

34-37). This elaborate memoir does not permit of being usefully summarised.—Morphological and biological observations on *Criodrilus lacuum*, by Dr. L. Orley.—Studies on earth-worms, No. 3: *Criodrilus lacuum*, Hoffmeister, by W. B. Benham (plate 38). This little worm was first discovered by Fritz Müller in 1844, near Berlin, and was in the following year described by Hoffmeister; it was next found near Linz, and more recently in Italy and at Buda-Pesth by Dr. Orley, whose paper thereon has been translated from the manuscript by Mr. Benham. In the Danube this worm occurs, often in large numbers among the roots of *Sium latifolium*, the egg-cases looking like certain forms of Enteromorpha. The specimens dissected by Mr. Benham were sent to Prof. Lankester by Dr. Orley.—Notes on the chromatology of *Anthea cereus*, by Dr. C. A. MacMunn (plates 39 and 40). The pigments of Anthea are the pigments of certain marine Algae, and are without doubt the pigments of the "yellow cells" which are now known to be unicellular Algae.—On *Ctenodrilus parvulus*, nov. spec., by Dr. Robert Scharff (plate 41). This little Annelid was recently discovered by Mr. Bolton, of Birmingham, but its exact habitat is unknown.—On the relation of the Nemertea to the Vertebrata, by Prof. A. A. W. Hubrecht (plate 42); with permission from Prof. Hubrecht's Report on the Challenger Nemerteans.

American Journal of Mathematics, vol. ix. No. 3 (Baltimore, April 1887).—A memoir by Prof. Cayley on the transformation of elliptic functions, develops the algebraical theory established by Jacobi in the "Fundamenta Nova" (1829), and discusses other researches in this field by Jacobi, Brioschi, and the writer (see Brioschi's second appendix to his translation of Cayley's "Treatise on Elliptic Functions," and other papers cited in the present memoir).—Mr. G. P. Young contributes a long account of "Forms, necessary and sufficient, of the roots of pure uniserial Abelian equations"; and the number closes with some eighteen pages of tables under the heading "Symmetric Functions of the 14^{ic}," by W. P. Durfee,—these are arranged according to the second of the author's methods used in vol. v., where tables are given for the 12^{ic}. In vol. vi. it may be noted Capt. Macmahon does a similar work for the 13^{ic}.

In the numbers of the *Journal of Botany* for March and April, a species (or sub-species) of *Rubus* new to science is described by Mr. E. F. Linton, from Norfolk, under the name *R. lucens*, afterwards substituted by *R. letus*. The remarkable *Equisetum littorale*, differing from all other species of the genus in the absence of elaters, is recorded as British (and figured) by Mr. Beeby, on the faith of specimens from Surrey. Mr. Spruce concludes his elaborate description of his new species of Hepaticæ, *Lejeunia Holtii*, from Killarney. The remaining articles are of merely local or technical interest.

THE number of the *Nuovo Giornale Botanico Italiano* for April is almost entirely occupied by articles of interest to Italian botanists. In addition to those referring to the distribution of species, Sig. L. Savastano has two short papers. The first refers to the parasitism of *Agaricus melleus*. From experiments made on a number of different trees, the author concludes that this fungus does not attack healthy trees, but only those that are weakly or diseased. In the second paper, on Gummosis, he adduces facts to show that this morbid phenomenon is to a large extent dependent on temperature, being less frequent in the northern than the southern portion of the zone of cultivation of any given species.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 5.—"The Proteids of the Seeds of *Abrus precatorius* (Jequirity)." By Sidney Martin, M.D. Lond., Pathologist to the Victoria Park Hospital. Communicated by Prof. E. A. Schäfer, F.R.S.

Two proteids were found in the saline extract of the crushed seeds; one a *globulin*, identical with that occurring in papaw-juice, and belonging to the group of vegetable paraglobulins; the other an *albumose*, identical with what the author has described as α -phytalbumose in the papaw-juice. Attention was called to the differences between the class of vegetable paraglobulins and the vegetable myosins, which differ in the fact that the latter become readily changed into an albuminate when the sodium chloride holding them in solution is dialyzed away.

The investigation of the proteids is preliminary to that of their physiological action

"Note on the Microscopic Structure of Rock Specimens from Three Peaks in the Caucasus." By Prof. T. G. Bonney, D.Sc., LL.D., F.R.S.

