

gulls, and finally razorbills, guillemots, puffins, and auks. The first question that naturally arose was:—Why do the albatrosses desert a ship sailing northwards from southern latitudes?

During his service on a sableship, more than 20 years ago, he had watched these birds for days on end. They would follow the ship when she steamed about, or sat on the water round her when she was on cable ground. They would glide all day, regardless of the speed of the vessel, and, so far as he could learn, regardless of the direction of the wind. Moreover, they would do this without altering their elevation or without, as far as one could see in close observation, moving any part of their wings. Their flight appeared to be merely an ability to slide ahead with no other power than their own weight and a presumably instantaneous ability automatically to readjust their planes and alter their cant and poise—largely by movements of the head. In all that there was no flap of the wings—no visible wing movement. Any one who had travelled northwards from the "roaring forties" must have noted that, though when in southern latitudes the albatross seemed to be so completely adapted, and so entirely master of its element, it appeared to lose its mastery as progress was made northwards. One day on a northward journey there would be a dozen albatrosses playing astern of the ship in perfect mastery of the air; the next there would be fewer, the following morning there might be two, or a solitary individual, making rather labored flight. At about the latitude 34 deg. before Fremantle was reached, the solitary bird was left flapping behind. Why did a straggler or so hold on and fly in a labored fashion and then fall astern? In the first place it was obviously not because its food supply was lacking. Even if the bird was depending only on the ship as a source of food, it was just as prolific north as it was south of that latitude. It seemed as though it were merely the travel northwards that was prohibited—there appeared to be some factor which forbade it to enter equatorial regions.

The Northern Birds.

The same facts held true with regard to the northern representatives of the albatross, for those birds would follow a ship sailing southwards in the Pacific in the same way that the southern albatrosses followed from the south in the northward journey. But there was the difference that the northern representatives ranged nearer to the equator. These birds roamed along the western coast of North America, and great colonies had their nesting sites on Laysan Island. Some species even ranged as far south as the Tropic of Cancer. In the southern albatrosses the tail was almost absent, in the northern members it was of considerable length, and, moreover, this bird carried its feet projecting behind the tip of its tail. He had been unable to detect any evidence of the presence of the "soarable air," possessing some special physical quality, which Dr. Hankin had described as existing in the wake of a ship. Ease of flight was not necessarily expressed by the great expenditure of muscular energy in the rapid flapping of wings, and to presuppose the presence of a steamer or anything else in the open wastes of the ocean as necessary to the soaring of the albatross was manifestly incorrect. He therefore regarded the soaring and gliding flight of pelagic birds, as he had observed it, as a phenomenon due rather to the morphological adaptation of the bird as an adjusted plane than to any special and chance condition of "up currents" or "soarable air" caused by impediments to the passable of air across the open ocean. Regarded in this way, the zoned north and south distribution of the different morphological types of sea birds and the failure of the albatross to follow the ship into the tropics must be investigated from the point of view of the mechanics of bird structure correlated to the environment to which it appeared to be adapted.

The great southern albatross was an extremely heavy bird, with a large body and a small plane surface. Indeed were an albatross to have the same proportion of plane surface to body weight as had a swallow, it would need wings with a span of about 40 ft. and a chord of 3 ft. Though a bird could not increase the plane area of its wings without increasing its body weight, it could add the very considerable, and adjustable, plane area of the tail, involving only a very small amount of musculature for its regulation. They knew that the tails of birds were adapted to many ends. They functioned, like the feet of the albatross, as elevators or depressors of the flying bird, and it was possible that they were used to a slight extent in lateral steering but the primary purpose for which they were developed was the provision of an extra plane which might be adjusted in its area and which did not require a great mass of musculature for its adjustment. It had to be remembered that the analogies between a bird in soaring or gliding flight and an aeroplane could not be carried to extremes. In an aeroplane the ratio of body weight to plane area was fixed—it could not increase its plane area when it encountered a less dense atmosphere, caused either by altitude or temperature, but it could increase its "lift," and so compensate for the loss of density, by increasing its speed by virtue of the added revolutions of its air screw. A bird could not do that. If adjusted as a plane to a dense, standard

atmosphere it must cease to act as a plane and resort to laborious flapping in a rarer atmosphere; or if it be a bird which possessed a sufficient tail it could increase its plane area by spreading its tail. A bird that habitually conducted its planning operations at great altitudes would need a larger plane area than one that was fitted to a plane at sea level, and the contrast of a condor with an albatross was instructive in this respect. A condor of the same weight as an albatross had a wing area twice as large, and an additional tail plane area into the bargain.

The large-bodied birds had relatively smaller wings; and the curious fact was that this tendency for wing area to decrease relatively to body weight culminated at both Poles in the production of flightless birds—the southern penguins and their extraordinary parallels the northern auks. At the present time it did not seem possible to go beyond mere speculation in this matter, but it would appear, at first sight, to be a remarkable train of events that could lead to a reduction of plane area owing to the increasing density of the supporting medium, and finally to such a degree of reduction as to render flight impossible.

