$824,000,000 instead of \$600,000,000 and Canada's share would be \$531,000,000 instead of \$350,000,000. Furthermore, all these costs were estimates and were almost sure to be exceeded. In fact, by January, 1942, the estimates had already risen to over \$1,000 millions. The United Kingdom's portion of the cost was paid in its contribution of aircraft and aircraft engines. Australia and New Zealand paid Canada cash on a basis of so much per head trained from their countries. Canada's share of the cost was large but this was partly offset by the fact that when the war was over the valuable system of flying fields and training schools would remain in her possession.

The story of the plan from the crisis in May, 1940, right up until September 1941 was one of rapid progress and expansion. Schools were opened ahead of schedule and training periods were condensed, and on November 6th, 1941, the Air Minister was able to announce that the Plan was in full operation - six months ahead of schedule, and more than that,

its capacity had been greatly increased. He said that two schools still remained to be opened before the end of the year, but the sites of all flying stations had been selected, and construction was well under way. The final school was completed with the opening of the bombing and gunnery school at Mt. Joli, Quebec, late in December. Although no further schools nor aerodromes for the Plan were contemplated at that time, its training capacity was not to remain static, for in order to take care of an increase in the number of pupils, more buildings were to be added to the existing establishments.

The results of the plan in producing air-crews were very gratifying. In October, 1940, the Plan started to produce trained airmen. By the end of that year, twice as many aircrews had been sent overseas as had been intended. Canada sent three squadrons to participate in the Battle of Britain, and at the beginning of 1942 the Dominion's force overseas had been expanded to 28 squadrons, already formed or in the final stages of formation in Britain. Also, an increasing proportion of the trainees of the plan were serving under British command in the R.A.F. The quality of the airmen trained by the Plan was praised by the British Air Ministry. There were also about 25,000 ground crew trained by the end of 1941.

The expansion of the R.C.A.F. under the Plan was immense. At the declaration of war, its total strength consisted of about 4,500 officers and men. In May, 1940, when the crisis came, the total strength was about 12,300, by November, 1941, personnel had reached 89,000, exclusive

of about 11,000 civilians who were employed by the Plan. By the end of January, 1942, the total strength of the R.C.A.F. was over 100,000 men, this figure including a training staff of 40,000.

The Plan trained men from Canada, Australia, and New Zealand, besides a sprinkling of recruits from other parts of the Empire such as Strait Settlements, Bermuda, South Africa, India, and other British possessions. There were even trainees from the British colony in Argentina. Norway established its own air force training school at Toronto. Canada, however, undertook to supply most of the men. Canadians recruited by the R.C.A.F. constituted 80% of the air crew trained, and up until the United States entered the war, about 10% of these were American volunteers.

The Air Minister said that as the year 1941 saw the completion of the construction and establishment programme, so the year 1942 would see the peak in production of the Plan. And as there were thousands of the graduates manning and fighting British planes throughout the world at the beginning of 1942, so by the end of the next year the number on service would be three times as great.

But the problem of personnel would be one of very great importance. The Air Force was particularly interested in physically and educationally fit recruits between the ages of 18 and 25 years for air crew. Up until 1942 the numbers of recruits were fully sufficient to provide all that were needed. But this flow of volunteers was not sufficient to keep the Plan operating at the level it

could achieve. Moreover, the loss of men from the United States would have an effect on the numbers of recruits. Speaking of the manpower problem, the Air Minister said: "Aircrew recruiting is keeping up remarkably well. We still have a good reserve ahead of us, but I am not saying we always will have it. It is going to be the biggest manpower problem we will have in Canada - getting the men we need for aircrews". In order to increase the number of recruits available for enlistment in the R.C.A.F. educational and physical rehabilitation schemes were conducted. Men medically fit for training as pilots or observers but who did not have the educational requirements were given help. The Air Force sent them to school to bring them up to the required educational standards and they received pay while under instruction. The Air Cadet League of Canada was organized to give preliminary instruction to young Canadians who intended to join the R.C.A.F. when they reached the required age. The Air Cadets had, by 1942, enrolled about 14,000 boys aged mostly from 13 to 17, and began to create a reservoir of manpower which could be used in the future for the Air Training Plan. In 1941, a system of university training for future air crew recruits was inaugurated in a number of Canadian universities. The work was to be equivalent to the course of instruction at Initial Training Schools of the R.C.A.F., and to include two weeks' of summer camp at one of the Service Training Schools. In addition to the men, there were in 1941 about 900 women in the Canadian Women's Auxiliary Air Force. These women were employed as car, truck, and ambulance drivers, wireless operators, laboratory assis-

tants, cooks, etc., and relieved men for more active service.

