

females under 15 years of age. If it be assumed that the numbers living under 5 years of age bear the same proportion to the whole number under 15 years of age as in the European portion of the population, the above numbers would give 4596 Maori males and 4082 Maori females between 5 and 15 years of age. As all the children attending the private and public schools may be fairly taken at over 5 and under 15 years of age, and the ages of those attending native schools are ascertainable, it may be roughly stated that nearly 32 per cent. of the Maori boys and nearly 27 per cent. of the Maori girls between 5 and 15 years of age attend schools.

SCIENTIFIC SERIALS.

Reale Istituto Lombardo di Scienze e Lettere, Rendiconti, vol. xxii. fasc. xv.-xvi.—It appears from experiments here described by Signor Sormani that the Bacillus and spores of tetanus may be drawn into the respiratory passages by inhalation, or even injected into the bronchial tubes, without producing tetanus. The Bacillus is probably anaerobic, unable to develop in presence of oxygen. The tetanus called *rheumatic* is thought to be of traumatic origin really, the wound being slight, and but little of the virus introduced. Tetanus is most common in Northern Italy; its maximum being in Lombardy and Emilia, where people frequently work, in the hot season, with bare feet. They are attacked in the proportion of 100 males to 30 females. The mortality in hospitals is about 44 per cent. of those attacked.—We note two medical papers: on recent innovations in treatment of free inguinal hernia (Signor Scorenzio), and on fibroma of the breast (Signor Sangalli).—An inquiry into the nature and uses of the *stufe* and warm baths of the middle and later ages is summarized by the author, Signor Corradi.—Signor Maggi writes on the principles of the theory of potential functions, and there are continuations of mathematical papers by Signors Oschieri and Giulio.

Bulletin de l'Académie Royale des Sciences de Belgique, No. 8, 1889.—M. Massart here seeks to account for the penetration of spermatozooids into the egg of the frog by the resultant attraction of the gelatinous mass round the egg, which, absorbing water, presents a gradually increasing density inwards. If a piece of the episperm of linseed or quince be put in water containing spermatozooids, the mucilaginous matter round it swells similarly, and, during the twenty minutes this continues, the spermatozooids are attracted, and make their way to the centre. When the absorption ceases, they stop too. The gelatinous covering of the frog's egg, separated from the latter, in water, affects them similarly. M. Massart holds that sensibility to contact is the explanation of the phenomena (not mechanical attraction, nor a sense of the direction of the current).—M. de Heen describes a simple new apparatus for measuring the heat conductivity of some homologous organic liquids, and shows that, in a given series, the conductivity diminishes with increasing molecular weight; but the square of $\frac{1}{c}$ varies generally less rapidly than the weight.

He also discusses the dilatibility of liquids in relation to molecular movements.—M. Henry studies the volatility of normal cyanic ethers, and of poly-oxygenated carbon compounds; finding the simultaneous presence of oxygen and nitrogen, or the accumulation of oxygen, at one point in the molecules, a powerful cause of it. He has also a short paper on monohaloid ethers of ethylenic glycol.—M. Dewalque supplies some phenological figures for Liège, Spa, &c. A valuable paper on the svastika appears in the section *des lettres*.

SOCIETIES AND ACADEMIES.

LONDON.

Entomological Society, October 2.—The Right Hon. Lord Walsingham, F.R.S., President, in the chair.—Mr. F. P. Pascoe exhibited a number of species of Coleoptera, Lepidoptera, Hymenoptera, Neuroptera, Hemiptera, Orthoptera, and Diptera, collected by himself during the past summer at Brindisi, and in Greece and the Ionian Islands.—Mr. J. W. Douglas sent for exhibition specimens of *Lygus visciicola*, Puton, a species new to Britain, taken at Hereford, in September last, by Dr. T. A. Chapman.—Mr. R. McLachlan, F.R.S., exhibited nearly 100 specimens of Trichoptera recently collected in Iceland by Dr. P. B. Mason. Only six species were represented, and of these five had been previously recorded from the island. Mr. McLachlan remarked on the great amount of variation

