of approximately twenty-five thousand. The report recently presented by the acting principal on the work of 1936–37 gives the number of internal students as 12,734, and of these nine tenths were reading for degrees and diplomas, namely, in science (3,727), medicine (3,309), arts (2,957), engineering (1,351) and economics (1,001). Of the external students, some 11,000 in all, 6,779 entered for examinations, and of these nearly three fifths were receiving instruction in institutions in London (1,200) or elsewhere; two thirds of the remainder were prepared by correspondence courses and the rest wholly by private study. An indication of the world-wide extent of the university's contacts is to be found in the fact that the lecturers in the forty-nine courses of special lectures arranged by the Senate were drawn not only from the British Isles but also from Austria, Belgium, China, France, Germany, Holland, Hungary, Italy, South Africa, Sweden and the United States. The report chronicles a significant event in the field of physical culture: for the first time in its history, the University took part in an international athletic match, namely, between teams from the Universities and from boys' schools of Paris and London.

A Carpenter Medal with a money prize of the value of £20 in all will be awarded this year for work of exceptional distinction on statistical, genetic, comparative or experimental psychology including the functions of the cerebro-spinal system, for which a doctor's degree (other than the Ph.D.) has been awarded during the period of three years ending May 31, 1937. Applications should be made not later than June 10 to the Academic Registrar, University of London, from whom further information may be obtained.

OXFORD.—At Encænia on June 23, honorary degrees will be conferred upon the following, among others:—D.C.L.: The Right Hon. W. G. A. Ormsby-Gore, Hon. R. H. Brand and Sir Herbert Baker. D.Sc.: Prof. Walter Nernst. D.Litt.: Dr. G. P. Gooch.

Prof. W. L. Bragg will give the Robert Boyle Memorial Lecture in the Museum at 8.45 p.m. on June 11. His subject will be, "The Crystallization Patterns of Alloys".

Societies and Academies

Edinburgh

Royal Society of Edinburgh, May 3.

H. H. READ: Metamorphic correlation in the polymetamorphic rocks of the Valla Field Block, Unst, Shetland Islands. Three metamorphisms under widely different physical conditions have affected the rocks of the western part of Unst. The mineral assemblages produced during each metamorphism in rocks of different compositions—pelitic, calcareous, siliceous, migmatitic, granitic and hornblendic—are correlated both isophysically and isochemically. It is concluded that in polymetamorphism the stability of an assemblage depends upon the bulk-composition of the rock, and that minerals cannot be considered apart from the rocks in which they occur.

J. SMALL: Quantitative evolution (2). Compositæ *Dp*-ages in relation to time. Using a geological time scale similar to that of Barrell, but with a longer Pliocene like that indicated by Urry (NATURE, Feb. 20, p. 334), all the five average tribal *Dp*-ages of Compositæ are found to lie on or near a curve with the formula—$Dp.k+n.d.=t_k.2^n$; for Compositæ $k=0\cdot6$; $d=0\cdot9$; $t_k=1\cdot09375$ million years. From this bat curve, it is calculated that the free doubling period is approximately two million years. (3). *Dp*-ages in Gramineæ. The bat curve for Compositæ is applied to the grasses. The evolutionary sequences of *Dp*-ages in terms of time are found to be in almost complete agreement with the views given by Bews in his "World's Grasses".

W. GRAHAM-SMITH and T. S. WESTOLL: A new long-headed Dipnoan fish from the Upper Devonian of Scaumenac Bay, P.Q., Canada. During the summer of 1934, three specimens of a very distinct new Dipnoan were found at Scaumenac Bay, Quebec. These are described under the name *Fleurantia denticulata*, gen. et sp. nov. The species differs from other Dipnoans in having an extreme elongation of the snout. The dentition consists of a series of large conical teeth and a granulation of smaller teeth. The snout-elongation is shown to be probably correlated with the development of a sectorial dentition and with corresponding feeding-habits.

W. J. HAMILTON: The early stages in the development of the ferret: the formation of the mesoblast and notochord. The mesoblastic cells arise from the ectoderm at the site of the future primitive streak. The cells spread anteriorly and laterally as two sheets which meet at the anterior part of the embryonic disk. Henson's Knot does not appear until the primitive streak is well formed and it is separated by a narrow neck from the anterior extremity of the streak. From the anterior part of Henson's Knot the archenteric process with the archenteric canal develops. The cells of the archenteric process become intercalated in the yolk-sac endoderm and form the archenteric plate which terminates anteriorly in the prochordal plate.

W. O. KERMACK and A. G. M'KENDRICK: Some distributions associated with a randomly arranged set of numbers. In a previous paper, certain frequency distributions associated with the occurrence of sequences or 'runs' of continuously increasing or decreasing numbers in a long series of randomly arranged unequal numbers, have been made use of as the basis of a test of randomness. The general mathematical theory of the distributions of such runs is now discussed for (*a*) an infinite linearly arranged set, (*b*) a finite linearly arranged set, and (c) a finite cyclicly arranged set of numbers. The distributions are in general obtained as solutions of difference equations, and expressions are given for the generating functions of these frequency distributions.

K. B. LAL: Immature stages of some Scottish and other Psyllidæ. In the course of previous researches (*Trans. Roy. Entom. Soc.*, 83; 1934) the author realized the difficulty of associating the immature stages of the thirteen species discussed with their particular species. Full descriptions of these stages are therefore given for each species, and the various characters important in distinguishing the species are clearly and carefully illustrated.

D. S. RAITT: The benthic Amphipoda of the north-western North Sea and adjacent waters. Some 3,000 amphipods secured over the Scottish area by Peterson grab and from haddock stomachs were identified and their distributions studied. When division of the North Sea by the 40 and 100 metre depth contours was adopted, the rates of occurrence of the order in the three zones formed was 3 : 2 : 1.

