

great damage with their rakes, and by leaving the young cockles which are too small for the market at the mercy of currents instead of scattering them over the beds where they can re-establish themselves. By so doing they endanger their own livelihood as well as contravene the by-laws which regulate the cockle fisheries.

The chief centres of the cockle fishery in England and Wales are the Wash, the Thames Estuary, Carmarthen Bay, and Morecambe Bay. The cockles are gathered by raking, scraping, and digging, and are usually boiled, and the soft parts separated from the shells by sieving, before they are sent away to the market. The shells have a certain value, for they are often ground up to serve as grit for poultry.

Although it has not the high carbohydrate content of the native oyster, the food value of the cockle is considerable, and, in common with similar shellfish, it provides a valuable source of food the use of which might with great profit to the community be greatly extended. It is encouraging in this connexion to note that the annual quantity of cockles landed in Great Britain increased from 167,089 cwt. in 1923 to 300,721 cwt. in 1925, while probably many more were collected by casual gatherers. It is disconcerting, however, to learn that owing to the fact that English gatherers often refuse to take the trouble to pick out the larger cockles, which naturally command the best market, considerable quantities of cockles have been imported from Holland, where, apparently, the shellfish merchants pay more attention to the market.

C. M. Y.

### River Pollution and Fisheries.

DR. H. C. REDYKKE has written a useful summary of the results of recent investigations upon the subject of river pollution for the International Council for the Exploration of the Sea (*Rapports et Procès-Verbaux des Réunions*, vol. 43, May, Copenhagen: Andr. Fred. Høst et Fils, 1927). The direct influence upon fishes of sewage and of trade wastes containing organic matter or inorganic poisons, is discussed, and the methods used in treating the various pollutions on the Continent, in America, and in Great Britain are outlined. The report contains a comprehensive bibliography.

The disposal of noxious effluents is urgent in England, perhaps more so than on the Continent, where as a rule the towns have rivers carrying a greater quantity of water into which to discharge. As pointed out by Dr. Redeke, the capacity of the rivers for self-purification allows the discharge of effluents up to a certain concentration without material damage to the fisheries.

Waste products containing organic matter, such as domestic sewage, the wastes from sugar beet, milk, or paper factories, abattoirs, etc., require treatment before reaching the rivers by allowing a natural fauna and flora of micro-organisms to act upon them for a sufficient length of time, usually under aerobic conditions, and the removal of solid matter, whereby their putrescibility is reduced. The problems of domestic sewage disposal have been solved on these lines in a very satisfactory manner on the whole; less attention has been paid to the analogous problems presented by trade wastes where, although similar methods are reported to give satisfactory effluents, the expense of installations or area of land required has militated against their general adoption.

Trade wastes containing inorganic poisons (gases, coke oven, artificial silk factory effluents) or inorganic poisons and organic matter (leather, paper,

textile and glue trade effluents), each require particular treatment. Small volumes of highly polluting wastes can generally be got rid of by allowing them to seep through a sufficient amount of soil before entering any watercourse, but with large quantities the expense of treatment is the major problem.

In discussing to what extent pollutions will be injurious to fisheries, Dr. Redeke lays stress upon the extent to which an effluent will be diluted on entering a river, and concludes that the degree of purity of an effluent which should be aimed at depends upon such local circumstances; the discharge of substances directly poisonous to lower animals and plants should be prohibited, for these destroy the capacity of the stream for self-purification from organic wastes.

### University and Educational Intelligence.

ABERYSTWYTH.—At a recent meeting of the Court of the University of Wales, it was announced that an anonymous donor has given a sum of £10,000 for the encouragement of research.

CAMBRIDGE.—Mr. J. A. Venn has been elected to a fellowship at Queens' College. H. Barcroft, King's College, has been elected to the Michael Foster studentship in physiology.

EDINBURGH.—At the meeting of the University Court on July 18, a letter was received from Prof. J. Cossar Ewart intimating his resignation from the chair of natural history. The court accepted the intimation with very great regret, and expressed appreciation of the eminent services which Prof. Cossar Ewart has rendered to the University during his long and distinguished tenure of the chair, to which he was appointed in 1882.

