tered by a committee of the Glasgow Town Council, from which it obtains a grant of £2000 a year, from the moneys received under the Local Taxation (Customs and Excise) Act; it is also fortunate in being the recipient of several bequests from persons interested in its work. A noteworthy point is that, out of a total of 112,447 volumes contained in the library, no less than 20,812 are classified under "Arts, Sciences, Natural History." This is two thousand volumes more than are included under any other head. The most important accession to the library during the three years covered by the report (1892-94) consists of a complete set of the *Transactions* of the Royal Society, in 183 volumes. A very valuable addition to the scientific resources of the library has resulted from agreements entered into with the Glasgow Natural History Society, and with the Glasgow Geological Society. These societies have transferred to the library their sets of the *Transactions* and *Memoirs* of foreign scientific societies, the Library Committee undertaking on their part to continue to the members their privilege of borrowing the books, to bind such as required it, and to bear the expenses attending the printing extra copies of the *Transactions* of the Glasgow societies, and forwarding the same to the foreign societies as an exchange. During last year, 115,788 scientific works were issued, the daily average being 386. It would be well if there were more public libraries conducted on the enlightened plan of the Mitchell Library.

ANOTHER library of which we have received the report in this case the first report) is that of St. George, Hanover Square. Though on a much smaller scale than the Mitchell Library, the Commissioners appear to aim at making the library a means of education as well as of recreation. There are 11,860 volumes in the lending library, of which twenty per cent. are fiction, and 6206 in the reference library, none of which are novels. To obtain a satisfactory conclusion as to the work of a library, the use made of the library as a whole, and not of any particular department, ought to be taken into account. The records of the institution show that out of 416,760 visitors during the year, only thirteen per cent. of the readers went for the purpose of borrowing works of fiction from the lending library. A noteworthy feature in connection with the library is a museum of objects arranged as an elementary and self-explanatory collection, as an introduction to larger museums of natural history.

IT is proposed to hold a Technical Education Conference at the Society of Arts on June 20. The Society has addressed a letter to Technical Education Committees, asking them to send delegates to the Conference. Among the subjects to be considered is the "lack of a central organisation which might deal especially with such questions as the examination and inspection of classes. In spite of the valuable work which has been done by the City and Guilds of London Institute, and by other bodies, it is only in a portion of the subjects sanctioned as subjects of technical instruction that examinations are held. The wide field of agriculture and home industries is untouched; while no means are provided for anything like a general system of inspection which local authorities may call to their aid should they desire to do so." There are also other points with regard to which common action would be desirable, and it is hoped that by bringing together those who are interested in technical education the best way in which the Society can enlarge the scope of its present action in connection with the subject will be found.

THE Technical Instruction Committee of the Essex County Council have arranged for a short course of elementary instruction in horticulture, to be given at the County Technical Laboratories, Chelmsford, during the first three weeks in July. The course of study is intended to give sound elementary instruction in the cultivation of plants, based upon a knowledge of plant physiology. The teaching throughout will be practical; every lecture will be abundantly illustrated and immediately followed by demonstrations and individual practical work by the students themselves.

SCIENTIFIC SERIALS.

Internationales Archiv für Ethnographie, Band viii. Heft ii.—On the ethnography of Matty Island, by Dr. F. von Luschan. Although Matty is a small island, about ninety-three miles north of German New Guinea, between 142° and 143° E. long., Dr. von Luschan comes to the conclusion that the natives are not Melanesians; they are much lighter than almost any Melanesians, some being of a deep red flesh colour, eyes slit-like, nose narrow, hair black and in long locks. Of the thirty-eight weapons and utensils in the Berlin Museum not one can with certainty be allocated to any known culture-mixture; any Micronesian resemblance is purely superficial. It seems probable that the people have remained isolated for at least 300 years. Three plates of utensils, &c., illustrate the paper.—Dr. O. Schellong's note on some Melanesian drawings is illustrated by two coloured plates, and is supplemented by some notes by J. D. E. Schmeltz. The drawings are interesting as showing how unlike the objects intended native delineations may be. It is to be hoped that more illustrations of this aspect of the art of savages will be forthcoming. Of the notices of recent publications, those on "Arrow-poison" and "Ethnological Botany" are especially interesting.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, May 2.—"Alternate Current Dynamo Electric Machines." By J. Hopkinson, F.R.S., and E. Wilson.

