

THE little town of Massa Maritima (Tuscany), says the *Journal of the Society of Arts*, sets an example which would be well to be followed by many larger and better known towns, both in Italy and this country. In 1867 the municipality of Massa purchased the interesting collection of minerals, models of mining machinery, and specimens of tools used in mines in various countries from Signor Teodoro Haupt, a well-known mining engineer of Florence, together with a complete series of maps and plans of most of the mines in Tuscany. This forms the nucleus of the museum, which has since been enriched by a collection of the birds and animals found in the province, the donation of a medical man residing in the town, and their value is considerably enhanced by being well arranged and tabled with both common and scientific names. The library now contains about 6,000 volumes, some of which are of great value, as being extremely rare, and relating to the history of the republic of which Massa was once the capital. The archaeological department contains a very beautiful Etruscan funeral urn.

THE additions to the Zoological Society's Gardens during the past week include four Bull Frogs (*Rana mugiens*) from Nova Scotia, presented by Dr. B. Sanderson, F.R.S.; two white-handed Gibbons (*Hylobates lar*) from the Malay Peninsula, presented by Sir H. Ord, C.B.; two Griffin Vultures (*Cypus fulvus*) and a Golden Eagle (*Aquila chrysaetos*), European, presented by Mr. A. J. White; two Rough-legged Buzzards (*Archibuteo lagopus*), European, presented by Mr. A. B. Hepburn; a Green Monkey (*Cercopithecus callitrichus*) from India; and a Bonnet Monkey (*Macacus radiatus*) from India, presented by Miss Bradshaw; a Barasingha Deer (*Cervus duvaucelii*) from the Himalayas, received in exchange; and a Hairy Armadillo (*Dasyurus villosus*) from La Plata, deposited.

SCIENTIFIC SERIALS

Der Naturforscher, Oct. 1873.—Among the abstracted matter in this number we find an account of recent experiments by M. Exner, to determine the "reaction time" of the sensorium. Some part of the body having been stimulated, the person immediately made a signal by pressing a key with the right hand. Marks were produced on a blackened cylinder, both at stimulation and at signalling, and the interval was noted. The reaction time (which ranged between 0.1295 and 0.3576 sec. in 7 persons) seems independent of age, and is shortest in those who have the habit of concentration. The tables also show it to have been shortest in stimulation of the eye with an induction shock; then follow, in order, electric shock to finger of left hand, sudden sound, electric shock to forehead, shock to right-hand finger, sight of an electric spark; and lastly, shock to toes of left foot. M. Exner analyses the reaction time into 7 "moments."—In chemistry we have some important observations on the non-luminous flame of the Bunsen burner, by M. Blochmann, and on vinegar-ferment and its cause, by MM. Mayer and Knierim, who think the action of mycoderma aceti probably physiological, and that it is a kind of bacterium which shows a mobile and an immobile state; the latter producing rapid acetification. Further, the vinegar-production occurs without the presence of nitrogenous substances, though less slowly than where they are present.—An interesting question in plant-geography is that as to the transport of seeds by ocean-currents, and in other ways independent of human agency. M. Thuret has been experimenting on this in Antibes. Having tried 251 different species, he knows of only two kinds of bare seed which are capable of floating, *Maurandia* and *Phormium*. A long immersion in sea-water does not always destroy the vitality of seeds. Out of 24 species immersed more than a year, at least 3 germinated afterwards as vigorously as seeds kept quite dry.—We find astronomical notes on the spectra of the two new comets, III. and IV., of 1873, and on the connection of solar protuberances with auroras (Tacchini); and in meteorology there is a notice of Dr. Koppen's valuable researches on an eleven years' period of temperature.—In physics, the subjects are: short galvanic currents and electrical discharges (Edlund), armatures of magnetic bundles (Jamin), and molecular rotatory power of vinous acid and its salts (Landolt).—A review of Häckel's *Die Kalkschwämme*, by M. v. Martens, is worthy of notice.

