

city. Judging from the duration (1.9 seconds) of the preliminary tremor, Prof. Omori infers that the focus was distant 14 km. from the observatory and therefore at a depth of 13 km. Numerous stone-lanterns and tombstones were overthrown in Kagoshima, the average direction of their fall being N. 68° W., which agrees roughly with the direction of the first movement registered in the same place. The trigonometrical re-survey of the district revealed horizontal movements since the eruption began of 2.62 to 4.52 metres to the north-east and north in the north and north-west parts of the island, while new soundings made in the north part of Kagoshima Bay showed that the floor of the bay had sunk from one-half to four fathoms, except in two spots in which a rise of from one to three fathoms had occurred. An hour or a little more after the earthquake, small sea-waves or *tsunami* swept over the shore at Kagoshima. At about the same time or later, the cable from Kagoshima to Sakura-jima, which crosses one of the elevated spots, was fractured on the flat bottom of the channel about one-third of its width from the coast of the island. Prof. Omori points out that it was not a single clear fracture, such as might have been formed if the application of the tension had been instantaneous, but that numerous breakages occurred over a length of 420 feet, the average distance between successive breaks being 1.7 feet. He infers that the horizontal and vertical movements of the sea-bed took place gradually.

The occurrence of a great tectonic earthquake in a volcanic district and during the progress of an eruption is somewhat rare. Prof. Omori gives some other examples from Japan in this memoir. Their connexion with the corresponding eruptions can scarcely be doubted. It seems equally clear that they do not owe their origin to the volcanic outburst itself, but that eruption and earthquake are both effects of the same deeply-seated cause.

C. DAVISON.

Fishery Research in Lancashire.

THE report on the scientific fishery investigations carried out under the auspices of the Lancashire and Western Sea Fisheries District Committee during the year 1921, which is edited by Prof. James Johnstone, the honorary director of the scientific work, is characterised by the extremely cautious way in which it has been drawn up. While the absence of very definite conclusions must to some extent be a matter for regret, it has to be admitted that the amount of evidence collected, though very extensive when considered in the aggregate, is still insufficient to make any other course possible for a highly-trained and critical mind. Like so much of the valuable fishery work which has been accomplished during the last twenty or thirty years, these investigations have tended to show how exceedingly complex the problems may become, and how difficult it is to get together data sufficiently varied in character and in sufficient quantities to provide material for their solution. The investigations do, however, afford clear indications of the lines upon which future research should proceed and make it certain that many of the questions discussed may be answered in the future, if the necessary facilities can be provided on an adequate scale.

The two most important articles in the report deal with the plaice and the herring. The plaice investigations were commenced in 1908 and were specially extended in 1919-21. They are now summarised for the whole period in a series of tables

which include all the data. These tables will have a permanent value as a record of the condition of the plaice population, and will be invaluable for comparison with the results obtained in future years. The discussion of the data is limited to broad general features, and is directed throughout to show the bearing of the work on the actual practical problems with which the Sea Fisheries Committee is called upon to deal.

The herring work is of a more technical statistical character, and it is difficult to avoid a feeling of regret that so much work in mathematical analysis has been carried out upon samples containing for the most part only 50 fish. The work, it is true, is preliminary, and it will probably be found more profitable in the future to examine fewer samples and fewer characters but with very much larger numbers of fish.

Mention must be made of Mr. R. J. Daniel's work on the chemical composition of mussels, especially on the substance which has been called "glycogen" in these shell-fish. It is most important that these biochemical studies should be continued, for they promise results of much interest.

The report of the Marine Biological Station at Port Erin for 1922 has also been published recently. The most important paper in this report is by the late Prof. Benjamin Moore, in co-operation with Messrs. E. Whitley and T. A. Webster, on the subject of photo-synthesis in marine algæ. The authors show that green, brown, and red algæ are arranged on the shore so that each kind is in that intensity of illumination which is the optimum for the colour scheme of chromophylls it possesses. In strong illumination, green algæ synthesise far more rapidly than red, but in weak illumination the red algæ synthesise more rapidly than green. The brown algæ are intermediate in their action.

The two reports reflect credit both on those responsible for the organisation of the investigations and on those who have carried them out.

University and Educational Intelligence.

ABERDEEN.—By the bequest of the late Miss Anne Hamilton Cruickshank in 1911, a sum of money was set aside for the foundation of a chair in astronomy. The special trustees have now reported to the University Court that the accumulated sum available exceeds 15,000*l.*, and have recommended the foundation of a chair, or lectureship, in astronomy, including navigation and meteorology. The recommendation is under consideration by a committee of the Court. Miss Cruickshank was the daughter of John Cruickshank, professor of mathematics in Marischal College and University from 1817 to the union of the Universities in 1860. Miss Cruickshank also founded the Botanic Gardens and the Cruickshank Law prize, while the Science Library of the University is associated with her name.

Notice is given that the Blackwell Prize Essay, value 30*l.*, and open to all, will be awarded in 1924 for the best essay on "The History of the Fishing Industry of the Port of Aberdeen since 1800," provided any essay sent in is of sufficient merit. Each essay (which must bear a motto and be accompanied by a sealed envelope bearing the same motto and enclosing the name and address of the sender) must be sent to reach the Secretary of the University not later than January 1, 1924.

