On Saturday last, July 4, a meeting of the Council of the Royal School of Mines was held at the Jermyn Street Museum, at which the reports of the examinations of the students connected with that institution were received and considered, and the prizes awarded. The following gentlemen received the diploma of Associate of the Royal School of Mines:—Mining, Metallurgical, and Geological Divisions, S. A. Hill and W. Saise; Mining and Metallurgical Divisions, R. Cowper, A. R. Guerard, C. Lloyd Morgan; Metallurgical Division, W. Pearce; Geological Division, A. R. Willis and W. Frecheville. The two Royal Scholarships of 15*l.* each for first year's students were awarded to Henry Louis and E. Fisher Pittman; H.R.H. the Duke of Cornwall's Scholarship was awarded to A. R. Willis, and the Royal Scholarship of 25*l.* to W. S. Lowe; the Edward Forbes Medal and prize of books were awarded to A. R. Willis; the De la Beche medal and prize of books to C. Lloyd Morgan; the Murchison Medal and prize of books to A. R. Willis.

The Quarterly Weather Report of the Meteorological Office has been issued, containing the observations of the seven observatories from April to June 1873.

The additions to the Zoological Society's Gardens during the last week include a Himalayan Bear (*Ursus tibetanus*), presented by Mr. George Lockie; two Red Kangaroos (*Macropus robustus*) from Australia, presented by the Acclimatisation Society of Melbourne; two Audouin's Gulls (*Larus audouini*) from Sardinia, presented by Lord Lilford; a Kappler's Armadillo (*Tatusia kappleri*) from Surinam, deposited; two Musquashes (*Fiber zibeticus*) from North America, received in exchange; a Harpy Eagle (*Thrasaëtus harpyia*) from Paraguay; seven Ariel Toucans (*Ramphastos ariel*) from Brazil, purchased; a Collared Fruit Bat (*Cynonycteris collaris*), born in the Gardens.

SCIENTIFIC SERIALS

The current number of the *Journal of Anatomy and Physiology* contains several papers of interest. Dr. Binz commences with an article On some effects of alcohol on warm-blooded animals, in which he supports the non-heating action of alcohol, considering the subjective impression as partly the consequence of the irritation of the nerves of the stomach, and of the enlargement of the cutaneous vessels. The cooling effect of alcohol on febrile conditions is demonstrated and shown to depend on its direct diminution of the activity of the cellular elements of the body, on the increase of the cutaneous circulation which arises frem strengthening of the heart's action, and in the diminution of muscular activity which follows its exhibition.—Dr. J. Blake continues his observations On the action of inorganic substances when introduced directly into the blood, endeavouring to show that in the same isomorphous group of elements, the intensity of physiological action increases as the atomic weight of the elements, but the relative atomicity of groups which are not closely related shows no corresponding gradation. The salts described on the present occasion are those of the alkaline earths.—Prof. Cleland discusses double-bodied monsters (kittens), and the development of the tongue in them, that organ being frequently found situated in the nasal passages, the palate at the same time being cleft.—Dr. C. Reyher described points connected with the cartilages and synovial membranes of joints, showing that the "synovial process," or portion of the synovial membrane which lies over the borders of the cartilages, is not to be looked upon as an ingrowth of the synovial membrane but as being formed *in situ* as the development of the joint proceeds.—Mr. Reoch endeavours to account for the presence of free hydrochloric acid in the gastric juice, the constant presence of which he gives experiments in proof of, on the far-fetched assumption that the oxidation of the sulphur which is contained in albumen takes place in the walls of the stomach; that the sulphuric acid thus formed decomposes the sodium chloride, liberating free hydrochloric acid to form part of the gastric juice.—Prof. Turner having had a second specimen of the Greenland shark (*Laemargus borealis*), is enabled to give an account of parts omitted in the original description, to be found in the same journal of the year previous. He gives a drawing of the animal, which was six feet long. It was male, and the sexual organs are described. The testes possess no vasa-deferentia, their products must therefore be shed into the peritoneal cavity, whence they reach the exterior water through the abdominal pores. The ureters were found to combine before they entered the cloaca by the single duct.—Prof. Savory has a paper On the use of the ligamentum teres of the hip-joint, in which he endeavours to prove the idea, which, as he remarks, had been previously suggested by the late Prof. Partridge and by Prof. Turner, that the body is slung on the two ligaments as a carriage is on C-springs. Prof. Humphry criticises Mr. Savory's results, restating his former remarks that the ligamentum teres is not tense in the erect posture.—Prof. Turner, in description of variations in the arrangement of the nerves of the human body, mentions a branch from the fourth cranial nerve to the orbicularis palpebrarum. In another instance the same nerve sent a branch to the infra-trochlear of the nasal. Peculiarities in the various plexuses are also noted.—A loquacious paper follows by Dr. Radcliffe on the syntheses of motion, vital and physical, in which it is attempted to be shown, that in muscle the state of rest is that of contraction, the state of action relaxation.—Mr. Ogilvie and Mr. Cathcart give the dissection of a malformed lamb.—Prof. Crum-Brown gives an ingenious explanation of the sense of rotation and its connection with the semicircular canals, connecting it with the inertia of their contents affecting the peripheral ends of the auditory nerves.—Dr. Brunton proves the value of external warmth in preventing death from an over-dose of chloral.—Mr. F. Champneys gives a detailed description of the septum of the auricles of the frog and the rabbit.—Mr. J. C. Ewart describes the epithelium in front of the retina and the external surface of the lens.—Dr. J. Ogle describes and figures a man born without legs.—Prof. Turner gives a drawing of the surface of the brain in its relation to the skull, which is followed by part of his paper on the placentation of the sloths, which we have noticed on a former occasion.—Notes on some muscular irregularities, follow, by Prof. Curnow; and the papers of the number end with three short notes by Mr. G. J. M. Smith, Mr. J. A. Russell, and Mr. Bellamy, on the dissection of an excised elbow, on unusually large renal calculus, three inches long, and a fusion of some of the carpal bones, repectively.