These specimens are from three localities in the Caucasus, all difficult of access, viz. the peaks of Tau Tetnuld, Guluku, and Elbruz. The first and second are peaks near together in the central part of the Caucasus; the specimens were collected in 1886 by Mr. W. F. Donkin. (1) Tau Tetnuld: one specimen from near the summit, representative of the rock forming all the upper part of the mountain. It is a mica-schist, which has been much crushed subsequent to its first crystallization. (2) Guluku: a series of rocks representing the upper part of the mountain—granitoid and gneissoid rocks and strong schists. These afford indications of more or less mechanical disturbance. In one, the garnets have been flattened out into elongated ovals, and ultimately cracked. The specimens indicate a succession of different rocks, possibly resulting from original stratification, though true granite probably forms part of the mountain. (3) From the western crater-peak of Elbruz, collected, in 1874, by Mr. H. Walker (from the highest rocks, more than 17,500 feet above the sea). It is a hornblende-andesite, not containing quartz, and thus is different from those on the lower part of the mountain.

Linnean Society, May 5.—Mr. W. Carruthers, F.R.S., President, in the chair.—Mr. E. W. Forrest, and Mr. G. Perrin were elected Fellows; Mr. W. H. Beeby, Mr. A. D. Kent, and Mr. J. M. Wood were elected Associates; Prof. G. A. Schweinfurth, Prof. H. Solms-Laubach, Dr. Franz Steindachner, Dr. M. Treub, and Prof. A. Weismann were elected Foreign Members of the Society.—The auditors chosen to examine the Treasurer's accounts were Mr. F. V. Dickins and Mr. G. Maw, to represent the Fellows, and Mr. J. E. Harting and Mr. A. D. Michael for the Council.—Mr. J. W. Willis-Bund exhibited specimens of the rainbow trout (*Salmo irideus*) reared in the fish-culture establishment, Delaford Park. Though from eggs of the same batch, the fish were very unequal in size. From the evidence of its being a migratory fish and other facts, Mr. Bund doubts the value of its introduction into this country as a stream trout.—Photos were shown and a letter read from Mr. J. G. Otto Tepper regarding a gall formation on *Scevola spinescens* observed by him at Yorke's Peninsula, South Australia.—On behalf of Mr. W. Brockbank, there was exhibited photographs of a series of forms of *Narcissus reflexus* of Brotero, from Ancora, North Portugal, and grown in his garden at Didsbury. *N. reflexus* is ranked as a species by Nyman; but the variation in the Portuguese plant is so great in the size and shape of the corona, that it is evident no definite line of demarcation can be drawn between the Spanish *N. triandrus* and the Brittany *N. calathinus*. It would seem, therefore, that all the varietal forms of the section Ganymedes constitute a single species.—Mr. J. Harris Stone exhibited the flowers of *Nicotiana glauca* from Fuerteventura and Sanzarote, Canaries. The plant is a native of Buenos Ayres, where it grows 10 feet high. It seems to have been introduced into the Canary Islands about 1867-69, since which date it has run wild, and is now to be met with flourishing as a weed on the path sides and in the villages, attaining a height of 3 or 4 feet. The natives call it "mismo" (same), as spreading everywhere the same over the islands.—Photographs of the mud volcanoes of Trinidad, and of the Peak of Rakata, volcano of Krakatão, after the eruption, were exhibited respectively by Mr. R. V. Sherring and for M. Verbeek.—Mr. F. J. Hanbury called attention to specimens of hybrid Primulas.—A paper was read, viz. experimental observations on certain heterocœcious Uredines, by Mr. Chas. B. Plowright. Among these, *Puccinia phalaridis*, *P. arenariicola*, *Gymnosporangium clavariaforme*, *G. juniperinum*, and *G. sabinae* more particularly engaged the author's attention; full details of the cultures and analyses of the experiments being given.—There followed a paper on *Vaccinium intermedium* as a new British plant, by Mr. N. E. Brown. It was discovered by Prof. Bonney at Cannock Chase, August 1886, growing plentifully in certain spots; *V. myrtilloides* and *V. Vitis-Idea* being also abundant. Mr. Brown regards the plant in question as a hybrid between the two latter species, and to have originated independently at Cannock Chase, and not been introduced from the Continent.—A paper was read by Mr. R. A. Rolfe, on bigeneric orchid hybrids, the subject being treated chiefly with reference to its bearing upon classification. After pointing out that these hybrids, as in the case of those between species of the same genus, were more or less intermediate between the two

parents, the practice was recommended of compounding a name from those of the two parent genera, so as to avoid all confusion with existing genera. With regard to orchid hybrids generally, the following are the author's conclusions:—(1) Hybridization may take place not only between distinct species, but also between distinct genera, or between plants so structurally different as to be usually regarded as such. (2) These hybrids are generally of artificial origin, or accidentally produced, and cannot be treated in the scheme of classification either as varieties, species, or genera. (3) The possibility of hybridization taking place between species hitherto considered as distinct does not necessarily prove them to be merely forms of the same species. (4) The occurrence of a hybrid between two structurally different genera does not prove the necessity of uniting them in one; nor can such hybrids be arbitrarily referred to either of the parent genera. (5) Species and genera will always have to be dealt with in the scheme of classification according to their structural peculiarities and differences, without reference to the possibility of hybridization taking place between them.—A report was read, on the Alcyonaria of the Mergui Archipelago, by Mr. Stuart O. Ridley, in which a considerable number of new forms were described; the Burmese coast being rich in species bearing an Indian facies.