MID-DAY ORGAN RECITAL.

An excellent programme had been arranged for the weekly organ recital at the Elder Conservatorium Hall on Thursday. Professor Harold Davies, Mus. Doc., had every reason to be gratified with the marked appreciation shown of his efforts to supply a means of pleasure and recreation for the University students and business men. In the opening number, "Prelude and Fugue in A minor" (Bach) Dr. Davies displayed his technical mastery of the instrument, the lingering and the pedalling leaving nothing to be desired. A bracket of "Canzone" and "Minuet and trio," by Wolstenholme, made a thoroughly enjoyable number. In the former of these items the poetical grace which is characteristic of many of the writings of the eminent blind organist, was nicely illustrated, and won the applause of the audience. Both items were treated in artistic style and pleasing color effects were introduced. "Cantabile," a solo for violoncello and organ, by Cesar Cui, was received with expressions of cordial appreciation. Mr. Harold Parsons, Mus. Bac., took the 'cello part, which he played in his usual finished and cultured style. The fine tonal qualities of the organ and strings blended admirably, and the sympathetic interpretations were much enjoyed. The distinguished organist and composer, Lemare, whose visit to Adelaide many years ago is still remembered with pleasure by many, was represented by "Barcarolle" and "Marche Solennelle." The judicious combinations of tone and the emphasis given to the musical ideas produced admirable effects, which won the enthusiastic applause of the audience.

REGISTRATION SOUGHT

Request by Engineers

The registration of municipal engineers was asked for by a deputation from the Institution of Engineers of Australia (Adelaide Division) which waited on the Hon. J. Gunn (Premier) today. Professor R. W. Chapman (past chairman of the division) said that the profession of engineering was not adequately recognised in this State. The institution believed that all difficulties could be overcome, and they hoped that the time would not be far distant when they would confer before the Premier with a request that a Bill to cover the whole of the profession should be introduced. Messrs. H. S. Melbourne (engineer of the Burnside District Council), T. M. Carey (vice-chairman of the Adelaide division of the institution), and R. M. Scott (city engineer) supported the request. The Premier, in reply, expressed sympathy with the object of the deputation. He said that if South Australia was to hold its place it must maintain a high standard of engineering efficiency. He supposed that they knew that Parliament had not taken too kindly in later years to such legislation as they suggested. Fear had been expressed, and in some cases it was well founded, that those engaged in certain professions were trying to place a fence round them to prevent the entry of other individuals. He would go into the matter, and get into touch again with Professor Chapman on the subject.

FUTURE OF THE BRITISH COMMONWEALTH.

Some Pertinent Issues.

I.—By A. L. Gordon MacKay.

Since we are approaching the meetings of the Imperial Conference and of the Assembly of the League of Nations, it is desirable that we should inform our minds upon the nature of the problems which are soon to be faced by our responsible statesmen. What is the position of the dominions as a result of the adoption of the Treaties of Versailles and of Locarno? A more remote, but equally pressing, problem is to find a way out of the contradictory position in which the dominions are placed as the result of Mr. Chamberlain's decision to sign a treaty which is binding on the British Government, but not on Canada, Australia, and South Africa.

Under the Treaty of Versailles—as I understand the position—Mr. Lloyd George, virtually, gave the Dominions a voice in the foreign policy of the Empire, thereby turning the Empire into a Commonwealth. Under the Treaty of Locarno, Mr. Chamberlain signed a document (in company with the representatives of other Powers) from the obligations of which the dominions were explicitly, excluded unless they cared, of their own volition, to become bound; and, as far as my knowledge goes, no dominion, save possibly New Zealand, has yet expressed a wish to be included in the Locarno obligations.

This means that, whereas the dominions, in a vague sort of way, are partners in the foreign policy of the British Commonwealth, the British Government has placed itself in the position of having to go to war in support of its obligations under the Treaty of Locarno, without being able to pledge the support of the dominions, unless they choose, of their own free will, to be so pledged. So that we may in the future see the British Government at war with some nation (a very remote possibility we all hope), while the dominions will not be under an obligation to send troops to the front, though dominion shores and ports may be liable to bombardment and blockade.

Important Treaties and their Consequences.

This state of affairs might only be a matter of academic interest were it not that the Prime Minister of South Africa (Gen. Hertzog) has stated that he intends to raise the question of the position of the dominions under the Treaties of Versailles and Locarno at the forthcoming meeting of the Imperial Conference. This announcement at once takes the problem outside the sphere of academics and makes it a vital one for the citizen. The question for us in the dominions (and in Australia in particular) is what will our attitude be towards the poser which Gen. Hertzog intends to put to the conference; and, further, how are we going to make dominion opinion articulate at the conference, bearing in mind the standard of knowledge about world affairs which exists in the minds of dominion peoples and legislators.