SOCIETIES AND ACADEMIES

LONDON

Zoological Society, Dec. 2.—Dr. A. Günther, F.R.S. vice-president, in the chair. A communication was read from Dr. James Hector, containing an account of the complete skeleton of *Cnemidornis calcitrans*, Owen, and showing its affinity to the *Natatores*.—Prof. Owen, F.R.S., read a paper containing a restoration of the skeleton of *Cnemidornis calcitrans*, Owen, with remarks on its affinities to the Lamelirostral group, and forming the twentieth part of his series of memoirs of extinct birds of the genus *Dinornis* and its allies.—A communication was read from Mr. W. H. Hudson, containing an account of the habits of the Pipit (*Anthus correndera*) of the Argentine Republic.—A communication was read from Mr. A. G. Butler, containing a revision of the species of the genus *Protopogonius*.—A communication was read from Dr. J. E. Gray, F.R.S., on the skulls of some seals from Japan, with description of a new species, proposed to be called *Eumetopias elongata*.—Mr. P. L. Sclater read a paper on some birds collected in Peru by Mr. H. Whately, being the seventh of the series of articles upon this subject.—A communication was read from Mr. Henry Whately, containing additional notes on humming-birds collected in High Peru.—A communication was read from Mr. R. Swinhoe, containing remarks on the Black Albatross with flesh-coloured bill, of the China Seas.—Mr. Garrod read a paper on the visceral anatomy of the Ground Rat (*Aulacodus swinderianus*).

Linnean Society, Dec. 4.—Mr. G. Bentham, president, in the chair.—Revision of the genera and species of Tulipæ, by Mr. J. G. Baker. In this tribe of Liliacæ the author includes the caulescent capsular genera with distinct perianth-segments and leafy stems bulbous at the base, viz., *Fritillaria*, *Tulipa*, *Lilium*, *Calochortus*, *Erythronium*, and *Lloydia*. The characters presented by the different orders were described *seriatim* in the paper. In the structure of the underground stems there are four leading types, viz., (1) a squamose perennial bulb, consisting, when mature, of a large number of thin flat scales tightly pressed against one another, and arranged spirally round a central axis which is not produced either vertically or horizontally, as exemplified in all the Old-world species of *Lilium*; (2) in most of the species of *Fritillaria* we have a pair only of hemispherical scales, half as thick as broad, pressed against the base of the flower-stem, these scales being the bases of single leaves which die down before the flower-stem is produced; (3) an annual laminated truncated bulb occurs generally in *Tulipa*, *Calochortus*, and *Eu-Lloydia*; (4) in the section *Gageopsis* of *Lloydia* we have a truncated corn. The leaves are very uniform throughout the tribe, with the exception of a section of *Lilium*, *Cardocrinum*, with long clasping petioles. The perianth leaves are all coloured except in *Calochortus*, when the three outer segments are sepaloïd and lengthened into points. The stamens are always six in number and nearly equal in length, hypogynous, and the dehiscence of the anther never properly introrse, but lateral, exactly as in *Colchicum*. In the capsule, *Calochortus* differs from the other genera in its septicidal dehiscence. As regards the connection between Liliacæ and Colchicacæ Mr. Baker is disposed to lay less stress than before on the evidence of any sharp line of demarcation between the orders, all the characters usually ascribed to the latter order being found in some of the genera of Liliacæ. In its Geographical Distribution the tribe is spread throughout the north temperate zone; only one species, *Lloydia serotina*, is really boreal and Alpine; the southern limits are Mexico, the Philippines, South China, the Neilgherries, and the southern borders of the Mediterranean; the principal concentration of species is in California and Japan; nearly all are hardy in this climate. *Lilium* with 46, and *Fritillaria* with 55 species, have the distribution of the tribe; the latter stopping eastwards at the Rocky Mountains, while the former reaches the Atlantic sea-board; *Tulipa*, with 48 species, is restricted to the Old World, reaching from Spain, Britain, and Scandinavia to Japan and the Himalayas; *Calochortus*, with 21 species, is confined to Mexico and the west side of the Rocky Mountains; of the 5 species of *Erythronium*, 1 is confined to the Old World and 4 to the New; the 3 species of *Gageopsis* are Oriental and Siberian; while *Lloydia serotina* is the most widely spread of all the Liliacæ, and a unique instance of a petaloïd Monocotyledon of the North Temperate Zone with almost universal high mountains and Arctic distribution.