On his retirement as physician to the Royal Infirmary Prof. G. Lovell Gulland intimated his resignation from the chair of medicine. The Court accepted the intimation with much regret, and resolved to record its grateful sense of the value to the University of Prof. Gulland's work as a teacher and physician.

The Court approved the terms of an ordinance founding the Buchanan chair of animal genetics, and directed that it be transmitted to the Privy Council and to the other Scottish universities. The foundation of this chair is part of the scheme for setting up a new and enlarged University Department of Research in Animal Breeding. The endowment consists of £20,000, half of which was contributed by Lord Woolavington, and half by the International Education Board of New York.

At a meeting of the Curators of Patronage of the University on July 21, Prof. J. H. Ashworth, professor of zoology in the University, was unanimously appointed professor of natural history, as from Oct. 1, in succession to Prof. J. Cossar Ewart.

LONDON.—Dr. D. L. Mackinnon has been appointed as from Aug. 1 to the University chair of zoology tenable at King's College. Since 1919 Miss Mackinnon has been senior lecturer in zoology at King's College, and in 1921 the title of reader in zoology was conferred upon her. In addition to numerous papers in scientific journals, she has translated into English von Uexküll's "Theoretische Biologie" (Kegan Paul's International Library of Psychology, Philosophy, and Scientific Method, 1926), and has edited the translation from the Russian of Berg's "Nomogenesis" (Constable, 1926).

Prof. E. H. Kettle has been appointed as from October to the University chair of pathology tenable at St. Bartholomew's Hospital Medical College. Since

1924 Prof. Kettle has been professor of pathology and bacteriology in the Welsh National School of Medicine, Cardiff. His published work includes the following: "The Pathology of Tumors" (Lewis and Co., 1st ed., 1916, 2nd ed., 1925) and numerous articles in the *Journal of Pathology and Bacteriology*, the *Lancet*, and other medical journals.

Dr. Bronislaw Malinowski has been appointed as from August to the University chair of anthropology tenable at the London School of Economics. He has been University reader in social anthropology since 1923. He is the author of "Crime and Custom in Savage Society" (Kegan Paul, 1926); "Myth in Primitive Psychology" (Kegan Paul, 1926); "The Father in Primitive Psychology" (Kegan Paul, 1927); "Sex and Repression in Savage Society" (Kegan Paul, 1927); and of articles in "The Encyclopædia Britannica" (1926), "The Australia Encyclopædia" (1926), *NATURE*, *Psyche*, *Zeitschrift für Völkerpsychologie*, and other journals.

Dr. W. H. Linnell has been appointed as from Aug. 1 to the University readership in pharmaceutical chemistry tenable at the School of Pharmacy. From 1924 until 1926 Dr. Linnell was an organic research chemist at H.M. Fuel Research Station, and since October 1926 he has been lecturer in pharmaceutical chemistry and Director of the Chemical Research Laboratories in the School of Pharmacy.

OXFORD.—The following elections to University scholarships of the Theodore Williams foundation have been made: F. M. Trefusis, Exeter College, and A. R. C. Oldfield, University College, in human anatomy; Joyce Vignot, Somerville College and J. G. Reid, University College, in pathology; A. L. Jacobs, Jesus College, and A. W. D. Leishman, University College, in physiology. Mr. Robert Pakenham-Walsh, of University College, has been awarded the Welsh prize for excellence in anatomical drawing.

Dr. Harlow Shapley of Harvard College Observatory, Cambridge, Mass., has been appointed to deliver the Halley Lecture in 1928.

Two useful educational bibliographies have reached us from the United States Bureau of Education: a classified list of publications of the Bureau of special interest to secondary school teachers, and a record (*Bulletin*, No. 2, 1927) of current educational publications. The latter is a fifty-eight-page pamphlet comprising some six hundred titles classified and annotated.

