

The Mathematical Gazette, No. 6, October 1895.—The conics of Apollonius, by the Rev. J. J. Milne, is the paper read by that gentleman at the annual meeting in January last. It contains a full and careful analysis of Apollonius' treatise, putting in evidence what the great geometer says on the subject, and also stating what properties he does not touch upon. The result arrived at is that the ground covered by Apollonius "is very extensive, and many parts of the subject are very thoroughly treated which are passed over in silence in modern text-books." —Proof of Horner's method of approximation to a numerical root of an equation by the properties of algebraical quotients and remainders, by Mr. M. Jenkins, is supplementary to papers read before the Association by Messrs. Langley and Hayward. —Dr. J. S. Mackay gives a further short note on Greek geometers before Euclid. Amongst the geometers slightly noticed are (Enopides of Chios, Anaxagoras, Democritus of Abdera, Hippocrates of Chios and Antiphon.—The notes contain some suggestions in mathematical terminology, by R. F. Muirhead; some trigonometrical identities, by the editor and J. H. Hooker; on Simpson's rule, by Prof. A. Lodge; and on division into classes and homogeneous products, by P. J. Harding.—A few questions and reviews complete a number which is quite up to the previous high standard of the *Gazette*. If this journal were better known, we feel sure it would be more heartily supported than it is by mathematical teachers.

Bulletin de l'Académie Royale de Belgique, No. 8.—On a hydrate of arsenic trisulphide and its decomposition by pressure, by W. Spring. If the specific volume of a compound is greater than the sum of those of its constituents, it should be decomposed by pressure. This has already been verified with cupric acetic acetate. It is also shown by the hexahydrate of arsenic trisulphide, which decomposes on compression in water or orpiment, and does not require very great pressure. This phenomenon is the converse of the combination of bodies by pressure when the resulting specific volume is smaller.—On a spot recently observed on the surface of Venus, and on the period of rotation of this planet, by M. Schiaparelli. This spot is near the south pole of the planet, and had at the time of writing remained the same for four weeks, so that the period of about twenty-three hours is out of the question.—On the attraction sphere in the fixed cells of the conjunctive tissue, by C. de Bruyne. The author investigates the attraction sphere in the conjunctive cellulæ fixed in position in the interstitial of the liver and the genital glands of *Paludina vivipara*. He describes its constitution, its shape, its continuity with the cytoplasmic filaments, the character of the medullary zone and that of the centrosomes, which vary in number, dimensions and shape. He then describes the situation of the sphere and its relations to the nucleus, and the constitution of the radial fibres. He concludes, against the views of O. Hertwig and others, that the centrosomes rest in the cytoplasm during the stage of repose of the cellule. The drawings reproduced are a conclusive proof of their presence in the conjunctive cellulæ at rest.

The papers in the *Bullettino della Società Botanica Italiana* for July belong exclusively to the departments of descriptive and geographical botany, most of them having special reference to the Flora of Italy.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, November 6.—The Right Hon. Lord Walsingham, F.R.S., Vice-President, in the chair.—Lord Walsingham announced the death of M. E. L. Ragonot, President of the Entomological Society of France, and, since 1887, a Foreign Fellow of the Entomological Society of London. He remarked that M. Ragonot was especially distinguished by his knowledge of the *Phycidæ*, a monograph on which group he had brought out in Russia, and for his amiable personal qualities and the readiness he showed to assist other workers in the identification of species. He said that the loss of M. Ragonot would be greatly felt not only by the Entomological Society of France, but by entomologists all over the world, and that the Council had that evening passed a resolution to the effect that the Secretary should write a letter of condolence to the French Entomological Society on the death of their distinguished President. Colonel Swinhoe also spoke as to the great loss sustained by the death of M. Ragonot, and of the kindness and

