nearly as possible self-supporting. These are described as strongly Christian in intent and influence, proclaiming the dignity of labour and the fundamental importance of training in heart and hand as well as head. Yale's bursary employment scheme, providing employment for more than four hundred of the residents in its new undergraduate hostels, is described in some detail. It is so popular that well-to-do students have applied for bursary work without stipend because of the opportunities it offers for personal development. Harvard also has lately introduced an employment scheme in connexion with its new dormitories. The report emphasizes the increasing recognition of the value of money-earning labour as a part of education, especially its contribution to character-building, and the advantages of co-operative living arrangements.

The Temporary Ley

THE Welsh Plant Breeding Station, Aberystwyth, has just issued a bulletin entitled "The Temporary Ley", price 7*s*. 6*d*. It is divided into four sections. The first compares the results obtained with station-bred and commercial grasses when used in simple mixtures. Although in the first year the commercial seeds gave the best yields, distinct advantages were shown by the station-bred varieties in the third year. Relative aggressiveness of the different species in a mixture is also an important point; timothy, for example, failing to become established when sown in conjunction with cocksfoot or perennial rye grass. Section 2 deals with the yield and persistency of different strains of grass and clover. Mixtures containing indigenous species gave both higher yields and better response to phosphatic manuring than those in which such species were in the minority or lacking. Pasture management and its effect on the sward is the subject of the third section. Swards differing widely in botanical composition were subjected to various systems of management, and it was found that the importance of a species is determined by the individual reaction of the plant to the type of management, as well as its ability to withstand competition from other components of the sward under those conditions. The final section consists of an article by Sir R. George Stapledon, director of the Station, on the establishment and maintenance of temporary leys. This will perhaps be of particular value to the agriculturist as it deals largely with the practical aspect of the question. Final emphasis is laid on the fact that success depends on the combination of a well thought-out seeds mixture with good management.

A Pioneer Garden Journalist

A SHORT chapter of garden history in the early eighteenth century is unfolded by Mr. W. Roberts, in a paper on Richard Bradley, F.R.S. (*J. Roy. Hort. Soc.*, **64**, Pt. 4; April 1939). Bradley was the first professor of botany at Cambridge, and though he does not appear to have conferred much sound teaching upon his students, nor given academic dignity to the University, he was responsible for a series of volumes which exerted considerable influence upon horticulture at that period. "A General Treatise of Husbandry and Gardening" was one of his greatest contributions, and forms the main subject of Mr. Roberts's paper. The text introduces "Such Observations and Experiments as are New and Useful for the Improvement of Land", and, indeed, Bradley's experiments represented his major contribution to horticulture, at a period when it was the fashion only to copy and quote. He states that his expenses in the study of the nature of plants and soils cost him upwards of £2,000, and he also travelled widely. Though his undertaking to establish a Botanical Garden at Cambridge did not flourish greatly, he distributed much garden knowledge of an exact order.

Earthing with Driven Copper Electrodes

A HUNDRED years ago, when electricity was usually generated by the use of frictional or Wimshurst machines and detected by gold leaf electroscopes, it was well known that an electric charge on a conducting surface could be dissipated by connecting the charged surface to earth. It is now found that owing to the increasing electric power behind modern networks, in order to get safe operation special attention has to be paid to the conductor connecting charged metallic objects to earth. Copper electrodes of small diameter cannot be driven with a sledge-hammer unless the ground be soft, as the rod will bend or the top will be deformed. The Copper Development Association of Thames House, Milbank, London, S.W.1, has published a booklet entitled "Copper for Earthing" which gives several useful hints on this problem. The most satisfactory method of driving copper electrodes into the earth is by means of an electric hammer which delivers a large number of light blows. The usual procedure is to choose the wettest or the most low-lying spot in the neighbourhood and drive a copper rod of small diameter into the earth to a depth of about eight feet. The earth resistance is then measured; if too high, several more rods can be driven in and connected in parallel. This is necessary for earthing mains where a possible fault current may be very large. The booklet points out that, even now, earth connexions are sometimes made by a few feet of conduit buried outside the house or under the floor in contact with a small iron plate or with the hot-water piping system. Sometimes even a large electric machine is earthed by binding the wire round a loose rock lying on the ground. In one case the earthing wire was found to terminate in a bottle of water!

