Hall, in which graduation ceremonials normally take place, being in use as the Reception Room. The short list of graduands was restricted to the president and president-elect of the Association and foreign representatives, and consisted of Sir William Bragg, Sir Thomas Holland, Dr. Adrien Loir, representing the Association française pour l'Avancement des Sciences, Dr. F. L. Stevens, representing the American Association for the Advancement of Science, Prof. E. Suess, Prof. P. Zeeman, Prof. Shailer Mathews, and Prof. E. A. Westermarck. By a particularly happy arrangement the Frazer Lecture—founded in honour of Glasgow's greatest living representative in the world of scholarship, Sir James G. Frazer, author of "The Golden Bough"—had been made to coincide with the first evening discourse, and Prof. Westermarck in his dual capacity delivered on Friday evening a fascinating discourse upon "The Study of Popular Sayings"—remarkable alike for its subject matter, its admirable English, and the thread of humour which ran through it.

As usual at British Association meetings, a centre of particular activity was the Conference of Delegates. Perhaps the chief item of business there decided was the unanimous adoption of a resolution proposed by Dr. Charles R. Gibson urging upon the Government "to stimulate the employment by local authorities of the powers already conferred upon them by Parliament for the preservation of scenic amenity in town and country." This resolution followed a powerful address by Dr. Vaughan Cornish, and was strongly supported by

other speakers, including Lord Crawford and Sir John Stirling-Maxwell. An interesting announcement was made by Dr. Hamshaw Thomas that a conference summoned by Government had approved of a by-law prohibiting the public from uprooting ferns or other plants in places to which they had access.

It is not possible here to do more than merely mention one or two of the more important items of administrative business passed by the General Committee of the Association. Chief amongst these is the appointment of Sir Josiah Stamp as general treasurer in succession to Dr. E. H. Griffiths, whose retirement—forced by ill-health—was referred to in feeling and grateful terms by the president.

An invitation to meet in Bristol in 1930 was gratefully accepted, as well as a similar invitation from Leicester, the precise year being in this case left undetermined in the meantime. An invitation from Aberdeen was cordially appreciated, and a meeting there also foreshadowed in the near future.

Dr. Adrien Loir attended the Glasgow meeting and, announcing that the French Association would meet at Havre next year, extended a cordial invitation to such members of the British Association as do not go to South Africa to attend the meeting of the French Association. This invitation was, on their behalf, gratefully accepted by the General Committee.

The number of members registered was more than three thousand, as compared with 1912 at the last Glasgow meeting.

Obituary.

VISCOUNT HALDANE OF CLOAN, K.T., O.M., F.R.S.

THE death of Lord Haldane on Aug. 19 has removed from our midst not only a distinguished lawyer and statesman, but also a man of wide learning and a thinker of much ability and acuteness. I have been asked to give some account in these pages of his philosophical and scientific work, and of his labours in the cause of education. It is not a task easy to accomplish within the compass of a short article.

Richard Burton Haldane was born in 1856. His father, Robert Haldane, belonged to an old Scottish family, and was a Writer to the Signet in Edinburgh. His mother, who died in 1925, at the advanced age of over a hundred years, was a daughter of Richard Burdon-Sanderson, a Northumberland landowner. He went in 1873 to the University of Edinburgh and studied under Campbell Fraser. In due course he graduated with first class honours in philosophy, obtaining the Bruce of Grangehill Medal in metaphysics, and three years later the Ferguson Scholarship of the four Scottish Universities. Part of his student life was spent in Göttingen, where he worked under Lotze, for whom he always expressed profound admiration. In conjunction with his friend, Mr. J. Kemp, he translated Schopenhauer's chief work into English, the first of the three volumes appearing in 1883. He was Gifford Lecturer in St. Andrews

in 1902–4, and his lectures, entitled "The Pathway to Reality," were published in two volumes in 1903 and 1904. His next considerable work, "The Reign of Relativity," did not see the light until 1921, although he tells us it was projected on the day of his release from office as Lord Chancellor in 1915. There followed in 1922 "The Philosophy of Humanism," and, in 1926, "Human Experience: A Study of its Structure." Haldane was raised to the peerage in 1911; and received the Order of Merit in 1915. He was elected fellow of the Royal Society in 1906; and, in 1914, fellow of the British Academy. In 1907–8 he was president of the Aristotelian Society, and he contributed many papers both to its *Proceedings* and also to *Mind*.