THE New Education Fellowship is holding its fourth international conference at Locarno on Aug. 3-15, the general theme being "The True Meaning of Freedom in Education." In the list of speakers appear the names of the following, among others: Prof. Pierre Bovet, Director of the International Bureau of Education, Geneva; Mrs. Beatrice Ensor and Dr. Elisabeth Rotten, Directors of the New Education Fellowship; Dr. Alfred Adler, founder of the School of Individual Psychology, Vienna; Prof. Carson Ryan, of Swarthmore College, U.S.A., President of the National Vocational Guidance Association; Dr. Carleton Washburne, Superintendent of Schools, Winnetka, U.S.A.; Sir Jagadis C. Bose; Prof. O. Decroly of Brussels, originator of the Decroly method; Dr. Adolphe Ferrière, founder of the International Bureau of New Schools; M. P. Otlet; and Mme. Guéritte, of La Nouvelle Education. Bedales, Frensham Heights, and other pioneer schools are to be represented. There will be an exhibition of children's work and auto-didactic material. The headquarters of the Fellowship are at 11 Tavistock Square, London, W.C.1.

### Calendar of Discovery and Invention.

July 31, 1846.—In 1840, Lord Armstrong, then a lawyer thirty years of age, in a letter to the *Mechanics' Magazine*, directed attention to the advantage of water under pressure as a mechanical agent and a reservoir of power. Six years later he erected a crane on the quay at Newcastle which was worked by water power, and on July 31, 1846, took out a patent for an "apparatus for lifting, lowering and hauling." This was the beginning of the present extended use of hydraulic pressure for cranes, capstans, lifts, gun machinery, and machine tools. To develop his machinery, Armstrong in 1847 joined the small engineering firm of Donkin, Cruddas, Potter, and Lambert, of Elswick, and from this sprang the world-famous engineering works on the Tyne.

August 1, 1774.—Oxygen was discovered independently by Priestley and by Scheele, Priestley's famous experiment with the red oxide of mercury being made on Aug. 1, 1774. The new gas, thought by Priestley to be common air deprived of its 'phlogiston,' was called by him 'dephlogisticated air,' and it was Lavoisier who named it oxygen.

August 3, 1677.—One of the earliest scientific academies was that founded in Germany in 1652 and on Aug. 3, 1677, given the title "Sacri Romani Imperii Academia Naturae Curiosorum" by the Emperor Leopold I. The inauguration of this society was stimulated by the writings of Bacon, and it is known to-day as the "Leopoldinisch-Carolinische Deutsche Akademie der Naturforscher" of Halle.

August 4, 1877.—Many inventors have contributed to the improvement of internal combustion engines, but the greatest single improvement was that made just fifty years ago by the German engineer, Nicolas Otto (1832-1891), who on Aug. 4, 1877, took out the German patent for the well-known four-stroke cycle of operations. Lenoir and Hugon had produced the first practical gas engines, and these had been superseded by the engine invented by Otto and Langen in 1866. All these, however, were far inferior to the new type of Otto, who introduced the plan of compressing the explosive mixture in the working cylinder as proposed by Barnett in 1838.

August 4, 1894.—The exploration of the upper atmosphere by means of self-registering instruments lifted by kites was initiated by Abbott Lawrence Rotch (1861-1912), whose first experiments were made on Aug. 4, 1894. Rotch was the founder of the meteorological observatory at Blue Hill, Hyde Park, Mass., 635 feet above sea-level.

August 5, 1816.—Among the pioneers of the electric telegraph was Sir Francis Ronalds who, before the invention of the voltaic battery and the discoveries of Oersted, in 1816 laid down some miles of wire in his garden at 26 Upper Mall, Hammersmith, and transmitted charges by means of friction machines. His offer of a demonstration led to the Admiralty official reply, dated August 5, 1816, "That telegraphs of any kind are now totally unnecessary, and that no other than the one in use [the semaphore] will be adopted."

August 6, 1812.—Regular steamboat traffic in Europe began with Henry Bell's *Comet*, launched on July 24, 1812, which began her trips on Aug. 6. The *Glasgow Herald* of Aug. 10 contained the following paragraph: "We understand that a beautiful and commodious boat has been just finished, constructed to go by wind, power and steam, for carrying passengers on the Clyde between Glasgow, Port Glasgow, Greenock, and Gourock. On Thursday it arrived at the Broomielaw in three hours and a half from Port Glasgow." E. C. S.