

founded at last on sufficiently large samples. The group of each year, estimated on its year of birth, is charted, and the fish are measured, thus giving a complete record of the changes in size of the herrings from year to year. There was a rich brood born in 1915, and this richness continued every third year, until there were lapses in 1930 and 1933. A good crop of certain small crustaceans (especially *Calanus*) as food, concentrated in a small area, was found to produce a good fishery, the drift net method of fishing requiring a concentration of fish. A plankton indicator, showing the presence of these copepods, in the hands of one experienced master mariner, became a catch indicator, the presence of *Calanus* meaning a trebling of the catch. On the other hand, the presence of a flagellate (*Phaeocystis*) or of certain diatoms (*Rhizosolenia*, *Biddulphia*, etc.) drove away the herrings from the ground, and even altered their line of migration. Thus in 1933 the East Coast drifters had to make long voyages to the north-east to find the herrings, and the cause proved to be an enormous belt of phytoplankton across the southern bight of the North Sea, *Rhizosolenia* to the west and *Biddulphia* to the east, both equally distributed from the surface to the bottom of these shallow waters.

Other interesting observations relate to the correlation of the heaviest commercial catches with the periods of full moon, thus obviously not tidal phenomena. Between the peaks of the curves are very definite troughs, the difference in the average landings varying from 60 to about 15 crans (see NATURE, 135, 157, Jan. 12, 1935).

There is much more, the indication being that the North Sea will be farmed internationally, if human population increases. For this the British team is obviously supplying data, while contemporaneously producing scientific results of a class of which the lone research student can never dream. At the same time the lack of a market for the herring, our most valuable and cheapest food fish, discourages further research. Here is another team work job, this time for the Food Production Division of the Department of Scientific and Industrial Research, so that the herring may be proffered to the public in a good variety of palatable forms throughout the whole of the calendar year.

### University and Educational Intelligence

CAMBRIDGE.—The Managers of the Balfour Fund have made a grant of £50 to G. J. Kerrich, of Christ's College, for researches on the palæarctic fauna of the north of Finland.

The General Board recommends that an assistant directorship of research in physics be established from October 1 in view of the reorganisation of the teaching staff in the Department of Physics at the end of the present academical year.

Graces will be submitted to the Senate recommending the conferment of the degree of M.A. (*honoris causa*) on Mr. E. A. B. Barnard and Dr. W. M. Palmer. Mr. Barnard is secretary of the Cambridge Antiquarian Society. He has rendered great service to the Corporation of Cambridge by calendaring in collaboration with Dr. Palmer its collection of medieval manuscripts.

Dr. A. C. Haddon's eightieth birthday was marked by the presentation by his friends of a cabinet containing his collection of ethnographical photographs. Dr. Haddon is handing over the collection

to the Board of Archaeology and Ethnology to make it available for instruction and research.

GLASGOW.—Prof. Thomas Alty, research professor of physics in the University of Saskatchewan, has been appointed Cargill professor of applied physics. The Cargill chair is the junior chair in the Department of Physics, or Natural Philosophy as it is still termed in the Scottish Universities, and is concerned with the instruction of students proceeding to the various degrees involving applied science such as engineering, applied chemistry, pharmacy, medicine and agriculture. Prof. Alty received his early training in the University of Liverpool, where he had a distinguished career, and thereafter worked at Cambridge under Sir J. J. Thomson. While at the Cavendish Laboratory he carried through the admirable research on the cataphoresis of gas bubbles in water which gained him his degree of Ph.D. His subsequent published work deals with such subjects as the surface structure of liquids, the interchange of molecules and energy between a liquid and its vapour, the electric properties of surfaces and the theory of surface diffusion; while as regards industrial applications of physics he has interested himself especially in the application of electrical methods to the location of underground accumulations of oil, water, metals, rocksalt, etc. Prof. Alty takes with him to Glasgow a high reputation as a teacher both in the laboratory and the lecture room.

The University Court has now, after long but unavoidable delay, been able to bring into being the Tennent chair of ophthalmology to which it was decided in 1916 to devote a bequest of £25,000 by the late Dr. Gavin P. Tennent. As first holder of the chair, Dr. A. J. Ballantyne has been appointed, after a distinguished tenure of the University lectureship on ophthalmology since 1920.

LIVERPOOL.—Associate Professor James Rice has been appointed to a readership in theoretical physics. Mr. Rice was one of the first men in England to grasp the significance of Einstein's principle of relativity and theory of gravitation, and his academic work on this subject was one of the earliest expositions in English. He has interested himself in the theoretical aspects of atomic physics and the quantum hypothesis, while his book "Statistical Mechanics" is a standard work dealing with the fundamental theoretical methods by means of which the complex phenomena of the atomic world are rendered amenable to mathematical treatment.

Dr. Norman Feather has been appointed to a lectureship and Leverhulme Foundation fellowship in the Department of Physics as from October next. Dr. Feather was a scholar of Trinity College, Cambridge and is at present attached to the Cavendish Laboratory, Cambridge. He is already well-known for investigations on neutrons and related topics in atomic physics.

At a Congregation on May 24 the honorary degree of LL.D. was conferred upon the following, among others: Prof. Arthur Harden, formerly director of biochemistry at the Lister Institute, London; Mr. C. Thurstan Holland, formerly lecturer in radiology, University of Liverpool, president of the first International Congress of Radiology; Dr. N. V. Sidgwick, president of the Chemical Society; and Prof. Alan J. B. Wace, professor of classical archaeology, University of Cambridge.

