

"Exercises in Euclid," by William Weeks; "Utility of Quaternions in Physics," by Alexander McAulay.

In the Clarendon Press list are:—Locke's "Essay concerning Human Understanding," edited by Dr. A. C. Fraser; "Mathematical Papers of the late Prof. Henry J. S. Smith, with portrait and memoir, two volumes; "A Supplementary Volume to Prof. Clerk Maxwell's Treatise on Electricity and Magnetism," by Prof. J. J. Thomson, F.R.S.; "A Manual of Crystallography," by Prof. M. H. N. Story-Maskelyne, F.R.S.; "Analytical Geometry," by W. J. Johnston; "A Treatise on the Kinetic Theory of Gases," by Dr. H. W. Watson, new edition; "An Elementary Treatise on Pure Geometry," with numerous examples, by J. W. Russell; "Index Kewensis Nominum Omnium, Generum et Specierum, Plantarum Phanerogamarum, 1735-1885, Part I.; "Hospital Construction," by Sir Douglas Galton, F.R.S.

Messrs. Swan Sonnenschein and Co.'s list contains:— "Philosophy and Political Economy in their Historical Relations," by Dr. James Bonar; "Appearance and Reality," by F. H. Bradley; "The Principles of Psychology," by G. F. Stout; "History of Philosophy," by Dr. Johann Eduard Erdmann, translated and edited by Prof. Williston S. Hough, third edition, revised, three volumes; "A Student's Text-Book on Botany," by Prof. Sidney H. Vines, F.R.S., copiously illustrated; "Text-book of Embryology: Invertebrates," by Drs. Korschelt and Heider, translated and edited by Dr. E. L. Mark and Dr. W. M. Woodworth, fully illustrated; "The Cell: its Anatomy and Physiology," by Dr. Oscar Hertwig, translated and edited by Dr. H. J. Campbell, fully illustrated; "Text-Book of Palæontology for Zoological Students," by Theodore T. Groom, fully illustrated; "Lectures on Human and Animal Psychology," by Prof. Wilhelm Wundt, translated and edited by James Edwin Creighton and Edward Bradford Titchener; "Hand-book of Systematic Botany," by Prof. E. Warming, translated and edited by M. C. Potter, fully illustrated; "An Elementary Treatise on Practical Botany," by Prof. E. Strasburger, translated and edited by Prof. W. Hillhouse, with 140 illustrations, third edition; "The Photographer's Pocket Book," by Dr. E. Vogel, translated by E. C. Conrad, with 63 illustrations; "How Nature Cures," by Dr. Emmet Densmore; "Beauty and Hygiene for Women and Girls," by a Specialist; "A Popular History of Medicine," by Edward Berdoe, M.R.C.S.; "Introduction to the Study of the Amphioxus," by Dr. B. Hatschek and James Tuckey, illustrated; "Practical Bacteriology," by Dr. Migula, translated and edited by Dr. H. J. Campbell, illustrated; "Geology," by Dr. Edward B. Aveling, illustrated with a Geological Map and numerous woodcuts; "Zoology," by B. Lindsay, illustrated; "Fishes," by the Rev. H. A. Macpherson; "Flowering Plants," by James Britten; "Grasses," by W. Hutchinson; "Mammalia," by the Rev. H. A. Macpherson.

Messrs. George Philip and Son will publish:—"Philip's Atlas Guide to the Continent of Europe," a series of 72 plates, with descriptive letter-press, by J. Bartholomew; "Philip's Systematic Atlas for Higher Schools and General Use," a series of physical and political maps, with diagrams and illustrations of astronomy and physical geography, by E. H. Ravenstein; "Philip's Anatomical Model of the Human Body," illustrating the construction of the Human Frame and the relative positions of its various organs by means of superimposed plates printed in colours; "The Celestium, or Patent Astronomical Calendar for recording and illustrating in miniature the daily and hourly positions of the heavenly bodies as they pass through the Sign of the Zodiac."