generosity of the deceased, which he had personally experienced. —Mr. Goss read a letter from Mr. Waterhouse, calling attention to the prospectus of a monograph by Mr. Ernest Green on the *Coccidæ* of Ceylon. A copy of the prospectus and specimen plates were shown, and Lord Walsingham and Mr. McLachlan commented on the importance of the proposed work and the beauty of the plates.—Mr. Stevens exhibited two larvæ, supposed to be those of a species of *Anobium*, which had been damaging oil paintings in his possession; also two specimens of a luminous species of *Pyrophorus*, which he had received alive from the West Indies.—Mr. Adkin exhibited a portion of a collection of Lepidoptera made in Hoy, Orkney, in 1895, including the following species, viz. *Agrotis vestigialis*, *A. tritici*, and *A. cursoria*, not previously recorded from Orkney; *Nemophila plantaginis*, having the usual yellow ground-colour of the hindwings replaced by red in many of the females; *Hepialus humuli*, males of the ordinary white form, bearing no resemblance to the Unst (Shetland) form; *Triphaena comes*, all very dark, the forewings almost black, the yellow of the hindwings of many of the specimens much obscured by blackish scales; *Noctua festiva*, showing forms of variation ranging between the pale southern and the dark *conflua* forms; *Epanda lutulenta*, some almost uniformly black, others pale grey with dark markings; *Hadena adusta*, one almost black, others much variegated; *Thera juniperata*, many having the central fascia and apical streak very dark brown; and *Hysipetes sordidata*, varying from blackish-brown to pale green.—Mr. Tutt exhibited a series of *Emydia cribrum*, var. *candida*, which he had bred from eggs obtained from a specimen caught by Mr. Merrifield in May 1895, in Northern Italy. He stated that being unable to obtain *Calluna vulgaris*, the ordinary food-plant, he had tried them with Knot Grass (*Polygonum aviculare*), and had no difficulty in rearing them.—The Rev. Canon Fowler exhibited, on behalf of Prof. Poulton, F.R.S., living *Diapheromera femorata* bred from eggs received from Prof. E. B. Titchener, of New York. He stated that the young larvæ had emerged from the eggs in July and August last, and fed on lime. Several pairs had arrived at maturity, and were feeding in cases in the Oxford Museum.—The Rev. J. H. Hocking exhibited a specimen of *Xylina zinckenii*, taken by him at sugar on the trunk of an oak tree, at Copdock, near Ipswich, on September 30 last. It was in beautiful condition, and had apparently only recently emerged from the chrysalis. He also exhibited two specimens of *Xanthia ocellaris* taken at the same time. Mr. Barrett referred to the few recorded chapters of *X. zinckenii* in this country.—Mr. R. W. Lloyd exhibited male and female specimens of *Amara alpina* from Garvell, Perthshire.—Colonel Swinhoe stated that he had, during the past summer, captured four specimens of *Pieris daphnice* at Deal. They were worn, and had probably been blown over from France. Mr. Tutt remarked that he had collected at Deal for many years, but had never met with *Pieris daphnice*.—Mr. Tutt read a paper by Prof. A. Radcliffe Grote, entitled "Notes on the genus *Cidaria*."—Dr. T. A. Chapman read a paper entitled "Notes on Pupæ; *Orneodes*, *Epermentia*, *Chrysocorys*, and *Pterophorus*." Lord Walsingham, Mr. Blandford, and Mr. Tutt took part in the discussion which ensued.

Geological Society, November 6.—Dr. Henry Woodward, F.R.S., President in the chair.—The Serpentine, Gneissoid and Hornblende Rocks of the Lizard District, by Prof. T. G. Bonney, F.R.S. The author states that in company with the Rev. E. Hill, and in consequence of their work in Sark, he had again investigated the question of the genesis of the hornblende-schists at the Lizard, and was able to overcome the difficulties which formerly withheld him from attributing an igneous origin to the schists themselves, and their banded structure to fluxional movements during consolidation. There also, as in Sark, he found some evidence of this banding being the result, at any rate in places, of a mixture of a less and a more basic material. Additional evidence was given as to the genesis of the granulitic group and its relations to the hornblende-schist. The author maintained that the relations of the serpentine to the granulitic and the hornblende groups are inexplicable on the hypothesis of an igneous complex, so far as he understood the meaning of that term, or of a folding in a solid condition or any other form of dynamometamorphism, and he maintained his original opinion that the serpentine (*i.e.* the original peridotite) was intrusive in the other rocks. The paper also dealt with some minor points in the geology of the Lizard. In the discussion that followed, Mr. Teall, speaking as to the origin of hornblende-schists, reaffirmed his belief in the theory that both gabbros and basic

