

information as to the titles and authors of papers read before local societies not corresponding societies of the British Association may be obtained from the "Official Year-book of the Scientific and Learned Societies of Great Britain and Ireland" (C. Griffin and Co., London). The "Year-book" appears every spring, and contains lists of papers read in the previous year. It will be found that the "Year-book" and the British Association "Index" combined leave little to be desired by the inquirer after papers on any locality in the British Isles.

The following societies have been added to the list of the corresponding societies:—The Hull Geological Society, the South-Eastern Union of Naturalists' Societies, and the Astronomical and Physical Society of Toronto.

Mr. Whitaker opened the proceedings by introducing the subject of coast erosion. He remarked on the much greater ease and accuracy with which measurements of the amount of loss could be made now that maps on the scale of 6 inches to the mile were obtainable for all parts of the country. He instanced Sheppey as a good example of a place at which loss by coast erosion had been unusually rapid. On the first visit of the Geologists' Association there, the church and churchyard of Warden were untouched; on a later occasion the churchyard was found to have been injured, and coffins were sticking out from the edge of the cliff. That year they had found neither churchyard nor church. They had also seen, during the visit last Whitsuntide of the Geologists' Association to Aldeburgh in Suffolk, an example of another kind of marine encroachment. There they found cottages, sheds and gardens more or less injured or destroyed by the heaping-up of masses of shingle in or against them, the result of a storm in November 1897. The driving inland of blown sand also caused much injury to land on the coast in certain localities. As to the economical aspect of the question, there were certainly many places from which the removal of shingle from the shore should never be allowed. Indeed it should nowhere be allowed without careful consideration as to the probable result. And the quarrying of stone on the face of a sea-cliff should seldom, if ever, be permitted.

Mr. W. H. Wheeler thought that the movement of shingle along our shores was due to the action of the tides, not of the winds. Mr. A. T. Walmisley had always advocated the protection of the shore by groynes. Sea walls should be placed a short distance in front of the cliff to be protected. Mr. Vaughan Cornish said that the protection of one part of the shore was a bad thing for the rest of the district. He thought that no local shore protection should be allowed unless sanctioned by a Government Board. In any study of the effects of coast erosion the coast-guard, if the Admiralty gave their consent, would be able to render most valuable assistance. Mr. Wheeler thought the retention of a mass of shingle in front of a place a better protection than a sea wall. He would greatly approve of an attempt to obtain the services of the coast-guard in noting coast erosion, as at present he had found it very difficult to get trustworthy evidence. Prof. Meldola moved the following resolution:—"That the Council of the British Association be requested to bring under the notice of the Admiralty the importance of securing systematic observations upon the erosion of the sea coasts of the United Kingdom, and that the co-operation of the coast-guard might be profitably secured for this purpose." After some discussion the resolution was seconded by Mr. Gray, and carried.

Prof. Meldola read a letter from Prof. W. W. Watts, stating that the Geological Photographs Committee had formed a collection of duplicate photographs and lantern slides, consisting of about 250 prints and 100 lantern slides, which could be sent during the winter to any local scientific society wishing to make use of them.

SECOND MEETING OF THE CONFERENCE, SEPTEMBER 13.

The Corresponding Societies Committee were represented by Mr. Whitaker, Dr. Garson, Rev. J. O. Bevan, Mr. Hopkinson, Mr. Symons, and Mr. T. V. Holmes (Secretary).

The Chairman (Mr. Whitaker) announced that the resolution on coast erosion, passed at their last meeting, had been submitted to the Geological and Geographical Sections, both of which had unanimously supported the recommendations contained in it. It would now be forwarded to the Council.

Prof. Silvanus Thompson had been asked to bring before the Conference the importance of adopting one or two uniform

standard sizes for the pages of scientific publications. All engaged in scientific investigation were greatly indebted to their fellow workers for reprinted papers, and all recognised the advantage given by uniformity of size in allowing these papers to be bound together. The great advantages of uniformity in size had caused the formation of a British Association Committee some four years ago, whose object was to prescribe the adoption of certain standard octavo and quarto sizes. The report of this Committee would be found in the Ipswich Report (1895), p. 77. The standard octavo size there recommended was—

Paper demy, pages measuring when uncut $5\frac{1}{2}$ inches by $8\frac{1}{2}$ inches. The width, measured from the stitching to the edge of the printed matter, to be $4\frac{1}{2}$ inches, and the height of the printed portion, including the running head-line, to be 7 inches.

The standard quarto size. Paper demy, the pages measuring when uncut $8\frac{1}{2}$ inches wide by 11 inches high. Letterpress not to exceed the measurements of $7\frac{1}{2}$ inches by 9 inches. It was also desirable that each article should begin a page, and, if practicable, the right-hand page. It can then be bound with other articles without the last page of a preceding article being bound up with it. Many other details would be found in the Report of the Committee, with illustrations.

