the power of conferring on Masters in Natural Science the rights and privileges at present enjoyed by Masters of Arts.

The statute providing that there shall be two examiners in each of the three branches of the natural science school will come into operation this term. The three new examiners will be Dr. Odling in Chemistry, Prof. Ray Lankester in Biology, and Mr. W. N. Stocker, Brasenose, in Physics.

Dr. Acland, Regius Professor of Medicine, will give a public lecture at the Museum, November 20, on the new hospital at Baltimore, U.S., and its relation to the medical studies at the Johns Hopkins University, and to general medical education.

Mr. C. J. Baker, of Manchester Grammar School, has been elected to the Physical Postmastership at Merton College.

THE Board of Trinity College, Dublin, have elected Dr. Alexander Macalister to the Professorship of Anatomy, and Chirurgery, in Dublin University, vacant owing to the resignation of Dr. B. McDowel. Prof. Macalister still retains his Professorship of Comparative Anatomy, but resigns the Professorship of Zoology and the Directorship of the Zoological Museum. The election to the former of these posts we observe is fixed for an early day in this month; the nominators are the members of the academic council of the University of Dublin, with a veto on the person nominated by the board. The election to the Directorship of the museum is in the hands of the board, and to this the person elected has always been the professor of zoology. The yearly emolument from both posts is between 300*l* and 400*l*. a year.

SCIENTIFIC SERIALS

Annalen der Physik und Chemie, No. 9.—Questions in molecular physics figure largely in this number. Herr v. Wroblewski inquires into the nature of absorption of gases, by a kinematical method, inferring from the phenomena of motion of gases diffusing in absorbent substances, the condition in which they exist in these. The phenomena in caoutchouc are studied, and the author concludes, *inter alia*, that the absorption of protoxide of nitrogen, carbonic acid, and hydrogen by caoutchouc is a purely physical process, and the gases retain, after absorption, their gaseous state and all characteristic properties. The constant of diffusion of a gas depends only on physical properties, and chiefly its specific gravity, being approximately inversely proportional to the square root of this; but the specifically lighter gases show greater constants than this relation expresses. The constant for protoxide of nitrogen and carbonic acid increases with increase of temperature, and at 10° C. is fifty times smaller than that for carbonic acid in water. A caoutchouc membrane is to be conceived as a porous plate endowed with gas-condensing and rarefying powers (the gas moving through the pores).—M. Chappuis investigates the condensation of gases on a glass surface by a similar method to Magnus's, viz., measuring the expansion between two exactly known temperatures, of a certain volume of gas at constant pressure in contact with a large glass surface, and inferring the original volume of the gas. The numerical results for hydrogen, air, carbonic acid, sulphurous acid, and ammonia, from 0° to 100° and 180°, are given, and utilised in determining the absolute coefficient of expansion at constant pressure (a slight correction of the former determinations being necessitated by the phenomenon in question). Magnus's statement that at 100° there is no condensed gas layer on a glass surface is shown to be incorrect in the case of ammonia.—A paper by Herr Schleiermacher treats of the quantity of liquid condensed on a moistened body. The author rejects Wilhelmy's numerical values for the condensation, and considers that, in determining the specific gravity of a liquid, if one be content with an accuracy of 0·002 per cent., the influence of condensation may be neglected; in general the coefficients of condensation would be, at the most, of the order of 0·00001 $\frac{g}{sq.\ ctm.}$.—The specific heat of water is anew determined by Herr Heinrichsen, who arrives at the number 1·071 (for 100°); this stands about midway between Regnault's result, 1·013, and Jamin's, 1·122. (Stamo got 1·125, and Münchhausen 1·030.)—Herr Koch finds that the oxygen-polarisation of platinum and palladium increases the friction of these metals to a glass surface coated with water or dilute sulphuric acid.—Mr. B. O. Peirce, jun., shows from experiments how greatly the electromotive force of gas elements depends on the nature of the electrolyte.—Herr Edlund, replying to a criticism by Herr Dorn, gives experimental evidence that the electromotive force in passage of liquids through tubes depends directly on the velocity, and not on the pressure; also that it is inversely proportional to the cross-section; and explains the facts observed by the unitarian theory.—Herr Fenkner expounds some laws of transverse vibrations of metallic cylinders open at one end.—Remaining papers:—Researches on anomalous dispersion of light, by Herr Sieben.—Researches on the height of the atmosphere, &c. (continued), by Herr Ritter.—On the electromotive force of the Grove element in units of Siemens and Weber, by Herr Riecke.

