

It is probable that Mr. Hawker's failure was due to bad weather, and in this respect it seems a pity that so difficult a feat should have become a race between various competitors. Had Mr. Hawker waited until the weather conditions were really favourable, there seems little doubt that he would have succeeded.

In considering the present situation, it is well to realise the immense progress that has been made in the last ten years. In 1909 Blériot first flew across the Channel, and his feat was then regarded in very much the same light as is the Atlantic flight to-day. We must, therefore, not be discouraged by the failure of the first attempt to fly direct from the New World to the Old, and although the Atlantic flight cannot now be considered as a commercial project, it may well be that in ten years' time it will be as simple an undertaking as a commercial flight from Paris to London is at the present day.

It is worthy of note that the great progress in flying range made since Blériot's Channel flight has been due in great measure to improvements in the engine, and only secondarily to better aerodynamic design. It is highly probable that engine improvement will be the main factor influencing the development of long-distance commercial flying in the future.

The main difficulty of trans-Atlantic flying will always be the weather, but it is to be hoped that an extended research into the meteorological conditions at various altitudes will do much to simplify the problem by enabling aviators to choose the most favourable route and altitude of flight.

Meanwhile, we can but await the attempts of other competitors for the honour of the Atlantic conquest by air, in the certainty that effort will not be relaxed until the flight is accomplished, and in the hope that Mr. Hawker and his navigator have been spared to make another attempt.

#### *Trans-Atlantic Flying and Weather.*

It cannot be too well understood that a flight from Newfoundland to the Azores at this time of year is vastly different from a flight to the British Isles. The Azores flight is made within a zone where fair weather prevails. The stages to Lisbon and thence to Plymouth may offer considerable difficulties. For seaplanes, and with look-out vessels fairly close to hand, the risk to life is greatly lessened.

So far as the direct flight from St. Johns, Newfoundland, to the British Isles is concerned, it is at present not easy to minimise the risks. Weather undoubtedly is the controlling factor. There are usually exceptionally few days in the year when the North Atlantic is free from cyclonic disturbances, but of all seasons the present time is probably normally the most favourable. The conditions, however, vary so immensely in different years that to choose a period for a trans-Atlantic flight without reference to the actual existing weather conditions involves immense

danger. For a practically safe flight eastwards the prevailing distribution of atmospheric pressure over the Atlantic should be anticyclonic, with direct indication that no cyclonic disturbances exist along the route. In these conditions, which synchronous charts of the Atlantic show to exist occasionally, aircraft would have a steady westerly wind over the whole course. On the other hand, when cyclonic disturbances are known to exist in the open Atlantic, as they have for several days past, and for a much longer period, stormy and probably adverse winds would have to be negotiated for a considerable distance. The information given in the International section of the Daily Weather Report, issued by the Meteorological Office, which includes wireless reports from the Atlantic, shows what complete data have been available for those taking part in the flight. A moderate south-easterly gale was blowing at the surface well to the westward of the Irish coast at the time of the eastern flight, whilst nothing definite was known as to the direction and velocity of the upper air. Information as to the drift of the air over the open sea in any part of the world is of the crudest form, although even that might be of great value.

#### *THE DEVELOPMENT OF AGRICULTURAL RESEARCH AND EDUCATION IN GREAT BRITAIN.*

IT was for long a reproach to this country that so little attention was paid to agricultural research and education. The first step to remedy this state of affairs was taken in 1910, when Mr. Lloyd George set up the Development Commission and provided it with funds for the promotion of research and of various schemes and methods calculated to assist the agricultural industry. Out of its funds the Commission in 1911 made a grant to the Board of Agriculture of 50,000*l.* per annum for the carrying out of the Board's scheme to promote agricultural research and education, and this sum was allocated to various institutions and colleges, thereby allowing much-needed extensions of laboratories and staffs. It is a condition of the grant that a report on the work of the institution should be sent each year to the Board, and these reports as published have been duly reviewed in the columns of NATURE.

There is little doubt that this grant saved the agricultural colleges and research institutions from losing their best men. Up to 1910 it was recognised that a good man had little prospect in this country, and must perforce seek for posts overseas, either in some part of the Empire or in the United States. A score of names can be recollected of men who went, not primarily because they wanted to go, but because they saw no alternative. Although a few stayed on, they recognised the risk they ran. Had nothing occurred to justify them, the profession would soon, and deservedly, have acquired a bad reputa-

tion, and few desirable recruits would have entered it.