CAMBRIDGE.—A Bill has been presented to the House of Lords appointing Statutory Commissioners for the Universities of Oxford and Cambridge to make

statutes and regulations in general accordance with the recommendations contained in the recent Report of the Royal Commission. The Cambridge Commissioners named in the Bill are Viscount Ullswater (chairman), Bishop Ryle, Sir Thomas Heath, Sir Richard Glazebrook, Sir Henry Wilson, Sir Hugh Anderson, Dr. Peter Giles, Mr. William Rendell, and Dr. Hugh Dalton. It is perhaps significant of the difference between the two Universities that the only Fellow of the Royal Society among the Oxford Commissioners is Sir Archibald Garrod, Regius professor of medicine. A few only of the provisions in the Bill can be selected for mention here. In making statutes the Commissioners are to have regard to the main design of the founder of any institution or emolument affected by the statute. In the case of a statute affecting a college they are to have regard to the maintenance of the college in the interests of education, religion, learning, or research. In particular, in prescribing the scale or basis of assessment of contributions made by the colleges to University purposes, regard is to be had in the first place to the needs of the several colleges in themselves for educational and other collegiate purposes. It is not desired in reforming Oxford and Cambridge to reform away the peculiar characteristics which have built up their present strong position in the world of education, religion, learning, and research.

Dr. G. S. Graham Smith, Pembroke College, has been appointed reader in preventive medicine; Dr. J. T. MacCurdy, Corpus Christi College (also of Toronto and Johns Hopkins Universities), has been appointed University lecturer in psychopathology; J. Mills, research student, Gonville and Caius College, has been elected to the Nita King research scholarship in the etiology, pathology, and prevention of fevers.

LONDON.—The latest date for the receipt of applications for grants from the Dixon Fund for the assistance of scientific investigations is May 14 next. Applications, accompanied by the names and addresses of two references, must be sent to the Academic Registrar, University of London, South Kensington, S.W.7.

DR. ETHEL N. MILES THOMAS, fellow of University College, London, has been appointed lecturer in botany and zoology at University College, Leicester.

THE *Times* announces that Sir Walter Buchanan, a pioneer of the frozen-meat export industry, has given 10,000*l.* for the establishment of a chair of agriculture at Victoria College, Wellington (N.Z.).

THE University of Budapest announces that summer courses will be held this year from August 1 to September 15 under its auspices. Lectures will be given by members of the faculties of theology, law, medicine, arts, and economics. Full prospectuses are in preparation.

THE Government of Western Australia has allocated a special grant this year for the commencement of the permanent buildings of the University of Western Australia, Perth. As recommended by the professorial board, the science departments will be the first to be removed to new premises, and the present grant for the period ending June 30, 1923, is for the provision of a joint building for the biology and geology departments. The next buildings to be erected will be those for chemistry and for physics. The new site for the University is at Crawley, and covers an area of about 160 acres. The science buildings will be placed on high ground adjoining the national reserve of King's Park, and their

southern frontages will command a splendid view of the broad sheet of Melville Water on the Swan River.

WE notice that numerous appeals have been issued by professors in Germany for money for institutions for higher education and research, such as the Emperor William Institute for Physics, the English Seminary in Berlin University—by Prof. Alois Brandt, who advocates the compulsory teaching of English in all the higher public schools of Germany—the Cancer Research Institute, the Seminary for Christian Archæology, the Egyptian Seminary, and the High School of Jewish Studies. It is stated that a good deal of political recrimination has found its way into the appeals. Whatever may be thought of the policies of the German Government since the War in other respects, it cannot fairly be charged with failure to appreciate the vital importance of education. We have excellent authority for believing that throughout its financial difficulties Germany has had no disposition to economise in its educational expenditure. The universities, as was pointed out in these columns some months ago, were never depleted of students during the War to anything like the same extent as ours, while since the War they have been filled to overflowing; but the appeals would seem to indicate that the Government has been less generous to institutions for higher education and research than to the elementary and secondary schools and the new "People's High Schools." The depreciation of the mark has of course led to difficulties in the way of obtaining English books and periodicals, and these have been to some extent met by a system of exchange with British universities established last year by the Universities Bureau.

THE twenty-first annual meeting of the Carnegie Trust for the Universities of Scotland was held on February 14, Lord Sands presiding. The original endowment fund of 2,000,000*l.* has been increased by 547,000*l.*, in addition to which there are reserve funds amounting to nearly 183,000*l.* Expenditure for the year ended September 30, 1922, amounted to 125,292*l.*, including: assistance in payment of class-fees, 61,217*l.*; grants to universities and colleges for buildings, lectureships, libraries, etc., 44,925*l.*; encouragement of post-graduate study and research, 17,063*l.*; annual grant to women students' union, 250*l.*; management expenses, 5193*l.* Post-graduate study and research were encouraged by fellowships, scholarships, and prizes (6958*l.*), grants towards salaries of part-time research assistants (3600*l.*), grants to the Laboratory of the R.C.P., Edinburgh (2740*l.*), to St. Andrews Institute for Clinical Research (1000*l.*), and other grants (2765*l.*). Arrangements were made with the Department of Scientific and Industrial Research for the simultaneous consideration of applications. During the year sums amounting to 1387*l.* were voluntarily repaid by or on behalf of 39 beneficiaries, making a total of 12,583*l.* repaid since 1901. The repayments by women exceeded those by men for the first time both in number and total amount. In the annual report of the Carnegie Corporation of New York, issued a few days earlier than the Scottish report, stress is laid on the dangers and difficulties incidental to the administration of all such charitable foundations and the necessity for the exercise of careful discrimination and constant watchfulness for the harmful as well as the beneficial results of giving. Among the former it mentions the overcrowding of the colleges with students, many of whom would find their greatest happiness in other vocations than those to be sought through college training.