Without being unduly cynical, I give it as my opinion, based on the study which I have been able to give to the issues involved, that the dominions will be determined in their attitude, mainly, by economic interests, merged in a background of traditional loyalty to the British throne, as the symbol of commonwealth. On the other hand, the attitude of the British Government will be similar to that of the dominions, bearing in mind head of a great Empire in two capacities, the following fact: that it sits at the (1) Imperial, (2) domestic; and that it has to reconcile within itself these two points of view. There is much to be hoped for in these respective attitudes, but there are also some dangers involved in the possible conflict of Imperial and dominion economic interests; though, fortunately, underneath these dangers lie the everlasting arms of our traditional loyalty to the throne; so that if we fall, we shall not, wholly, dash ourselves in pieces.

Foreign Policy and Finance.

The next point to be considered is the policy and monetary policy in its bearing relationship which exists between foreign upon our idea of the British Commonwealth, held in the leash of duty to a world-accepted concept of the necessity for obedience to a social conscience.

We can, I think, take it for granted that finance dictated policy in the twentieth-century world of ours. Rightly or wrongly the purse is the ultima ratio of husbands and Parliaments, whatever we may wish to the contrary; in very truth we may agree that "He, who pays the piper, calls the tune." The moral of this is that in this year of grace the foreign policy of all countries, in the last resort, is determined by those who advance the money

to support the foreign policy. The existing great Powers of the world all maintain the very closest relationship between their foreign offices and the institutions in which are mobilized their financial potentialities. There is abundant evidence available to show that no political Government to-day ventures to leap before its financial advisers have looked first. This means for the people of the dominions, that no solution of our method of governing the British Commonwealth can be found in the British Foreign Office alone; we must also have a peep into the Treasury for our governmental solution, and, possibly, into secrets of the Old Lady of Threadneedle Street, if she can be induced to divulge some of them.

The thesis which is here advanced is that we can find no *modus vivendi* in the maelstrom of our Empire and Commonwealth problems by using the assistance of political science alone; we must also employ economics; and more particularly, Finance. For, since the war, it has been, in large measure, the financial policy of the Bank of England which has gently led the British Government down the path of political virtue, as it was in the time of the French Revolution, and in 1832, when the First Reform Bill was passed.

Dominion Interests.

There is very little doubt that all British Governments are prepared to hear the views of dominion statesmen before committing the British Commonwealth to any serious change in foreign policy—though Mr. Chamberlain in his Locarnian triumph was too preoccupied with altruism of his ideals to consult us as fully as he might have, had he been more materialistically minded—and the question next arises, whether the British Treasury and the Bank of England are prepared to consult with dominion economic interests before making any serious changes in financial policy. The answer to this question is fundamental, if we agree that it is finance which determines policy. But even in the case of the Treasury and the Bank of England there is room for hope, as there is in the case of the Foreign Office; for, as far as my memory serves me, Australian economic interests were consulted by the Imperial Economic Conference in 1923 or thereabouts, when we undertook the preliminary discussion of our return to the policy of a gold exchange standard, commonly referred to as the gold standard. The late Sir Walter Jeans, I think,

represented the Australian point of view at the conference, thereby creating a precedent which the British Commonwealth would do well to follow in the future; but with this alteration—that just as we send political statesmen, resident in the dominions, to represent us at the Imperial Conference, so, too, we should send financial statesmen, resident in the dominions, to represent us at the Imperial Economic Conference. If we do this, as I do not doubt that we shall, then there is little reason to fear that we shall have a repetition of the events which occurred in 1776.

I propose in future articles to make an application of the principles outlined in this contribution to the particular cases of Canada, Australia and New Zealand, and South Africa. The future of the British Commonwealth, largely, depends upon the way in which the financial cat jumps in each of these dominions; and as it will be shown, the financial cat in Canada and South Africa is not quite a free agent. In Australia the financial cat with the Australian flag tied to its tail will certainly be found under the shadow of the Union Jack. Of that there is no shadow of doubt!

The questions I have raised, to my mind, are vital ones which require the deepest study. In the interests of those who may wish to enlarge their knowledge of the particular aspects which I have here stressed—the financial ones—I make so bold as to suggest that the following bibliography, available, I think, at the Public Library, may be of assistance:—

- The Durham Report.
The text of the Treaties of Versailles and Locarno.
Annual reports of the larger Australian banks (since 1920).
Burke, "American Speeches."
Hall, "The British Commonwealth of Nations."
Knowles, "The Economic Development of the British Overseas Empire."
McDougall, "Sheltered Markets."
Coghlan, "Labour and Industry in Australia."
Col. House's intimate papers; chapter on "The Freedom of the Seas."
La Follette's speech on American foreign affairs; Nation (U.S.A.), October 29, 1924.
Hoover's articles on American foreign policy; Foreign Affairs (U.S.A.), Vol. IV., No. 2 Special Supplement.