

elementary biology, Mr. F. Gymer Parsons, Mr. P. Chalmers Mitchell; elementary physiology, Dr. H. Lewis Jones; physiology, Dr. Vincent D. Harris, Dr. Thomas Oliver, Dr. Frederick W. Mott; anatomy, Mr. Charles Stonham, Prof. G. Dancer Thane; medical anatomy and principles and practice of medicine, Dr. Philip J. Hensley, Dr. J. Burney Yeo, Dr. G. Vivian Poore, Dr. J. Mitchell Bruce, Dr. Frederick Taylor, Dr. Stephen Mackenzie, Dr. William Ewart, Dr. Seymour J. Sharkey, Dr. J. Kingston Fowler, Dr. Robert Saundby; midwifery, Dr. J. Baptiste Potter, Dr. J. Watt Black, Dr. Peter Horrocks, Dr. Walter S. A. Griffith; surgical anatomy and principles and practice of surgery, Mr. John Langton, Mr. J. N. C. Davies-Colley; public health, Dr. Charles H. Ralfe, Dr. William Pasteur; Murchison Scholarship, Dr. F. Charwood Turner, Dr. Samuel H. West.

WE gave last week the names of the Research Scholars appointed for 1895, by Her Majesty's Commissioners for the Exhibition of 1851. We are now informed that the following scholars, appointed in 1894, have forwarded satisfactory reports of their work during the first year of their scholarships, which have accordingly been renewed for a second year.

Name of Scholar.	Nominating Institution.	Place of Study.
J. C. Beattie ...	University of Edinburgh	University of Vienna.
J. R. E. Murray ...	University of Glasgow ...	University of Glasgow.
W. B. Davidson ...	University of Aberdeen...	University of Würzburg.
R. C. Clinker...	University College, Bristol ...	University College, Bristol.
F. Dent ...	Yorkshire College, Leeds	University of Munich.
A. J. Ewart ...	University College, Liverpool ...	University of Leipzig.
D. K. Morris...	University College, London ...	University College, London.
J. Frith ...	Owens College, Man- chester ...	Owens College.
R. Beattie ...	Durham College of Science ...	Durham College of Science.
W. B. Burnie...	University College, Nottingham ...	Central Technical Col lege.
J. A. McClelland ...	Queen's College, Galway	Owens College.
F. B. Kenrick ...	University of Toronto ...	University of Leipzig.
F. J. A. McKittrick	Dalhousie University, Halifax, Nova Scotia...	Cornell University.

Note.—Such of the above Scholars as remained at the nominating Institution for the first year will now proceed to another Institution in England or abroad.

The following scholars, appointed in 1893, have been selected for exceptional renewal for a third year:—

Name of Scholar.	Nominating Institution.	Place of Study.
H. W. Bolam...	University of Edinburgh	University of Leipzig.
J. W. Walker...	University of St. Andrews ...	Universities of Leipzig and St. Andrews.
J. E. Myers ...	Yorkshire College, Leeds	University of Strassburg
E. C. C. Baly...	University College, London ...	University College, London.

SCIENTIFIC SERIALS.

American Meteorological Journal, July.—The geographical distribution of the maximum and minimum hourly wind velocities . . . for January and July, for the United States, by Dr. F. Waldo. This discussion is based on the Signal Service and Weather Bureau observations, and the subject is treated in various ways, and illustrated by wind charts. We select from these (1) the hour of maximum wind and (2) the maximum hourly wind, in miles per hour. There is no great regularity in the time of occurrence of the strongest wind; in January it occurs on the Atlantic coast from 2h. to 4h. a.m., and on the North Pacific coast it is retarded to 6h. a.m. On the Gulf of Mexico it takes place about noon, while at inland stations it occurs generally about 2h. p.m. In July, on the Atlantic coast, there is a maximum wind about 2h. p.m. in latitude 45°, but with southward progress it is retarded, until in latitude 30° the hour is changed to 6h. p.m. In the southern part of the Pacific

coast, the time of maximum is 1h. p.m., which is much earlier than for the adjacent inland or the northern part of the coast. In general, for the inland north-east the hour is 2h. p.m., and there is a retardation with both western and southern progress. In January the maximum hourly wind reaches a velocity of seventeen miles on the northern parts of the Atlantic and Pacific coasts, decreasing with southward progress, while the inland distribution shows a maximum of ten to thirteen miles per hour over the Great Plains. In July, the maximum hourly wind is eleven to thirteen miles on the Atlantic coast, while on the North Pacific coast there is a very small maximum (eight miles), but this is counterbalanced by the very high velocity of eighteen miles per hour on the central Californian coast. A reference to the wind charts shows the prevailing conditions much better than any verbal description can do.

