

### Wisconsin Limnology.

THE veteran limnologist, Dr. E. A. Birge, together with Dr. Chancey Juday and other collaborators, has made several additions to the detailed study of Wisconsin lakes in the *Transactions of the Wisconsin Academy*, vol. 23, *Proceedings of the American Philosophical Society*, vol. 66, and in *Ecology*, vol. 8. The Academy papers deal with the temperature of the bottom deposits of Lake Mendota, with the chemical composition of its larger aquatic plants and with the phosphorus content of that and other Wisconsin lakes. Temperatures were measured in the mud of Lake Mendota down to 5 metres, in depths of water from 8 m. to 23.5 m. The data accumulated are used to calculate the annual heat-budget. At the shallowest station this amounted to 2950 calories per sq. cm. and 1100 calories at the deepest. Preliminary data on the heat-budget of Karluk Lake, Alaska, are given in *Ecology*, July 1927. These are compared with the values given by lakes in Central Europe.

Supplementing a previous study of the composition of *Cladophora* and *Myriophyllum*, analyses of *Vallisneria* and *Potamogeton* are now given. Rickett had previously shown that Mendota, 10.4 sq. kilometres in area, yielded, in dry weight, 1112 metric tons of *Potamogeton* and 736 of *Vallisneria*. Of these, the latter has an ash content of 25.2 per cent, the former 11.4 per cent. Their influence upon the water and soil of the lake must, therefore, be very considerable. The analyses are unusually detailed and record the amounts of certain important minor constituents, such as phosphorus, iron, manganese, and silica, which are frequently omitted.

The organic matter content of lake waters is considered in a preliminary survey (*Amer. Phil. Soc.*), which, however, contains analyses from forty-four lakes. These are grouped into *autotrophic*, which derive their organic matter from internal sources only, namely, from the phytoplankton and attached vegetation, and *allotrophic*, into which drainage brings soil and marsh extractives. For each lake the organic matter is a fairly definite quantity, showing no great variation either with depth or time. This is in striking contrast to the oxygen content, which is often greatly reduced in the deeper cold water, the hypolimnion; this during summer remains unmixed with the warm epilimnion.

Analyses were made of the waters of eighty-eight lakes to determine the soluble phosphorus existing as phosphate, also the phosphorus in organic combination. This was done in order to ascertain whether the simple yearly cycle, observed in the open sea, could also be traced in these lakes. The marine workers found a winter maximum and a minimum in early summer, lasting until August, the surface waters being, during the summer, almost or quite devoid of inorganic phosphorus, and the deeper waters—in shallow seas—being much reduced. In the lakes, however, observations made in May, soon after the disappearance of the ice, and in July or August, were complicated by two factors—the very minute amount of inorganic phosphorus and its regeneration from the plankton. Accordingly, no such simple seasonal cycle was revealed. Possibly the rate of regeneration, rather than the absolute amount of phosphorus, may here be the limiting factor.

In *Ecology* (8, No. 4; 1927) an account is given of the occurrence of two crustacea, *Pontoporeia affinis* and *Mysis oculata* var. *relicta*, which are regarded as 'marine relicts'. Though thoroughly studied in Europe, their American distribution is imperfectly known. It was found that *Pontoporeia* occurs chiefly in the hypolimnion, where the supply of

oxygen may fall below 1 c.c. per litre. The breeding season extends from December to May. *Mysis* was found in two lakes. During summer it remains on the bottom during daytime, but may even reach the surface at night. The breeding season extends from October to May.

### University and Educational Intelligence.

CAMBRIDGE.—The solicitors carrying out the will of the late Mr. John Humphrey Plummer state that, in view of the many conflicting and wholly unauthorised statements that have appeared, the time has arrived when some authoritative statement should be made concerning the benefaction which will accrue to the University. The residue of the estate is to be applied in perpetuity for the promotion and encouragement of education in chemistry, biochemistry, physical science, or such other allied subjects in the University as the trustees shall think fit. The testator further expressed his desire and intention that his trustees should, as soon as possible, establish and endow a professorship or professorships, each of the annual value of £1200 in accordance with a scheme to be devised. The testator further expressed the wish that the trust should be known as the John Humphrey Plummer Foundation. The trustees are advised that the estate should yield an income to the University of approximately £10,000 a year.