The species, and their abundances, also varied from zone to zone. The genus *Ampelisca* was outstandingly abundant, however, forming 55 per cent of the grab material, with the single species *A. brevicornis* in complete domination, forming 25 per cent of the total grab captures.

Capetown

Royal Society of South Africa, March 17.

F. G. CAWSTON: Some characteristics of *Bulinus* and *Physopsis*. Considerable variation is observed in several species of *Bulinus*, so that the various shells may resemble one another very closely. *Physopsis africana* Krauss is readily distinguished by its relatively constant columella. It does not adhere so firmly to floating vegetation as allied shells; but, unlike the operculated shells, is a favourite food for ducks.

W. E. ISAAC: Studies of South African seaweed vegetation. (1) West coast from Lambert's Bay to Cape Point.

J. C. SMUTS: (1) The climate and stone implements of Rooikop. (2) Past climates and pre-Stellenbosch stone implements of Rietvlei (Pretoria), and Benoni.

F. E. FRITSCH and F. RICH: (12) Algæ from the Belfast Pan, Transvaal. Belfast Pan is situated in the Transvaal Highveld, 120 miles due east of Pretoria, in a depression on top of a kopje. Samples of the algal vegetation were collected by Dr. E. M. Doidge in 1909, 1913, and 1924. It is remarkably rich in desmids, at least 143 species being present. The wealth of new varieties and forms may perhaps be correlated with the isolation of the Pan. Conjugation was seen in forty species.

M. R. DRENNAN: The Florisbad skull and brain cast.

B. V. SKVORTZOV: Contribution to our knowledge of the fossil diatomaceous flora of South Africa. (1) Fossil diatoms from distomaceous limestones from pan near Franzenkop and Prieska, Cape Province.

Cracow

Polish Academy of Science and Letters, March 8.

D. DOBORZYNSKI: Measurements of the dielectric constant by means of ponderomotive forces (1), (2) and (3). Discussion of the limitations of the method. Application to quartz crystals.

TH. BANACHIEWICZ: The calculation of determinants.

M. KAMIENSKI: The appearance of the Wolf I comet in 1933–34.

L. MARCHLEWSKI and W. BEDNARCZYK: The absorption of ultra-violet rays by certain organic substances (43). Results for lævulose, glucose and some sugars.

L. MARCHLEWSKI and MLLE. R. GRUNBAUM: Absorption of ultra-violet rays by certain organic substances. (44) Results for substances of importance in physiology. Also the spectra of the three isomeric nitranilines. (45) Phenanthrene derivatives.

L. MARCHLEWSKI and W. BEDNARCZYK: (46) Data for 8-hydroxyquinoline, for unsaturated acyclic alcohols, kiketopiperazine, benzophenone and *p*-toluyl-2-benzoic acid.

L. MARCHLEWSKI and J. DABROWSKI: Studies on cellulose from flax. Comparative studies of cellulose from flax and from cotton.

B. SKARZYNSKI: Spectrographic studies of the processes of enzyme hydrolysis of saccharose and of maltose.

A. KOCWA: New syntheses of compounds of the pyrazoquinoline type.

L. CHROBAK: Analyses of the minerals formed on silver coins of the fifteenth century.

J. DEMBOWSKI: Contribution to the problem of instinct.

W. SWIENTY: The earliest stages of development of the blood vessels in the wing of the fowl.

Geneva

Society of Physics and Natural History, February 18.

K. H. MEYER and J. F. SIEVERS: The appearance of rubber-like elasticity in selenium. Grey amorphous selenium, heated to between 70°–79° C., acquires an elasticity recalling that of india-rubber, due to the formation of long directed molecular chains.

J. WEIGLE and H. SAÏNI: The transformation of heavy ammonium chloride. The authors have studied heavy ammonium chloride under X-rays, and have found a sudden change of dimensions of the lattice in the neighbourhood of −22°·5 C. instead of at −30° C. as with ordinary ammonium chloride.

P. DIVE: The geometry of the rotating disk in the Einstein system. The author maintains that the natural geometry of rigid bodies involved in the rotation of the disk is Euclidian.

G. TIERCY: A differential equation met with in a problem of aerodynamics. This concerns the study of the wind. It is found that the equation in question can be used with difficulty.

P. ROSSIER: (1) The relation between the brightness, colour index and effective wave-length of a star. The brightness is proportional to the colour index. The author generalizes this property in the case of receivers with non-concentrated sensibility. (2) The mean colour index of stars in the neighbourhood of bright stars. This index varies linearly as a function of the guide star. (3) An orthochromatic plate, the sensibility maxima of which have very unequal acuteness. For the Tizian plates, figures for acuteness are found of 41·6 and 940, the ratio of which is the highest known up to the present.

Sydney

Royal Society of New South Wales, April 1.

E. BOOTH: Some tests of thermal constants of glass bricks. Glass bricks are now regularly used for structural purposes; the type provided to the author (by the Australian Window Glass Pty. Ltd.) were hollow and of external dimensions 16·5 cm. by 16·5 cm. face and 10 cm. depth, the thickness of the glass walls being about 0·8 cm. The faces were patterned both inside and outside (crossed cylindrical lenses) on both fronts so as to prevent direct vision through the blocks, and were constructed in two moulded parts, sealed together by an aluminium solder at 1,400° F. so that the hollow was a partial vacuum, being closed at atmospheric pressure at a temperature of 1,100° F. Tests on thermal transmission (apart from radiation) were made between one face at room temperature and one at 0° C., suitable and satisfactory insulating precautions being adopted; the method is described. The result for a block is 1·8 gm. cal./min./cent./deg. per block, being 0·39 gm. cal./hour/sq. cm./cent./deg. face difference.