unhappily, not confined to Australia. Everyone must desire that the garden should not be a 'cheerless' 'scientific desert' at the same time it is equally clear that it should not be transformed merely into 'a pleasure-ground worthy of the name.' It is satisfactory, however, to learn that the Baron's services to the State will not be lost, that he will not suffer in pocket by the change, and that additional and much needed assistance will be given him."

THE *Canadian Ornithologist* is the name of a serial started last month, "with the object of making a monthly depository of facts, theories, and anecdotes relating to our feathered friends." Dr. Ross of Toronto is the editor. The first number leaves much room for improvement in its successors.

THE last number of the *Journal of the Society of Arts* contains a report by Dr. R. J. Mann, on "Recent Scientific Inventions and New Discoveries at the International Exhibitions."

THE following is the list of candidates successful in the competition for the Whitworth Scholarships, 1873:—Samuel Dixon, 23, draughtsman, Manchester; Roger Atkinson, 20, analytical chemist, Crewe; Joseph Amscow, 22, chemist, Crewe; W. R. Bousfield, 18, student, Cambridge; W. H. Warren, 21, engineer, Wolverton; William Barber, 20, draughtsman, Nottingham; William H. Fowler, 19, engineer, Oldham; Thomas Sugden, 23, mechanic, Oldham; Cyrus Bullock, 22, millwright, Worsley, near Manchester; John Lockie, 20, engineer, Glasgow.

THE following gentlemen have passed in the First Division on the First B.Sc. Examination for 1873, in the University of London:—P. Bedson, E. B. Cumberland, T. F. Harris, S. A. Hill, W. Hudson, J. Viriamu Jones, O. Lodge, J. G. MacGregor, W. R. Parker, T. S. Tait, C. M. Thompson, A. T. Wilkinson, B.A.

THE "Proceedings of the Geologists' Association," for July, is almost wholly occupied with an account of the interesting and instructive excursions of the Association during the summer months of last year. It contains, besides, a paper by Mr. John Paterson, "On a Visit to the Diamond Fields of South Africa," and another by Mr. John Curry, "On Columnar Basalts."

THE "Mineral Statistics of Victoria for 1872," are made up as usual of a host of tabulated details of all kinds, relating to the minerals and mines of that colony. Owing to changes in the law it seems to be more difficult than heretofore to collect accurate statistics as to the quantity of gold raised, many mine-owners being unwilling to furnish returns. According to returns furnished by the Commissioners of Trade and Customs, the quantity of gold exported in 1872 was 1,160,554 oz. 19 dwts., the estimates of the Mining Registers being 1,331,377 oz. 18 dwts.

A SPECIAL Report on Emigration by the American Government has been sent us, containing a great amount of information likely to prove very valuable to intending emigrants, as well as to statisticians. Not only does it contain statistics as to the number, nationalities, &c. of emigrants during the last few years, but much information as to rent of land, staple products, kind of labour in demand, wages to be earned at various trades and occupations, &c.

THE additions to the Zoological Society's Gardens during the past week include a Silvery Gibbon (*Hylobates leuciscus*) from Java, two Slow Loris (*Nycticebus tardigradus*) and a Binturong (*Arctictis binturong*) from Malacca, a Tiger (*Felis tigris*) from India, presented by Sir Harry Ord, C.B.; a Malay Bear (*Ursus malayanus*) from Borneo, presented by Mr. A. C. Crookshank; a common Marmoset (*Hepale jacchus*) and a Black-eared Marmoset (*H. penicillata*) from Brazil, presented by Mr. J. Stanley; a Cornish Chough (*Fregilus graculus*), presented by Mr. G. Holford; a Gazelle (*Gazella dorcas*) from Muscat, presented by Major C. B. E. Smith; two Blue-headed Pigeons (*Starnaenas cyanocephala*) from Cuba, a White-headed Saki (*Pithecia leucocephala*) from Demerara, and a Hawk-headed Parrot (*Deroptyus accipitrinus*) from Brazil, deposited.