The paper deals experimentally with the currents induced in the coils and in the cores of the magnets of alternate current machines by the varying currents in and the varying positions of the armature. It is shown that such currents exist, and that they have the effect of diminishing to a certain extent the electromotive force of the machine when working on resistances as a generator without a corresponding effect upon the phase of the armature current. It is also shown that preventing variations in the coils of the electromagnet does not, in the machine experimented upon, greatly affect the result, and that the effect of introducing copper plates between the magnets and the armature has not a very great effect upon the electromotive force of the armature, the conclusion being that the conductivity of the iron cores is sufficient to produce the main part of the effect. A method of determining the efficiency of alternate current machines is illustrated, and the results of the experiments for this determination are utilised to show that in certain cases of relation of phase of current to phase of electromotive force, the effect of the local currents in the iron cores is to increase, instead of to diminish, the electromotive force of the machine.

May 9.—Bakerian Lecture: "On the Laws of Connexion between the Conditions of Chemical Change and its Amount." By A. Vernon Harcourt, F.R.S., and William Esson, F.R.S. "III. Further Researches on the Reaction of Hydrogen and Dioxide and Hydrogen Iodide."

In this paper are considered the effect upon the reaction of (1) substances not directly participating in reaction, (2) temperature.

The general conclusion as to the effect of the medium upon the reaction is expressed as follows:—

Each constituent of the medium produces an effect on the rate of change of unit peroxide and unit iodide, proportioned to the mass, and varying with the nature of the constituent. The increment of this rate per unit mass of each constituent is constant so long as the quantity of the predominant constituent present in the medium is sufficiently large, in comparison with the other constituents of the medium, to render the media in successive experiments practically homogeneous. For example, when the ratio of the numbers of H^2SO^4 and HI in the medium exceeds 20, the formula for the rate at a given temperature is

$$\alpha = i\{a + b(i-1) + ds\},$$

a being the theoretical rate with unit of HI, b the increment per unit of hydrogen iodide per unit of iodide, and d the increment per unit of hydrogen sulphate per unit of iodide. If the ratio falls below 20 the formula is

$$\alpha = i\{a + b'(i-1) + d's\},$$

in which b' and d' depend upon the relative masses of sulphate and iodide present in the medium.

Variation of Temperature.

The discussion of the numerous experiments made at temperatures ranging from 0° to 50°, in media in which the quan-

tities of iodide range from 3·64 *HI*, to 23 *HI*, the quantities of hydrogen sulphate from 45 H^2SO^4 to 468 H^2SO^4, and the quantities of hydrogen chloride from 70 *HCl* to 547 *HCl*, leads to the following law of connexion between chemical change and temperature.

If α_1 is the rate of chemical change at a temperature $t_1°$ in a homogeneous medium consisting of given constituents per unit volume, and α_2 is the rate at a temperature $t_2°$ in the same medium, the ratio of α_1 to α_2 is $\{(273 + t_1)/(273 + t_2)\}^m$. m being a constant depending upon the character of the constituents of the medium. When the temperatures are measured from the absolute zero $-273°$, and are denoted by T_1, T_2, the formula assumes the simpler form,

$$\alpha_1 / \alpha_2 = (T_1 / T_2)^m.$$

The constancy of the value of m for a particular medium is secured when the quantity of the predominant constituent of the medium is sufficiently large in comparison with the quantities of the other constituents to make the medium practically homogeneous. When this is not the case the value of m has some value intermediate to the values which it has when one or other of the constituents is sufficiently predominant to secure a constant value.

In media in which hydrogen sulphate is sufficiently predominant, the value of m is 20·38; similarly for hydrogen chloride the value of m is 21·17. When the medium consists of water and hydrogen iodide, the value of m is 24·1. The introduction of sodium sulphate in large quantity into a medium otherwise consisting mainly of hydrogen sulphate reduces the value of m from 20·38 to 18·1. In a medium in which the main ingredient is sodium hydrogen carbonate, the value of m is approximately 10.