existing in some of the specimens.—Mr. E. B. Poulton, F.R.S., exhibited a mounted specimen of the yellow powder from the cocoon of *Clisiocampa neustria* under a power magnifying 188 diameters. The powder was thus seen to consist of crystals so minute that the form could only just be made out under this power; it was present in a crystalline form in the Malpighian tubules, and discharged from the anus of the larva. A discussion ensued as to the functions of the Malpighian tubes, in which Mr. Stainton, F.R.S., Lord Walsingham, Dr. P. B. Mason, Mr. McLachlan, and Dr. Sharp took part.—Mr. Poulton also exhibited some photographs of the living larvæ of *Hemerophila abruptaria*, showing different depths of colour which had been induced by experiment; the larvæ had been rendered very light in colour by being surrounded by green leaves and stems only, whereas they had become extremely dark when numbers of dark twigs were intermingled with the leaves of the food-plant. Mr. F. Merrifield said that Dr. Chapman had recently obtained similar results from experiments made with the larvæ of *Ennomos alniaria*.—The Rev. Dr. Walker exhibited, and read notes on, a number of Coleoptera, Neuroptera, Hymenoptera, and Diptera, which formed the second instalment of the collection which he had recently made in Iceland.—Mr. R. South exhibited a specimen of *Luperina nickerlii*, Freyer, caught in Lancashire last August. He also exhibited, and read notes on, a long series of *Boarmia repandata*, bred from larvæ collected in North Devon. Mr. Poulton, Mr. Merrifield, and Lord Walsingham took part in the discussion which ensued.—Mr. J. J. Walker, R.N., exhibited a collection of Coleoptera made during the past summer in Cobham Park, Kent. Thirty-three species were represented, amongst which were the following, viz. *Eros minutus*, *Philonthus fuscus*, *Homalota hepatica*, *Abreus granulum*, *Anisotoma grandis*, *Agaricophagus cephalotes*, *Thalycra sericea*, *Cryptophagus ruficornis*, *Platytarsus setulosus*, &c.—Herr Jacoby exhibited a curious Phytophagous beetle found by Mr. J. H. Leech in the Corea. He stated that he was unable to determine the species, as was also Mr. J. S. Baly, to whom he had submitted the specimen.—Mr. R. Adkin exhibited specimens of *Retina resinella*, received by him from Forbes. Lord Walsingham remarked that he had never seen the species in Scotland, but that it was not uncommon in Germany.—Mr. W. Dannatt exhibited a male specimen of *Papilio antimachus*, Drury, received from Lukolela, a station about 500 miles from the mouth of the Congo. He stated that the species, although very rare, had a wide range, as three other specimens of it had been received from the Stanley Falls, which were more than 800 miles further up the Congo.—Lord Walsingham exhibited specimens of the larva and imago of *Cidaria reticulata*, collected in the Lake District, and sent to him by Mr. Hodgkinson.—Mr. J. Jenner-Weir exhibited fore-wings of the males of *Argynnis paphia*, *A. adippe*, and *A. atlantis*, denuded of the scales, in order to show that there was no dilatation or thickening of the median nervules and submedian nervure in that sex of these species; but that the apparent dilatation was produced by a dense mass of scales crowded together on each side of the nervules. He also read a short paper on the subject entitled "Notes on the Nervules of the Fore-Wings in the Males of *Argynnis paphia* and other Species of the Genus." Mr. Jenner-Weir said he was supported in his views by the opinions of Mr. S. H. Scudder, Dr. Staudinger, and Dr. Schatz.

SYDNEY.

Linnean Society of New South Wales, July 31.—The following papers were read:—Description of a new species of Iodis, with remarks on *Pielus imperialis*, Olliff, by Thomas P. Lucas. For the new species of Iodis—of which three specimens were recently captured in Brisbane by Mr. Illidge—the name of *P. illidgei* is proposed. The second part of the paper consists of critical remarks on *P. imperialis*, Olliff, which the author states is identical with *P. hyalinatus*, Schäffer.—The examination of kinos as an aid in the diagnosis of Eucalypts; Part I, the Ruby Group, by J. H. Maiden. The author refers to a previous paper, in which he shows that Eucalyptus kinos may readily be grouped into three great classes, according to their behaviour with water and with spirit. Briefly, he divides them into (1) the Ruby Group, which consists of ruby-coloured kinos, the members of which are soluble either in cold water or in cold spirit. (2) The Gummy Group, whose members are soluble in cold water, but very imperfectly in spirit, owing to the gum they contain. (3) The Turbid Group, whose members are soluble in hot water or in hot alcohol, but the solutions become turbid on cooling, owing