Messrs. Percival and Co. give notice of:—"The School Euclid," an edition of Euclid, Books III. to VI., with notes and exercises, by Daniel Brent; The Beginner's Text Books of Science: "Chemistry," by G. Stallard; "Geology," by C. L. Barnes; "Electricity and Magnetism," by L. Cumming; "Heat," by G. Stallard; "Light," by H. P. Highton; "Mechanics" (treated experimentally), by L. Cumming; "Physical Geography," by C. L. Barnes; "Practical Physics," an introductory handbook for the physical laboratory, in three parts, by Prof. W. F. Barrett; Part II. Heat, Sound, and Light. Part III. Electricity and Magnetism, Electrical Measurements; "Practical Lessons and Exercises in Heat for use in schools and Junior University classes, by A. D. Hall.

In Messrs. A. and C. Black's announcements we notice:—"Illustrated Text-Book of Invertebrate Zoology," by A. E. Shipley; "History of Astronomy during the

Nineteenth Century," by Agnes M. Clerke, third edition, revised and enlarged; "Algebra, an Elementary Text-Book for the Higher Classes of Secondary Schools and Colleges," by Prof. George Chrystal, Part I., third edition.

Messrs. Crosby Lockwood and Son have in hand:—A new and enlarged edition (the third) of Prof. R. Wallace's "Farm Live Stock of Great Britain," containing additional phototype engravings of notable specimens of live stock; and a new volume by Prof. Sheldon on "British Dairying."

Mr. Walter Scott will issue in the "Contemporary Science Series":—"Modern Meteorology," by Dr. Frank Waldo, with 112 illustrations.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Two Radcliffe Travelling Fellowships, each of the value of £200 per annum, and tenable for three years, have been awarded this week. One, which has been gained by Mr. E. A. Minchin, of Keble College, was thrown open last year to candidates in all branches of science, and the usual declaration that the Fellow intends to graduate in medicine and to travel abroad with a view to his improvement in that study has been dispensed with. Mr. Minchin was placed in the first class in the Honour School of Natural Science (Morphology) in 1890. The other Fellow, Mr. W. Ramsden, of Keble College, is subject to the usual conditions attached to these Fellowships. Mr. Ramsden obtained a first class in Natural Science (Physiology) in 1892.

The new laboratories for the department of human anatomy are rapidly approaching completion, and will, when finished, add very much to the convenience and advantages of medical students. The buildings have been designed after the plans of Mr. Arthur Thompson, and include a large dissecting room and several additional laboratories and private rooms, a lecture theatre, and a large basement.

CAMBRIDGE.—The Council of the Senate report that the Royal Geographical Society have renewed their generous offer to provide £150 a year as part of the stipend of a geographical lecturer for the ensuing five years, and to award biennially exhibitions or prizes for the encouragement of geographical research in the University. The Council recommend that the proposals of the society be accepted, and that a lecturer be appointed, under the supervision of a joint committee of management, before the end of the Easter Term, 1893.

The Sedgwick Memorial Syndicate report that they have made certain alterations in the plans for the proposed Geological Museum in Downing Street, with a view to meeting objections that were raised and to reducing somewhat the cost of the building. The Syndicate ask to be authorised to obtain tenders for the immediate construction of the museum.

SCIENTIFIC SERIALS.

American Meteorological Journal, February.—Hot winds in Texas, May 29 and 30, 1892, by I. M. Cline. Hot winds occur to some extent every year, but rarely with sufficient intensity to injure vegetation. It was estimated that in the present case 10,000 acres of cotton were destroyed, and corn suffered severely. The temperatures reported ranged generally from 90° to 100°, and in some parts from 105° to 109°. These winds appear to have resulted from the same causes which produce the Föhn in Switzerland, the descent of dry air which has deposited its vapour during its ascent.—The electrification of the lower air during auroral displays, by A. McAdie. The author gives an account of some experiments made at Blue Hill observatory, for obtaining, by means of a kite flown during thunderstorms, a better record of the potential of the air than could be given by a collector near the ground, by which plan some remarkable results were obtained, and he suggests similar experiments for showing the electrification of the lower air during displays of aurora. He also proposes a new classification of the various auroral phenomena, distinguishing between the highly coloured displays, and those of less intensity, which probably occur in the lower atmosphere.—Practical koinology, by Prof. Cleveland Abbe. He applies this term to the study of atmospheric dust and floating germs, and shows how their injurious effects on

certain industries may be obviated.—The sling psychrometer, by Prof. H. A. Hazen, and the aspiration *versus* the sling psychrometer, by A. L. Rotch. Both papers deal with the comparative merits of the two instruments for balloon observations.