THE *Journal of the Royal Microscopical Society*, vol. ii. No. 6, October, contains the *Transactions* of the Society.—On a new species of Cothurnia, by John Davis; with Plate 20. Cothurnia is a genus of stalked infusoria very closely allied indeed to Vaginicola. Mr. Davis's new form is apparently very correctly referred to it; but if so, his species is not a rotifer, and, we presume, does not possess a mastax. The infusorian is described as much smaller than its lorica, and is so figured when contracted; this is not characteristic of a rotifer.—On some causes of Brownian movements, by Dr. W. Ord. Observations suggested by the study of *Amphipleura pellucida* mounted in Canada balsam, by lamp-light and sun-light, with various objectives, by Col. Woodward.—On Abbè's experiment on *Pleurosigma angulatum*, by Col. Woodward.—On new species and varieties of diatoms from the Caspian Sea, by Dr. A. Grunow; translated, with additional notes, by F. Kitton; with Plate 21.—The Record of current researches relating to invertebrata, cryptogamia, and microscopy. This record forms a most valuable portion of this journal. It occupies over 100 pages of this number, and, as far as one can judge, the notices give a very fair epitome of the papers quoted. The attempt to make this record a complete one of the invertebrates and of cryptogams is praiseworthy, but it seems to us that our yearly zoological and botanical records already do this in a fairly perfect way. Would it not be better that this bi-monthly record should confine itself to those papers of special interest to the microscopist. In this record references to papers of the type of Fischer on *Voluta musica*, Norman on Solenopus, or Pfeffer on Philippine pteropods, might be omitted. Only those who have worked at compiling bibliography know the great labour and skill required to keep up such a record; and certainly the editor of this journal deserves the special thanks of all workers with the microscope.

THE *Gazetta Chimica* (fasc. vi. and vii.) contains the following papers:—On the chlorides and oxychlorides of tungsten, by U. Schiff.—On a method of preparing economically the bibasic citrate of quinine, by F. Dotto-Scribani.—Researches on *Satureja juliana*, by P. Spica.—Chemical researches on the salts obtained from the mother liquors of the salt works of Volterra, by A. Funaro.—Chemical analysis of a Chilian chrysocolla, by N. Pellegrini.—On a singular decomposition of the chlorhydrate of phenyl-ethyl-amine, by M. Fileti and A. Piccini.—On some neutral ammonia salts (citrate, phosphate, photosantonate), by F. Sestini.—New experiments on resinous substances, by G. L. Ciamician.—On the isomeric nitrosalicylic acids, by U. Schiff and F. Masino.—On the pretended artificial tannic acid, by P. Freda.—On piperidine, by R. Schiff.—On the action of cyanide of potash on the ammoniacal derivatives of chloral, by R. Schiff and S. Speciale.—On the crystalline forms of anglesite from Sardinia, by Q. Sella.—On the forms of crystallisation of some substances belonging to the aromatic series, by R. Panebianco.—On lithofellic acid and some lithofellates, by G. Roster.—Chemico-mineralogical researches on the lavas of the volcanoes of the Ernici in the Valle del Sacco (Rome), by S. Speciale.—On the discovery of nitric acid in the presence of nitrous acid, by A. Piccini.

THE *Rivista Scientifico Industriale* (Nos. 17 and 18).—From these numbers we note the following papers:—On a new method for determining the distribution of magnetism in magnets, by Prof. G. J. Agostini.—On the electromotive forces developed by saline solutions of different degrees by concentration with the metals which form their base, by A. Eccher Dall' Eco.—On the temperature of the voltaic arc and of the positive and negative polar extremities of the carbons during the production of the electric light, by Prof. Rossetti.—On the decomposition of chlorhydrate of ethyl amine by heat, by M. Fileti and A. Piccini.—On the preservation of dragon flies with fading colours, by Prof. Pietro Stefanelli.—On a new hydrometer for measuring the water supplied to steam-boilers, and called "Isaghidrometro" by its inventor, Sig. Massarotti.—On the work which can be performed by the beams of certain aquatic motors, by Cesare

Modigliano.—On a palæontological discovery made at Montegazzo in Fellina (province of Reggio-Emilia), by Prof. A. Ferreti.—On some recent communications made to the Paris Chemical Society, by the Editor.—On the filling of a barometer tube in vacuo, by Prof. Damiano Macaluso.

THE *Archives des Sciences physiques et naturelles* (September, Geneva) contain the following papers of note:—Review of the principal publications on physiological botany during 1878, by M. Marc Micheli.—On xylic acid, its preparation and compounds derived from the same, by MM. E. Ador and Fr. Meier.—Note on the last report of the Council of the Royal Astronomical Society (London), by Prof. Gautier.—Analysis of some recent works relating to the topography and the constitution of the moon, by M. Rapin.—Account of the sixty-first meeting of the Swiss Naturalists' Association, on Aug. 12–14, 1878. The remaining contents of the number consist of mere extracts from papers published in other serials and relate all to chemistry.

La Natura (vol. iii., Nos. 16 and 17) contains the following papers of interest:—On the intensity of electric currents and of extra-currents in the telephone, by G. Farraris.—On the correction of mercury thermometers, by C. Ferrari.—Observations made during the earthquake of August 9 last, by A. Serpieri.—On two new meteorological works, by C. Ferrari.

SOCIETIES AND ACADEMIES

LONDON

Mineralogical Society of Great Britain and Ireland, October 21.—Dr. M. Forster-Heddle, president, in the chair.—The following papers were read:—On the mineralogy and geognosy of the Orkney Islands, by the president.—On a probably dimorphous form of tin, by Dr. C. O. Trechmann.—On some Cornish tin-stones and tin-capels, by J. H. Collins, F.G.S.—Experiments on the elasticity of minerals, by John Milne.—On a peculiar pasty form of silica from Leadhills, Scotland, by Andrew French, F.C.S.