Lord Haldane's first published article, written in collaboration with his brother, Dr. J. S. Haldane, on "The Relation of Philosophy to Science," appeared in 1883 in the volume of "Essays in Philosophical Criticism," dedicated to the memory of T. H. Green,—a volume which also contains contributions from several other men who afterwards became well known, such as Andrew Seth, Bosanquet, Sorley, Henry Jones, and W. P. Ker. In this essay the Hegelian position, to which throughout his life Haldane steadily adhered, is concisely and lucidly set forth. The term 'mind' has, he insisted, a twofold significance. It may

mean the ultimate reality to which all existence is referable; and then it indicates not a substance or individual object of experience, but the creative synthesis of thought which, precisely because it is that which constitutes experience, cannot as such be made an object of experience. Or it may mean the individual conscious life, mind conceived as it appears, as its own object—having transformed its nature and become a definite part of experience—the subject matter, namely, of psychology. Thus mind may be regarded as at the same time creator and created, as at once infinite and yet a finite self.

Assuming, then, that the ultimate ground, the essence of reality, is mind or thought or self-consciousness, Haldane tried to show that notions such as those of causation and substance are but abstract categories, limited ways of thinking of things in knowledge, and that they do not indicate independent ways of existence in Nature. When the attempt is made to explain by their means the phenomena of life and psychical being they become, he argued, wholly inadequate. The properties of a body *qua* organised can no more be expressed in terms of these mechanical categories than the properties of a stone can be expressed in terms of moral judgment. He insisted that, if science is to do more than merely observe and record facts, it must recognise the necessity of a department of inquiry that shall deal critically with the categories it employs, assign to them their true position, and make clear the real nature of scientific method.

In the Gifford Lectures the line of reflection that had been thus adumbrated was elaborated in detail. In these lectures Haldane espoused Hegelianism with all the fervour of a prophet; he presented it as almost an inspired revelation which, when its meaning was grasped, would be seen to dispose of the enigmas that have long perplexed human reason. Once recognise the implications of the principle that the objective world, and the system of universals which it exemplifies, are but the workings of a mind which is not another than ours, but the mind in which all reality, our minds included, has its place, and one by one the problems of philosophy would be found capable of solution.

It seemed to many of us then, as it seems still, that Haldane took the 'pathway to reality,' even though entered upon under Hegelian auspices, to be a much shorter cut to that destination than we are entitled to suppose it is; but no one could doubt the sincerity of his assurance, or help admiring the pertinacity with which he sought to explain and defend the leading ideas of his idealistic system. Probably the most permanently valuable and original part of the work is that which is concerned with the method of scientific investigation and the relation to it of a criticism of categories. He submitted to scrutiny some of the main concepts of mathematics, physics, chemistry, biology, and psychology, for the purpose of showing that the categories of physics are less abstract and consequently nearer reality and truth than those of mere number, those of chemistry than those of physics, those again of life than those of chemistry, and those of mind than those of life. Particularly suggestive was his

exposure of the notion of a special 'vital force' as the re-introduction, under another name, of the old mechanical theory; and, again, of the delusion of imagining that, because no specific 'vital force' can be detected, life must be simply a complicated mechanism.

After the publication of the Gifford Lectures, Haldane appears to have devoted a great deal of attention to the philosophy of mathematics, and especially to the mathematical conception of infinity. In his presidential address to the Aristotelian Society in 1907, he endeavoured to show that recent developments in logical theory, particularly those relating to the meaning of the notion of quantity, had a close bearing on the principles of the calculus. He pointed out, truly enough, the confusion into which Leibniz and some of Leibniz's contemporaries had fallen in speaking of infinitesimals as minute discrete quanta, the magnitude of which might be disregarded, just as the magnitude of a grain of sand might be disregarded when compared with the size of the ocean. A procedure of that sort would rob the calculus of any claim to exactness. The source of the confusion lay, he contended, in neglecting the consideration that quantity has two aspects, each implying and inseparable from the other, continuity and discreteness. If quantity be thought of in the latter aspect alone, the only 'infinite' conceivable will be, he argued, the 'false' infinite of mere unendingness in increase or decrease of finite quanta. On the other hand, the infinity which belongs to the continuous aspect of quantity cannot be reached by addition or subtraction; and, this being realised, the so-called infinitesimal calculus may be consistently treated as a science not of infinitesimals, but of 'rates,' its peculiar province being quantity regarded as a state of continuous change. Thus we may arrive at the notion of infinity in the sense of what is self-contained. But still the relations so treated would be abstract; what is abstract has been wrenched from a context, and has, therefore, something outside itself. The 'true' infinite must be both concrete and completely self-contained; and only the Absolute can be that.

It must, I think, be admitted that, although his criticisms of Leibniz were perfectly justifiable, Haldane was, in this context, flogging a dead horse. In working out a theory of the calculus, the modern mathematician no longer assumes either infinitely small quantities or infinitely small numbers. He proceeds from the fundamental concept of a *limit*,—a purely ordinal notion, which involves no reference to quantity at all, and no such entities as 'infinitesimals' or 'negligible differences.' The modern mathematical conception of the infinite may not be free from logical difficulties, but it would seem to be as remote from what Hegel called the 'false' infinite as it is from what he called the 'true' one.