to the presence of catechin. He then deals with the first group, and shows that, with one anthereally doubtful species, the members are identical with the group *Renanthera* of Benth and Müller's anthereal classification. He shows how the examination of kinos is a valuable aid or supplement in the diagnosis of Eucalypts, and concludes this part with an account of all the ruby kinos at present known to science.—On Rhopalocera from Mount Kosciusko, New South Wales, by A. Sidney Olliff. In this short paper some sixteen species are recorded from specimens obtained by Mr. R. Helms, a most painstaking and energetic collector, who recently made an excursion, chiefly in the interests of entomology, on behalf of the Australian Museum. The collection contains both the species described from the mountain by Mr. Meyrick, as well as a new *Xenica*, proposed to be called *X. correa*.—Note on the fructification of *Phleboteris alathopteroides*, Etheridge, fil., from the Lower Mesozoic Beds of Queensland, by R. Etheridge, Jun. From the examination of additional material the author has been able to determine an arrangement of the sori similar to that in *P. polypodioides*, Brongn., and other known species of the genus.—Note on the bibliography of Lord Howe Island, by R. Etheridge, Jun. This paper is supplementary to a recently published work ("Lord Howe Island: its Zoology, Geology, &c.," *Mem. Austr. Mus.*, 1889, No. 2), and gives a digest of certain valuable reports by Dr. Foulis, Mr. White, Captain Denham, R.N., and Dr. J. Dennis MacDonald, contained in the "Votes and Proceedings of the Legislative Council of New South Wales for 1853," and with which, when contributing to the above-mentioned work, the author had been unable to meet

PARIS.

Academy of Sciences, October 14.—M. Des Cloizeaux, President, in the chair.—Presentation of vol. iv. of the "Collection of Memoirs relating to Physics," published by the French Physical Society, by M. C. Wolf. This volume is devoted to the pendulum; and contains memoirs by La Condamine, Borda, Cassini, Prony, Kater, and Bessel. M. Wolf supplies a bibliography and chronology of works on the pendulum from Galileo's time to 1885; also an historical introduction. The fifth volume will deal with the same subject.—Reciprocal displacements between the halogen elements and oxygen; hydrobromic and hydriodic acids, by M. Berthelot. A dilute solution of iodide of potassium remains an indefinite time colourless in presence of oxygen; but it is otherwise with a saturated solution, owing to the formation of a small amount of tri-iodide. Dilution of the yellow liquor with fifty times its volume of water (or more) removes the colour almost entirely; dissociation of the tri-iodide allowing the potash to react fully with the iodine.—On transformism in pathogenic microbiology; limits, conditions, and consequences, of the variability of the *Bacillus anthracis*; researches on ascendant or reconstituent variability, by M. A. Chauveau. The natural *Bacillus*, with its virulence quite removed by compressed oxygen, may be revived by degrees, thus: it is cultivated in *bouillon*, to which fresh blood of, e.g., a guinea-pig is added, and in very rarefied air; it then becomes fatal to mice, guinea-pigs, rabbits, &c., and is vaccinal to small ruminants, but does not kill them. Cultivation of this *Bacillus* in *bouillon* to which sheep's blood is added renders it fatal to small ruminants, and probably vaccinal to the ox.—New relation between sugars and furfural compounds; constitution of methylfurfural and of isodulcitol, by M. Maquenne. Distilling isodulcitol ($C_6H_{12}O_5$) with dilute sulphuric acid, he got some pure methylfurfural ($C_6H_8O_2$) identical with that obtained from Fucus; and he infers the presence of isodulcitol in tissues of marine plants. Its relations to arabinose suggest that it may be much more widely diffused than has been supposed.—On the physical properties of the free superficial layer of a liquid, and of the layer of contact of a liquid and a solid, by M. Van der Mensbrugghe.—On doubly harmonic linear elements, by M. L. Raffy.—On the area of certain ellipsoidal zones, by M. G. Humbert.—On the fermentation of raffinose, in presence of different species of beer-yeast, by M. D. Loiseau. A claim of priority.—Observations on the communication made by M. Ch. E. Guignet, at the meeting of September 30 last, by M. M. C. Vincent and Delachanal. The addition of ammoniacal sulphate of copper to the juice of sorbs precipitates sorbite itself, so the production of this precipitate does not prove the presence of mannite nor its separation from sorbite.—On the optical analysis of oils and of butter, by MM. E. H. Amagat and Ferdinand Jean. They describe a method based on variation of the index