Zoological Society, May 3.—Dr. E. Hamilton, Vice-President, in the chair.—The Secretary read a report on the additions that had been made to the Society's menagerie during the month of April 1887, and called attention to two young Polar bears (*Ursus maritimus*) presented by Mr. Joseph Monteith; and to two crested ducks (*Anas cristata*) from the Falkland Islands, presented by Mr. F. E. Cobb.—Extracts were read from a letter addressed to the Secretary by Mr. Roland Trimen, respecting the obtaining of a second example of *Lantarius atrocroceus* in South Africa.—Mr. J. Jenner Weir exhibited and made remarks on a skull of a boar from New Zealand.—A communication was read from Mr. G. A. Boulenger, containing the description of a new snake of the genus *Lamprophis*, based on a specimen living in the Society's Gardens, which had been presented to the collection by the Rev. G. H. R. Fisk.—A communication was read from Mr. J. H. Leech, containing an account of the diurnal Lepidoptera of Japan and Corea, based on a collection recently made by the author during a recent entomological expedition to those countries. The total number of species in Mr. Leech's list was 155. In Japan, Mr. Leech had discovered one new species (*Papilio mikado*), and in Corea four others.—Mr. R. Bowdler Sharpe, gave an account of a second collection of birds formed by Mr. L. Wray in the mountains of Perak, Malay Peninsula. This collection contained samples of about fifty species, of which ten were described as new to science.—Mr. H. J. Elwes pointed out the characters of some new species of diurnal Lepidoptera, specimens of which had been obtained by him during his recent visit to Sikkim.—A communication was read from Mr. Lionel de Nicéville, containing an account of some new or little-known Indian butterflies.

Entomological Society, May 4.—Dr. D. Sharp, President, in the chair.—The Rev. C. Ellis-Stevens, Mr. F. Merrifield, Mr. H. Rowland-Brown, and Mr. C. Matthews were elected Fellows.—Mr. Warren exhibited specimens of *Stigmonota pallifrontana*, *S. internana*, *Asthenia pygmaea*, and *A. abiegana* (*subsequana*, Haw.).—Mr. Stainton remarked that it was formerly thought that Haworth's *subsequana* was identical with the species previously figured by Hübner as *pygmaea*; but now that the two allied species were critically examined, it appeared that the species described by Haworth as *subsequana* was not *pygmaea*, but another species known as the *abiegana* of Duponchel, dating only from 1842, so that Haworth's name—*subsequana*—had priority by thirty years.—Mr. F. Pascoe exhibited a specimen of *Diaxines taylori*, taken out of the stem of an orchid—*Saccolabium caeleste*—received from Moulmein.—Mr. McLachlan exhibited nearly 200 specimens of Neuroptera, collected by Mr. E. Meyrick in Australia and Tasmania, comprising about seventy species. There were between forty and fifty species of Trichoptera, including forms from Western Australia, allied to *Plectrotarsus*, and other species belonging to a group represented by *Hydropsyche edwardsii*. Among the Planipennia, the most remarkable insect was a species of the singular genus *Psychopsis*, from Mount Kosciusko, where it was common. Of Pseudo-Neuroptera there was a species of *Embiide* from Western Australia, and certain *Psocidae* and *Perlide*. Mr.