makes had been converted into rocks of this character by dynamic metamorphism; and Sir Archibald Geikie said that though he could not venture to offer an opinion upon most of the disputed questions in the geological structure of that area, he had seen evidence sufficient to convince him that in the Potstone Point part of the coast the serpentine and hornblende-schist formed, as Mr. Teall maintained, the great complex which presented a marked coincidence of banding and had been plicated by one common series of movements. He could see no indication of the serpentine being intrusive in the schists.—The "schistes lustrés" of Mont Jovet (Savoy), by Dr. J. W. Gregory. The author gave a history of the controversy as to the age of the "schistes lustrés" of the Western Alps, making special reference to the views of Zaccagna and Bertrand concerning the schists of Mont Jovet. Of these writers, the former maintained that the rocks of the summit of the mountain are old rocks on which the Carboniferous and Triassic strata were deposited unconformably; while, according to the latter author, the rocks forming the top of the mountain were laid down after those which flank it. In his paper the present author gave the results of an examination of the rocks of Mont Jovet recently made by him. He contended that Lory and Zaccagna were correct in identifying the central rocks of Mont Jovet as "schistes lustrés," for this conclusion is supported by their lithological characters and the occurrence of basic igneous rocks of the "pierre-verdi" type associated with them, and is not opposed to their stratigraphical relations. It was further maintained, as the results of the evidence collected by the author, that the schists in question were older than the Trias. The arborescences were in favour of the schists occupying the same relation to the Carboniferous as they do to the Trias; while the close approximation of the schists to the former shows that the schists are not the altered representatives of the neighbouring Carboniferous beds, and it was therefore concluded that the "schistes lustrés" are pre-Carboniferous, but evidence by which finally to assign them to any exact horizon before this date is still wanting.

Linnean Society, November 7.—Mr. C. B. Clarke, President, is in the chair.—Several volumes of *Cryptogamic exsiccata*, recently received from Madame Weddell as a bequest from her late husband, a foreign member of the Society, were shown, and some remarks made thereon by the Botanical Secretary.—A portrait of the French naturalist Guillaume Rondelet, Professor of Anatomy and Chancellor of the University of Montpellier 1545, recently presented to the Society by Dr. H. Woodward, F.R.S., was exhibited by the Zoological Secretary, who gave an account of his life and work, supplemented by remarks from the President.—Mr. C. T. Drury exhibited and made remarks on a *Scolopendrium* raised by Mr. E. J. Lowe, bearing archegonia and antheridia upon the fronds, constituting a more advanced phase of apospory than any previously noted. Some remarks thereon were made by Mr. George Murray.—Dr. Maxwell T. Masters exhibited specimens of the fruit of *Pyrus sorbus*, *Aberia caffra*, and small *Cocos australis*, from the gardens of Mr. Thomas Hanbury at La Mortola, Mentone, and some palm fruits of *Cocos australis* from Naudin's garden at Antibes, Alpes Maritimes.—Mr. J. E. Harting exhibited a specimen of the American yellow-billed cuckoo, which had been picked up dead in a garden at Bridport, Dorsetshire, on October 5, and gave some account of the species and previous occurrence in the British Islands.—A paper was read by Colonel Swinhoe on mimicry in butterflies of the genus *Hypolimnaris*, Hübn. By means of a series of beautifully coloured lantern slides, he showed the changes in mimetic forms in a single genus of Nymphalid butterflies, from India through Arabia to Africa, and from India through the Malay Archipelago to Australia, commenting upon the resemblance they always bear in colour and pattern to different forms of *Danaïs* and *Euphrosia*, insects well known to be distasteful to birds and reptiles.—Mr. G. F. Scott Elliot communicated a paper entitled "A revision of the genus *Pentis*," in which some account was given of the distribution of these plants in Africa, with a rectification of the synonymy, and descriptions of five new species. The genus as a whole showed in a remarkable manner the way in which local species occur whenever a different climate restricts the distribution of a wide-ranging form, and several examples of this were mentioned. A discussion followed, in which the President and Mr. W. P. Hiern took part.—On behalf of Dr. A. G. Butler, an abstract was read of a paper on butterflies of the genus *Charaxes*, of which 159 species were recognised, nearly all of which are represented in the National collection. Five species—*Charaxes*

princeps, *C. repetitus*, *C. layardi*, *C. fervens*, and *C. coniger*—were described as new.

