

this bird living in the Society's Gardens, but it is so far certain that our male is evidently very fond of grubs, and will search for them with eagerness in rotten wood. He does not, however, seem obliged to wait for a female of his own species to extract them when discovered, but picks them out for himself. A somewhat parallel case of difference of the bill in the male and female occurs in the humming-birds of the genus *Grypus*.*

4. A Tuatera lizard (*Sphenodon punctatum*), purchased May 20th.

This not very attractive-looking lizard is really one of the most extraordinary reptiles now known to exist on the world's surface. In several important particulars of structure it differs from every other known saurian, inasmuch that Dr. Günther, who has published an elaborate memoir on its anatomy,* has proposed to constitute it of itself a distinct order of reptilia, equal in systematic rank to the ophidians and saurians. It differs from all the known members of the latter order in having the quadrate bone firmly ankylosed to the skull, and in the entire absence of an intromittent copulatory organ. The vertebrae are amphicælian, as in the Geckoid lizards. Dr. Gray first described and figured this reptile under the name *Hatteria* (!) *punctata*, and it has been so generally designated until lately, when it was most fortunately discovered that the generic term *Sphenodon* had been previously applied to a specimen of its skull in the museum of the College of Surgeons. It has thus become possible not to be obliged to employ so vile and barbarous a term as *Hatteria* for the name of this important animal. Dr. Günther, when he wrote his memoir, supposed that this reptile was extinct or nearly so. But one living example has reached England since that date, and more than one, I believe, in spirits. From an article published by Dr. Bennett, of Sydney, in the *Morning Herald* of that city, it appears that so recently as December 1851, this lizard was abundant in one of the islands in the Bay of Plenty, on the north coast of New Zealand. The island in question is one of four small volcanic islands, distant about eight miles from the coast, and situated opposite to the mouth of the Wakatane river. A party of officers, who visited it upon the occasion referred to, are stated to have collected in half an hour nearly forty of these lizards of different sizes, varying from two feet long to three inches. They stated that the island seemed to be swarming with them, and with another lizard called the moko-moko (*Tiliqua zealandica*). In the day-time these lizards are seen basking themselves in the sun on the bare rocks. Noon is therefore the best time to visit the islands. It is stated that there are four small islands, on two of which Tuateras are found.

I mention this fact in case it should be within the power of any of the Antipodean readers of NATURE to visit these islands, and obtain examples of this reptile. For although the British Museum has a good supply of specimens of it, yet the animal is a great *desideratum* elsewhere, and I believe there are no examples of *Sphenodon* in any of the continental collections.

P. L. S.

NOTES

THE honorary degree of D.C.L. has been conferred, at the recent Commemoration, by the University of Oxford on the following scientific men:—Sir William George Armstrong, C.B.; Sir James Alderson, M.D., President of the Royal College of Physicians; John P. Gassiot, Vice-President of the Royal Society; Charles W. Siemens, F.R.S.; James Fergusson, F.R.S.; Sir J. Kay-Shuttleworth, Bart., the Rev Henry Moseley, M.A., F.R.S., Canon of Bristol; Professor Hermann Helmholtz; George Edward Paget, M.D., President of the General Medical Council; Edward Frankland, F.R.S.; Henry Bence Jones,

* See Gould's Monograph of the Trochilidæ, Introduction, p. xxxvi.

† Phil. Trans. 1867, p. 595.

M.D., F.R.S.; Warren De La Rue, Vice-President of the Royal Society; William Huggins, F.R.S., Secretary to the Royal Astronomical Society. The name of Charles Darwin, F.R.S., would have been included in the foregoing list (as stated in our last number) but he writes that his health is such "that he could not withstand the fatigue and excitement of receiving an honorary degree." We understand that Prof. Helmholtz has also been prevented from attending. There is a rumour that Science would have been even more brilliantly represented if the degree were the simple thing it is often supposed to be. It really stamps, it seems, a judicious mixture of celebrity and orthodoxy; e.g., either much orthodoxy and a little celebrity, or a little orthodoxy and much celebrity, will qualify, but a dash of orthodoxy is *de rigueur*. The *imprimatur*, therefore, is of double value. In the present case, for instance, it is proclaimed to the world that Mr. Darwin, for example, is not only Mr. Darwin, but that Dr. Pusey, and others even more skilled in heresy than he, consider him orthodox. On the whole we should prefer the abolition of tests even here, and one has only to go to Oxford and watch the present scientific activity, the magnificent museums and laboratories which are growing or have grown, to predict that the Oxford of a few years hence will be of the same opinion.

