

2000 m. altitude. The height at which the mean annual temperature is 0° C. was found to be about 2100 m. The temperatures in the upper air were higher, both in winter and in summer, over regions of high pressure than over regions of low pressure.

Both papers contained much valuable and interesting information, and Prof. Petavel expressed the hope that they would be utilised by aviators. The probable conditions in the upper air could be forecasted from the surface conditions by using the average values given by Miss White.

The report of the joint committee on the investigation of the upper air contains the results obtained at Mungret College, Limerick, during the past year, from which it appears that the height of the stratosphere over Ireland is very nearly the same as it is over England and the Continent. In speaking on the report, Rev. W. O'Leary, S.J., who has conducted the work at Mungret College, expressed the desire felt by those engaged in this work for definite instructions as to the type of weather in which ascents might be made with a fair chance of the balloon and instruments being recovered.

A grant of 50l. was made to the committee for the extension of the work during 1912-13, when it is hoped that ascents will be made over the North Atlantic.

EDUCATION AT THE BRITISH ASSOCIATION.

THE presidential address was devoted to the consideration of the progress made in the development of an objective standard in education. It was therefore a departure from the type of address with which this section has been opened, and as such it marks a distinct stage in the evolution of the science of education. Prof. Adams's statement was distinguished by its moderation. He realises the difficulties, but is not unhopeful of their being overcome. Whether the psychologists will be quite happy about his statement that education has captured their subject is not quite certain, but, much as education owes to psychology, there can be little doubt that psychology is vastly in the debt of education. But we are only at the beginning of the scientific study of the problem of education, which, by reason of its special aims and restricted field, must ultimately acquire that definiteness which we recognise as belonging to the older sciences represented in the British Association.

Most closely connected with the subject of the presidential address was the meeting devoted to the psychological processes underlying reading and writing. A sectional committee had reported upon the subject and arranged for papers to be read. Mr. F. Smith dealt with the process as it takes place in the practised reader, and Mr. Dumville with the learner. Mr. Dumville's paper was in the main a defence of the so-called "Look and say" method of teaching to read—the method, that is to say, which deals with whole words first, leaving their analysis to the time when the learner has realised the meaningful character of the printed page and is anxious to get at it. The natural tendency to analysis comes out in the effort to deal with new word-forms, and the teacher may profitably act as guide. Miss Foxley's experiments had led her to the same conclusions as those reached by Mr. Dumville. Dr. Brown and Dr. Rusk followed with accounts of movement in writing. The pedagogical consequences of these analyses were not, however, discussed.

Friday's meeting was devoted to the burning question of the relation of the school to future vocation.

Mr. J. W. Peck, until recently clerk to the Edinburgh School Board, gave a lucid account of the way in which his authority attempted to meet the vocational call in the evening continuation schools of the city. Out of the 17,000 folk between fourteen and eighteen years of age, 12,000 were actually reached by their scheme—a purely voluntary one, as they have not put into operation the compulsory powers vested in them by the Act of 1908. The freedom of choice left to the pupils produced a want of balance in their work; the subjects having a directly utilitarian value were unduly favoured. Thus only $2\frac{1}{2}$ per cent. took courses in civics, and only 10 per cent. pursued English studies. Mr. Peck favoured some form of compulsion, as only in that way would they reach the outstanding 5000, and a reasonable curriculum be ensured. Mr. Holland showed us some of the difficulties of relating education to vocation, at any rate in the day school. The division of labour was so minute in his own district that a man might spend his working life on making the ninety-fifth part of a shoe. How exactly the difficulty was to be overcome Mr. Holland was not quite clear, although he was convinced that school work should, and could, be made more meaningful to the pupils.

Miss Faithfull spoke with conviction against allowing education to be determined by vocation. Her plea was for a liberal education in the old-fashioned sense of that word. She would deny that a training could be both liberal and vocational. Her voice was, however, a solitary one. Miss Burstall, of the Manchester High School, was wholeheartedly in favour of giving a vocational turn to the education of girls. She had worked in that direction in her own school with unqualified success. School was no longer a bore to girls who had at one time chafed under the exercises which seemed to lead nowhere. Mr. Reid spoke of the question from the point of view of the engineer, and Mr. Ferguson told the section of the successful effort to "liberalise" the vocation of cardboard-box makers in the Bourneville works.

An interesting review of the present position of mathematical teaching was opened by Dr. T. P. Nunn, followed by Drs. Pinkerton and Milne, and Mr. Eggar. The first three speakers were at one in their defence of the attempt to humanise school mathematics, even at the expense of dexterity in dealing with complex mathematical expressions—at any rate, in the initial stages. Mr. Eggar voiced a doubt as to the position in geometry, and Prof. Silvanus Thompson supported him in saying that reformers had often gone too far—further than Prof. Perry himself ever intended. Both Prof. Thompson and Principal Griffiths felt that a definite mathematical quality had been weakened or lost in the abandonment of Euclid, and that this loss would continue until some adequate substitute had been found.

Scotch experience in the matter of leaving certificates was described by Mr. Strong and Mr. Donne, and the Scotch Education Department was attacked by Principal Sir J. Donaldson, who in a previous discussion had advocated individual liberty in the matter of spelling.

The section received various reports from committees on (1) school books and eyesight, (2) the curriculum and organisation of industrial and Poor Law schools, and (3) the overlapping between school and university. It is hoped that the "books and eyesight" report will be circulated very widely amongst education authorities. It is clear, too, that there is much that needs amending in our industrial schools, especially perhaps in those which are run on the subscriptions of the charitable, and are therefore less directly under public control.