THE CANADIAN CLUB
OF TORONTO
1930-31

(August 7, 1930)

Aviation and the Empire

By Sir Dennistoun Burney, Bart.

President L. A. Henderson:—Gentlemen, this is the first meeting of the Canadian Club that I have had the privilege to preside over. Before introducing the speaker today, I would like to say something to you for electing me to this high office. I fully appreciate the honor you have bestowed upon me and I also appreciate the seriousness of my purpose. I have every confidence of success. Fortunately for you, there is a group of past presidents who form a very strong reserve so that with the welfare of the Club in their hands, I feel we have no cause for worry.

A great achievement has been accomplished in the past few days that will go down in history as one of the greatest events of modern times to increase the bond that cements the great Empire to which we belong. The R-100 has just completed a most successful trip from Cardington to Montreal and we extend congratulations to the designer and the Commander and his crew for a task very well done. It is interesting to look back to the time shortly after the war when the British Government, realizing the necessity of keeping down departmental expenditures, decided to cut out the airship department of the Royal Air Force. They had hoped that it would be possible to continue this department on a commercial basis but they had no plan upon which to

work. In 1921, Sir Dennistoun Burney, realizing that more rapid means of communication would strengthen the ties that bound together this great British Commonwealth of ours, proposed a scheme to the Government for carrying on this enterprise. Negotiations were carried on during 1922-23 and by his untiring efforts and by his great knowledge of the subject he has carried through this scheme until finally it has passed the experimental stage and the R-100 has made its successful trip, establishing a more rapid means of communication between the two countries. It is with great pleasure that I introduce Sir Dennistoun Burney, designer of the airship R-100.

SIR DENNISTOUN BURNEY:—Mr. Chairman, Mr. Prime Minister, gentlemen, I feel much honored by being asked to speak before such a distinguished body of citizens and to be afforded the opportunity of expressing our thanks for the very kindly welcome which has been extended to those of us who came over in the ship. Our engineering experiment is not the work of any one man or the product of any one man. I should like to take this opportunity of paying further tribute to my associates in the design of that ship. I would like to pay tribute to Captain Booth, Major Scott and the crew for the very efficient way in which they navigated the ship over here. At the same time, I should like to express our very sincere appreciation for what the Canadian Government and the Canadian people have done in erecting the mooring mast at St. Hubert without which it would have been impossible. I hope Toronto will some time put up a mooring mast so that we may also pay you a visit.

I am supposed to be a sort of an engineer and not a speech-maker so I hope you will forgive any shortcomings. I should like to refer to the speech in which the Mayor of Toronto made clear the ideas which were at the back of this whole experiment. What he said was this: "we realize that this air cruise is not merely a trans-Atlantic flight but the first step in a far-sighted plan to bind together the distant parts of the Empire, to expedite a more rapid service which will not only serve in a commercial sense but will rouse all the people to the realization that they are being

brought in closer contact by regular air routes throughout the world." Well, gentlemen, that is what we are trying to do. Consider the whole British Empire as it exists, spread throughout the world, scattered in different parts. Much has been done so far as radio broadcasting and wireless are concerned. But so far as the transport of passengers and mail are concerned, we have done very little in the past twenty-five years towards speeding it up. So far as railways are concerned, I cannot speak for your country, but in Britain there has been no increase in the speed of railway traffic and, therefore, if we are going to speed up our communications, I think we have to look to some new field, some new process by which we can achieve that aim.

It is true, of course, so far as the air is concerned we shall never be able to ship great quantities of merchandise. Supposing you want to ship a cargo from Toronto to Liverpool, it takes three weeks instead of three days. That does not matter to any very great extent. What does matter is the actual cost of transport. In that respect, transport by water will always be cheaper than other forms of transport. So far as passengers and mails are concerned, the situation is entirely different. If a man wants to get from Montreal to London it makes a great difference—a matter of forty-eight hours instead of eight or ten days. Another fact that we have to consider is the new conception of industry throughout the world: we see that it is those countries which have a great home market which are able to enjoy the benefits of mass production. We see that it is those countries which have vast territory which are able to develop. So far as the British Empire is concerned we are scattered. We have this great advantage, although we are scattered, we are connected by water throughout the whole Empire. We have this economic fact, the cost of transport by water is a quarter of the cost of transport by land. This is an advantage which we in the British Empire have and which enables us to compete with the great neighbor across the border. The great neighbor has the advantage which we have not. She is tied together by her great railways; she is a political and economic entity. You in this great Dominion, in so far as the Dominion is concerned, are tied together by trunk

railways but they do not extend over the borders of the Empire.