A further confirmation of the law of connexion between chemical change and temperature is obtained from the discussion of experiments on the rate of change of hydrogen chlorate and potassium iodide made by W. H. Pendlebury and M. Seward. The value of m is in the case of this chemical change 40·5.

It follows from the law enunciated above that at the temperature of absolute zero no chemical change can take place.

If the smallest value of m, viz. 10, is taken, a chemical change, which is completed in one minute at a temperature zero, would require for its completion, at a temperature of $-200°$, a little more than a year. If 20 is taken as the value of m, the minute would be increased to more than half a million of years by the same reduction of temperature.

The law enunciated above may also be stated in the following form.

The increment of each unit of chemical change due to a rise of temperature varies as the increment of each unit of absolute temperature.

This law is expressed by the formula

$$D\alpha/\alpha = mDT/T.$$

Chemical Equilibrium.

A case of equilibrium between the reactions

$$H^2O^2 + 2HI = 2H^2O + I^2,$$
$$2H^2O + I^2 = H^2O^2 + 2HI,$$

leads to a discussion of the general equations of chemical equilibrium, which is given in an appendix to the paper. These equations are employed to interpret the results of experiments published by Dr. Gladstone in the *Transactions* of the Royal Society (*Phil. Trans.*, vol. cxlv.). They had been previously applied to the case of chemical equilibrium investigated by Prof. Dixon, in a paper published in vol. clxxv. of the *Transactions* of the Royal Society, the reactions in that case being

$$H^2O + CO = H^2 + CO^2,$$
$$H^2 + CO^2 = H^2O + CO.$$

Physical Society, May 24.—Captain W. de W. Abney, President, in the chair.—Dr. Kuenen read a paper entitled "On the condensation and the critical phenomena of mixtures of ethane and nitrous oxide." If the vapour of a pure substance is compressed at constant temperature, then when a certain pressure is reached the vapour commences to condense, and the pressure remains constant until all the vapour is liquefied. Taking the pressure and temperature as coordinates the corresponding temperatures and pressures at which liquefaction takes place are plotted, the curve obtained is called the vapour pressure curve, and this curve ends at the critical temperature and pressure of the given substance. On the other hand, if a mixture of two vapours is compressed at constant temperature the pressure no longer remains constant while condensation is taking place, but gradually rises. The points at which condensation commences and ends lie on a U-shaped curve having its vertex turned towards the direction of increasing temperatures. Such a curve the author calls a "border curve." The point at which a line parallel to the axis of p touches a border curve corresponds to the critical point (R) of the given mixture. For all temperatures higher than that corresponding to R there is no condensation into liquid possible, while for any temperature below the critical temperature there are two vapour pressures, one corresponding to the commencement, and the other to the conclusion of liquefaction. The envelope of all the border curves for mixtures containing different proportions of the two bodies is a curve, called the plait-point curve, joining the critical points of the two constituents. The point of contact (P) of a border curve with the plait-point curve corresponds to the plait-point on van der Waal's, thermodynamic surface. If when we go along the border curve, starting from its lower branch, we first reach R and then P, and if we indicate the temperatures corresponding to P and R by T_P and T_R, then for temperatures between T_P and T_R as the pressure is increased the quantity of liquid firts increases, reaches a maximum, and after that decreases till it disappears. This is called retrograde condensation of the first kind, and has been observed by the author in the case of mixtures of methyl chloride and carbon dioxide. If P, however, lies beyond R the process of condensation for temperatures between T_P and T_R is different. In this case the volume of vapour increases, reaches a maximum, and then decreases. This constitutes retrograde condensation of the second kind. It was with a view to the experimental observation of this second kind of retrograde condensation that the author undertook his observations. A series of observations were made with each of the pure gases, and gave the following values for the critical temperature:—

Ethane	32°·3 C.
Nitrous oxide	36°·1 C.