PARIS.

Academy of Sciences, November 11.—M. Marey in the chair.—The following memoirs have been submitted to Committees: "Comparison of the French, English, and German races by means of mortality tables," by M. Delauney. A note concerning the weight of the atmosphere, by M. F. Delmas. "On the formation of curved refractors and reflectors by means of plane mirrors and transparent plane surfaces," by M. Moret de Montjou. "The defence of the vine against phylloxera," by M. Leroux (Tenès, Algeria). "A contribution to the study of ferments," by MM. G. Nivière and A. Hubert. "The Cartesian planimeter with tangential registration. A new mechanical integrator of great precision," by M. José Ruiz-Castizo.—On a problem concerning the determination of the integrals of an equation to the derived partials, by M. E. Goursat.—On the unicursal types of two dimensions, by M. Léon Autonne.—On the homogeneous differential linear equations of which the general integral is uniform, by M. G. Floquet.—On the construction of new magnetic maps of the globe, undertaken under the direction of the Bureau des Longitudes, by M. de Bernardières. Seven survey expeditions have been equipped with the most modern appliances, and sent, under competent observers, to ascertain accurately the magnetic elements at numerous stations, and an eighth will be started as soon as the necessary instruments are obtained. The observing stations are grouped broadly round the great oceans.—Some effects of the synodic revolution of the moon on the distribution of pressures in the season of summer, by M. A. Poincaré.—On the hardening of extra-hard steels, by M. F. Osmond. With steels containing 0.35 to about 1.3 per cent. of carbon there is a gradual increase of hardness with increase of carbon contents, beyond 1.3 per cent. the steel becomes softer. A description is given of the method of investigating the structure of steel by abrasion with a sewing needle and microscopic examination of the scratch, and it is shown that the structure thus investigated leads to the conclusion that hard steels consist of two interpenetrating types of steel, of which one is much harder than the other. The same conclusion may be drawn by examination of etching figures, using iodine tincture or dilute nitric acid for the attack.—On the silicides of nickel and cobalt, by M. Vigouroux. These compounds of silicon and nickel or cobalt are produced in similar ways to the chromium and iron silicides. They have the composition SiNi_2 , SiCo_2 . They have a steel-grey metallic appearance, a specific gravity of about 7.1, and are more fusible than either of the constituents. Their properties in relation to halogens, halogen acids, oxygen, alkalies, and potassium nitrate are given in detail.—On crystallised normal calcium chromite, by M. E. Dufau. At a sufficiently high temperature, chromic oxide combines directly with lime to give a chromite of the composition $\text{CaO.Cr}_2\text{O}_3$. This compound is stable at the highest temperatures. It forms prismatic needles of metallic lustre, transparent in thin crystals, and of a fine green colour. Its hardness is 6, and specific gravity 4.8 at 18°.—On the alcoholates, by M. H. Lesœur. Sodium ethoxide forms no stable alcoholate, sodium hydrate appears to give the compounds $\text{NaOH.3C}_2\text{H}_5\text{O}$ and $\text{NaOH.C}_2\text{H}_5\text{O}$.—On the properties of emulsin from mushrooms, by MM. Em. Bourquelot and H. Hérissay. Emulsin from different fungi of the mushroom type appears always to be the same, and it cannot be affirmed to differ from the emulsin of almonds.—Constancy of the freezing point of some liquids of the organism. Application to the analysis of milk, by M. J. Winter. The author establishes the isotomism of body-fluids, more particularly of milk and blood-serum. "These liquids are equimolecular, and their molecular concentration is the same among the diverse animal species examined." The constancy of the freezing point of milk may be used as a means of detecting adulteration with water. Blood-corpuscles, along with their other functions, serve the purpose of regulating the concentration of the blood serum.—On fermentations caused by Friedländer's pneumobacillus, by M. L. Grimbart. There exist two types of Friedländer's pneumobacillus which are morphologically alike, but differ in their fermentative action. The pneumobacillus studied by Frankland has no action on glycerol and dulcitol, whereas that from the Pasteur Institute attacks these substances.—On the direct fixation, by vegetable fibres, of certain metallic oxides, by M. A. Bonnet.—On the detached crystalline rocks, probably of Tertiary age, in the Briançon Alps, by M. P. Termier.