MEETINGS of the Royal Commission on Scientific Instruction and the Advancement of Science have been held at 6, Old Palace Yard, S.W., on the 14th, 15th, 17th, and 21st of this month. Present:—The Duke of Devonshire, K.G.; the Marquis of Lansdowne; Sir John Lubbock, Bart., M.P., F.R.S.; Sir J. P. Kay Shuttleworth, Bart.; Mr. B. Samuelson, M.P.; Dr. Sharpey, Sec., R.S.; Prof. Huxley, F.R.S.; Dr. W. A. Miller, Treas., R.S.; Prof. Stokes, Sec. R.S.; and the Secretary, Mr. J. Norman Lockyer, F.R.S.

MR. E. J. STONE, F.R.S., first assistant at the Greenwich Observatory, has been appointed Astronomer at the Cape of Good Hope. This appointment will be hailed with the liveliest satisfaction by all scientific men, and we may hope that the fine Observatory there may soon take high rank among similar establishments.

THE examiners for honours in the Natural Science School at the University of Oxford, viz., Henry J. S. Smith, Edward Chapman, and Joseph F. Payne, have made the following award:—Class 1. Walter William Fisher, Postmaster of Merton College; Edwin Harding Lendon, Gunsley Exhibitioner, University College; Charles Samuel Taylor, Commoner of Merton College. Class 2. John Fleming Hartley, Commoner of Brasenose College. Class 3. John Richardson Burrow, Thanet Exhibitioner of Queen's College. Class 4. Nil.

WE hear with great satisfaction that the Government of India has ordered the adoption of the metric system of weights and measures.

A NEW Astronomical Observatory has been established by the Government of the Argentine Republic in South America, to be erected at Cordova, about the middle of the continent, on the margin of the Pampas, in lat. $31\frac{1}{2}^{\circ}$ S. Dr. B. A. Gould has been invited to organise it, and is going out for the special purpose of extending through the southern hemisphere the system of zones, which Bessel and Argelander have already carried from the north pole as far as 30° S. He hopes also to obtain some photometric determinations of the principal southern stars. The undertaking has been instituted and carried out entirely by the Government of the Argentine Republic, at the instance of the President, M. Sarmiento, and of Dr. Avellaneda, the Minister of Public Instruction; but the various scientific institutions of the United States have aided the expedition greatly by loans of important and valuable instruments; and Dr. Gould expresses his obligation to the Coast Survey, the "American Nautical Almanac,"

the Washington Observatory, the National Academy of Sciences, and the American Academy of Boston, all of which have afforded valuable assistance in providing him with instruments and equipment. This will be the second public observatory in South America, that at Santiago, in Chile, having been founded in 1851. Efforts are making to provide means for obtaining photographic impressions of some of the more prominent southern clusters of stars, analogous to those taken in the northern hemisphere by Mr. Rutherford; but the success of these efforts is still uncertain. Dr. Gould estimates that three years will suffice to complete the southern zones within the limits which he has assigned to himself. We look forward with the most sanguine hopes to the results of Dr. Gould's labours. In time we may hope to be almost as civilised as the Argentine Republic—almost as anxious to spread the knowledge of Nature.