Bulletin of the American Mathematical Society, No. 9. (June 1895, New York).—Mr. J. de Perott gives a very interesting sketch of Euclidian arithmetic in connection with a notice of the late M. Stieltjes' contribution to the *Annales de la Faculté des Sciences de Toulouse*, vol. iv., entitled "Sur la théorie des nombres." M. Stieltjes had it in contemplation to write an extensive treatise on the theory of numbers, but unhappily his weak health and final untimely death prevented his getting beyond the paper noticed by Mr. de Perott. This paper is devoted to a greatly generalised form of Euclid's work. "It does not insist on the definition of number, nor on the laws which are at the base of the operations we perform on numbers, but passes immediately to the exposition of the chief properties of the least common multiple and the greatest common divisor of numbers. . . Poinso't was the first, I think, to whom it occurred that the course could be reversed." The results are expressed in a very symmetrical form by the author of the note.—Mr. G. L. Brown writes a short note on Hölder's theorem concerning the constancy of factor-groups, and Prof. F. Morley a like note on the theory of three similar figures. The theory has been recently given in the sixth edition of Casey's "Sequel to Euclid," and also in the second edition of his "Conics." Prof. Morley believes that something is to be said in favour of an appropriate analytic handling of the theory, and gives here some preliminary equations in a convenient form.

Bollettino della Societa Sismologica Italiana, I., 1895, No. 3.—Microseismograph for continuous registration, by Prof. G. Vicentini (see p. 178).—New type of seismic photochronograph and its applications, by A. Cancani. A description of an instrument by which the face of a chronometer is photographed at the moment of the shock or of the arrival of long-period pulsations from a distant earthquake.—Review of the principal eruptive phenomena in Sicily and the adjacent islands during the four months January-April, 1895, by S. Archidiacono.—The Viggianello (Basilicata) earthquake of May 28, 1894, by M. Baratta. An account of an interesting tectonic earthquake. The meizoseismal area, which is elliptical and only about 17 km. long, is restricted to the northern slopes of M. Pollino. This group of mountains represents the northern half of a vast ellipsoid of dolomites and limestones, traversed by great fractures, which, if produced, pass through Rotonda and Viggianello, the towns most damaged by the shock.—Notices of Italian earthquakes (February-April, 1895).

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, July 22.—M. Marey in the chair.—Researches on the composition of grapes from the principal French vines, by MM. Aimé Girard and L. Lindet.—On the osmotic phenomena produced between ether and methyl alcohol across different diaphragms, by M. F. M. Raoult. It is found that with ether and methyl alcohol on the respective sides of a diaphragm of pig's bladder, the methyl alcohol passes by osmosis to the ether side. The bladder membrane appears to be impermeable to ether; even with mixtures the transference is always of methyl alcohol towards the side where it is of less concentration. Exactly the reverse occurs with a vulcanised caoutchouc membrane, which is impermeable to methyl alcohol, but permeable to ether. The experiments show: (1) that osmosis between two determined liquids may not only vary much in energy, but even change its sense with the nature of the diaphragm; (2) that the osmotic movement of substances