All this was changed in 1910 with the appointment of the Development Commission, and the thoroughness with which that body did its duty by encouraging agricultural research and education deserves wide recognition. Colleges and research institutions were enabled to build up staffs with adequate technical knowledge and expert in studying agricultural problems. The country has already derived considerable benefit; during the war it must have recovered most of its expenditure as a result of having at its service a body of experts already trained, instead of having to wait until new men could learn the work.

After eight years of its first scheme the Board of Agriculture is clearly satisfied with the results, for it has now decided on a still further development. The Board's proposals involve an expenditure on agricultural research and education, not of 50,000*l.* a year, but of 400,000*l.* a year. Research, it is understood, is to be subsidised at the rate of 100,000*l.* a year; the colleges are to receive 50,000*l.* a year; the remainder is intended for country and other work.

A certain number of men (and presumably of women also) who have distinguished themselves in natural science at the universities will receive scholarships that will enable them to specialise in agricultural science and to fit themselves for appointments at research institutions and agricultural colleges. A scholarship scheme has been in existence since 1911, and useful experience has been gained of its operation. Perhaps the most notable feature of this accumulated experience is the serious responsibility placed on the teacher who nominates a candidate. It has happened that unsuitable men have been put forward by well-meaning sponsors who realised that their candidate was not quite good enough for pure science, but hoped he might do for agriculture. Indeed, one or two schools of pure science are in rather bad odour at agricultural institutions for this reason. Unfortunately agricultural science, while offering excellent careers for men of the proper outlook and calibre, is the blindest of blind alleys for those who are unsuitable.

Given the right type of man, a career will be open to him. At the present time there are some forty permanent research posts at the agricultural institutions. It is proposed (according to the *Times*) to raise this number gradually to 150. The salaries, we learn from another source, will compare favourably with those offered at the universities, the headship of a small department being equivalent to a senior lectureship and that of a large department to a professorship; in addition, the university superannuation scheme is to apply. The work, we know, is of the highest interest and importance.

Agricultural education is also to be developed. There are already in existence a number of agricultural colleges to serve the country—in England and Wales alone there are about twelve, without

counting the Scottish and Irish colleges—and they will receive further grants enabling them to develop on more extensive lines.

The work of the colleges is mainly related to the needs of the coming generation of farmers; it is proposed, however, to bring them into closer touch with men at present farming by the establishment of demonstration farms and other organisations calculated to achieve the same purpose.

At the present time the link between the college and the school is not very definite; we have in this country very few schools similar to the Rural High Schools of the United States. Oundle among the large schools, and Dauntsey and Brewood among the grammar schools, have agricultural sides where boys receive the proper training preliminary to an agricultural college course, but there are few places to which a farmer or labourer could send his son if for any reason the long school and college course were not possible. It is proposed to erect more farm institutes where intelligent boys can go for winter courses, and girls can be taught in summer; a certain amount of this kind of work has been done, and its value demonstrated. Finally, there is to be provision for giving short courses to school teachers who will be engaged in the new continuation schools in rural districts.

Although full details are not yet published, sufficient is known to show that the scheme is of the first importance, and the Board of Agriculture is to be congratulated on the bold lines of the proposal. The scheme has yet to be accepted by the House of Commons, and may undergo changes; it cannot be fully discussed until it is officially published in all its details. For the moment the great point for satisfaction is that the Board of Agriculture has shown itself so completely alive to the need for research and education, and has so fully satisfied itself that science can help agriculture. The band of scientific workers who have rendered such devoted service during the probationary period may also be congratulated on the result of their labours.

Some of these workers have themselves issued through the Agricultural Education Association a memorandum on the reconstruction of agricultural education in England and Wales,<sup>1</sup> which is of interest as showing their side, and will be of still greater interest when the Board's scheme is finally issued. The memorandum is very wide in its scope, and deals with rural continuation schools, county work, farm institutes, agricultural colleges, university agricultural education, agricultural research, dairy education, horticultural education, poultry-keeping, co-operative experimental work, experimental and other farms, status of workers, and co-ordination in educational work. The general summary is contained in sixty-two paragraphs at the end, and as it relates largely to matters of detail it cannot well be further shortened. In the main the 1911 scheme is judged to have succeeded, though it now needs consider-

<sup>1</sup> Obtainable from the Secretary of the Agricultural Education Association, Harper Adams Agricultural College, Newport, Salop.

able amplification and, of course, more money. The need is emphasised for more county work, more farm institutes, more experimental farms, and valuable information is given as to the best methods of carrying out the purpose of these various institutions, but no great change is suggested. It is entirely satisfactory to everyone concerned that the men who have had to carry out the scheme should regard it so favourably. The foundations have already been well laid; let us hope the building will be worthy of its purpose.