## SCIENTIFIC SERIALS

THE *Zoologist* for this month commences with an interesting paper by Mr. T. H. Potts, who is paying so much attention to the birds of New Zealand, on the habits of the Night Parrot of that country (*Stringops habroptilus*). One of its favourite foods is the younger part of the fern *Asplenium bulbiferum*, called Piki-piki, which, being only partly digestible, forms large pellets of excreta on the floor of their tunnel homes. All those who have kept a bird of this species as a pet, agree in testifying to its intelligence and companionableness.—Mr. Cecil Smith, among his ornithological notes from Somersetshire, records experiments, suggested by Prof. Newton, with a view of ascertaining how far birds in general, and especially some of the foster-parents of the cuckoo, have any objection to eggs of a different colour being placed in their nest. In nearly every case the exchange was perfectly successful.—Mr. Gatcombe had an opportunity of examining a Night Heron obtained near Ivybridge, in Devon; he also records other ornithological notes.—A specimen of *Scyllarus arctus* is mentioned by Mr. J. S. Bowerbank, as having been obtained by him at St. Leonard's (it was five inches long), as well as an Angel Fish.—Mr. A. G. Butler finds, as one of the effects of the Wild Birds Protection Act, that farmers employ boys to collect and break up all the eggs on their grounds, as they are now deprived of the satisfaction of destroying the birds.

## SOCIETIES AND ACADEMIES

### LEEDS

Naturalist's Field Club and Scientific Association, Aug. 5.—Mr. Louis C. Miall read a paper on "The Permian Rocks of the Neighbourhood of Leeds." He first described the base of the Permian System. The carboniferous rocks having been disturbed, thrown into anticlinals and faulted, were greatly denuded, and the Permian rocks were then deposited upon the new surface thus produced. The conditions of deposit of the magnesian limestone were then considered. The abundance of mineral salts, exclusive of carbonate of lime, the scantiness of animal life and the dwarfed state of the mollusca, all point to deposition in an inland sea or confined basin similar to the Caspian, Dead Sea, or Great Salt Lake of the present day. In parts of he Triassic period the previous marine surface appears to have become, in part at least, terrestrial or fresh water. At a much later period the Permian rocks, with others of subsequent formation, were denuded extensively, and reduced to the state in which they now occur. The Permian series of the neighbourhood of Leeds were then specially referred to. The Lower New Red Sandstone of South Yorkshire (the Pomfret Rock of Smith) does not appear to be present, at all events in a conspicuous state, in this district. The so-called Lower New Red Sandstone of Plumpton is undoubtedly of carboniferous age. The Upper and Lower Magnesian Limestone are well displayed. Various sections of these rocks at Rigton, East Keswick, Collingham, Whin Moor, and Knaresborough, were described in the paper. Remarks on the colour of the soil produced by underlying Permian rocks on the few fossils which have occurred at Garforth and Cold Hill, near Sherburn, and on the superficial drift, concluded the paper.

### VIENNA

Imperial Academy of Sciences, April 24.—Dr. Wiesner presented a work on the influence of temperature on the development of *Penicillium glaucum*. Germination of spores takes place between 1·5° and 43° C.; development of mycelia between 2·5° and 40°; and formation of spores between 3° and 40°. These processes attain maxima of rapidity, the first and third at 22°, the second at 26°.—Dr. Hause gave a paper on the decrease of heat with the height in Asiatic monsoon countries. The decrease is less on the windy side than on the lee. The yearly average decrease is not less in the tropics than in central Europe.

May 8.—Dr. Thin presented a memoir on the structure of touch bodies.

May 15.—Dr. Boué read a paper on petrified bodies which have been forced from their place of deposition; and another on

the formation of the dolomitic Alpine Breccias, as compared with some tertiary mountains in Lower Austria, which resemble them, but are quite distinct in origin.