Bulletin Mensuel de la Société d'Acclimatation de Paris.—In his anniversary speech, reported in the Bulletin for April, M. Drouyn de Lhuys, the president, gives an interesting account of the victories of acclimatisation in the case of the coffee plant, the product of which, now universally esteemed, would never have been general but for its transplantation from its native home, Abyssinia, into other parts of Africa, into Europe, Asia, America, and those East and West Indian Islands which are now its best producers.—M. H. Bouley follows with an exhaustive paper on the subjection of animals by man to his own purposes. He analyses the various effects of food, of climate, of locality, of selection, and other influences on the natures of animals, and shows how our principal useful animals, such as the horse and the dog, have gradually, by dint of the constant exertion of various powers, been brought to their present state of subjection.—The annual report of the Society gives a retrospective glance at the year's work. Among birds the principal acquisitions have been varieties of pheasants, black swans, and Chilian geese. Among fishes, the telescope fish, the rainbow fish of China, and the *gourami*, are the most remarkable. Among plants, numerous Australian trees, acacias, and others; various kinds of bamboos; the *Eucalyptus*, fairly acclimatised in Algeria; and China grass, which promises to form a useful textile fabric, have been introduced.

Zeitschrift für Ethnologie.—Recent numbers of the *Zeitschrift für Ethnologie* have been continuing and concluding the series of papers in which its readers have been put in possession of a very minute summary of Col. Dalton's official report on the ethnology of Bengal, translated by Herr Oscar Flex, missionary in Ranshi. These valuable reports proclaim the remarkable dissimilarity which prevails in the domestic habits and national customs of tribes presenting strong linguistic and psychical affinity with one another. Thus amongst the Manipuris, who may possibly, however, be of Aryan descent, although they have long been followers of the religion of Brahma, and claimed him for their proto-genitor, the women enjoy perfect freedom, both in regard to their control of the household and their participation in games in which men take part; and although the husband may divorce his wife on good grounds, if he ventures to do so with-

out valid reason the woman may leave him and appropriate to herself all his possessions, with the exception of a cup and his loin-cloth. These people also celebrate feasts at which meat is partaken of, contrary to the proscriptions of their present form of religion. Among the neighbouring Kukis no such practices prevail, the men drinking and smoking apart in their festive gatherings, and celebrating solemn festivals by visiting the graves of their forefathers to consult oracles and seek for omens. In the country of the Kasias, where Lieut. Bedingfield was murdered two years after its annexation to our Indian empire, monoliths and other stone memorials are common, and for the most part present great similarity to the menhirs and cromlechs of Cornwall and Brittany. The Garos, whose country lies west of Kasia and extends in the south and east as far as the Brahmaputra, are but little known beyond their own frontiers, while the mountainous districts of their settlements continue to be almost wholly unexplored. These tribes claim to be a primitive people, while, like the Brits, they pretend to have affinity with the English races.—Dr. J. G. Wetzstein gives an interesting account of the ancient Hebrew threshing board, still in use in Syria, where every village has its communal threshing ground to which the neighbouring landowners—both great proprietors and the small peasants—bring their grain, mostly on camels, to be prepared on these curious tables or boards. Dr. Wetzstein has laid before the Anthropological Society of Berlin a sample of the stones in use for this simple mechanical contrivance, which appears to be almost unchanged in its structure and mode of use from Biblical times to the present day, and may be seen amongst the Berbers, the Cypriots, and in other parts of Asia Minor, besides Syria.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, June 18.—On the Employment of a Planimeter to obtain Mean Values from the traces of continuous Self-recording Meteorological Instruments, by Robert H. Scott, F.R.S.

The usual method of dealing with barograms and thermograms is to measure them at certain intervals by appropriate scales, and to treat the numerical values so obtained by arithmetical processes so as to arrive at mean results.

At the suggestion of Mr. Francis Galton, the Meteorological Committee gave instructions that measurements should be made of the curves by means of Amsler's Planimeter, in order to test the accuracy of unpublished means.

It is perfectly obvious that the measurement of the area of the curve, if it can be executed with sufficient accuracy, must give a far more satisfactory mode of ascertaining the value of the mean ordinate of the curve, than the calculation of the average of any number of measured individual ordinates, while the economy of time insured by the use of the planimeter forms a most important recommendation for its use.