Prof. Meldola said that a glance at the shelves at Burlington House, on which the publications of the corresponding societies were collected, showed a considerable amount of diversity in size. Some societies also did themselves injustice as regards paper and printing. Mr. Hopkinson thought that the chief offenders were societies which, from want of sufficient funds, published reprints from local newspapers.

Section A.

Mr. G. J. Symons said that Prof. Milne was making important observations on earthquake tremors in an unsatisfactory house in the Isle of Wight. It had been suggested that there were houses in Richmond Park suitable for the purpose, and that it might be well to approach the Government and try to obtain one for him. Or perhaps some rich man might lend Prof. Milne a house for a few years.

Section C.

Mr. Beeby Thompson said that a fine specimen of a Dinosaur had recently been discovered near Northampton. It would, however, be a very expensive work to uncover it carefully, and he wished either to obtain a grant from the British Association for that purpose, or to induce any rich people who might hear of the case to assist in providing funds.

The Chairman thought that the matter should be brought before the scientific societies of Northampton.

Section H.

The Chairman directed the attention of the Conference to the Ethnographical Survey, an investigation in which few local societies were co-operating.

Mr. Hartland, Secretary of the Ethnographical Survey Committee, said that it would greatly help his Committee if each of the corresponding societies would take up one or more branches of the inquiry. He had explained at previous Conferences that it was by no means necessary that all branches should be taken up everywhere. He would be happy to send to all the corresponding societies all the information they might require for the purpose of carrying on the work.

The Chairman hoped that the delegates would give some account to their respective societies of the discussions which had taken place at the Conference.

The proceedings then terminated.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

PROF. RÖNTGEN has decided not to accept the call to the University of Leipzig as the successor of Prof. Wiedemann, who has retired, at the age of seventy-two.

It is announced that the Queen has conferred a knighthood on Mr. W. C. McDonald, who provided the funds for the chemistry wing to the McGill University, Montreal, which was opened on Tuesday, and has made other generous gifts to the University.

THE appointment of the Rev. T. W. Sharpe, C.B., to the Principalship of Queen's College, London, should have a decided influence upon the work of the College. Mr. Sharpe has just retired from the post of senior chief inspector and head of the administrative division of the Education Department, so he takes with him to Queen's College a wide knowledge of the principles and practice of teaching.

A USEFUL list of the current scientific serials received in Manchester, with an indication of the various libraries in which they are to be found, has been compiled, under the direction of Dr. W. E. Hoyle, by Mr. C. W. E. Leigh, and published by the Manchester Literary and Philosophical Society. The periodicals are arranged geographically, according to their place of publication. The list will doubtless prove of great service to workers in Manchester and the neighbourhood, and thus assist in the progress of science. It is believed to be the first of the kind published in England; but it is to be hoped that similar lists will be published for the use of students of science in other great cities.

SIR PHILIP MAGNUS distributed the prizes at Sexey's Trade School, Bruton, Somerset, on December 17. Alluding to prospective legislation in the direction of secondary education, he said that the County Education authorities had done their work well, and trusted there would be no rivalry between them and School Board authorities, as it would involve a risk of setting back the educational clock for many years. He pointed out the advantage of teaching a boy the manipulation of a balance and the use of tools, and attached great importance to the study of English literature. He was glad to find the school providing satisfactory scientific education in a rural district, thus embodying ideas which he had been advocating for twenty years.

IN the course of an address to the members of the Yorkshire Naturalist Union at Scarborough, on Saturday, Prof. Michael Foster, the retiring President of the Union, urged upon his hearers the great necessity of co-operation in science. All the earlier naturalists, he said, sought to solve the problems which every form of life possessed. Nature was the naturalist's teacher, and the field his laboratory. It was useless to try to stop the tide of differentiation that seemed to be creeping over the scientific world. That must go on. Still, they must look for help to go forward, not backward. Prof. Foster criticised the method of teaching science in the schools, and condemned the examinations often held as prejudicial to the development of science. The minds of students were very often pushed on by compulsion and drawn on by rewards, and no encouragement was given to them to look at nature in the fields and receive from her lips the catholic teaching which she alone could give. Such naturalists as they hoped to rear must be reared apart from the schools.