The Drapers Company has made a grant of £1000 per annum for a further period of 10 years to the School of Agriculture.

Dr. H. B. Roderick and Mr. G. Stead have been reappointed University lecturers in medicine.

EDINBURGH.—Principal Sir Alfred Ewing announced at the meeting of the University Court on May 27, in connexion with the proposed internal reconstruction of the medical buildings at Teviot Place, that gifts have been intimated for this purpose of £20,000 from Sir William Dunn's trustees, and £35,000 from the Rockefeller Foundation, making a sum of £55,000 in all. This, along with other moneys available, now secures the carrying out in its entirety of a scheme drawn up by Mr. Balfour Paul, architect, in consultation with the heads of the departments concerned, whereby the medical buildings, erected in 1880, will be radically altered in their internal arrangements, so as to bring them in line with the most modern requirements for teaching and research. The external aspect of the buildings, as designed by the late Sir Rowand Anderson, will remain unaltered. The work will be begun in the summer vacation. Certain portions of the reconstructed building will in future be associated with the name of Sir William Dunn in recognition of the generous gift from his estate.

LONDON.—The following doctorates have been conferred: D.Sc. in metallurgical chemistry on Mr. J. C. Hudson (Imperial College, Royal College of Science, and Royal School of Mines), for a thesis entitled "Third (Experimental) Report to the Atmospheric Corrosion Committee (of the British Non-Ferrous Metals Research Association)"; D.Sc. in agricultural chemistry on Mr. V. Subrahmanyan (Rothamsted Experimental Station), for a thesis entitled "Biochemistry of Waterlogged Soils".

MANCHESTER.—Mr. J. B. M. Hay, lecturer in engineering, has resigned on his appointment as head of the Civil Engineering Department in Bradford Technical College.

Applications are invited for two Grisedale biological scholarships in, respectively, botany and zoology, each of the value of £200. Applications should reach the registrar by at latest June 22.



**READING.**—Dr. T. Franklin Sibly, principal of the University of London since 1926, has accepted the invitation of the council to become vice-chancellor of the University in succession to Dr. W. M. Childs, who is retiring in September next.

At the time of going to press, the following results of Parliamentary elections in University constituencies have been announced:—Cambridge (2): Mr. J. J. Withers, Mr. G. H. A. Wilson. London: Dr. E. Graham Little. Combined English (2): Sir Martin Conway, Miss E. Rathbone. Wales: Mr. E. Evans. Queen's, Belfast: Col. T. Sinclair.

The New Education Fellowship (English section) gives prominence in its annual report for 1928 to the subject of parent education. At a conference which it called last September, it was resolved to form a National Council for Parent Education and Child Study, and a provisional committee was appointed with Dr. Basil Yeaxlee as chairman to undertake the preliminary work with the aim of correlating and extending the efforts of existing organisations for forming parent-teacher associations all over Great Britain, child-psychology study groups, training of study-group leaders, publication of pamphlets and magazines for parents, formation of libraries, panels of speakers, etc. The movement will be stimulated by a visit to Great Britain this summer of some of the leaders for similar movements in America and by the fifth international New Education conference to be held at Elsinore on Aug. 8–21. The Fellowship, of the English section, of which Sir Michael Sadler is president, besides organising biennially international conferences, maintains libraries and information bureaux, publishes magazines, and in other ways promotes co-operation between educationists and between parents and teachers. Its watchwords are: Release spiritual and creative power in the child; study and respect the child's individuality; educate through innate interests; encourage co-operation rather than competition; co-educate; educate for service. The general theme of the Elsinore conference will be "The New Psychology and the Curriculum".