As the war progressed it became necessary to change the syllabus of training several times. For example, the demand was first for fighter pilots, but later changed to a demand for observers and bombers. The R.C.A.F. overseas reported back to Canada the latest "tricks of the trade" so that the training of the men in Canada could be geared to the present and not be out of date.

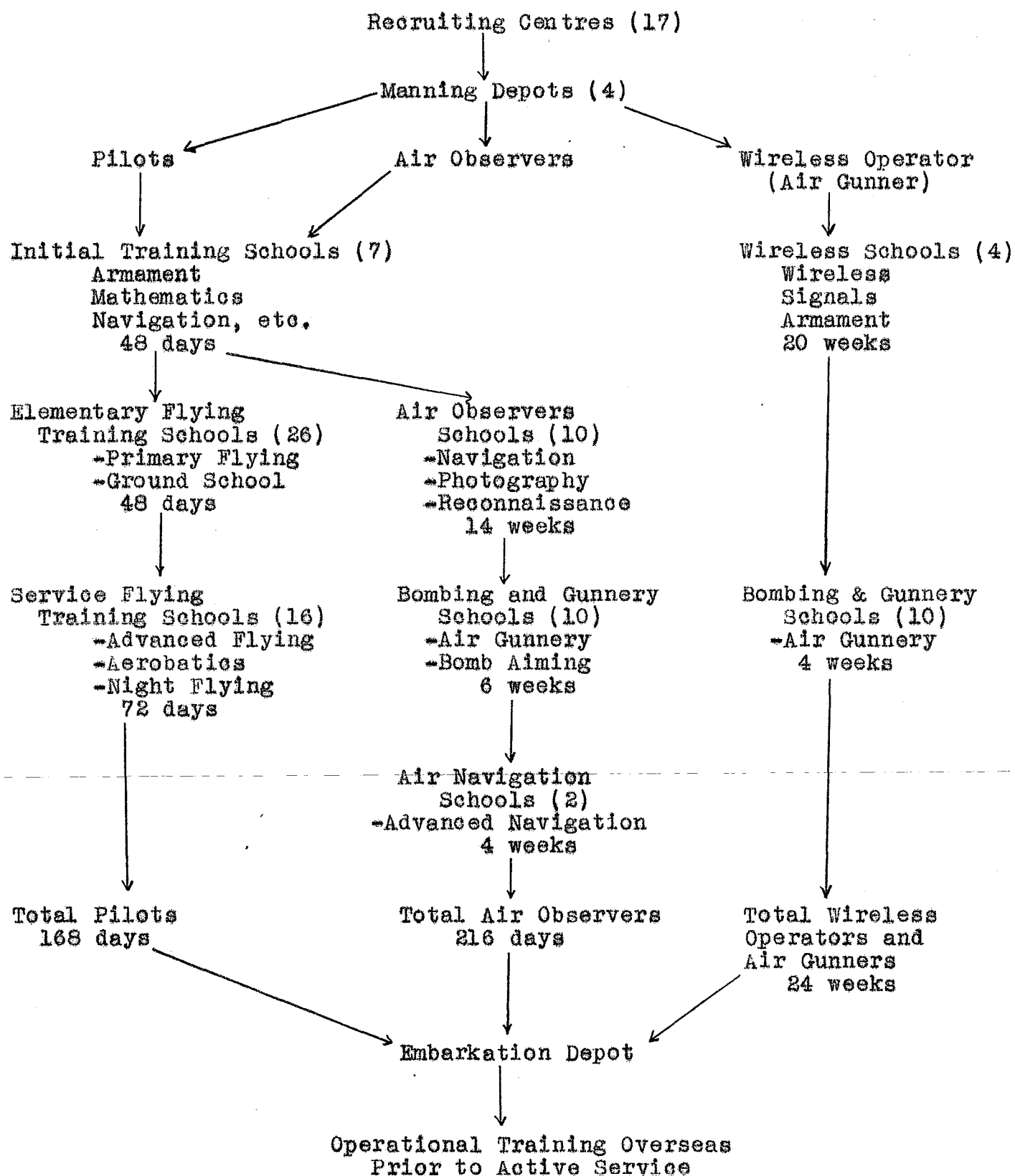
Apart from the Air Training Plan schools themselves, there were constructed in Canada a number of schools and establishments manned by Royal Air Force personnel, and utilized primarily for the training of Royal Air Force pupils. These schools were developed because of the obvious hazard present in training airmen in Britain where they were subject to attack by the enemy. Canadian Government facilities were used in connection with the selection of sites for these schools, the development of aerodromes, and the construction of buildings and runways. The costs were to be paid by the United Kingdom which was also to equip and man them. For purposes of administration they were attached to the B.C.A.T.P. but their graduates were not to be classed as resulting from the Plan. The estimated cost of these schools up until March, 1942, was about \$105,000,000.