Meyrick made some remarks on the localities in which he had collected the species.—Mr. M. Jacoby exhibited a new species of *Xenarthra*, collected by Mr. G. Lewis in Ceylon.—Mr. C. O. Waterhouse exhibited a living example of an ichneumon—*Ophiom. macrurum*—bred from a larva of *Callosamia promethea*, a North American species. He also exhibited a number of wings of Lepidoptera denuded of the scales, in order to show the neurotation, and explained the method he had adopted for removing them. The wings were first dipped in spirit and then placed in *eau de javelle* (potassium hyperchlorite). Mr. Waterhouse said he had sometimes substituted peroxide of hydrogen for *eau de javelle*, but the action was much less rapid, although the results were satisfactory. Mr. Poulton remarked that the discovery of some chemical for softening chitine had long been wanted to prepare specimens for the microscope.—Mr. Slater read a note, extracted from the *Medical Press*, on the subject of the poison used by certain African Bushmen in the preparation of their arrows. It was stated that the poison was prepared from a caterpillar which they called "N'gwa."—The Rev. W. W. Fowler read a note received from Mr. J. Gardner, in which it was stated that *Dytiscus marginalis* possessed the power of making a loud buzzing noise like that of a humble-bee. Dr. Sharp said he was familiar with the humming of *Dytiscus marginalis* previous to flight, and thought it might perhaps be connected with an inflation of the body for the purpose of diminishing the specific gravity of the insect; he had noticed also that it was occasionally accompanied by the discharge of fluid from the body.—Mr. Wm. White read a paper on the occurrence of anomalous spots on Lepidopterous larvæ.—Mr. Waterhouse read descriptions of new genera and species of *Buprestidae*.

Geological Society, April 27.—Prof. J. W. Judd, F.R.S., President, in the chair.—The following communications were read:—On the London Clay and Bagshot beds of Aldershot, by Lieut. H. G. Lyons, R.E. The author first described the section from Thorn Hill on the north to Redan Hill on the south, plotted from the 6-inch Ordnance Survey on a scale of 6 inches to 1 mile horizontal, and 12 inches to 1 mile vertical. This section comprises beds from the Woolwich and Reading series to the Upper Bagshot inclusive. The second section described runs from Gravel-Pit Hill on the north to Ash Green on the south. It was drawn to the same scale, and showed the beds from the Chalk to the Middle Bagshots inclusive. The third section was drawn, also on the same scale, through Aldershot town, showing the beds from the Woolwich and Reading series to the Middle Bagshots inclusive. It was inferred from various calculations, as also from direct observations, that the thickness of the London Clay shows no diminution throughout the section, being nearly the same also at Ash and at Aldershot Place. In "Cæsar's Camp" the pebble-bed occurs at altitudes ranging from 500 to 550 feet. The author concluded that wherever we can fix the top or base of the London Clay we get a northerly dip of 2½° to 3°, showing a fairly constant thickness of from 330 to 340 feet. The same thing occurs from Odiham on the west to Ash on the east, whilst at Brookwood the London Clay is thicker. He also assumed the existence of a passage from the London Clay up into the Bagshot beds in the deep wells or borings at Wellington College, at Brookwood, and at South Camp. Hence at these points there can have been no great erosion or unconformity. The overlying Bagshots lie conformably on the London Clay and on each other. The President congratulated the Society on the acquisition of a recruit whose carefully plotted sections did credit to his training as an officer of the Royal Engineers. The author's conclusions were discussed by Messrs. Irving, Whitaker, Monckton, Hudleston, and Herries.—Supplementary note on the Walton Common section, by Mr. W. H. Hudleston, F.R.S. The principal object of this paper was to point out the occurrence of certain beds of clay or loam in what are usually known as the "Lower Bagshot Sands" of West Surrey. The author maintained (1) that the more we study the Bagshot beds of this area the less likely are we to see a passage between the curiously diversified Lower Bagshots and the much more uniform and homogeneous London Clay; (2) that, until we realize the considerable though sporadic development of clays in the Lower Bagshots, we shall be in danger of referring beds to the Middle Bagshots which do not belong to them, and thereby give encouragement to a speculative stratigraphy which can only mislead. The reading of the paper was followed by a discussion, in which the President, Mr. Whitaker, Mr. Irving, and Mr. Herries took part.

Anthropological Institute, April 26.—Mr. Francis Galton, F.R.S., President, in the chair.—Mr. R. A. Cunningham exhibited some aboriginal Australians from North Queensland. The party consisted of a man, a woman, and a boy. They sang a corroborree song, and successfully showed the manner of throwing the boomerang.—Mr. C. H. Read read a paper on the ethnological bearings of the stone spinning-top of New Guinea, in which he gave a description of some spinning-tops recently presented to the British Museum.—Lieut. F. Elton, R.N., read some extracts from notes on natives of the Solomon Islands, obtained by him in reply to questions addressed to the solitary European resident on one of the islands.

PARIS.