Wiedemann's Annalen der Physik und Chemie, No. 2.—Among the papers in this number are the following:—A modified astatic galvanometer, by H. E. J. G. du Bois and H. Rubens. To minimise the effects of disturbing vibrations as producing false oscillations about a vertical axis, the suspended system is given perfect "inertia symmetry" about the axis of the fibre, and all flat parts of it are distributed so as to have equal areas in two mutually perpendicular planes. Quartz fibres are used for suspension.—Bolometric investigations of the grating spectrum, by F. Paschen.—The fundamental law of complementary colours, by Paul Glan. To determine the amount of light absorbed by the pigment of the yellow spot during transmission to the optically sensitive nerves, two candles of equal luminosity were observed with one eye through glasses of various colours, the one direct, and the other at such an angle that its image fell outside the margin of the yellow spot. The candles were shifted till both appeared equally bright, and their respective distances were measured. Taking the coefficient of absorption for red light as = 1, that for yellow (5828) was 0.889, for wave-length 5222 it was 0.171, 4856 (blue) 0.269, and for white light 0.424. In this way the conclusion was arrived at that the intensities of complementary colours reaching the retina must be equal in order to give the impression of white.—Experiences with the self-acting mercury pump, by A. Raps. Several improvements are described, tending to make the working more rapid. It was found that the fear of contaminating the mercury by the use of black flexible india-rubber tubes was unfounded.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, February 22.—Mr. Henry John Elwes, President, in the chair.—Mr. F. J. Hanbury exhibited, on behalf of Mr. Percy H. Russ, of Sligo, several long and very variable series of *Agrotis tritici*, *A. valligera*, and *A. cursoria*, together with Irish forms of many other species, some of which we believe to be new to Ireland. Mr. W. H. B. Fletcher made some remarks on the species.—Mr. R. W. Lloyd exhibited specimens of a species of *Acarus* found in New Zealand wheat. He stated that Mr. A. D. Michael had examined the specimens, and pronounced them to belong to *Tyroglyphus farinae*, a species which had been known for over a hundred years as a destroyer of corn, and was only too abundant all over Europe, and probably over the temperate regions of the world.—Mr. E. B. Poulton, F.R.S., exhibited, and made remarks on, a number of cocoons of *Halias prasinana*, in order to show the changes of colour produced in them by their surroundings; he also exhibited the coloured backgrounds employed by him in his recent experiments on the colours of larvæ and pupæ, and illustrated his remarks by numerous drawings on the blackboard.—Dr. T. A. Chapman exhibited by means of the oxy-hydrogen lantern, photographs of the larva of *Nemeobius lucina* in its first stage, showing the conjoined dorsal tubercles, each carrying two hairs, which are remarkable in being divided into two branches. For comparison he also showed, by means of the lantern, drawings of the young larva of *Papilio ajax*, after Scudder, and of a portion of a segment of *Smerinthus populi*, as the only instances known to him of similar dichotomous hair in lepidopterous larvæ. Mr. Poulton pointed out that he had described the forked hairs of *Smerinthus* in the Society's "Transactions" for 1885, and that such hairs were even better developed in the genus *Hemaris* originally described, as he believed, by Curtis. Mr. Poulton, also said that he had noticed similar forked hairs covering the newly-hatched larvæ of *Geometra papilionaria*.—Dr. Chapman read a paper—which was illustrated by the oxy-hydrogen lantern—entitled "On some neglected points in the structure of the Pupa of Heterocerous Lepidoptera and their probable value in classification." A discussion ensued, in which Mr. Poulton, Mr. Champion, and Mr. Merrifield took part.—Dr. F. A. Dixey communicated a paper entitled "On the phylogenetic significance of the variations produced by differences of temperature on *Vanessa atalanta*." The President, Mr. Merrifield, Mr. Poulton, Dr. Chapman, and Mr. Tutt took part in the discussion which ensued.