In the first two and a half years of the war the Plan developed from an idea into a great thing with 92 training schools of all kinds, nearly 4000 buildings, and 131 other air establishments. In addition to the flying training schools, there were repair depots, equipment depots, an administration school, an armament school, and many other

such units. At the end of 1941, it had about 4000 aircraft in operation for training purposes, and would ultimately have 10,000. All the training schools operated the year round, and on the average more than 1,000,000 miles were flown every day. Paved runways of the aerodromes were equivalent to over 1,000 miles of highway of the standard width of 21 feet.

The full importance of the Plan, apart from the value to the war effort had yet to be seen. It gave a great impetus to interest in aviation amongst Canadians, and trained a large portion of her young men to fly. It developed, in the first two years of its existence, a greater air-mindedness than could be aroused in a much longer period in peacetime. It was stimulating to the whole of the civil aviation industry in Canada to know that its services were of such great value. The struggle with problems of aircraft construction training, lighting, and the incorporation of clubs and private operators into the very body of the B.C.A.T.P. constituted a contribution toward Empire defence that appeared to justify all the pre-war effort in aviation. Without the basis of civil aviation in Canada, the functioning of the Plan might have been seriously delayed. Undoubtedly, however, the Plan will have a profound effect on the future of aviation in the Dominion.

Sequence of Aircrew Training



(Figures in brackets indicate total number of schools to operate)

CHAPTER V

CHAPTER V

CONCLUSION

In order to clarify the position of aviation, it is well to outline the general characteristics of air transportation.

In the first place it has to compete with the other more firmly established forms of transport. Speed is the greatest advantage that aeroplanes possess over railroad, highway, and water transportation. This arises both from high velocity in motion, and also from the fact that planes can fly from one place to another in a direct line without much regard for the terrain over which they pass. Their speed is significant mainly on longer flights. Airports are usually situated on the outskirts of cities, some distance from the business sections. Thus on short flights, the time involved in going from the airport to the ultimate destination usually offsets the time gained by flying. This may be partly overcome by swift taxi services to and from the flying fields, by higher speeds of the aeroplane, or by locating the airport closer to the downtown section, a process which would be very expensive. It is likely that for some time, at least, fast land transportation with its downtown terminals will give more efficient service between neigh-

bouring centres.

Aeroplanes are unfortunately limited by atmospheric conditions. Bad weather may make it necessary to ground all planes and to cancel schedules. But the coming of instrument flying has made it possible to overcome some of these difficulties. Accordingly, the reliability of scheduled air transport has improved continually, and Trans-Canada Air Lines have been able to complete about 98 per cent of their scheduled flights.

Safety is one of the prime factors involved in air transport. But modern aircraft which are properly cared for and overhauled have proven themselves to be fully reliable. Most of the fatalities in aviation occur in unscheduled flights, where it is quite possible that the aircraft do not get proper maintenance. A large proportion of accidents has been found to be due to failings of the operators rather than of the machine. However, flying is less safe than rail travel; but its dangers have been over-emphasized by some of those who have not made use of it and who are only half-informed of its real value. There have been many improvements made recently in devices for aircraft, such as terrain clearance indicators, beam-flying, de-icers, etc., which have contributed greatly to the safety of travel by air.

Cost is another of the vital factors of air transportation. Aeroplanes, by their very nature, escape some costs which must be met by ground transport, e.g.- they do not have to maintain rights of way, or pay taxes for the use of roads. Also, the unscheduled aircraft of the north are free to use the countries innumerable lakes as landing fields,