What we in the British Empire want is something which will reproduce the equivalent of the great trunk railways in America. We want something which will do the equivalent in the British Empire. I venture to think that in view of the fact that it is not the transport of merchandise which is our difficulty, it is not the transmission of the spoken word which is our difficulty, but is merely the transport of passengers and mail, so that we can look to the air and the air alone for the solution of the transport problem of the British Empire. I shall outline as briefly as I can this venture and the reasons which necessitate, in my opinion, every organization in the British Empire working towards a solution of this great problem, because it will affect the Empire, not only in its unical conception of each independent portion of it but it will affect them constantly, economically and politically; when we make new devices we affect our whole civilization. My message to Canada is that we should grasp the opportunity given to us by aeronautical science to obtain for the British Empire the benefits which may accrue therefrom. You may say to me: why the airship? I do not stress the airship merely because I like to look to it but merely because it is the only possible solution which a present study of aeronautical science gives to us as a possibility of achieving our end. I do not mean for a moment to belittle the aeroplane. It is rendering a great service in speeding up service over land and shorter distances. When we turn to great Atlantic distances it is to the airship alone you will have to look.

In order to keep the position of an airship, you have to have three watches; you have to have three men at the helm; three officers on the watch make nine, one meteorologist, ten and one navigator, eleven. That means you have to have eleven men doing nothing but keeping the actual position of the ship. If I were to suggest the crew of eleven men to keep the position of a flying boat, I should be told I was talking through my hat. Take another instance. I have found in the design of the ships I have to give comfort to the passengers; to give them heating, lighting, stewards to look after them. They must have food, cooking, and reasonable recreation so that they can move about—papers and books. I have found I can only get three and a half passengers to the ton. We must make them comfortable, otherwise they would not travel. When you get down to what I call the practical politics of this business, it is unwise to take more than three and a half passengers to the ton, just as it is to take less than eleven of a crew to keep the position of the ship.

Let me talk of what we have done and the R-100. There you have a ship—an experimental ship which is not a feasible proposition for commercial service. She has a top speed of 81 miles an hour. When at that speed, the fuel consumption is one and a half tons an hour. She carries thirty-seven tons of fuel. You can see it would be impossible to drive that ship across the Atlantic at top speed because she would run out of fuel before we got across. At sixty m.p.h. she only uses one ton of fuel every three hours. It was for that reason we drove across the Atlantic at sixty m.p.h. That would be the practical speed if there were no wind. But the fact remains, under many conditions we shall require high speed. You as practical business men know this. There is not the slightest use putting on a service unless that service is regular and can be dependable. We do not want record breaking flights once a month. What we want is a practical and regular service so that we can make arrangements as by train. For that a cruising speed of eighty-five miles an hour will be required for an Atlantic service. Having come to that conclusion, I have been working for the past few years on the Atlantic type of ship. This vessel has twice the capacity of the R-100 which would have a speed of eighty-five m.p.h. and fuel for six thousand miles and ten million cubic feet gas capacity and would accommodate one hundred passengers and ten tons of mail—one hundred passengers carried in such comfort to have three passengers to the ton and not three and a half.

With a fleet of vessels of that character it would not be difficult to maintain an absolutely regular service between England and Canada. The journey from England to Canada would be two and a half days and from Canada to

England two days. The difference between the time is due to the prevalence of these western winds. I do not want to mislead you, however, I do not wish you to believe that we can run a ship from Montreal or Toronto every day of the year. I do not believe that would be possible. If we had emergency bases some hundred miles to the south—field bases connected by rail, when used, it would mean that the length of the voyage would be increased by an overnight train journey. In that respect, we can compare favorably with the Atlantic liner today. How often in the winter months these liners are twenty-four to forty-eight hours late. I do not believe there is any great technical difficulty in achieving what I have outlined. There are, of course, natural and political difficulties. With regard to the political difficulties, I am hopeful from conferences I have had since coming here that they may not be so serious. I read with great pleasure the statement made by you, sir, (Premier Ferguson) yesterday. It gives us great confidence that some of these political difficulties may be swept aside.

Now with regard to the financial difficulties. I made the suggestion in Ottawa that the business interests of this country should investigate the possibility of this form of transport. The airship has been brought over here so as to be seen. I have got some figures with me for investigation. I do not suggest within the few days that remain of our stay in this country that any definite opinion can be given to these business interests. I am hopeful, however, that sufficient interest may be created so that an organization might be formed which will investigate and enquire into this matter. If, after that investigation, those business interests are still of the opinion that the scheme is financially possible and shows promise of being profitable, then I hope that an organization set up in this country will be able to get in touch with a similar one in the Old Country and these two organizations working together would deal with their respective governments. I estimate to put on a service that would leave Canada twice a week and England twice a week would cost $30,000,000. The revenue that would be obtained would, I think, be between $15,000,000 and $20,000,000 a year. The expenses would be probably $5,000,000 or less

than that. These figures are tentative. I do not propose they are accurate.