LONDON.—Prof. J. A. S. Ritson, professor of mining in the University of Leeds, has been appointed to the University chair of mining tenable at the Imperial College (Royal School of Mines) from January 1, 1936.

OXFORD.—Prof. Julian Huxley has been granted the degree of D.Sc.

Mr. A. J. Ayer has been elected to a research studentship (that is, fellowship) at Christ Church. In addition to problems in formal logic, Mr. Ayer is working on the philosophy of science.

## Science News a Century Ago

### An Inventor of the Screw Propeller

On June 1, 1835, Thomas Charles Auguste Dallery, one of the inventors of the screw propeller, died at Jouy-en-Josas, near Versailles. Born at Amiens on September 4, 1754, he showed a great aptitude for mechanics, and succeeded to his father's business of an organ builder. Just before the French Revolution, he was commissioned to build an organ worth 400,000 francs for the cathedral of his native city, but the order was cancelled. He afterwards turned his attention to steam navigation, and in 1803 constructed at his own expense a steam-boat driven by a screw or *escargot* as he called it. The vessel was launched on the Seine at Bercy; but, like the attempts of so many other pioneers, Dallery's efforts proved a failure. His patent included several innovations besides the screw, among them being a boiler with vertical tubes. Nine years after his death a commission of the Paris Academy of Sciences, composed of Arago, Dupin, Morin and Poncelet, examined the claims of the Dallery family in regard to his inventions, and reported favourably on them.

### South American Deserts

In his "Journal" of his journey northward from Coquimbo to Copiapó, where Capt. FitzRoy had offered to pick him up, Darwin records on June 3, 1835: "Yerba Buena to Carizal. During the first part of the day we crossed a mountainous rocky desert, and afterwards a long deep sandy plain, strewn with broken sea-shells. There was very little water, and that little saline; the whole country, from the coast to the Cordillera, is an uninhabited desert. I saw traces only of one living animal in abundance, namely, the shells of a *Bulimus*, which were collected together in extraordinary numbers on the driest spots. In the spring one humble little plant sends out a few leaves, and on these the snails feed. As they are seen only very early in the morning, when the ground is slightly damp with dew, the Guasos believe that they are bred from it. I have observed in other places that extremely dry and sterile districts, where the soil is calcareous, are extraordinarily favourable to land shells".

### Earthquakes in Sussex

At a meeting of the Royal Society on June 4, 1835, the secretary, Dr. P. M. Roget, read a "Report of a Committee for collecting Information respecting the Occurrence of, and the more remarkable Phenomena connected with, the Earthquakes lately felt in the Neighbourhood of Chichester", which had been sent to him by J. P. Gruggen. "This paper," said the *Philosophical Magazine*, "contains an authentic report of several shocks of earthquake

which, during the last two years, have been felt at Chichester and the surrounding country; drawn up from accounts given by various correspondents, in answer to printed queries extensively circulated. The first shock occurred on the 18th of September and the second on the 13th of November 1833. Another and more severe shock was felt on the 23rd of January 1834, and in the latter end of the same year two slighter shocks were experienced, namely, one on the 27th of August, and the next on the 21st of September; the last, which was less than any of the former, took place on the 12th of January 1835."

### The Process of Malting

Among the original contributions to the *Records of General Science* of June 1835 was an article by Prof. Thomas Thomson and Dr. Andrew Steel on the "Chemical Analysis of Gadolinite together with an Examination of some of the Salts of Yttria and Cerium", and another "On Malt", by the editor, Dr. R. D. Thomson. In the course of his article, Dr. Thomson said: "The process of malting consists essentially 1st in producing a change in the constituents of grain by inducing germination; and 2nd in stopping the vegetation when it has been carried to a certain extent by exposure to heat". The subject was one which was exciting some interest at the time and Dr. Thomson added: "A knowledge of the peculiarities of this interesting process is important in a double point of view, because it affords a remarkably beautiful specimen of the chemistry of nature, and because its product forms a staple commodity of British manufacture, no less than forty millions of bushels of malt being annually consumed in the United Kingdom, which at 60s. per quarter, exceeds in value the large sum of £24,000,000 and contributes to the Government at 2s. 7d. per bushel more than £5,000,000 per annum".

## Societies and Academies

### DUBLIN

Royal Irish Academy, May 13. WILLIAM J. MCCALLEN: The metamorphic rocks of Inishowen, Co. Donegal. The nature and distribution of the following subdivisions of the Dalradian rocks of Ireland were described; Malin Head quartzite (oldest), Glengad schists, Linsfort black schists, Stragill calcareous schists, Crana quartzite, Culdaff limestone, Inch Island limestone group, Fahan slates and grits, Inishowen green schists, grits and phyllites. The suggested correlations with the Scottish Dalradians indicate that the first four of these divisions belong to the Islay sequence and that the overlying groups belong to the Lough Awe succession.

### PARIS

Academy of Sciences, April 15 (*C.R.*, 200, 1373-1444). MARCEL DELÉPINE: The trichlorides of III. iridium-aquo-dipyridine,  $\text{Ir}(\text{H}_2\text{O})\text{Py}_2\text{Cl}_3$ . LAUGE KOCH was elected *Correspondant* for the Section of Geography and Navigation. MAX SERRUYS: The extension of the theory of nuclear inflammation to the case of injection motors. VINCENT NECHVILLE: The dissymmetry of stellar movements and a method for the determination of the apex of the sun and of the vertex of the ellipsoid of velocities. SANTIAGO ANTUNEZ DE MAYOLO: The electromagnetic field and quanta. JEAN VILLEY: The classification of energy losses according to the types of irreversibility.