It is worth noting that in the early essay, to which I have alluded, of 1883, Haldane had already laid stress upon the consideration that space and time are not separable from, or independent of, one another, that they exist only in co-ordination as contributing to the constitution of a highly

concrete reality which they do not exhaust. He was thus to some extent anticipating the merging of space and time into space-time, which is probably the most radical innovation introduced by the theory of relativity, and that aspect of it which is of chief philosophical importance. Of course, in the large volume published in 1921, Lord Haldane reasserted the same contention, here, however, as an outcome of the scientific investigation of the twentieth century. But he went now much further, and maintained that the theory of relativity is, in truth, simply an illustration of the application of what he called the philosophical principle of relativity to a special domain. By the term 'relativity' in the philosophical sense he understood the doctrine that Nature is unintelligible apart from its relation to knowledge, and indeed that individual knowledge is unintelligible apart from a structure which is 'foundational' in the knowledge of every individual knower. Einstein, he insisted, was concerned with a series of meanings which possess veracity only relatively to knowledge.

Notwithstanding the ingenuity with which this thesis was enforced, it has failed, I think it must be confessed, to produce conviction. So far as I can see, the physics of Einstein takes no more account of the relativity of Nature to knowledge than did the physics of Newton. It is true that in popular expositions of the theory reference is frequently made to the 'observer.' Yet that surely is merely an expository device for indicating that the relations observed are in each case dependent upon the space-time framework to which the *body* of the observer belongs. The 'observer' might be replaced by a photographic plate, and the facts with which the scientific theory of relativity is concerned would remain unaffected.

The interest of the book lay, however, not in its handling of the scientific theory of relativity, but in its comprehensive presentation of that form of idealism upon the elaboration of which Lord Haldane had spent so many years of patient thinking and reflection. This was far from being a mere re-statement of what he had said before; it was the result of a careful working over again of the old material, in the light of maturer insight and wider experience. He had not been uninfluenced by the movements of speculation since the days of his Gifford Lectures. It now seemed to him advisable to name the essence or *prius* of reality not as thought or experience, but as knowledge,—knowledge in the fullest sense, including within it both feeling and conation. By 'knowledge' he evidently meant that which must in some way be conceived as a synthesis of both knowing and the known. Human experience was undoubtedly a type of knowledge; but it implied, as the ground of its possibility, knowledge that is final and ultimate. The world confronting us is, indeed, actual, and independent of us, its observers. Yet that is not the last word about either it or ourselves. Both belong to a greater entirety; and only in so far as they fall within the sphere of knowledge have they either being or meaning.

I have but little space left in which to refer to

Lord Haldane's activities as an educationist. No politician of his time was more alive than he to the necessity of a thoroughly efficient educational system for a democratic State. He saw clearly that no system of elementary education ever can be efficient unless it form part of one comprehensive scheme in which the universities are given the lead. Frequently he laid before large assemblies, sometimes of students and sometimes of business men and manual workers, his conception of the ideal of intellectual culture, and of what the effort to realise it would mean for the welfare of the whole community. He was an ardent supporter of the Workers' Educational Organisation and of the Institute of Adult Education. The younger civic universities found in him a staunch friend; and, in the address which he gave on being installed as Chancellor of the University of Bristol in 1912, he spoke with enthusiasm of their manifold opportunities. But he was not less attached to the university system of his native Scotland. He was Chancellor of St. Andrews as well as of Bristol. "The corporate spirit of University life," he told the students of Edinburgh as their Rector in 1907, "needs but little surrounding for its development, and that little it finds as readily in the solitude of the Braid Hills as on the banks of the Isis or the Cam, in the walks round Arthur's Seat as in the gardens of Magdalen or Trinity." Nor ought one to omit to mention the signal services he rendered as chairman of the Royal Commission on University Education in London, appointed in 1909. The Report of that Commission, a remarkably lucid and exhaustive document, was issued in 1913; and put forward recommendations of far-reaching import, the adoption of which would have meant the establishment of an adequate and worthy university for the metropolis. If it be permissible to note small things along with great, I should also like to place on record that one of the last acts of Lord Haldane was to preside, in July last, over a gathering of friends met to do honour to Prof. John Dewey, of Columbia, the distinguished American educationist, on the occasion of a brief visit of his to Great Britain.

English public life can ill afford to lose a man of the uniqueness of Lord Haldane. If he had devoted himself wholly to philosophy, he would probably have left behind him scientific work of greater originality. But if he had devoted himself wholly to politics, it is certain that he would have influenced the world far less than he did and would not have been the striking personality he was.

G. DAWES HICKS.

IN Viscount Haldane the Empire has lost one of its foremost citizens, a man to whose abilities and devotion it owes an incalculable debt. The work for which history will chiefly remember him was done in fields that seem to occupy opposite poles of practical activity—war and law. Yet the greatness of his achievements in regions so diverse is not to be taken merely as a proof of versatility—which is often shallow as well as brilliant—or of restless energies ever seeking new