In the case of the mixtures, the very interesting result is obtained that the critical temperature is in some cases less than that of either of the constituent gases. Thus a mixture containing 10 per cent. of C_2H_6 has a critical temperature of 32°, the same critical temperature as for pure ethane. All mixtures containing more than 10 per cent, of ethane have a lower critical temperature than 32°; the lowest critical temperature obtained is 25°·8, and belongs to a mixture containing equal volumes of ethane and nitrous oxide. Another important point is that the border curves do not all lie between the vapour pressure curves of ethane and nitrous oxide. Hence for any temperature there is some mixture which gives a maximum vapour pressure. It also appears from the curves, given in the paper that the maximum vapour pressure is obtained with almost the same mixture at all temperatures, and that this maximum vapour pressure doe not disappear with increase of temperature, but remains even up to the critical region. For mixtures containing between 20 and 50 per cent. of C_2H_6 retrograde condensation of the second kind takes place, but the author has no been able to observe it, since the difference between T_P nd T_R for the two substances experimented on cannot be more than 0°·1, and the temperature could not be maintained sufficiently constant to hope to be able to detect any phenomenon taking place over such a small temperature range. The author showed his arrangement for stirring the liquid and vapour in the experimental tube so as to prevent any retardation of the different phases due to slow diffusion in the long narrow tubes employed. A small piece of iron with enamel beads on the ends is enclosed in the experimental tube, and by means of a small magnetising coil which surrounds the jacket used to keep the temperature of the tube constant, this piece of iron can be moved up and down the tube so as to keep the liquid and vapour thoroughly stirred. Prof. Carey Foster and Prof. Ramsay complimented the author on the very lucid way he had expounded a by no means easy subject. Dr. Sidney Young congratulated the author on the able use he had made of his lucky discovery of two bodies such that their mixture should have a lower critical temperature than that of either of the pure substances. Prof. Ramsay and he (Dr. Young) had made experiments on the vapour pressure of mixtures of alcohol and ether, and had found great difficulty in pre-

venting the separation of the components when the volume was altered, and he could, therefore, thoroughly appreciate the utility of the author's device for overcoming this difficulty. They had also experienced considerable difficulty in filling the tube with a mixture of known composition and free from air, and he considered that when dealing with mixtures it was better to employ gases, although they could not be obtained in so perfect a state of purity as liquids, on account of the greater ease with which a mixture of known composition can be obtained. The plan of making separate observations on the pure substances was a good one, and considering that the author measures the increase of pressure during the process of condensation, so that any air which happened to be present produced the maximum effect, the small rise in pressure obtained indicated a high degree of purity in the gases employed. He would like to ask the author if in the case of mixtures he found it possible to determine accurately the point where condensation commenced and ended, for with the alcohol and ether mixtures they had found it very difficult to determine these points. He also hoped the author would continue his observations in the direction indicated in the paper. Mr. Inwards suggested that in the case of liquids which act on iron, the iron stirrer could be enclosed in glass or india-rubber. It might also be possible to obtain more efficient stirring by means of a small fan or propeller worked by an electro-magnet rotating outside the tube. The author, in his reply, said that when the mixtures were well stirred, the pressures at which condensation commenced and ended were well marked.—Mr. Burstall commenced the reading of a paper on the measurement of a cyclically varying temperature. The experiments were undertaken with a view of measuring the temperature inside the cylinder of a gas engine at different points of the stroke of the piston. A modified form of platinum thermometer is employed to measure the temperature, and since the variations in temperature are extremely rapid, the wire had to be very thin and unprotected by any covering such as is ordinarily employed. The leads of the thermometer pass through a slate plug fixed in a seamless steel tube, asbestos being used as a packing to prevent leakage. The resistance of the thermometer is measured by means of a Wheatstone's bridge. Since the temperature at a certain part only of the *working* stroke had to be measured, the galvanometer circuit was broken in two places; one of these breaks was closed by means of a cam on the shaft of the engine at a given point of each revolution, while the other was closed when an explosion took place by means of a relay worked by the pointer of a steam engine indicator attached to the cylinder of the engine. The remainder of the paper was postponed till the next meeting.