of refraction of various oils, and of the melted fatty matter of butter, due to the presence of adulterating substances.—On air contained in the soil, by M. Th. Schloesing, *fil.*. He has improved on the method adopted by MM. Boussingault and Lévy thirty years ago; he forces into the ground a steel tube with conical point, the opening of which is temporarily closed by wire. The upper end is connected by means of a capillary tube with a bulb, from which mercury is withdrawn on lowering a small connected reservoir; thus the air of the soil is drawn in. He finds abundant gaseous oxygen in the soil, and much variability at different times; details are promised.—On a musculo-cutaneous strip, in form of a flap, applied to the restoration of eyelids, by M. Léon Tripier. The strip is dissected out from one eyelid and transferred to the other side.—On the exploration and the formation of *avens*, by MM. E. A. Martel and G. Gaupillat. These *avens* are natural, open, deep pits, found in numbers on calcareous plateaus. The authors hold that four factors participate in their formation: (1) previous dislocations of the ground; (2) surface waters (erosion); (3) interior waters (erosion, hydrostatic pressure, falling in); (4) chemical phenomena. Frequently only three or two of these factors have been in operation. It is only accidentally that the *avens* communicate with subterranean rivers.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Chief Ancient Philosophies—Aristotelianism: Rev. I. G. Smith and Rev. W. Grundy (S.P.C.K.).—Toilers in the Sea; M. C. Cooke (S.P.C.K.).—Federal Government in Canada: J. G. Bourinot (Baltimore).—Elementary Manual of Magnetism and Electricity: Part 1, Magnetism: Prof. Jamieson (Griffin).—Index of the Genera and Species of Mollusca in the Hand-list of the Indian Museum, Calcutta, Parts 1 and 2 (Calcutta).—Journal of the Chemical Society, October (Gurney and Jackson).—Journal of Anatomy and Physiology, October (Williams and Norgate).—Morphologisches Jahrbuch, 15 Band, 2 Heft (Leipzig).—Journal of the Royal Microscopical Society, August (Williams and Norgate).—Key to Lock's Arithmetic for Beginners: Rev. R. G. Watson (Macmillan).—A General Formula for the Uniform Flow of Water in Rivers and other Channels: E. Ganguillet and W. R. Kutter; translated (Macmillan).—Scientific Papers of Asa Gray, 3 vols., selected by C. S. Sargent (Macmillan).—Hand-book of the Bromeliaceæ: J. G. Baker (Bell).—Ker Kompass an Bord; ein Handbuch für Führer von Eisernen Schiffen (Hamburg, Friederichsen).—A Bibliography of Geodesy; Appendix No. 16, Report for 1887 (Washington).—Calendar of the University College of Wales, Aberystwyth, 1889-90 (Manchester, Cornish).—Les Industries des Animaux: F. Houssay (Paris, J. B. Baillière).—Glasgow and West of Scotland Technical College Calendar for the Year 1889-90 (Glasgow, Anderson).—The Engineer's Sketch-book: F. W. Barber (Spon).—Proceedings and Transactions of the Royal Society of Canada for the Year 1888, vol. vi. (Montreal, Dawson).—Iris; Studies in Colour and Talks about Flowers: F. Delitzsch, translated by Rev. A. Cusin (T. and T. Clark, Edinburgh).—Steam: W. Ripper (Longmans).—The Tornadoes and Hailstorms of April and May 1888 in the Doab and Rohilkhand: S. A. Hill (Calcutta).—Journal of the Royal Statistical Society September (Stanford).—Journal of the Scottish Meteorological Society, 3rd series, No. 6 (Blackwood).—Journal of Morphology, vol. iii. No. 1 (Boston, Ginn).

CONTENTS.

	PAGE
James Prescott Joule	613
The Life of Sir William Rowan Hamilton	614
The English Translation of Weismann's "Essays." By P. C. M.	618
Our Book Shelf:—	
"Chambers's Encyclopædia"	619
Wallace; "Farm Live Stock of Great Britain"	619
Japp; "Days with Industrials"	619
Letters to the Editor:—	
Lamarck versus Weismann.—Dr. Alfred R. Wallace	619
A Mechanical Illustration of the Propagation of a Sound-Wave. (<i>Illustrated.</i>) By Frederick J. Smith	620
On some Effects of Lightning.—Spencer Pickering	620
Yew-Trees in Berks.—George Henslow	621
Maxwell's "Electricity and Magnetism."—Herbert Tomlinson, F.R.S.	621
An Examination of some Points in Prof. Weis- mann's Theory of Heredity. By Dr. Sydney H. Vines, F.R.S.	621
Notes	626
Astronomical Phenomena for the Week 1889 October 27—November 2	628
The Geographical Papers at the British Association	629
The Mechanical Papers at the British Association	630
The Anthropological Papers at the British Association	631
The Maoris	634
Scientific Serials	635
Societies and Academies	635
Books, Pamphlets, and Serials Received	636