WE learn from the *Academy* that the Philosophical Faculty of the University of Göttingen has announced for the 11th March, 1873, a prize of 500 thalers in gold, and a second prize of 200 thalers in gold on the Beneke foundation, for the best new determination of the atomic weights of the metals of the earths. The limits of error in the results obtained must be exactly fixed, and the investigation must be accompanied by a complete critical review of the existing scientific material connected with it. In his classical researches in this field, Stas ascertained the combining weights of ten elements, leaving those of five-sixths of the elements more or less unprecisely determined. It has been resolved, therefore, to subject some of the numbers to careful revision, and those attached to the earth-metals have been selected. The dissertation, written in Latin, French, German, or English, and distinguished by a motto, must be deposited with the Dean of the Faculty on or before August 31, 1872.

THE Lecture, next Sunday evening, at St. George's Hall, Langham Place, is on "Cruelty in Relation to Lower Animals," by T. Spencer Cobbold, M.D., F.R.S.

THE Anniversary Meeting of the Society of Arts will be held on Wednesday next, the 29th inst., at four o'clock.

THE indifference of agriculturists to scientific research has been again illustrated by the refusal of the Council of the Royal Agricultural Society to publish an account of the investigations which have established the truth of the old bucolic dogma, that berberries produce rust on wheat growing in their vicinity. There is now no doubt that the berberry-rust and the wheat-rust are two different stages in the genetic cycle of *Puccinia graminis*.

HER Majesty's Commissioners for the International Exhibition of 1871 have resolved to set aside one guinea out of every season ticket sold at three guineas, through the Society of Arts, for the purchase of works of art and industry, out of the exhibition, the same to be circulated throughout the United Kingdom.

THE *Pharmaceutical Journal* announces that a new series will be commenced next month, when it will appear in a new form, and as a weekly publication, the first number to be published on the 2nd of July. The *Pharmaceutical Journal* was originally established by the late Mr. Jacob Bell, as an organ of communication especially devoted to the interests of the Pharmaceutical Society, which was founded at the same time, and it has been published monthly during the last twenty-nine years.

AN industrial and technological museum has been recently formed in Victoria. It is connected with the Gallery of Art and the Public Library at Melbourne, and is governed by the same body of trustees. In the Library there are over 50,000 volumes, and in the Gallery of Art pictures by Goodall, Webb, Graham, Lee, &c., besides several pictures by colonial artists and a very large collection of casts from the antique. Before this museum was formed a Royal Commission had been ap-

pointed for promoting industrial instruction, and resulting from this movement we may add, that there are now no less than six schools of design open in Melbourne and the suburbs, with over 600 pupils in attendance.

THE statistics given in M. Bouley's course of lectures on "Madness in Man and Animals" confirm the statement that hot weather is not a cause of *rabies*; out of 302 cases recorded in six years, eighty-nine occurred in the spring from March to May, seventy-four in the summer from June to August, sixty-four in the autumn from September to November, and seventy-five in the winter from December to February. Male animals appear far more subject to the attacks of the disease than female animals. Out of 320 cases of bites from rabid animals, 284 occurred with dogs (male), twenty-six with bitches, five with cats (male and female), and five with wolves (male and female). No instance is recorded of any attack on man by a rabid herbivorous animal. Now that we are approaching the dog-days, we commend these facts to the notice of the chief commissioner of police, and trust we shall have no repetition of the cruel and senseless police regulations as to the muzzling of dogs; to be consistent they should be in force all the year round.

WE learn from the *British Medical Journal* that Miss Garrett has just passed her final examination for the degree of Doctor of Medicine in Paris. Her thesis has been read, and at the same time she received her degree from the Faculty of Medicine. Whatever opinion may be entertained, says our able contemporary, as to the desirability of ladies studying and practising medicine, everyone must admire the indomitable perseverance and pluck which Miss Garrett has shown in overcoming the many obstacles to obtain in the first place the qualification of the Apothecaries' Company in London, and, lastly, the Degree in Medicine of the University of Paris.