The mode of employing the instrument is as follows :—The entire perimeter of the curve, down to the base line, is measured, and the value noted. Then *using the same base line*, a rectangle of known height, in units of the scale of the curve, is next measured in the same way, and the value noted again.

The ratio of these two values is the mean value of the ordinate of the curve, or the mean pressure or temperature for the interval embraced by the curve.

The table subjoined to the paper shows for a period of eight months the means of temperature for Kew Observatory obtained by the planimeter, as well as those yielded by the old method, both for daily and for five-day means. It will be seen that the difference in 242 determinations of daily means only amounted to 0°·5 on six occasions, and to 0°·6 in one instance, while out of 49 cases of five-day means the greatest difference was only 0°·4, and this was only once attained.

At the end of the table a column headed "Wr. Rep. Plates" gives the values obtained by measurement of the plates published in the "Quarterly Weather Report" for the period embraced by the measurements to which I have just alluded. It will be seen from it that the five-day means so obtained hardly differ from those which are yielded by the direct measurement of the photographic curve by means of the planimeter.

The plates in question are obtained by the use of Mr. Francis Galton's Pantagraph, which transfers the seconds at a reduced time-scale to zinc plates, which plates are subsequently further reduced and transferred to copper by Wagner's Pantagraph, as explained in the report of the Committee for 1870.

Such a test as this affords a satisfactory proof of the accuracy of the reproduction of our automatic records which are executed in the Meteorological Office.

The result of these preliminary experiments is that the planimeter means are practically identical with those obtained by treatment of the values of the hourly ordinates.

On the diuretic action of *Digitalis*, by T. Lauder Brunton, M.D., and Henry Power, M.B.

The object of this communication is to show that the diuretic effects which follow the exhibition of digitalis depend on the reactionary relaxation which follows the spasm of the smaller renal arteries consequent on the influence of the digitalis, instead of on the direct increase in the arterial blood-pressure, the direct effect of the drug.

An account of certain Organisms occurring in the Blood, by W. Osler, M.D.

In many diseased conditions, and sometimes in health, careful investigation of the blood proves that, in addition to the usual elements, there exist pale granular masses, which on closer inspection present a corpuscular appearance, varying in size from a quarter that of a white blood-corpuscle to enormous masses, with an oval or rounded form, sometimes elongate or irregular. The author watches these bodies at a temperature of 37° C. and finds that they undergo remarkable changes. At first uniform and still, Brownian movements soon commence ; fine projections from the mass develop ; its edges become less dense, more loosely arranged ; semi-free minor corpuscles form, which quickly break away, moving independently in the fluid. Other filaments undergo the same change, fresh detachments becoming so numerous as to fill the field of the object glass. Granules present themselves in abundance. The original mass has now become perceptibly smaller and more granular. The variety of the forms increases as the development goes on ; and whereas at first spermatozoa-like or spindle-shaped forms were almost exclusively to be seen, more irregular forms appear later, possessing two, three, or more tail-like processes. It is to be noted that in blood without the addition of saline solution or serum, no change takes place in the corpuscles under consideration, even after prolonged warning. It must still be confessed that we know nothing of the origin or destiny of these corpuscles ; they evidently cannot arise from the disintegration of white corpuscles, for they form individual elements circulating through the blood.

On Coniferine and its Conversion into the Aromatic Principle of Vanilla, by Ferd. Tiemann and Wilh. Haarmann. Communicated by A. W. Hoffmann, F.R.S.

Given the number of figures (not exceeding 100) in the reciprocal of a prime number, to determine the prime itself, by William Shanks. Communicated by the Rev. G. Salmon, F.R.S.

Description of the living and extinct races of gigantic Land Tortoises. Part I. and II. Introduction, and the Tortoises of the Galapagos Islands, by Albert Günther, F.R.S.

The author having the opportunity of examining remains of tortoises from the Mascarene Islands concludes that the several extinct gigantic species are different from the more recent ones, and that there is the greatest resemblance between the tortoises of the Mascarene and Galapagos Islands. An historical account is given, which shows that the presence of these tortoises at two so distant stations cannot be accounted for by the agency of man, at least not in historic times, and therefore that these animals must be regarded as indigenous. The second part contains a description of the Galapagos tortoises.

EDINBURGH.

Scottish Meteorological Society, July 2.—This was the Half-yearly General Meeting of the Society ; the Marquis of Tweeddale, president of the Society, in the chair. The report was read by Mr. Milne Home, chairman of the Council, from which it appeared that the Society's stations number at present 104, of which 92 are in Scotland, and that the Society consists of 558 ordinary, 15 corresponding, and 8 honorary members. Observations are made at fourteen stations in Scotland at 12.43 P.M., in connection with the International scheme of Meteorology. The Hon. B. Primrose, secretary of the Fishery Board, who had entered with much zeal into the inquiry into the relations of meteorology to the herring fishery, having intimated that if the Society would furnish the necessary instruments he would endeavour that twenty sets of observa-