

and its relation to temperature. He discusses the relation between Langmuir's view that "atoms of tungsten, molybdenum, and platinum striking a clean dry surface in high vacuum are condensed as solids at the first collision" and "have a certain average 'life' on the surface", and the statement of Maxwell that "the collision between two hard spherical balls is not an accurate representation of . . . the encounter of two molecules. A better representation will be obtained by supposing the molecules to act on one another in a more gradual manner, so that the action between them goes on for a finite time." Mr. Deeley concludes that "this finite time would appear to be Langmuir's 'life' of chemical union". Mr. Deeley also describes certain experiments on stress-strain relations in a bar of pitch described by him in the *Proceedings of the Royal Society* in 1908, and points out that, so long ago as 1888, in a paper on the viscosity of ice, published in the *Philosophical Magazine*, he suggested that gravity "may give rise to a slow change of form in an elastic substance, in the interior of which liquefaction and resolidification are constantly going on".

Vanishing Life of Australia.

THE legal position regarding the preservation of the Australian fauna is put briefly in a letter received from an Australian correspondent in comment on our leading article of Sept. 12, which aroused interest in Australian newspapers. "The enactment of laws for the protection of the Australian fauna", he says, "does not come within the powers of the Commonwealth Government, except in so far as the export of skins, etc., is concerned; but the different States have all legislated to this end in a greater or less degree. Unfortunately, the laws (or their enforcement) are not strong enough to stop the traffic which goes on, particularly in skins of our fur-bearing animals. From the number of prosecutions, it is obvious that many evasions are taking place; and the penalties imposed upon those convicted, though often heavy, apparently do not act as effective deterrents." Our correspondent includes a cutting from the Melbourne *Argus* of Sept. 18, recording the conviction of a skin-buyer of unlawfully consigning 3821 skins of 'opossums' (really phalangers, to which an American Indian word has become mistakenly applied). The fine was £955 5s., and the dealer admitted five previous convictions, including fines of £234 10s. in 1927 and, with two other men, of £616 in 1929. Yet the trade apparently is worth the risk, and so long as that is so, these fur-bearing creatures stand a poor chance of retaining their foothold.

Interference during Pairing in Birds.

IN giving advice on the breeding of turkeys in the *Poultry World* for Jan. 1 (p. 292), Mr. Edmund Burr warns breeders against allowing a cock fowl (especially a game-cock) to run with breeding turkeys, as such a bird will often interfere with them when pairing. That cocks interfere with each other's pairing is well known, but it must be exceptionally mischievous birds that extend this interference to other kinds of poultry, while it is remarkable that a bird so powerful

and fierce as the turkey-cock permits it, especially as, unlike the fowl, he has his beak free during the act, not using it to grip the hen. M. G. Rogeron, however, in his very instructive book "Les Canards", records a similar case in which a garganey drake, infatuated with female mandarin ducks, interfered with pairing with impunity, although the mandarin drake is larger and very high-spirited, being well able to hold its own with mallard. Interference with pairing by their fellows may be the reason why the act is observable with comparatively few birds; it is not practised by the rook, but is a perfect mania with the house-crow of India—so much so that in eight years' bird-watching there, the writer of this note never saw the act successfully performed by that species.

A Prismatic Derivator.

FOR many purposes, both in physics and engineering, the derivative of a graphical record has to be taken with all the accuracy that the record allows. For this purpose, either a numerical method of differencing is usually resorted to, or a mechanical process of laying a tangent. Perhaps the best known of this latter type is that which depends on the principle that a curve and its reflection in a plane mirror pass continuously into one another when the reflecting surface lies along the normal. A prismatic derivator has been designed by v. Harbou and has been produced by Askania-Werke A.G., Bambergwerk, Berlin-Friedenan, which avoids the difficulty usually experienced of recognising when a curve and its reflection are continuous. In this new instrument a right-angled prism is placed with its hypotenuse on the paper and with the intersection of the opposite edge approximately along the normal to the curve. The portions of the curve on each side of the point at which the tangent is required, as seen after refraction through the prism faces, will not join up at the prism edge unless that edge is accurately along the normal. From the published description of the instrument, it appears that there is a number of other adjuncts that tend to increase the accuracy and effectiveness of the apparatus.

Photographic Research.

"ABRIDGED Scientific Publications" from the Kodak Research Laboratories, vol. 14 (1930), issued by the Eastman Kodak Co., Rochester, New York, contains, in précis form, a number of papers previously published in various journals. An introductory note states that the Eastman Kodak Co. does not restrict publication to a privately issued journal but desires that the results of its scientific research may be easily accessible to all interested in special branches of science. The papers cover a wide range of subjects, including physics (for example, a study in condensation pumps, and a polarising apparatus for determining extinction angles), physical chemistry (for example, the lattice energies of silver halides, the electrolytic oxidation of some photographic developers), organic chemistry (for example, the preparation of *s*-diphenylcarbazine, a colour reaction for naphthol yellow), and colloid chemistry and photographic

technique. The volume brings together a large amount of research work of high standard, the results of which will be of value in many fields. Even biology is represented in a description of the production of a motion picture showing the movements of the vocal cords in the larynx.