Zoological Society, February 28.—Sir W. H. Flower, F.R.S., President, in the chair.—Mr. A. D. Michael exhibited some specimens of the *Toxodes*, known locally in the West Indies as the "St. Kitts" or "Gold Tick," received from Mr. C. A. Barber, of the Agricultural Department, Antigua.—A communication was read from M. A. Milne-Edwards respecting *Lemur nigerrimus*, Sclater, a species of lemur originally described from an example living in the Society's Gardens. It was pointed out that *Prosimia rufipes* of Gray had been based on a female of this species.—Mr. Howard Saunders exhibited and made remarks on a specimen of the American stint (*Tringa minutilla*), shot at Northam Burrows, North Devon, by Mr. Broughton Hawley, in August, 1892.—Mr. Sclater (on behalf of Mr. R. M. Barrington) exhibited a specimen of the Antarctic Sheathbill (*Chionis alba*), killed at the Carlingford Lighthouse, co. Down, Ireland, in December last.—Dr. C. J. Forsyth-Major read a memoir on some of the miocene squirrels, and added remarks on the dentition and classification of the *Sciuridæ* in general. The author proposed a new division of this family into three subfamilies—*Sciurinae*, *Pteromyinae*, and *Nannosciurinae*. The genera *Spermophilus* and *Arctomys* and the allied forms were united to the *Sciurinae*. The last part of the paper dealt with the primitive type of the *Sciurine molar*.—Mr. Henry O. Forbes read a paper entitled "Observations on the Development of the Rostrum in the Cetacean Genus *Mesoplodon*, with remarks on some of the Species." Mr. Forbes showed that in this genus the vomerine canal in the young animal is filled with cartilage, and in the adult with a dense petrosal mesorostral bone. From the examination of thirteen specimens of *Mesoplodon grayi* and four of *M. layardi*, of which he had made a large number of sections in various stages of growth, the author concluded that the mesorostral bone was not, as had been generally believed, an ossification of the cartilage, but an actual growth of the vomer and of the premaxillaries, with perhaps, in some cases, additions from the ossification of the cartilage of the vomerine spout. The cause of the growth in the vomer might be accounted for by the pressure communicated to it by the growth of the premaxillaries, induced, perhaps, by the movement, which appears to take place, of the maxillaries over the premaxillaries.

Linnean Society, March 2.—Prof. Stewart, President, in the chair.—Mr. Miller Christy exhibited some photographs of the American bison taken from living wild animals, and gave some account of the present restricted distribution of the species. Mr. A. G. Renshaw and Mr. W. Carruthers detailed what they had been able to learn respecting it while travelling in its former haunts.—Mr. J. M. Macoun gave an account of the flora of the Behring's Sea Islands from personal exploration.—On behalf of Mr. H. N. Ridley the Secretary read a paper on the flora of the eastern coast of the Malay archipelago.—The meeting then adjourned to March 16.

Anthropological Institute, February 21.—Prof. A. Macalister, F.R.S., President, in the chair.—A paper, by Mr. E. H. Man, on Nicobar pottery was read. He stated that the little island of Chowra has held for generations a monopoly of the manufacture. Preparing the clay, and moulding and firing the finished utensil, devolves on the females. The value of trade marks is recognised, the device of its maker being affixed to each vessel. Experience having taught them that pots are more serviceable if allowed to harden gradually, they store newly-made utensils on a lattice platform in the roofs of their huts. In a year the heat and smoke render them hard and durable. Indian pots and jars are readily purchased from the traders, who occasionally visit the islands; but they are deemed unsuitable for certain culinary operations. There are no special vessels made for funeral purposes; but, in accordance with the almost universal custom of uncivilised races, cooking pots are among the personal and household requisites which are laid on a grave after an interment.—A paper, by Lieut. Boyle, T. Somerville, R.N., on some islands of the New Hebrides was read. The habits of the natives of adjacent islands sometimes vary exceedingly, and in this paper reference was made only to a small portion of the group, including the Efate Islands, the Shepherd Islands, and the East Coast of Malekula. A child calls all his uncles on both sides, "father," all his aunts, "mother," and his first cousins on both sides, "sister" or "brother." A man cannot marry a woman of his own tribe, and the children belong to their mother's tribe; the property of their father going, at his death, to his sister's children. It sometimes happens that a man will