Chemical Society, Dec. 4.—Dr. Frankland, F.R.S., vice-president, in the chair.—A paper entitled Mineralogical Notices,

by Prof. Story-Maskelyne and Dr. W. Flight, was read by the former, treating of the composition of caldosite and lanarkite.—Mr. John Williams then exhibited some fine specimens of crystallised phosphorous acid and metallic phosphites, and gave a short account of their reactions.—Prof. Church made a communication to the society on the composition of the mineral autunite.—Prof. Lawrence Smith of the United States, whilst describing a modification of the Bunsen gas burner employed by him for heating the crucible in determinations of the alkalis in silicious minerals, gave a short sketch of the process he had devised for that purpose.—In the course of the evening a gas burner by Mr. Fletcher of Warrington was also exhibited.

Royal Microscopical Society, Dec. 3.—Chas. Brooke, F.R.S., president, in the chair.—The list of donations to the society included a valuable binocular microscope with apparatus complete, from Mr. Charles Woodward, for which the special thanks of the meeting were returned.—A paper in continuance of the one read at the November meeting, was read by the secretary.—On some further researches into the life history of the Monads, by Rev. W. H. Dallinger and Dr. Drysdale, in which the complete process of fission was described in all its stages, and also the conjunction of two or more bodies, the whole course of internal division, of final rupture of the containing envelope and escape of minute free organisms.—Mr. Charles Stewart exhibited a section of *Ficus elastica* showing cystoliths, described the method of preparation and mounting, and stated it to be his belief that they were rather deposits of a gum-like substance, than actual concretions.

Society of Biblical Archæology, Dec. 2.—Dr. Birch, F.S.A., president. The following papers were read:—Future Punishment of the Wicked, a Doctrine of the Assyrian Religion, by H. Fox Talbot, F.R.S.—Notes from Borneo, illustrative of Passages in Genesis, by A. M. Cameron. In this paper the author cited a Dyak tradition, that at an archaic general inundation, the ancestors of the Chinese, Malay, and Dyak had to swim for their lives; and (possibly foisted on this tradition) the Dyak preserved his weapons, and the Chinaman his books. A second tradition stated that an ancestral Dyak made a ladder to go up to heaven; unhappily one night a worm ate into the foot of the ladder and brought all down. Mr. Cameron further stated that one of the two Dyak names for the Supreme Being is Yaouah: the author refers to the similar sounding Jehovah and Yahveh of the Bible.

PHILADELPHIA

Academy of Natural Sciences, June 17.—The president, Dr. Ruschenberger, in the chair.—*Lavus of Sex in Juglans nigra*.—Mr. Thomas Meehan said he had at various times during the past few years called the attention of the Academy to specimens of numerous plants which illustrated the principle that sex in plants was the result of grades of vitality; or, as it had been suggested, viability; and that this power of life was a mere matter of nutrition; the highest grades of vitality only producing the female sex. He now exhibited specimens of the common black walnut, *Juglans nigra*, which furnished excellent illustrations of what had been said on other occasions. Examining the tree at the flowering season, it would be plainly seen, by even a superficial observer, that there were grades of growing buds. The largest buds made the most vigorous shoots. These seemed to be wholly devoted to the increase of the woody system of the tree. Lower down the strong last year shoots, were buds not quite so large. These made shoots less vigorous than the other class, and bore the female flowers on their apices. Below these were numerous small weak buds, which either did not push into growth at all, or when they did bore simply the male catkins. He was fully satisfied that there is not so great expenditure of vital force on the production of male flowers as there is in female flowers.