PARIS

Academy of Sciences, October 27.—M. Daubrée in the chair.—The following papers were read:—Notice on the life and scientific works of M. Dortet de Tessan, by Admiral Paris.—On the galvanic oxidation of gold, by M. Berthelot. This refers to Grotthuss's observation of the dissolving of gold-wire when used as positive pole in sulphuric acid traversed by a current. The attack is not due to formation of persulphuric acid, but solely to the influence of the current and contact of the electrode with the electrolysed liquid.—Decomposition of selenhydric acid by mercury, by M. Berthelot. He observed such decomposition when the substances had been in contact with each other a few years.—Note on the development of railways in Brazil, by Gen. Morin. Two maps from the Emperor were shown. The total length of railway in operation in the provinces of Rio de Janeiro, St. Paul, and Minas Geräes, is 2,882 km.; in construction, 1,751 km.; total, 4,633 km. From 1,000 km. to 1,200 km. of the working lines have a broad gauge of 1·60 m.; the rest, for local traffic, a gauge of 1 m. The mountain chain near the sea in Rio de Janeiro presented great difficulties, but beyond, the railways lie in long and fertile valleys.—Critical reflections on experiments concerning human heat, by M. Hirn.—On the gymnastics of M. Zander of Stockholm, by M. Norström. This is a system of mechanical and passive gymnastics, machinery worked by steam being used to move the limbs of the subject in various ways (the force being suitably proportioned). M. Larrey remarked on the complicated and expensive nature of the apparatus, and desired scientific data as to the effects obtained.—Result of researches made with a view to find the origin of estival reinvasions of phylloxera, by M. Faucon. The principal cause he considers to be carriage by the wind (inferred from the result of fixing a sheet of oiled white paper on a board at the top of a post facing the wind). Other causes are passage of the insect on the surface of the ground, and the presence of eggs.—On the appearance of mildew or false American oïdium in the vineyards of Italy, by M. Pirotta.—Determination of longitudes, latitudes, and azimuths in Algeria, by M. Perrier. He shows that the probable error of each definitive result is about one-tenth of a second of an arc.—Specific heats and points of fusion of different refractory metals, by M. Violle. The specific heat of iridium grows regularly with the temperature, and the formula gives 1950° (of the air-thermometer) as the point of fusion. The specific heat of gold hardly varies up to 600°, then gradually increases towards the point of fusion, 1035°. Other points of fusion: silver, 954°; copper, 1032°, palladium, 1500°, platinum, 1775°.—Chloride of lime battery, by M. Niaudet. The positive electrode is a zinc plate in a solution of chloride of sodium. The negative, one of carbon surrounded by fragments of carbon and chloride of lime in a porous vessel. All the combinations produced are soluble, and the battery remains an indefinite time at rest without being used up. The electromotive force at first is over 1·6 volt.—On the combinations of phosphuretted hydrogen with hydracids, and on their heat of formation, by M. Ogier.—On erbine, by M. Clève. He recognises M. Soret's priority, and the identity of the substances he himself called *holmium*, with M. Soret's X.—Complementary note on commercial trimethylamine, by MM. Duvillier and Bursine.—On ordinary cellulose, by M. Franchimont. This refers partly to dehydration of cellulose with sulphuric acid (chloride of zinc did not decompose cellulose).—On glucose, by M. Franchimont.—On the transmissibility of human rabies to the rabbit, by M. Raymond. Two rabbits were inoculated with blood and saliva (respectively) from a hydrophobic person. That inoculated with saliva showed signs of rabies four days after, and soon died. Pieces of its salivary glands (got thirty-six hours after death) were introduced into two other rabbits, who also died (paralysed), but without passing through a violent stage.—Researches on Daltonism, by MM. Macé and Nicati. They aimed at comparative measures of the quantities of light perceived in different parts of the spectrum by the Daltonian and the normal eye. Curves were got corresponding to the three varieties of Daltonian eye. The descent of the curve in the green the authors think they have been the first to prove certainly. No simple relation between visual activity and intensity of light was ascertained.—On the origin of the toxical properties of the Indians' curare, by M. Du Lacerda. None of the vegetable or animal juices often added by the Indians to the product of Strychnos have the effects of curare, and *Strychnos castelneæ*, also, *S. triplinervia*, are found to give curaric effects fully.—Experimental researches on human heat during rest in bed, by M. Bonnat. In all seasons the minimum of the body-temperature (observed in the rectum) is between midnight and 3 A.M. At Nice, in winter, the minimum is rarely under 36°·3; in summer, 36°·4 or 36°·5. From 3 A.M. the temperature rises till 9 A.M. (becoming, *e.g.*, 36°·9 in winter). The maximum is between 2 P.M. and 4 P.M., and from 9 P.M. the temperature slowly falls to the minimum. From 9 A.M. to 9 P.M. in winter the variations do not exceed three-tenths or four-tenths of a degree C.; in summer they may reach six-tenths.

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