Now as regards financing a project of that sort, I would suggest both to the Government of Canada and the British Government that it could be done somewhat along the same lines that the United States Government are taking to assist their Atlantic shipping interests. If the British Government and Canadian Government were each to guarantee six tons of mail per week at a cost of $1,000 a ton, it would mean letters so carried would bear ten cents surcharge on each letter. I do not think that is excessive for a forty-eight hour service. It would be of great value to great commercial interests to have their letters transported in so short a time. The respective Post Offices might consider the rapid service of such public benefit that no surcharge might be levied and the expense might be defrayed by Post Office accounts. It is not for me to suggest which way it is to be done, it is necessarily a matter for the governments concerned. I merely throw out the idea.

So far as passengers are concerned, when Dr. Eckner came over to New York, he had one hundred applications at $3,000 a passenger. I do not suggest, of course, that any service could be fostered on extravagant figures because most people at that time wanted to be the first to travel. I do think at the early stages $1,000 a passage could be obtained. It does not compare unfavorably with an expensive suite on a first-class liner. There are two hundred thousand first-class passengers crossing the Atlantic yearly on liners. Suppose we had a fleet of four ships, each of which had the capacity to carry one hundred passengers that would mean four hundred first-class passengers. Supposing the accommodation were sold at a reasonable rate—say sixty per cent—that would mean we would have to transport twelve thousand persons a year. Twelve thousand persons is only six per cent of the total first-class transport. I do not think it is an unduly optimistic outlook that we can attract six per cent of the total number of first-class passengers. Of course, I have given the total North

Atlantic traffic, taking in United States traffic as well as Canadian traffic.

But Toronto is not very far from Chicago and Montreal is not very far from New York and I see no reason why that service could not be patronized by United States citizens. With regard to mails, I find the total first-class mail traffic between North America and Europe is about thirty-two tons a week which is more than many people think. We would suggest six tons out of the thirty-two tons per week or a little under twenty per cent. I do not think that is a very extravagant estimate to make. The tonnage from Canada is twelve thousand pounds a week to Great Britain. As regards parcels, there is a very large traffic of parcels. I think we could attract fifteen per cent of the total parcel traffic at a surcharge of two shillings a pound. It would mean a revenue of £100,000 or $500,000 a year.

There was considerable difficulty in getting the present program undertaken. With the Conservative Government in office in 1924 the program was arranged on the basis of fifteen years. The Labor Party altered that because they wanted to build one ship and commercial interests another. The conference presided over by Mr. Snowden, present Chancellor of the Exchequer, was attended by Lord Thomson, present Secretary of State for Air, who explained that he wanted two ships built instead of one. He wanted the two ships built in the spirit of friendly emulation. There was our company on one hand and on the other the Air Ministry backed by the resources of State. Now we have greater competition. We have Dr. Eckner, a man for whom I have the greatest respect and admiration, engineering the operation of a German-American line across the Atlantic. He has got considerable backing—Eckner's company, the United States National State Bank and others. I wonder if it is possible to form an all-British line between Canada and the Old Country, financed by Canada and the Old Country which will be better and more efficient and a better-paying proposition than the German-American line and be in operation before the German-American line?

Some of you may think it too early to be bent upon such a proposition. I suggest it is time for a bold step forward. The

whole history of this great Dominion is the history of bold enterprise. The great transcontinental railways—was it not true in the old days that those who decided to build these railways were asked 'what is the use of building a line into the wilderness where there is no future?' Does anyone think they can put back progress? Can they say 'thus far and no further?' Of course, they cannot. I suggest the pioneer spirit of Canada should associate itself with this undertaking and send us back to England to say, 'If you in England do not see it, we do. Get busy.'

The thought I would like you to take away with you this afternoon is that Great Britain is no longer a predominant manufacturing centre of the world so she must look to other partners in the Commonwealth of Nations for support in that great endeavor. We must superimpose upon our existing structures a method of transport which will allow great statesmen, great business men and leaders to travel from one end of the Empire to the other with little delay in a short time. When you think of that I suggest you should investigate and, if after investigation, you think there is some substratum of truth in what I have been talking about that you will say to England, 'Get a move on.'