NEW SOUTH WALES.

Linnean Society, September 25.—Mr. Henry Deane, President, in the chair.—Notes on Cicadas, by W. W. Froggatt.—Description of a tree creeper presumably new, by C. W. De Vis, *Climacteris animosa*, n.sp. Several examples were obtained in clearings in the Mulga Scrubs, at Charleville.—On the dates of publication of the early volumes of the Society's Proceedings, by J. J. Fletcher.—The President exhibited a number of botanical specimens from the Tweed River.—Mr. Froggatt exhibited his collection of Sydney Cicadas.—Mr. Steel showed a Gecko (*Cehyra vorax*, Gir.) from the Rewa River, Fiji.—Mr. Fletcher showed some English humble bees, the defunct portion of a consignment from New Zealand, recently imported by the Department of Agriculture in the hope of the successful acclimatisation of the insects. Of the remainder, some were liberated in the Botanic Gardens, and some in the Society's arden.

BERLIN

Meteorological Society, October 15.—Prof. Hellmann, President, in the chair.—Dr. Kassner spoke on the influence of weather on the growth of sugar-beets. He had compared the beet-root crops in the provinces of Saxony and Silesia, with the temperatures, rainfall, and intensity of rain during fifteen years, for the yearly period from October 1 to September 30. The curves of temperature corresponded to those of the crops in both provinces, except in 1887. On the other hand, the curves of rainfall in Silesia showed no such correspondence, although they were in somewhat greater harmony in Saxony. The curves of intensity of rain were in somewhat closer accordance with those of the crops, than were the curves of rainfall. The speaker came to the conclusion that the relationship of weather to crops requires a much more thorough investigation than is possible with the scanty data as yet available.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, NOVEMBER 21.

ROYAL SOCIETY, at 4.30.—(1) On the Gases obtained from the Mineral Eluasiite. (2) On the New Gases obtained from Uraninite. Sixth Note. (3) On the Variable Stars of the δ Cephei Class: J. Norman Lockyer, C.B., F.R.S.—Microscopic and Systematic Study of Madreporarian Types of Corals: Miss Maria M. Ogilvie.—On the Calibration of the Capillary Electrometer: G. J. Burch.—An Experimental Investigation of the Laws of Attrition: F. T. Trouton.—Experiments on Fluid Viscosity: A. Mallock.

LINNEAN SOCIETY, at 8.—Development of a Single Seed in the Fruit of the Coconut Palm (*Cocos nucifera*): D. Morris, C.M.G.—Assimilation in Plants under Abnormal Conditions: A. J. Ewart.—On a New Species of Pinites from Wealden (England): A. C. Seward.

CHEMICAL SOCIETY, at 8.—The Evolution of Carbon Monoxide by Alkaline Pyrogallol Solution during Absorption of Oxygen: Prof. Clowes.—The Composition of the Limiting Explosive Mixtures of various Combustible Gases with Air: Prof. Clowes.—Barium Butyrate and the Estimation of Butyric Acid: W. H. Willcox.—And other Papers.

LONDON INSTITUTION, at 6.—Relation of Ants to Plants: Prof. F. E. Weiss.

CAMERA CLUB, at 8.15.—Mechanical Carriages: J. H. Knight.

SOCIETY OF ANTIQUARIES, at 8.30.

NUMISMATIC SOCIETY, at 7.

FRIDAY, NOVEMBER 22.