May 23.—A communication from Prof. Horsford, of Cambridge, U.S., treated of the reduction of carbonic acid to carbonic oxide through phosphate of iron.—MM. Hlasiwetz and Habermann concluded their account of researches on proteinstuffs. They find the decomposition-products of casein to be, exclusively, these: glutamic acid, aspartic acid, leucin, tyrosin, and ammonia.—Dr. Heitzmann gave a paper on the relation between protoplasm and ground substance in animal bodies.

June 13.—Dr. Basch presented a note on the retardation of intestinal motion through the nervus splanchnicus.

June 19.—M. Fritsch presented the third part of his normal flower-calendar for Austro-Hungary.—Prof. Maley described researches made along with Dr. Donath on the chemistry of bones. One chief object was to ascertain whether the substance of bones is a combination of calcic phosphate with the lime-furnishing mass, in chemical sense, or whether it is not rather an intimate mechanical mixture of the two constituents. They adopt the latter view.—Prof. Töpler described two applications of the principle of air friction to measuring instruments. A suspended magnet has, connected with it below, and in the same plane, a vertical plate, moving in a closed case, the vertical section of which it nearly fills. By inserting cross walls in the case, the motion of magnet and plate may be deadened by air friction; and that in proportion as the cross plates are pushed far in or not. The other application is for levelling purposes. The observer looks through a telescope at a little square mirror suspended by two threads in a glass case scarcely larger than it. The mirror moves as if in a viscous liquid.—Prof. Suess presented a memoir on the earthquakes of Lower Austria. Two lines of direction are distinguished.—Dr. Holetschek discussed the path of the first comet of 1871.—Dr. Heitzmann described experiments in which he had fed carnivorous animals with lactic acid, and also injected it subcutaneously; the result being arthritis and osteomalacia.

June 26.—Dr. Heitzmann read a paper on the life phases of protoplasm.

July 10.—M. Simony gave the principal results of a large theoretical work occupying him, in which a new molecular theory will be developed, requiring only one matter and one principle of force.—Dr. Böhm gave a note on the germination of seeds in pure oxygen gas. In such gas, of ordinary density, seeds did not get beyond the first stages; but, curiously, if the gas was diluted with $\frac{1}{5}$ of its volume of hydrogen, or rarified to a pressure of 150 mm. they germinated as in air.—Dr. Heitzmann read a paper on the development of periosteum, bone, and cartilage.

July 17.—Dr. Böhm presented a note on the influence of carbonic acid on the verdure and growth of plants. In an atmosphere containing only 2 per cent. $CO_2$ the formation of chlorophyll was retarded; while 20 per cent. suppressed it entirely in most cases. The gas was also found prejudicial, in various degrees to the germination of seeds.—Dr. Sigmund Mayer described some experiments on direct electrical stimulation of the heart in mammalia.—Prof. Suess gave a paper on the formation of mountains in central Europe, and Dr. Heitzmann one on inflammation of periosteum, bone, and cartilage.

### GÖTTINGEN

**Royal Society of Sciences**, June 14.—M. Waitz read a note on some lost Mayence Annals.—M. Benfey presented a philological paper on the suffixes *anti*, *âti*, and *ianti iâti*, in Sanscrit, Latin, and Greek; also a notice of some Mongolian and Cingalese legendary fragments; and sketched the design of a treatise on "eye-speech," pantomime, gestures, and modulations of the voice, phenomena which he urges travellers to make careful note of, and grammarians to study more than previously, as throwing light on the development of speech and languages.—M. Quincke described a new method of observing circle divisions in telescopic work.—Dr. Voss communicated mathematical notes on the simple transformation of plane curves, and the geometry of surfaces.—Dr. von Brunn described certain smooth muscular fibres found in the suprarenal bodies, accompanying the larger veins, and forming cylindrical or flat bundles.—M. Enneper presented a second note on orthogonal surfaces.—M. Bjerknes made some historical observations on Dirichlet's problem of a ball at rest in an agitated, unelastic, infinite liquid, and generalised some results previously obtained on the subject.—M. Klinkerfues made some remarks on the method of determining parallax by radiants; the results of this method, for Sirius, agree pretty closely with observation.—M. Lolling contributed a lengthy memoir on the topography of Athens. From local study, and the Greek authors, he seeks to determine the position and nature of the Pnyx, the Bema, the cave of Apollo in the Acropolis, and the Metroon. He is now prosecuting these inquiries further.