Linnean Society, May 24.—Anniversary Meeting —Mr. C. B. Clarke, President, in the chair.—The Treasurer presented his annual report, duly audited, and the Secretary having announced the elections and deaths during the past twelve months, the usual ballot took place for new members of Council. The following were elected:—Prof. J. B. Farmer, Mr. A. Gepp, Prof. Howes, Dr. St. G. Mivart, and Mr. A. S. Woodward. On a ballot taking place for the election of President and officers, Mr. Charles Baron Clarke was re-elected President, Mr. Frank Crisp Treasurer, Mr. B. D. Jackson Botanical Secretary, and Prof. G. B. Howes Zoological Secretary. The Librarian's report having been read, and certain formal business disposed of, the President delivered his annual address, prefaced by some remarks on the present position of the Society. On the motion of Sir Joseph Hooker, seconded by Dr. John Anderson, a vote of thanks was accorded to the President, with a request that he would allow his address to be printed. The Society's gold medal was then formally awarded to Prof. Ferdinand Cohn, of Breslau, and was received on his behalf by Mr. B. D. Jackson for transmission through the German embassy. The President having called attention to the retirement of the Zoological Secretary, Mr. W. Percy Sladen, after holding office for ten years, an announcement which he felt sure would be received with universal regret, it was proposed by Mr. Carruthers, seconded by Mr. Crisp, and supported by Mr. Charles Breese—"That the Fellows of this Society, regretting the retirement of Mr. Walter Percy Sladen from the post of Zoological Secretary, which he has occupied for the past ten years, desire to record upon the Minutes of the Society an expression of their high appreciation of the services which he has rendered to the Society, and of the very able manner in which he has at all times discharged the duties of his office." This resolution having been put, was carried unanimously, and after a sympathetic reply from Mr. Sladen, the Society adjourned to June 6. In the evening a number of Fellows of the Society dined together at the Grand Hotel, Charing Cross, the President occupying the chair, and being supported by several distinguished visitors.

Royal Meteorological Society, May 15.—Mr. R. Inwards, President, in the chair.—Mr. G. J. Symons, F.R.S., and Mr. G. Chatterton read a paper on the November floods of 1894 in the Thames Valley, which they had prepared at the request of the Council of the Royal Meteorological Society. This consisted of a systematic description of the causes which led to the great floods of November last, and an analysis of the records obtained from the Thames Conservancy Board, from the engineers of several of the towns along the river, and also from rainfall observers throughout the Thames watershed. The information was given chiefly in the form of tables, one of the first being a chronological history of floods in the Thames Valley from the year 9 A.D. down to the present time. This was followed by a short description of the damage wrought in November 1894, which was illustrated by a number of interesting lantern slides. Details were then given of the levels reached at various places in all the principal floods from 1750 to the present time. The authors exhibited a map showing the relative elevation of all the parts of the Thames basin, and then gave details of the rainfall for each day from October 23 to November 18, 1894. The results obtained by the Thames Conservancy Board, showing the flood levels at each lock, were exhibited on a longitudinal section from Lechlade to Teddington, and the hydraulic inclinations from lock to lock were shown in a tabular form. The volume of flood water, as gauged by the Thames Conservancy at Teddington, rose rapidly from 4000 million gallons per diem on November 12, to 10,250 million gallons on the 16th, 12,800 million gallons on the 17th, and to over 20,000 million gallons on the 18th, when the discharge reached its maximum. The last-named discharge is equivalent to 0·37 inch over the whole watershed of the Thames above Teddington Lock.—Mr. F. J. Brodie read a short paper on the barometrical changes preceding and accompanying the heavy rainfall of November 1894, from which it appeared that the latter half of October was characterised by unusually bad weather, especially in the more western and southern parts of the British Isles. The torrential rains from November 11 to 14, which actually caused the floods, were due to two secondary depressions which developed a certain amount of intensity as they passed over the southern part of England.

CAMBRIDGE.