PARIS

Academy of Sciences, Nov. 24.—M. de Quatrefages, president, in the chair.—The following papers were read:—On the development of polyps and their corals, by M. H. de Lacaze-Duthiers. The author described some results obtained by him in a cruise on board the *Naval*, off the North African coast of the Mediterranean during the summer.—Remarks on the South American fauna, with anatomical details of some of its most characteristic types, by M. P. Gervais.—Observations on the expansion of water below 4°, in relation to M. Piarron de Mondesit's note, by M. F. Hément. The author suggests that the phenomenon in question is due to a re-arrangement of the

molecules of the water just as a box of pins when shaken up will occupy more room than they did when arranged in regular layers.—A long extract from a letter by M. A. Poëy was read relating to his observations of the relation between solar spots and terrestrial hurricanes. The author stated that during the last 125 years there have been 12 maximum periods of hurricanes and 10 of these correspond to sun-spot maxima and 11 periods of hurricane minima, of which 5 correspond to sun-spot minima.—Observations on the analogies which exist between the solar spots and terrestrial cyclones, by M. Marié Davy.—Note on solar and terrestrial cyclones, by M. H. de Parville.—On the discharge of electrified conductors, by M. J. Moutier.—On the variable state of electric currents, by M. P. Blaserna, an answer to M. Cazin.—Application of the phosphates of ammonium and barium to the purification of saccharine products, by M. P. Lagrange.—On the physiological and therapeutic action of hydrochlorate of amylin, by M. Dujardin-Beaumetz. During the meeting Dr. A. W. Williamson and M. Zinin were elected Correspondents.

December 1.—M. de Quatrefages, president, in the chair.—On solar and terrestrial whirlwinds, by M. Faye. The author argued against Reye's ascending axes in the cases of these cyclones, and urged that both by theory and observation there is a down-rush about the axis.—On the conclusion of the note, General Morin made some remarks on the small eddies observed in rivers as examples of the descending current in the centre of similar vortices.—On the directions of the vibrations in the rays refracted in uniaxial crystals, by M. Abria.—Analytical and experimental investigations of the interference of elliptical rays, by M. Croullebois.—On the return of carrier pigeons during the siege of Paris, by M. W. de Fonvielle.—On the habits of the *Phylloxera*, by M. Max. Cornu.—On a theorem of celestial mechanics, by M. F. Siacci.—Note on magnetism, by M. A. Tréve.—On the difference of physiological action caused by induced currents from coils formed of different metals, by M. Onimus. The author stated that, with a coil made of a badly conducting metal the contraction of the muscles was greater and the effect on the cutaneous nerves smaller than when the coil is made of a good conductor.—On the conjunctive elements of the spinal marrow, by M. L. Ranvier.—On the *Anthracotheorium*, discovered at Saint Menoux by M. Bertrand, by M. Gaudry.—On the secretions of the flowers of *Eucalyptus globulus*, by M. Gimbert.

BOOKS RECEIVED

ENGLISH.—The Pearl of the Antilles: Walter Goodman (H. S. King and Co.).—The Internal Parasites of our Domestic Animals: Dr. Spencer Cobbold (*Field Office*).—A Phrenologist among the Todas: Col. Marshall (Longmans). The Bible and the Doctrine of Evolution: W. Woods Smyth (H. K. Lewis).—The Threshold of the Unknown Region: Clements R. Markham (Sampson Low).—Easy Introduction to Chemistry: Arthur Rigg (Livingston).—Christianity: J. C. Sellars (Author).—The Romance of Peasant Life: Francis George Heath (Cassell).—Cholera, how to Avoid and Treat it: Henry Blanc, M.D. (H. S. King & Co.).—Centrifugal Force and Gravitation, Supplement B: John Harris (Trübner & Co.).—Kant's History of Ethics Translated by T. K. Kingsmill (Longmans).—Physical Geography in its relation to the Prevailing Winds and Currents: J. K. Laughton (J. D. Potter).—A Treatise on Medical Electricity: Dr. Althaus (Longmans).—Weather Folk-Lore: Rev. C. Swainson (Blackwood).—Gano's Physics. Translated by Atkinson. 6th edition (Longmans).—Waste Products and Undeveloped Substances: P. L. Simmonds (Hardwick).—Man and Apes: St. George Mivart (Hardwick).—Body and Mind: Alex. Bain (H. S. King & Co.).—Metamorphoses of Insects: Sir John Lubbock (Macmillan & Co.).

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