London's Water in 1937

THE results of the chemical and bacteriological examination of the London waters for the twelve months ended December 31, 1937, are contained in the thirty-second annual report of the Metropolitan Water Board, recently issued (P. S. King and Son, Ltd., 14 Great Smith Street, Westminster. 10*s*. 6*d*.). Much of the report was drafted by the late director, Col. Harold, before his death last July, and the task

of completing it has fallen upon the deputy director, Mr. Denison Byles. The total average output from the works for the year was 310·79 million gallons per day. Of 22,000 routine samples examined bacteriologically, about 98 per cent were of first-class purity (absence of *Bact. coli* in 100 c.c.). Details are given of several researches carried out in the laboratories. In the Bacteriological Section, various methods for the isolation and identification of *Bact. coli* have been tested and compared. In the Biological Section, investigations into the algal flora of raw and stored waters have been continued. In the Chemical Section, a further account is given of the use of a new photo-electric turbidimeter. The chief analytical results for each month in the year of the several sources of supply are given in a series of tables.

The Brotherton Collection

THE third annual report of the Brotherton Collection Committee, University of Leeds, states that a beginning has been made in the work of valuing the Collection, case by case, and of cataloguing the uncatalogued books (University of Leeds: The Brotherton Collection. Pp. 4. Leeds: The University, 1938). A scheme has been drawn up for the purchase of new books, which would be confined to certain authors and subjects wherein the Collection is already strong, so that relative completeness could be obtained. The very extensive collection of pamphlets on Sheffield has been re-arranged. Mr. J. A. Symington, first keeper of the Brotherton Collection, relinquished that office on July 31, 1938, and on the recommendation of the Brotherton Collection Committee, the Council of the University of Leeds appointed Dr. Richard Offor, the University Librarian, to be Keeper of the Collection from August 1.

The Earthquake of May 10, 1939

FROM instrumental reports from Fordham, Georgetown, St. Louis, Victoria, Honolulu, Manila, Pasadena, Philadelphia, Chicago and Burlington, the U.S. Coast and Geodetic Survey has determined the epicentre of the earthquake of May 10 at 7h. 44·4m. G.C.T. to be provisionally lat. 51° N., long. 179° W. This is to the south of the Andreanof Islands, which form part of the Aleutian Islands, and is on the circum-pacific ring of instability somewhat to the west of the epicentre of the great earthquake of November 10, 1938.

Conference on Photography

THE Manchester and District Branch of the Institute of Physics has arranged a Conference on Photography, to be held in the Physics Department, University of Manchester, on July 3 and 4, under the chairmanship of Dr. F. C. Toy. Among those taking part are Prof. N. F. Mott, Dr. J. C. M. Brentano, Dr. W. F. Berg, Dr. D. A. Spencer, Dr. S. O. Rawling, E. R. Davies, C. W. Bradley, Dr. J. G. Wilson, Dr. C. A. Adams and Dr. H. A. Bruck. The subjects to be discussed include the atomic physics of photography, colour photography, theories of developers, and applications of photography in research. Further particulars can be obtained from Dr. W. H. Taylor, Physics Department, College of Technology, Manchester, 1.

Marine Biological Association

AT the annual general meeting of the Marine Biological Association of the United Kingdom, Dr. George Parker Bidder was elected president of the Association in succession to Lord Moyne, who had held office for the past nine years. Lord Moyne, Lord Mildmay of Flete, and Sir Reginald Dorman-Smith were added to the list of vice-presidents. Mr. H. C. Maurice, Lord Rothschild, Mr. J. R. Norman and Mr. Morley Neale were elected new members of council.

Announcements

LIEUT.-COLONEL J. H. M. GREENLY has agreed to continue as president of the Institute of Fuel for a further year, and will deliver his second presidential address on October 19. The Council of the Institute has awarded the Melchett Medal for 1939 to H. A. Humphrey, late consulting engineer to Imperial Chemical Industries, Ltd., for the outstanding work he has done in the development of fuel and appliances in connexion therewith.

MARC TIFFENEAU, professor of pharmacology and materia medica in the Faculty of Medicine, University of Paris, has been elected a member of the Section of Chemistry of the Paris Academy of Sciences, in succession to the late Prof. G. Urbain.

THE German Chancellor has awarded the Goethe Medal for Arts and Science to Prof. Ernst Rudin, professor of psychiatry in the University of Munich, for his work on German racial hygiene.

THE annual meeting of subscribers and friends of the Rothamsted Experimental Station, Harpenden, will be held on June 28, when the principal speaker will be Sir E. Kaye Le Fleming, chairman of council of the British Medical Association.

FOLLOWING the nineteenth annual general meeting of the British Non-Ferrous Metals Research Association on June 29, the Association's new laboratories in Euston Street, London, N.W.1, will be formally opened by the Right Hon. Oliver Stanley, president of the Board of Trade, and a memorial to Thomas Bolton will be unveiled.

THE *Internationale Zeitschrift für Psychoanalyse und Imago*, which was temporarily suspended, resumed publication in March 1939. The present address is 96 Gloucester Place, W.1, and the price 34 shillings.

ACCORDING to the figures issued by the Metropolitan Life Insurance Company, the average duration of life for men in the United States in 1936 was 60·81 years, or 1 year and 3 months longer than in 1930.