while the scheduled services of the settled areas have use of airports supplied to them virtually without charge by municipalities and other governments. The Dominion Government supplies weather information, radio beacons, airport lighting, etc. But in spite of these free services, air transport is expensive. An aeroplane is a costly machine to purchase and to operate. Even a small plane for commercial uses costs in the neighbourhood of \$40,000, and the larger planes, as used on the Trans-Canada line, are worth about \$100,000. Then there are the costs of maintenance and repairs. The planes have to be completely overhauled frequently to be kept in the best of condition. Furthermore, the aircraft become obsolete quickly. The United States airlines write off their planes in five or six years. The training of pilots is an expensive task, and their usefulness as such is relatively short, so that after a few years they have to be given ground jobs. Fuel costs are heavy as the gasoline used is of a high octane and the quantities consumed are great. These high costs of plane, pilot, and fuel would not be particularly burdensome if the equipment and men could be used intensively, or if the load carried were great. The pilot of a scheduled airline receives from six to eight thousand dollars per year for about 1000 hours actual flying time. Thus, if the air transport companies could make more intensive use of their pilots and equipment, they could considerably reduce their per hour or per miles charges of the pilots and mechanics, as well as reduce the cost of storage, insurance, and depreciation. Other expenses such as engine overhaul, maintenance, and

supplies would be cut slightly, but fuel and lubricating expenses would continue to vary directly with the miles flown. Thus the industry is subject to markedly decreasing costs per plane-mile, up to the point where each plane is loaded as nearly as possible to capacity. Beyond this point costs will decrease slowly as technological improvements are made. But the greater intensity of use of men and equipment would result in the eventual loss of safety. For this reason, the companies have been cautious in trying to reduce costs by this means, as an aircraft accident could have serious effect on the patronage of the industry. The railways have shown that high costs per mile are significant only where the load is relatively small. But air transport costs are high and are likely to remain so until pronounced technological advances are made.

In the matter of advances the War is likely to bring about great changes. Planes are being used to transport troops and equipment to the battlefronts. The U.S. Army has big planes on order that will carry 43,000 pound gross loads. One commercial company claims to have a plan whereby, on a volume basis, it will be possible to reduce the air freight rate to 20 cents per ton-mile, thus rivalling the railways. As far as passenger fares are concerned, those on the Trans-Canada line are only slightly higher than the costs of the best class of railway travel, but are considerably higher than coach travel. But the greater expense of travel by air is offset by its speed. At present, it is only in the case of especially valuable goods, or very inaccessible places, that aeroplanes can carry freight at

rates competitive with other forms of transportation.

Because of the remoteness of airports, air transport lacks something in completeness, i.e. in service from home in the originating centre to house, hotel, or office at the destination. But this is being overcome, somewhat at least, by the services whereby the airlines run a connecting link from downtown section of a city to its airport. Also, free baggage accommodation is restricted to 40 lbs. by air as compared with 150 lbs. by rail. Excess baggage is carried only at quite a high rate.

With regard to comfort in air travel, the chief difficulty is with air sickness. This has been greatly reduced by the use of the new large planes which give a smoother ride. But some persons are bothered by air sickness, and it is likely to be contagious. Otherwise, much has been done for the comfort of the passenger. The cabins of planes are air conditioned, and passengers are protected from the cold outside. Oxygen masks are provided for use at high altitudes. The space available for each passenger on a plane is larger than on a day coach of a train. Meals are served at regular hours, and beverages and biscuits are available at any time without charge. The latest daily newspapers are placed on board when stops are made. Current Canadian, American, and English magazines are to be had, and smoking is permissible at most times.

Thus in comparison with other forms of transportation, aviation is fast but expensive. It compares favourably in schedules, completeness, and comfort with the other services, and its previous disabilities in reliability

and safety are being steadily reduced, but are not yet eliminated.

CONCLUSION

From what has been said above, it can be seen that the development of civil aviation in Canada was not rapid nor was it forced into uneconomic channels by Government subsidies. What flying was done was self-sustaining and served a useful purpose. Otherwise, it could not have continued. Every effort was made to keep it on sound lines and of direct value to the country as a whole. Its growth was an uphill struggle, but no country could provide a better field for the development of air communication than Canada did. The distances between the cities were great and the climate favourable.

Undoubtedly, as soon as the Second World War is over, civil aviation will forge ahead with as great gains as its military counterpart has made during the war. It is very probable that all mail, most passengers, and great quantities of freight, now "creeping" along the traffic arteries of this country, will take to the air. The building of huge low-cost cargo planes will bring large-scale transportation out of the bush onto the inter-urban routes, and down from the sky-high cost brackets into a position competitive with land transportation.

Round the world commercial air services will commence as soon as the war stops. Already, the skeleton services are in operation over most of the seas, despite the war. These lines will provide fast, comfortable, transportation over the whole globe. And Canada, with her fine past history in aviation, and her enviable record of the present, will be able to carry her share in the new development with the confidence that comes from past achievements.

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