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#### THE FINANCIAL POSITION OF CAMBRIDGE UNIVERSITY.

THE University of Cambridge in general, and its scientific departments in particular, find themselves in a grave position financially as a result of the diminution of the value of money brought about by the war. Towards the end of last term the heads of the scientific departments presented to the Council of the Senate a statement showing that to provide for the efficient working of their departments on the pre-war scale, without making allowance for any extension of activity, an additional income of 17,000*l.* was required to meet the increased cost of wages and maintenance. They further pointed out that in addition to the higher cost of living a new factor had arisen, in that various departments had to face an increased competition with activities outside the University for the services of the most competent scientific men; and they were of opinion that an average increase of 50 per cent. in the pre-war payments to the teaching staff was required if the University was to continue to command the best scientific talent in the country. This increase of stipends would require an additional income of 15,000*l.*, making 32,000*l.* in all.

In November of last year the acting vice-chancellor received a letter from the President of the Board of Education inviting him to send a statement as to the needs of the University in order that "the Government should obtain a conspectus of the needs of higher education over the whole country." In response to this request the acting vice-chancellor sent a summary of the prospective needs of the University, and in March an informal deputation, consisting of the master of Caius, the president of Queens', the master of Downing, Dr. Stewart, Sir J. Larmor, and Sir W. J. Pope, waited on Mr. Fisher for the purpose of laying before him the financial difficulties of the University.

On April 16 Mr. Fisher sent a letter to the vice-chancellor informing him that the Government would not feel justified in sanctioning a grant to the University out of Parliamentary funds except on the condition that in due course a comprehensive inquiry into the whole resources of the University and its colleges, and into the use which is being made of them, should be instituted by the Government. Subject to the acceptance of this condition by the University, the Government would

be prepared to instruct the Standing Committee which is to be formed to advise the Government concerning grants to universities and colleges to submit recommendations with a view to an emergency grant being made to the University during the current financial year to meet the immediately urgent needs of salaries and maintenance. The Government would also be prepared, after the completion of the inquiry, to consider, in conjunction with the University, if it should so desire, the conditions under which a grant designed to meet the permanent requirements of the University might be made.

This letter was communicated to the Senate, and the proposals which it involved were formulated by the Council and submitted for discussion in the Senate on May 13. In the important debate which took place the proposals were supported by a number of the most prominent members of the University, including the provost of King's, Sir J. J. Thomson, the president of Queens', Sir W. J. Pope, and Prof. Sims Woodhead. They were opposed by the master of Corpus, Mr. Whibley, and, in part, by Dr. E. H. Griffiths. The question as to whether the University is prepared to accept financial assistance from the Government under the conditions laid down in Mr. Fisher's letter will probably be submitted to the vote of the Senate in the near future.

The discussion in the Senate was opened by the vice-chancellor with the announcement that a munificent gift had been offered to the University, the British oil companies having agreed to join together in a scheme for endowing the chemical department, the Burma Oil Co., the Anglo-Persian Oil Co., and the Anglo-Saxon Petroleum Co. each offering 50,000*l.*, Lord Cowdray and the Hon. Clive Pearson between them 50,000*l.*, and Mr. Deterding 10,000*l.*, making a total of 200,000 guineas. This generous offer to one of its great scientific departments meets with very high appreciation in the University.

#### THE GOVERNMENT OF INDIA AND SCIENTIFIC MEDICINE.

SIR LEONARD ROGERS'S recent presidential address to the Indian Science Congress at Bombay is a forcible protest against the long conflict between scientific enthusiasm and official apathy. The benefits conferred on long-suffering humanity by scientific investigation have strangely not sufficed to remove this dull resistance. Twenty years ago the present writer made a note in the visitors' book at the leper station of Almora to the effect that no systematic investigations were being made in India into the terrible disease leprosy. It is true that individual workers here and there in India, among them Sir Leonard Rogers, have carried on researches, but what concerted efforts has the Government of India made towards stamping out the disease, and where are the leprosy laboratories with their staffs of trained investigators? The cause and mode of transmission of elephantiasis and allied conditions