A CENSUS of graduate research students in chemistry in the United States in 1927 shows that they numbered 1934 in one hundred and forty universities, as follows: in organic chemistry 570, general and physical 430, industrial and engineering 183, physiological 134, inorganic 116, agricultural 89, colloid 79, analytical 75, nutrition 58, catalysis 28, food 27, sanitary 25, photographic 25, metallurgical 21, five other sub-heads 74. The census has been taken annually for four years by the Research Information Service Division of the National Research Council, Washington, and discloses a steady growth in the total number of such students (1700, 1763, 1882, 1934), although under the various sub-heads the numbers fluctuate. In addition to these students, 1047 members of the faculty staffs were engaged in chemical research. In the pamphlet giving the results of the census (*Reprint and Circular Series of the National Research Council*, No. 84. Washington, D.C.: National Academy of Sciences; price 20 cents) figures are given separately under each sub-head for each university, together with the name of the head of the department of chemistry. In the same pamphlet are statistics showing the number and amounts of fellowships and other stipends received by graduate students in chemistry in 119 universities in the United States in 1927–28. Of the total number of such students, 45 per cent received no financial assistance either from the university or from outside organisations. More than one-third of these self-supporting students (418) belonged to Columbia University, New York.

### Calendar of Patent Records.

**June 9, 1683.**—Great public interest was aroused by the patent granted on June 9, 1683, to Robert Fitzgerald and others for his process for obtaining fresh from salt water. A previous patent granted in 1675 to William Walcot for a similar invention was voided by the Privy Council on the ground that it had not been put into operation, and it is said that Fitzgerald's prescription, certified by Robert Boyle, was sent by Charles II. to the Lord Mayor "to be kept lest a secret of so great importance might come to be lost". But it was Fitzgerald's process that eventually proved a failure and Walcot's that triumphed. In 1695 an Act of Parliament was passed restoring Walcot's rights and granting him a 35 years' monopoly.

**June 9, 1842.**—The direct-acting steam hammer, first reduced to a practical form by James Nasmyth, was patented by him on June 9, 1842.

**June 12, 1704.**—The rise of the Irish linen trade is due very largely to Louis Crommelin, the leader of a small band of Huguenots settled in Belfast, who contracted with William III. to supply the requisite machinery and material and to teach the Irish the art of linen manufacture in return for the interest on his expenditure and £300 a year. On June 12, 1704, the Signet Office in London records a patent granting to the Board of Trustees of the Linen Corporation and the Lieutenant Justices of Ireland a yearly sum of £1180 for ten years for the purpose of encouraging the manufacture, the payment of £200 a year to Crommelin "for his pains and care in carrying on the work", and £120 a year to three assistants; with a pension of £60 a year to a French clergyman for the Huguenot colony.

**June 12, 1806.**—The purification of coal gas with lime was suggested in the early days of gas manufacture. Edward Heard, on June 12, 1806, patented a process in which the lime was charged with the coal in the retorts, but the proposal did not come into general use until it was reintroduced by W. J. Cooper in 1882.

**June 13, 1551.**—The first patent of which there is any record in France is that granted for ten years by Henry II. to Theseo Mutio, an Italian, on June 13, 1551, for making all kinds of Venetian glass. The manufacture was not successful, but the experiment paved the way for the subsequent encouragement of Italian workmen by Henry IV.

**June 13, 1772.**—William Tutin's is a noteworthy name in the history of the manufacture of shoe buckles, an important Birmingham industry in the eighteenth century. Tutin was the inventor of the alloy—made of brass, antimony, and tin—called "Tutania", of which most of the buckles of the period were made, and on June 13, 1772, he was granted a patent for a process of japanning buckles "so as to equal and far exceed in cheapness and wear the common blue-coloured buckles, which are coloured by the heat of the fire, and are liable to be damaged by wet".

**June 13, 1922.**—Insulin, the pancreas extract used in the treatment of diabetes, was isolated by Dr. G. F. Banting and Dr. C. H. Best, of the University of Toronto, and in order to safeguard the public interest the method of extraction was patented in Great Britain on June 13, 1922. The University of Toronto invited the Medical Research Council to assume the responsibility for its production in Great Britain and conveyed the patent rights to the Council as a free gift. The word 'insulin' is due to Sir Edward Sharpey-Schafer, who coined it about 1911 in anticipation of the discovery.