PHYSICAL SOCIETY, at 5.—An Exhibition of Photographs of Spectra: G. Johnstone Stoney.—A Direct Reading Platinum Thermometer: R. Appleyard.—Historical Note on Resistance and its Change with Temperature: R. Appleyard.

CLINICAL SOCIETY, at 8.30.

SATURDAY, NOVEMBER 23.

ROYAL BOTANIC SOCIETY, at 3.45.

MONDAY, NOVEMBER 25.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—The Faëroe Islands: Dr. Karl Grossmann.

INSTITUTE OF ACTUARIES, at 7.—Address by the President, Mr. Alex. J. Finlaison, C.B., on the Recent International Congress of Actuaries at Brussels.

MEDICAL SOCIETY, at 8.30.

CAMERA CLUB, at 8.15.—Daylight Enlarging: F. Seyton Scott.

TUESDAY, NOVEMBER 26.

ROYAL PHOTOGRAPHIC SOCIETY, at 8.—Photo-ceramics. A Demonstration will be given by Mr. W. Ethelbert Henry.—A Method of Carbon-printing without Transfer: Valentine Blanchard.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Discussion on Subaqueous Tunnelling by Shield and Compressed Air.

ROYAL VICTORIA HALL, at 8.30.—The Land of the Midnight Sun: Prof. Clowes.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY, at 8.30.

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WEDNESDAY, NOVEMBER 27.

SOCIETY OF ARTS, at 8.—Locomotive Carriages for Common Roads: H. H. Cunynghame.

BRITISH ASTRONOMICAL ASSOCIATION, at 5.

THURSDAY, NOVEMBER 28.

ROYAL SOCIETY, at 4.30 (Extra Meeting).—The following Papers will probably be read:—Mathematical Contributions to the Theory of Evolution. III. Regression, Heredity, and Panmixia: Prof. Karl Pearson.—The Expansion of Argon and of Helium as compared with that of Air and Hydrogen: J. P. Kuenen and W. W. Randall.—On the Percentage of Argon in Respired Air: A. Kellas.—Examination of Gases from certain Mineral Waters: A. Kellas and Prof. Ramsay, F.R.S.—On the Granular Leucocytes: G. L. Gulland.—On the Development of *Lichenopora verrucaria*, Fabr.: S. F. Harmer.

LONDON INSTITUTION, at 6.—A Forest Primeval: Prof. W. Boys Dawkins, F.R.S.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Electric Wiring Question: F. Bathurst.—Concentric Wiring: Sam Mavor.

SOCIETY OF ANTIQUARIES, at 8.30.

SATURDAY, NOVEMBER 30.

ROYAL SOCIETY, at 4.—Anniversary Meeting.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

BOOKS.—British Birds' Nests: R. Kearton (Cassell).—Text-Book of the Embryology of Invertebrates: Drs. Korschelt and Heider, translated, Part 1 (Sonnenschein).—Royal Natural History, Vol. 4 (Warne).—A Laboratory Course in Experimental Physics: W. J. Loudon and J. C. McLennan (Macmillan).—Outlines of Psychology: Prof. O. Külpe, translated by Prof. E. B. Titchener (Sonnenschein).—Recettes de l'Electricien: E. Hospitalier (Paris, Masson).—Evolution in Art: Prof. A. C. Haddon (Scott).

PAMPHLETS.—Manchester Museum, Owens College, Museum Handbooks: Catalogue of the Hadfield Collection of Shells from the Loyalty Islands: J. C. Melville and R. Standen (Manchester, Cornish).—The Ethnology of Buchan (Peterhead).

SERIALS.—Strand Magazine, November (Newnes).—Records of the Australian Museum, Vol. 2, No. 6 (Sydney).—Psychological Review, November (Macmillan).—Transactions of the Rochdale Literary and Scientific Society, Vol. 4 (Kochdale).—Journal of Conchology, January, April, July, October (Dulau).—Synoptical Flora of North America, Vol. 1, Part 1, Fasc. 1: Gray, Watson, and Robinson (Wesley).—Himmel und Erde, November (Berlin).—Royal Natural History, Part 25 (Warne).

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