fact that two species of elm in England are unable now to produce fertile seed.

The English elm produces good seeds freely in the warm valley of the Tagus at Aranjuez in Spain, but not in Madrid on the cold plateau 500 feet higher. In England it invariably reproduces itself by root-suckers. The Cornish elm produces ripe fruit in Brittany. Certain forms of Alchemilla are unable now to produce good pollen, yet form seed parthenogenetically. In the Faroe Isles thirty-six species of plants scarcely ever ripen their seeds; and five species never flower. The question of what plants in Ireland are now in too northerly or too cold a climate requires study in the field.

Much has been written on the Lusitanian flora of Ireland, involving the question how the Arbutus is confined as a native tree to Kerry and Cork, not being indigenous elsewhere in the British Isles. Its nearest station on the continent is near Paimpol in Brittany, where, on the abrupt and rocky slope of the cliff of Trieux, for about one and a half miles, this species is very abundant in a wood mainly composed of oak and mountain ash. It is interesting to note that the Cornish elm (*Ulmus stricta*), indigenous only in our islands in Cornwall and Devon, is similarly met with in Brittany. The English elm (*Ulmus campestris*) is probably also a Lusitanian species, occurring elsewhere than in southern England only in Spain as a wild tree. It appears to have entered England by the Severn valley, crossing over the Cotswolds into the Thames valley, and southwards as far as the Isle of Wight.

Prof. Henry, in addition to giving much historical matter concerning the ancient forests of Ireland, shows how the primitive woods and their remains can be easily recognised by the occurrence in them of a peculiar fauna and flora, which is absent in plantations and in arable and pasture lands. A list is given of these sylvicole animals and plants.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

GLASGOW.—The following additional examiners have been appointed:—Surgery, Sir Charles B. Ball, Bart.; medicine, Sir Thomas Oliver; physiology, Prof. E. P. Cathcart; geology, Dr. John Horne; zoology, Mr. H. H. Brindley; engineering, Prof. J. B. Henderson; mining, Prof. W. H. McMillan.

Forty-three members of the teaching staff, professors, lecturers, and assistants, are engaged in military service at the present time, and nearly five hundred commissions in the Army and Navy have been granted to students and junior graduates of the University. One, who afterwards died of wounds, received the Victoria Cross.

LONDON.—The Senate has conferred the titles of Professor and Reader in the University upon the following:—*Professors*:—Dr. A. L. Bowley (London School of Economics), statistics; Mr. L. R. Dicksee (London School of Economics), accounting and business organisation; Mr. J. E. S. Frazer (St. Mary's Hospital Medical School), anatomy; Dr. T. M. Lowry (Guy's Hospital Medical School), chemistry; Mr. J. H. Morgan (University College and the London School of Economics), constitutional law; Dr. W. J. R. Simpson (King's College), hygiene and public health; Mr. J. H. Thomas (University College), sculpture; and Mr. G. Wallas (London School of Economics), political science. *Readers*:—Dr. R. W. Chambers (University College), English language and literature; Mr. H. Crompton (Bedford College), chemistry; Dr. J. S. Edkins (Bedford College), physiology; Mr. W. J. Goudie (University College), theory and practice of heat engines; Mr. Major Greenwood (Lister Institute), medical statistics; Dr. R. G. Hebb (Westminster Hospital Medical School), morbid anatomy; Dr. R. T. Leiper (London School of Tropical Medicine), helminthology; Dr. H. R. Le Sueur (St. Thomas's Hospital Medical School), chemistry; Dr. F. S. Locke (King's College), physiology; Miss Sara Melhuish (Bedford College), education; Dr. F. G. Pope (East London College), chemistry; Dr. H. E. Roaf (St. Mary's Hospital Medical School), physiology; Dr. O. Rosenheim (King's College), biochemistry; Mr. J. Henderson Smith (Lister Institute), bacteriology; Dr. J. F. Spencer (Bedford College), physical chemistry; Dr. H. M. Turnbull (London Hospital Medical College), morbid anatomy.