across the diaphragm may be absolutely independent of their molecular weights and of their condition as dissolved substance or solvent.—Action of phenyl isocyanate on some acids and ethereal salts, by M. A. Haller.—M. Retzius was elected Correspondant of the Anatomy and Zoology Section, in succession to M. Carl Vogt.—Abnormal refractions at the surface of water, by M. Ch. Dufour. Attention is directed to a source of error, due to irregular refraction caused by differences in temperature between water and air immediately above its surface, which may arise in taking the latitude or determining time at sea.—On static or dynamic explosive potentials, by M. R. Swyngedauw. According to the experiments described, the explosive potential between two poles shielded from ultra-violet radiations is not appreciably diminished by very small and very rapid variations of potential.—On a phosphorescence phenomenon obtained in tubes containing rarefied nitrogen after the passage of the electric discharge, by M. Gaston Séguy. In presence of vapours of stannic chloride, the author finds the light emitted from a nitrogen tube to be rose-coloured during the discharge, and milky white for some 10 to 80 seconds after interruption of the current.—On the electromotive force of the Latimer Clark, Gouy, and Daniell standards, by M. C. Limb. The values found by the author's method for the elements at 0° C. are: Latimer Clark 1.4535 volts (absolute), Gouy 1.3928 volts (abs.), Daniell (Fleming type) 1.0943 volts (abs.).—On Natterer's tubes, by M. Gouy.—On anhydrous crystallised manganese sulphide, by M. A. Mourlot. Crystallised sulphide, identical with *alabandine*, has been obtained by means of the electric furnace. Small cubes or transparent derived octahedra of a greenish shade are obtained. They have the density 3.92 and hardness 3.5 to 4.—On some properties of combinations of ferrous chloride and nitric oxide, by M. V. Thomas. The experiments detailed show that the three compounds obtained by the author in the dry way possess no appreciable tension of dissociation at the ordinary temperature, and hence differ from the compounds obtained in solution by M. Gay.—On some alkaline phosphides, by M. C. Hugot.—Specific heats of superfused formic and acetic acids. Modifications applied to Regnault's thermocalorimeter to enable the determination of the specific heats of a large number of superfused liquids, by MM. Massol and Guillot. The specific heats of formic and acetic acids in the solid state are much greater than their specific heats in the liquid state. The specific heat in the liquid state diminishes with the temperature. When superfused, the specific heat is slightly augmented, but remains of the same order as the specific heat in the liquid state.—Synthetic formation of nitro-alcohols, by M. Louis Henry.—Oxidation of inactive campholenic acid, by M. A. Béhal.—On the constitution of vegetable albumenoid substances, by M. E. Fleurent.—Influence of respiration on the volumetric trace of the limbs, by MM. A. Binet and J. Courtier.—Modifications of the heat radiated produced by faradisation, by M. L. Lecercle. An account of the local rise in temperature produced in animals by electric excitation, and its effect on the general temperature.—Aggravation of the effects of certain microbe toxins by their passage through the liver, by MM. J. Teissier and L. Guinard.—A contribution to the histology of unicellular glands, by MM. J. Kunstler and A. Gruvel.—On the evolution of the magmas of certain amphibole granites, by M. A. Michel Levy.—On the first alcohol thermometer used in Paris, by M. l'Abbé Maze.

BERLIN.

Physiological Society, June 7.—Prof. Munk, President, in the chair.—Prof. Baginski reported on experiments made, in conjunction with Dr. Sommerfeld, on bile from 115 children. Analysis showed that, in comparison with the bile of adults, it contained more water and mucin and less bile-salts. It contained no urea or ethereal sulphates, and in the case of children who had died of diphtheria it was free from bile-salts. Examination of the urine of children suffering from various forms of nephritis showed that it contained an abnormally large amount of xanthin compounds, which could not be accounted for by any breaking down of epithelial cells or blood corpuscles. Dr. Benda described longitudinal bands in the mucous membrane of the true vocal cords of man, which cause corresponding furrows in the inner side of the epithelial layer. They can be readily brought into view by the removal of the epithelium by macerating in dilute acetic acid. The bands are shorter than the vocal cords, and are pointed at each end. Karyokinetic cell-division can often be seen taking place in the epithelial layer.

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June 21.—Prof. du Bois Reymond, President, in the chair.—Dr. Schulz spoke on the anatomy of unstriated muscles in vertebrates. He finds that they consist of elongated cells, pointed at each end, whose length is very variable in different animals. Each cell consists of fibrils imbedded in a highly refractive interfibrillar substance, and of granules and a nucleus in the middle of the cell with two nuclear bodies. Two nuclei in one cell were only seen once among thousands of preparations. The fibrils interlace with each other. The separate cells are not held together by any cement-substance, but by protoplasmic threads and branches. The transverse striation described by many observers appears to be due to a wrinkling of the cell resulting from incomplete extension after having been contracted. Nerve fibres are very plentiful. With methylene-blue, gold chloride, or by Golgi's method numerous ganglion-cells can be brought into view, from which short branches are distributed to the muscle cells. In addition to these numerous nerve-fibrils can be seen ending in minute bulbous swellings which are applied to the muscle. The nerves are sensory as well as motor.—Dr. Cohnstein reported experiments on injecting solutions of sugar into the blood-vessels, in support of his views on the formation of lymph in opposition to Heidenhain. The results were the same as on the injection of salt solutions. The amount of sugar in the blood rose and fell very rapidly, whereas it rose and fell very slowly in the lymph. The maximum of sugar observed in the lymph was equal to the maximum met with at an earlier stage of the experiment in the blood. The solid constituents of the blood became less after the injection, and then increased slowly to the normal; in the lymph, on the other hand, they increased at first and then became less. After the injection of sugar the blood capillaries of a frog's web were considerably dilated and the circulation quickened. Dr. Cohnstein interpreted these results as indicating an initial passage of water from the intercellular spaces into the blood-vessels, followed at a later stage by a return filtration into the lymph. He had also observed a diminution in the secretion of bile after the injection of sugar, and attributed this to compression of the bile capillaries resulting from dilatation of the blood capillaries.

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