MR. CYRUS REDDING, who died recently at a very advanced age will, perhaps, be best known as the author of a "History and Description of Modern Wines," which was first published in 1833, and has passed through several editions, being the standard work on the subject. Among his MSS. he has left a "Wine-book of Europe." Mr. Redding has enjoyed for the last few years a government pension of 75*l.* per annum, which it may be hoped, will be continued to his aged widow.

THE patent for printing photographs by a permanent process known as the Woodbury type, has been purchased by Mr. Vincent Brooks, of Gate Street, Lincoln's Inn Fields, on behalf of a new company.

WE have just seen a bill-head or order to which we think it necessary to call attention. On a scroll at the top is a name which, together with the address, which is on another scroll, we suppress, as we do not wish to assist this person in his advertisements. On other artistic scrolls we find the occupations of the advertiser, dyeing and printing works being set forth on one of them. In the centre is a coat of arms and crest surrounded by a garter, on which is printed *Fellow of the Chemical Society, London*. We have no wish to infer that this gentleman is not a most eminent chemist, but we do most emphatically protest against the membership of a learned society being turned to account for advertising purposes. We hope that the Council will not allow this to continue unnoticed, for nothing could be more damaging to the welfare of a scientific society.

A RECENTLY published part of Baillon's "Histoire des Plantes" contains a monograph of the Papilionaceous section of *Leguminosae* executed with his usual care and wealth of illustration. We are glad to hear that an English translation of the work is announced.

"MITTHEILUNGEN der Anthropologischen Gesellschaft in Wien," is the title of a periodical which the Anthropological Society of Vienna have begun to publish, with accounts of their

own proceedings and papers, of discoveries of ancient remains in tumuli and elsewhere, and papers in which questions in their special pursuit are discussed. Two numbers are out. The first contains an opening address by Rokitansky, and among the contributors we notice the names of F. Müller, Graf Augustus von Breuner, F. von Hauer, and Freiherr von Sacken. Austria is so rich in ethnological varieties and relics that interesting matter sufficient for a monthly periodical must, we should think, be always forthcoming. It will be an acceptable addition to the scientific libraries of this country, and we offer to the society our best wishes for its success.

KARL VON LITROW'S "Zählung der nördlichen Sterne im Bonner Verzeichnisse nach Grössen" has been reprinted from the Sitzungsberichte der k. Akademie der Wissenschaften. He estimates the number of stars to the sixteenth magnitude (or more exactly to the magnitude 15.8) at 588 millions for the northern hemisphere, and about 1,200 millions for the whole heavens.

"NOTES AND QUERIES for China and Japan," which has just entered on a new series, is a monthly medium of inter-communication for professional and literary men, missionaries, and residents in the East generally, conducted by C. Langdon Davies. In the number just received we find an article on the Fung tree (*Liquidambar formosana* Hance), the leaves of which afford food to a species of caterpillar (termed the wild silkworm), which produces an inferior kind of silk.

THE "Proceedings of the Bath Natural History Society and Antiquarian Field Club" for 1870, are mainly occupied, as they should be, by papers of local interest, which well illustrate the great wealth of the districts to the naturalist, whether geologist, botanist, or antiquarian. Thus we have "The Mammalia and other Remains from Drift Deposits in the Bath Basin," by C. Moore, with copious lists of organic remains found in the prehistoric alluvium and gravel deposits; "Remarks on some of the Fungi met with in the neighbourhood of Bath," by C. E. Broome (edible fungus hunting seems to be a favourite pursuit with local field-clubs since the Woolhope naturalists set the example); "Notes on the Chapel and Hospital of St. Mary Magdalene," by Rev. W. Stokes Shaw; and "Notes on a pair of Celtic Spoons found near Weston, Bath, in 1866," by Rev. Preb. Scarth. Of articles of a less local character, we have "Chemical Geology," by Charles Ekin, containing a sketch of recent spectroscopic researches; and a pleasant gossiping paper, by Rev. H. N. Ellacombe, on "The common English names of Plants."