MANCHESTER.—The movement started last year for the establishment of a Radium Institution in Manchester met with a generous response from the public. Thanks to the assistance of public men and the Press, the committee that was appointed to carry out the scheme was able to collect a sum of about 30,000*l*. The radium department was established at the Royal Infirmary, and began work on January 1 in a number of rooms that had been equipped at a cost of 1000*l*., and started with about 800 milligrams of radium metal. The contract for the radium, which cost about 21,000*l*., was fortunately given to an American firm, and its delivery was not therefore interfered with by the outbreak of the war. In order to ensure the maximum efficiency, the Radium Committee, acting on the advice of Sir E. Rutherford, Sir Wm. Milligan, and other experts, took control of the equipment of the laboratories; and the standardisation of the radium was done in the physical laboratories of the University of Manchester. The committee has also drawn up a scheme for the distribution of radium either in the solid form as applicators, or as emanation tubes from the liquid form, to the other hospitals in Manchester and the district. Dr. Arthur Burrows is the radiologist at the infirmary responsible for the administration, Mr. H. Lupton is the physicist in charge, and Sir E. Rutherford acts as consulting physicist to the department.

OXFORD.—The Committee for Rural Economy reports that during the past academic year forty-eight individual students worked in the department. The soil survey of the district round Oxford has been continued, and a new research on the nitrogen in peat has been started. The new buildings, erected at a cost of nearly 6000*l*., were completed and ready for occupation in October last. Several papers have issued from the school during the year, including six by Prof. Somerville (Sibthorpian professor), a joint paper by Prof. Somerville and Mr. Harper, and others by Messrs. Harper, Morison, Doyne, Sothers, and Jones. Prof. Somerville continues to edit the *Quarterly Journal of Forestry*.

The annual report of the Delegates for Forestry shows that the number of the students in the department at the beginning of the year 1914 was thirty-eight. This number by the end of the year, in consequence of the war, had declined to fourteen. A visit was paid, under the personal direction of the professor of forestry, Sir W. Schlich, to the Forêt de Lyons, in northern France, and weekly excursions were undertaken to Bagley Wood, where, by permission of St. John's College, a forest nursery and experimental plantations have been established. Here periodical measurements are taken of many species of forest trees. Advice was sought and given in respect of twelve estates aggregating 9322 acres, and other

work of an advisory nature was carried out. Valuable research has been performed by Mr. E. A. Speyer, who has now accepted a forestry appointment in Ceylon, and by Mr. W. E. Hiley. The finances of the Forestry School are assisted by an annual grant of 250*l.* from the Board of Agriculture and Fisheries.

THE authorities of the Royal Technical College, Glasgow, may well be proud of the part which members, students, and past-students of the college are taking in the King's service in connection with the war. A list, confessedly incomplete, which has been issued, gives the names of 1023 officers, non-commissioned officers, and men, together with their rank, regiment, or ship, and the last year in college, all of whom have been thus connected with the college, and the names of forty-seven other men serving about whom particulars are as yet unknown.