THE following gifts to educational institutions in the United States are announced in *Science*:—The Lawrence Scientific School, Harvard University, has received 10,000 dollars from Mr. J. H. Jennings, for the establishment of a scholarship.—Mr. James Stillman, of New York, has given 50,000 dollars to Harvard College to cover the cost of land and buildings for a projected Harvard Infirmary, which will bear the name of the donor. In addition, Mr. Stillman will contribute 2500 dollars annually for four years.—The will of the late Charles P. Wilder, of Wellesley Hills, bequeaths 102,000 dollars to Mount Holyoke College, and the trustees of Wellesley College announce a gift of 50,000 dollars made by Mr. Wilder before his death. No conditions are attached to the gift.—The Catholic University of Washington has received the information that by the will of Daniel T. Leahy, of Brooklyn, it receives 10,000 dollars.—The University of Cincinnati has been presented by Mr. William A. Proctor with the library of Mr. Robert Clarke, containing 6704 volumes valued at over 50,000 dollars.—A fund of 100,000 dollars is being raised by the trustees and friends of Oberlin, the income from which is to be applied to the reduction of the term bills of needy students. About one-tenth of this amount has already been collected.

THE system of payment by results of examinations, which the Intermediate Education Board for Ireland still uses in distributing its annual income of about 80,000*l.*, is made the subject of criticism by Dr. Gerald Molloy in an article reprinted from the *Irish Ecclesiastical Review*, and suggestions are made as to a general policy of reform. The following statement of facts from the article points unmistakably to the need for the reform which must soon take place:—In a memorial addressed to the Lord

Lieutenant of Ireland last June, the Council of the Royal Dublin Society called attention to the way in which the teaching of science, in the intermediate schools, has been "practically exterminated" by the operation of the present system. From this paper it appears that the total number of boys that presented themselves for the examinations of the Intermediate Education Board, in the years 1887 and 1888, and the numbers that presented themselves in the subjects of natural philosophy and chemistry were as follows:—

	Total number	Nat. Philosophy	Chemistry
1887	4613	2611	1376
1888	4551	2565	1357

But, after the lapse of ten years, it is found that while the total number of boys presented for examination had considerably increased, the number presented in these two subjects had dwindled down almost to insignificance. The figures are:—

	Total number	Nat. Philosophy	Chemistry
1896	6503	618	359
1897	6661	596	312

It would seem, therefore, that something has occurred in the working of the system, during the last ten years, which has practically killed the teaching of these two important subjects in the intermediate schools of Ireland. The teaching of natural philosophy has fallen from 56 per cent. of the total number of boys presented for examination to somewhere about 9.2 per cent., and the teaching of chemistry has fallen from 30 per cent. to 4.6 per cent.

SCIENTIFIC SERIALS.

American Journal of Science, November.—Irregular reflection, by C. C. Hutchins. A carefully prepared surface of plaster of Paris, and a deposit of magnesia upon zinc, approximate very closely to Lambert's law of diffused reflection. A plaster disc cut into fine vertical furrows shows a considerable departure from the cosine law. A sphere prepared by coating an ivory ball in the flame of burning magnesium follows Lambert's equation very closely. The reflection measured is that of the total energy, observed with a thermograph and galvanometer.—Separation of nickel and cobalt by hydrochloric acid, by F. S. Havens. Pinner's process for separating nickel and cobalt, which is analogous to the author's method of separating aluminium and iron, will not give a complete precipitation of the nickel chloride. Nickel chloride is, however, practically insoluble in pure ether saturated with HCl gas, and can be separated from small quantities of the soluble cobalt salt in that medium.—The value of type specimens and the importance of their preservation, by O. C. Marsh. The origin of mammals, by the same author. These two papers were read before the Cambridge International Zoological Congress, in August last.—Causes of variation in the composition of igneous rocks, by T. L. Walker. The author reviews briefly the more common theories advanced to explain the phenomena of variation in the composition of igneous rocks from border to centre or from top to bottom, and calls attention to the part which gravitation seems to play in causing heterogeneity in eruptive rocks. Some homogeneous salt solutions, if allowed to remain at a constant temperature for a long time, become gradually more concentrated in the lower strata. It is very probable that similar concentration occurs in complex silicate magmas, particularly near the temperature of solidification. An eruptive magma would therefore tend to become acid above and basic below. In the upper horizons of the eruption there would be a gradual increase of acidity towards the centre, since the outer and more quickly cooling portion would have no time to become differentiated by gravitation. The lower portions would show an increased basicity towards the centre. This is all in accordance with observed facts.—The relation between structural and magneto-optic rotation, by A. W. Wright and D. A. Kreider. Experiments on the crystallisation of various substances in a magnetic field show no indisputable evidence of the influence of the field upon optically active structure. In the case of sodium chlorate, there seems to be a preponderance of optically active crystals when deposited in a magnetic field, but these are right-handed or left-handed in about equal proportions.

Wiedemann's Annalen der Physik und Chemie, No. 11.—Electric dispersion in organic acids, esters, and glass, by K. F. Löwe. Drude's rule, that anomalous electric dispersion is always