July 5.—M. Benfey made some remarks on the dual nominative "âsmritadhrû" occurring in the Rigveda.—Fr. Wieseler gave a description of certain valuable specimens of early Grecian sculpture and other antiquities obtained in the East.—Dr. Riecke discussed Weber's fundamental law of reciprocal electric action in its application to the unitarian hypothesis, instead of the dualistic, which Weber adopted; and points out some differences these hypotheses involve in their results.—Dr. Voss read a paper on the geometry of Plücker's line forms.—Dr. von Brunn communicated a short note on ossification of cartilage.

### PARIS

**Academy of Sciences**, Aug. 11.—M. de Quatrefages, president, in the chair.—The following papers were read:—A reply to M. Tacchini's new objections, by M. Faye. The author answered the observations and objections lately published by that observer, of whom he said that "the facts which he cites are in contradiction with the theories which he attributes to me, but not with those which I have really published."—On the Cyanides, by M. Berthelot.—On the re-solution of precipitates, by M. Berthelot.—On the palms of New Caledonia, by M. Ad. Brongniart.—On the carpellary theory applied to the *Ranunculaceæ*, by M. Trécul.—M. Elie de Beaumont furnished some further descriptive matter on the detailed geological map of France.—M. A. Ledieu read the fifth portion of his paper on thermo-dynamics.—On the movements of the tide on the coasts of France, change in the time of high water at Havre since the embankment of the Seine, by M. L. Gaussin.—On the passage of gases through colloidal vegetable membranes, by M. A. Barthélemy.—Note on the methods employed for the analysis of the natural phosphates employed in agriculture, by M. C. Mène. The author strongly advocated the use of the bismuth process, which, he says, never admits of a greater error than 0·25 per cent.—On a cave of the period of the reindeer, at Lortet, Hautes-Pryrénées, by M. E. Piette. The author announced the discovery beneath a deep layer of stalagmite, which covered reindeer remains, of a quantity of prehistoric human relics, and upwards of 500 cubic metres of ashes. The human relics include a drawing, on rein-deer horn, of a heath-cock.—Analytical solution of curve traces of several centres by means of Perronet's geometrical process, by M. Revellat.—On fluorene, by M. Barbier. This is the name given to a hydrocarbon exhibiting great fluorescence, and occurring in coal-tar boiling between 300° and 340°.—On the action of platinum and palladium on the hydrocarbons, by M. Coquillion.—On the variations of hæmoglobin in various diseases, by M. Quinquaud.

## CONTENTS



Errata.—Vol. viii. p. 299, col. 2, at bottom, Equation (6), should read:—

$$2\left(\frac{1}{D_{12}}\right)^{\frac{1}{2}}\left(\frac{1}{w_1}+\frac{1}{w_2}\right)^{\frac{1}{2}}=\left(\frac{\rho_1}{v_1}\right)^{\frac{1}{2}}\left(\frac{2}{w_1}\right)^{\frac{1}{2}}+\left(\frac{\rho_2}{v_2}\right)^{\frac{1}{2}}\left(\frac{2}{w_2}\right)^{\frac{1}{2}} \quad (6)$$

The calculations were not made by means of this equation, either in its right or wrong form, but from the values of $\delta$ given in Table I.—J. Clerk-Maxwell.

P. 300, 1st col. equation (7) should be $l=\frac{1}{\sqrt{2\pi s^2 N}}$, &c.

P. 309, transfer top line of col. 1 to top line of col. 2, p. 308.