Announcements.

THE twelfth International Congress of Zoology will be held at Lisbon in the summer of 1935, under the presidency of Prof. Arthur R. Jorje, professor of zoology in the University of Lisbon.

THE Duddell Medal for the year 1931 has been awarded by the council of the Physical Society to Prof. C. T. R. Wilson, Jacksonian professor of natural philosophy in the University of Cambridge.

PROF. ARTHUR HOLMES, professor of geology in the University of Durham, sails from England on Feb. 20 to deliver a course of eight lectures on "Radioactivity and Geology" at the Lowell Institute of Boston, Mass. The lectures begin on March 4. Prof. Holmes will also give a lecture on "The Age of the Earth", before the Royal Canadian Institute at Toronto, on April 2.

IT is announced by Science Service, of Washington, D.C., that Dr. John J. Abel, professor of pharmacology in the Johns Hopkins Medical School, Baltimore, Md., was elected president of the American Association for the Advancement of Science meeting at New Orleans, in succession to Dr. Franz Boas, the distinguished anthropologist of Columbia University. Dr. Abel was the first to obtain in chemically pure state the secretion of the suprarenal glands, to which he gave the name epinephrine, also known as adrenalin. He was also successful in isolating the active principles of the pituitary gland and was the first to obtain insulin in crystalline form. The prize of 1000 dollars offered for a paper read at the annual meeting of the American Association has been awarded to Dr. C. C. Speidel, of the University of Virginia, for a paper on the development of nervous tissue.

THE Council of the Geological Society has this year made the following awards: Wollaston Medal to Prof. J. H. L. Vogt, of Trondhjem, Norway, in recognition of the value of his researches concerning the mineral structure of the earth, and especially his pioneer work in the application of physical chemistry to the origin of igneous rocks and ore-deposits; Murchison Medal, together with the sum of ten guineas from the Murchison Geological Fund, to Prof. William G. Fearnside, in recognition of the value of his researches in the Lower Palæozoic rocks of Wales and other geological investigations; a Lyell Medal, together with the sum of £30 from the Lyell Geological Fund, to Mr. Henry Dewey, in recognition of the value of his researches in the geology of the south-eastern parts of England, more especially the Quaternary deposits of the London Basin; another Lyell Medal, together with a like sum of £30 from the Lyell Geological Fund, to Dr. M. M. Ogilvie Gordon, in recognition of the value of her researches on the

structure of the Western Dolomites (Tirol); the balance of the proceeds of the Wollaston Donation Fund to Dr. Ernest Neaverson, in recognition of the value of his researches in the structure and geological history of the Cephalopoda; the balance of the proceeds of the Murchison Geological Fund to Dr. A. K. Wells, for his contributions to petrology, and more particularly for his researches on the Ordovician igneous rocks of parts of Wales and the plutonic rocks of the Channel Islands; the balance of the proceeds of the Lyell Geological Fund to Mr. R. W. Pockock, in recognition of the value of his geological work on the older rocks of the Welsh borderland.

MESSRS. Longmans and Co., Ltd., announce for early publication "The Causes of Evolution", Prof. J. B. S. Haldane; "Sulphur Bacteria", Prof. D. Ellis; "Vision and Colour Vision", Dr. R. A. Houston; and "Modern Practice in Mining", Sir Richard Redmayne—Vol. 5: "Colliery Machinery and its Application".

PROF. F. SODDY is publishing through John Murray a new work entitled "The Interpretation of the Atom", which will take the place of the same author's "Interpretation of Radium". It will be in two parts, dealing respectively with the radioactive elements and isotopes, and the general progress of atomic chemistry.

WE have received a copy of a prospectus describing a facsimile edition of the most ancient manuscripts and maps of Ptolemy. The work, which is to be published in an edition of 350 copies by E. J. Brill, of Leyden, and O. Harrassowitz, of Leipzig, is edited by Dr. J. Fischer, who discovered in the Codex Urbinae Græcus 82 of the Vatican Library the oldest Greek maps and text of Ptolemy. These twenty-seven maps, which hitherto have not been published, are now reproduced full size. The work will also contain, in addition to the Greek text in full, twenty-seven maps of the oldest Latin manuscript, a large number of maps from various Greek and Latin manuscripts of Ptolemy giving all the known types, a monograph on the life and works of Ptolemy by Dr. Fischer, and a critical introduction to the Greek text. There will be four volumes, including one of folio size.

MESSRS. W. JUNK, of Berlin, publishers and dealers in second-hand books and pamphlets, have issued a sumptuous catalogue of their publications and stock. Zoologists need not to be reminded of the invaluable monographs which Messrs. Junk have made available for reference—the series of "Catalogi Coleopterorum, Lepidopterorum, Fossilium", and the six-volume "Tabulæ Biologicae", which stands by itself as a work for consultation in its particular sphere. Almost exactly half the present book catalogue of 290 pages deals with the natural history publications of the firm, and the other half contains a list of second-hand books and pamphlets. The extent of the second-hand collection may be gauged by the fact that a single page is devoted to the briefest summary of a series of 75,000 papers on zoology, botany, palæontology, geology, and mineralogy, which is priced at £1275.