Academy of Sciences, May 9.—M. Janssen in the chair.—A general method for determining the constant of aberration, by M. M. Lœwy. A demonstration is given of the remarkable geometrical property that the action exercised by aberration on the great arc connecting two stars is in proportion to the cosine of the angle formed between the median and the direction of the motion. It is then shown that, by effecting two conjugated observations, the constant of aberration may be determined independently of any physical corrections.—On Admiral Cloué's second memoir regarding the cyclone which swept over the Gulf of Aden last year, by M. H. Faye. Some exceptional features of this destructive cyclone are described and accounted for, and it is suggested that a regular signal service should be established in Socotra, or at some other favourable point, for the protection of shipping in these much-frequented waters.—Researches on the liberation of ammonia by vegetable soils, by MM. Berthelot and André. The experiments here described have reference mainly to the argillaceous soil on the higher plateaux in the neighbourhood of Paris. They tend to show that vegetable humus possesses the property of spontaneously liberating ammonia in proportion to the slow but certain decomposition of the starchy and ammoniacal compounds contained in it. The decomposition is effected under the influence of the purely chemical actions due to the water and the earthy carbonates, and doubtless also to the physiological actions attributable to the fermentations, microbes, and vegetation properly so-called; causes continually at work in Nature.—On a method of recording the calorific intensity of the solar rays, by M. A. Crova. A study of the curves obtained with his registering actinometer has enabled the author to estimate more accurately the value of the methods employed for determining this quantity, and to study the causes of the diurnal and annual variations of atmospheric absorption. He promises soon to communicate the method adopted by him for the study of the actinometric curves and its application to the determination of the law of atmospheric absorption.—The earthquake of February 23, 1887, by M. Albert Offret. In supplement to his previous communication, the author here gives in tabulated form the exact time when the shocks were felt in various places lying beyond the line of general movement. Appended is a corresponding table for the magnetic disturbances recorded at different observatories lying mostly beyond the seismic area, but evidently produced under the influence of the earthquake. A comparative study of these tables gives the unexpected result that the velocity of the seismic waves increases with the distance from the central area of disturbance.—Study of the effects of an electric shock felt during the earthquake of February 23, by M. Onimus. A detailed account is given of the severe shock felt by a person at Nice while working the telegraph at the moment the third seismic wave occurred. The incident seems to place beyond all doubt the fact that earthquake movements are normally accompanied by strong electric currents.—On the two species of Phylloxera of the vine, by M. A. L. Donnadieu. The two species of this organism, hitherto confused under one form, are here carefully distinguished and described under the names of *P. vastatrix* and *P. pemphigoides*.—On the direct photography of the barometric state of the solar atmosphere, by M. G. M. Stanoiéwitch. The author has made a comprehensive study of the solar photographs taken at the Meudon Observatory during the last eleven years, for the purpose of elucidating as far as possible the question of the origin of the solar photospheric network viewed in its relation with the solar pores, spots, and faculae. The general result is that this phenomenon is nothing but the direct photograph of the barometric maxima and minima of the solar atmosphere.—On synthetic acetic acid and its derived forms, by M. Louis Henry. The author's researches

show that monochlorureted acetic acid and malonic acid are essentially one, always identical with themselves, forming only a single variety whatever be the nature of the acetic acid from which they are derived.—On anemonine, by M. Hanriot. A full description is given of the properties of this neutral, nonnitrous substance, extracted by Heyer from different anemones, some forty years ago, but since then entirely neglected by chemists.—On the creatines and creatinines, by M. E. Duvillier. This note deals mainly with the formation of α -amidocaprocyanine and α -amidocaprocyanidine.—Variations of the phosphoric acid in cows' milk, by M. A. Andouard. The object of this paper is to complete our knowledge of the modification which the composition of milk undergoes during lactation, and especially the variations occurring in the quantity of the phosphoric acid present during that period.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Anatomy of Movement: Dr. F. Warner (Paul).—Atlantic Weather Charts, part 2 (Eyre and Spottiswoode).—Die natürlichen Pflanzenfamilien, 3 and 4 Lief.: A. Engler and K. Prantl (Engelmann, Leipzig).—A Treatise on Geometrical Optics: R. S. Heath (Cambridge Press).—Saddle and Moccasin: F. Francis (Chapman and Hall).—Jahrbuch der Naturwissenschaften: Dr. Max Wildermann (Herder, Freiburg).—Proceedings of the Royal Society of Edinburgh, No. 122.—Naturæ Veritas: G. M. Minchin (Macmillan).—Schriften der Physikalisch Ökonomischen Gesellschaft zu Königsberg i. Pr. 1886 (Königsberg).—The Species of Ficus of the Indo-Malayan and Chinese Countries, part 1, Palæomorphe and Urostigma: Dr. G. King (Reeve).—Notes from the Leyden Museum, vol. ix., No. 2 (Brill, Leyden).—Journal of the Chemical Society, May (Gurney and Jackson).

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