A REPORT from Mr. R. S. J. Ellery, Government Astronomer, on the subject of the Equatorial Telescope at Melbourne, has been received by the Victorian Legislative Council. The telescope arrived in November 1868; its erection at the Observatory was commenced early in July 1869, and the building for its protection was not finished till the 1st June, the final fitting up of the telescope being completed early in July. Observations were attempted as early as April last year, but the telescope was not in working order till the middle of August, since which date observation has progressed more or less satisfactorily. The principal work has consisted in examination and mapping of nebulae, but the very unfavourable weather throughout almost the whole season has prevented much progress of other work. Positive observations have been made of Winnecke's periodical comet. With respect to spectroscopic observations, Mr. Le Sueur, the astronomer in charge, says—The spectroscope furnished by Mr. Grubb has already proved of much service for nebulae work. For star work, so far as I can at present judge, it is unsuitable; nevertheless, a very important observation has lately been made therewith, showing that the spectrum of the principal

Argo is crossed into bright lines. In his report to the Board of Visitors in April last, Mr. Ellery referred to the construction of the telescope, but could not at that time speak of its performance or capabilities; but during the several months' use since then Mr. Le Sueur has tested its performance most carefully, and although he has had no prior experience with reflecting telescopes of such dimensions as this, he has been enabled from frequent observations to form a sound opinion of its powers. With the large mirror first used the telescope certainly did not perform so satisfactorily as could be desired, and making all allowances for atmospheric disturbances, the definition was never good; but with the other mirror (supposed B) it became very much better, and Mr. Le Sueur speaks of its performance now as far more satisfactory. The building for the protection of the telescope is in most respects satisfactory. There are several arrangements and appliances yet required, before the telescope can be said to be properly provided, among which are more convenient observing seats, drawing stands, and the erection of a platform outside the telescope room for photographic operations. Some of these are already in progress, and, should sufficient means be available, will soon be completed.

IN the recently issued Colonial Blue Book ("Reports on the state of H.M. Colonial Possessions," part I., West Indies), the Governor of Jamaica reports as follows:—"The cinchona plantation is a most interesting experiment, which may now be pronounced a complete success. Cinchona plants were first received here in 1866. By the close of 1867 the number of young plants had so much increased, that it became necessary to provide land for their final establishment on a planter's scale. Six hundred acres of virgin forest in Blue Mountain were acquired early in the year, and were set apart for the purposes of a cinchona plantation, for which the place is in every way admirably suited. The elevation above the sea ranges from 4,000 to 6,000 feet. It is well watered, has the best aspects, and possesses a soil reported to be admirably suited to the requirements of the cinchona. Fifty acres were cleared, of which forty were filled with cinchonas in the course of the year; about 20,000 plants of five different species were planted. By the latest accounts all of these were in full vigour, and the plantation must by this time be doubled in extent. The plants have stood one of the driest seasons that has ever been remembered on Blue Mountain, without suffering in the least. There is now no doubt that the cinchona can be successfully reared in Jamaica." The plants for sale, deliverable in the spring of 1869, were applied for to the number of about 2,000 only; but Sir James Grant expresses the hope that with the growth of the plants a spirit of intelligent enterprise will grow amongst the proprietors of mountain wastes, sufficient to induce them to turn some attention to such a highly promising experiment.

THE *Journal of the Franklin Institute* describes a new explosive which has been invented by Mr. Noble, the inventor of nitro-glycerine and dynamite, and which he calls dualine. It consists principally of nitrate of ammonia and very fine saw-dust which has been acted on by nitro-sulphuric acid. It is said not to be decomposed by accidental contact with acids, and will not congeal or lose any of its properties during cold or hot weather. Its explosion does not produce any noxious gases, and it will burn in the open air without exploding.

THE *Architect* states that the North-Eastern Railway Company is forming a new line between Gilling and Helmsley, which passes through the Caulkless spur of the Hambletons, in a deep cutting near Stonegrave. Here, at a depth of nearly thirty feet, a large chamber in the Oolite rock has been discovered. It is as large as an ordinary room, and has three openings from it. The cave is on the same horizon as the famous Kirkdale cave.