A COPY of the calendar for the session 1914–15 of the University College of North Wales has been received. The new calendar follows on the same lines as those of previous issues. We notice that during 1913–14 the extension work in agriculture carried out by the college was placed, as regards organisation, on a new footing. In three of the North Wales counties served by the college, advantage was taken of the offer of Government help through the Farm Institute Fund to increase very greatly the sum annually devoted to agricultural instruction and to place the work in the hands of county organisers, appointed by the college, but working under the directions of the county agricultural committees. Special lecturers in horticulture, poultry-keeping, and dairy work are also provided by the college for county work.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, February 11.—Sir William Crookes, president, in the chair.—Dr. D. H. **Scott**: *Lepidostrobus kentuckiensis,* nomen nov., formerly *Lepidostrobus Fischeri,* Scott and Jeffrey.—A correction. The name *Lepidostrobus Fischeri* having been anticipated by Renault in 1890, it is necessary to give a new name to the Kentucky cone described by Scott and Jeffrey (*Phil. Trans.,* Ser. B., vol. ccv., 1914, p. 354). The fossil is now named *Lepidostrobus kentuckiensis.*—T. **Lewis** and M. A. **Rothschild**: The excitatory process in the dog's heart. Part ii.—The ventricles. (1) The excitation wave appears at the pericardial surface of the dog's heart at times which show no great variation relative to each other; but the distribution of the time values over the surface with such variations as they show is very fairly constant from heart to heart. (2) The time at which the excitation wave appears at the surface is controlled by the length of the Purkinje tract to the endocardium beneath the region tested, and by the thickness of the ventricular muscle in the same region. (3) The excitation wave is not propagated by simple spread from base to apex or apex to base through bands of muscle fibres, as has commonly been held hitherto. (4) The capacity of striated cardiac tissue to conduct appears to be related to the size of the cells composing it and to its load of contained glycogen. (5) The auriculo-ventricular bundle and its branches constitute a system of fibres specially endowed in regard to their arrangement and physiological properties to give quick distribution of the excitation wave throughout all parts of the ventricle.—A. J. **Walton**: The variation in the growth of mammalian tissue *in vitro* according to the age of the animal. Previous work has shown that plasma of animals varies considerably in its value as a medium for the cultivation of tissue. The present experiments were carried out with a view of determining whether these differences were due to the age of the animal from which the plasma was obtained. The tissues and plasma of rabbits were alone used, and the majority of animals were of a known age. Tissues of young and old animals were used and were grown in pure plasma from the same animals. In all cases it was found that the young tissues grew better than the old, but the plasma of the young animal was not nearly so satisfactory a medium as that of the old animals. Hence the best results were obtained when young tissues were grown in the plasma of old animals and the worst results when old tissues were grown in young plasma.

Geological Society, February 3.—Dr. A. Smith Woodward, president, in the chair.—Prof. T. McKenny **Hughes**: The gravels of East Anglia. The author discusses the sources from which the subangular gravels that cover such large areas in East Anglia can have been derived. He points out that their great variety of fracture, colour, etc., proves that they cannot have come directly from the Chalk, or from Boulder Clay derived directly from the Chalk, or from the Lower London Tertiaries, none of which contain subangular gravels but only beds of pebbles, and those mostly of small size. The character of the flints in the gravels indicates that they have been derived from surface-soils which have been winnowed and shifted by soil-creep, rain, and streams, until arrested on the terraces and flats of the valleys. The dry land of Miocene age was the first over which the flints of our gravel-beds could have received that subaerial treatment which they all seem to have undergone.—E. **Anderson** and E. G. **Radley**: The pitchstones of Mull and their genesis. The pitchstones here discussed occur with extraordinary frequency, intruded into the Tertiary plateau-lavas of the eastern portion of the Ross of Mull, as well as in less number in other parts of the island. They fall into two main divisions, distinguished by the absence or by the presence of porphyritic felspars. The petrological characters of these pitchstones, and their more crystalline margins, are such that they seem to warrant the grouping of the rocks under a new type-name, and the name leidleite has been chosen. The porphyritic pitchstones occur as flat or gently-inclined sheets; they also are associated with a more crystalline phase, and have been grouped under the type-name innimorite.

Zoological Society, February 9.—Mr. R. H. Burne, vice-president, in the chair.—E. G. **Boulenger**: An Aglyphodont Colubrid snake (*Xenodon merremii*), with a vertically movable maxillary bone. The vertical mobility of the maxillary bone in snakes had previously been regarded as essentially characteristic of the Viperidæ. Observations on the snake in question, which was recently received by the society from Mr. W. A. Smithers, showed that the mobility of its maxillary bones was so great that the fangs could be not merely erected, but were capable of being thrust forward and sideways, the mechanism being as perfect as in any of the vipers. Mr. Boulenger pointed out that the discovery of a solid-toothed Colubrid with vertically movable maxillæ went a long way towards settling the so often discussed problem of the derivation of the viperine maxillary bone. The author traced the probable evolution of the bone, expressing the opinion that the Viperidæ were descended from the Opisthoglyph Colubrids, and that the old view, recently revived, that they were of Proteroglyph