Philosophical Society, May 13.—Prof. J. J. Thomson, President, in the chair.—Exhibition of some recent photographs of the moon, by Mr. Newall.—On the "volume heat" of aniline, by Mr. E. H. Griffiths. The results of an inquiry (by what may be termed an absolute method) into the influence of temperature on the capacity for heat of aniline were published in the *Philosophical Magazine*, January 1895. During last autumn, Mr. C. Green, of Sydney College, made a series of observations on the *density* of the same compound, over the temperature range 15° to 52° C. Three separate sets of determinations of the density gave very concordant results. If the capacity for heat of equal volumes at different temperatures be denoted by the phrase "*volume heat*," then the "volume heat" at any temperature is the product of the capacity for heat and the density. In the case of aniline, the "volume heat" appears to be constant. Our knowledge of the changes in the capacity for heat of water due to changes of temperature is so uncertain that the *relative* values of the changes in the specific heat of other substances are of little absolute value. The author, therefore, has been unable to extend the inquiry into the "volume heat" of other bodies than aniline, for he has not succeeded in finding any other determinations which do not rest on some assumption as to the behaviour of water.—Exhibition of Goldstein's experiments on kathode rays, by Mr. J. W. Capstick. Mr. Capstick showed Goldstein's experiments on the effect of a stream of kathode rays on salts of the alkalies. When the rays are directed on potassium chloride, for instance, the salt becomes of a heliotrope colour, and retains the colour for several days if kept out of contact with moisture. The effect appears to be due to a chemical change in the substance—probably the formation of a sub-chloride—but the layer of altered salt is so exceedingly thin that it is difficult to get unequivocal chemical evidence as to its nature.—On a curious dynamical property of celts, by Mr. G. T. Walker. Mr. G. T. Walker exhibited celts which

possessed the property of spinning in only one direction upon a horizontal surface.—On the formation of cloud in the absence of dust, by Mr. C. T. R. Wilson. The cloud-formation is brought about, as in the experiments of Aitken and others, by the sudden expansion of saturated air. A form of apparatus is used in which a very sudden and definite increase in volume is produced, and in which the possibility of dust entering from the outside seems to be excluded. If ordinary air is started with, it is found that after a comparatively small number of expansions, to remove dust particles by causing condensation to take place on them, there is no further condensation unless the expansion exceeds a certain definite amount. With expansion greater than this critical value condensation invariably takes place, and the critical expansion shows no tendency to rise, however many expansions be made. The latest result for the ratio of the final to the initial volume, when the critical expansion is just reached, is 1·258 (when initial temperature = 16·7). This corresponds to a fall of temperature of 26° C., and a vapour pressure 4·5 times the saturation pressure for a plane surface of water. The radius of a water drop just in equilibrium with this degree of supersaturation = $6{\cdot}5 \times 10^{-6}$ cm., assuming the ordinary value of the surface tension to hold for drops of that size.

May 27.—Evaluation of an automorphic function, by Mr. H. F. Baker.—On a construction in geometrical optics, by Mr. J. Larmor.—Note on the steady motion of a viscous incompressible fluid, by Mr. J. Brill.

PARIS.

Academy of Sciences, May 27.—M. Cornu in the chair.—On an algebraical problem connected with Fermat's last theorem, by M. de Jonquières.—A contribution to the history of the cerium earths, by M. P. Schutzenberger.—On the accumulation in the soil of cupric compounds used in the treatment of parasitic diseases in plants, by M. Aimé Girard. The evidence furnished by the author, in addition to the facts made known by other writers, completely proves that continuous treatment with copper compounds for a long period has no influence either upon the quantity or the quality of the crop obtained from the vine or potato.—Dr. Frankland was elected Foreign Associate of the Academy.—Injection of ethyl alcohol into venous blood, by M. N. Gréhant. From experiments made on a dog, it is concluded that, after the injection into the blood of a considerable volume of alcohol, the proportion of this substance in the blood five minutes after the injection and for more than eight hours afterwards becomes absolutely constant.—Spectroscopic researches on Saturn's rings, by M. H. Deslandres. The rotation of the planet and of its inner and outer rings has been measured by the methods used first by the author with the planet Jupiter, and employed by Keeler in his recently published researches on the subject of this paper. The author differs from Keeler insomuch as he does not regard this kind of evidence as a proof of the meteoric nature of the rings.—On the reduction of nitric oxide by iron or zinc in presence of water, by MM. Paul Sabatier and J. B. Senderens. The reduction of gaseous nitric oxide or nitric oxide dissolved in ferrous sulphate solution results in the production of nitrous oxide and nitrogen, finally the nitrous oxide is completely reduced also. A small amount of ammonia is formed, and a considerable quantity of hydrogen liberated, when the reaction is permitted to go on for a considerable time.—On the reduction of silica by aluminium, by M. Vigouroux. Silicon obtained in the crystalline form by this process is described.—A study of some reactions of lead sulphide, by M. A. Lodin. Mr. James Hannay's conclusions concerning the hypothetical compound PbS_2O_2, and the part played by it in the metallurgy of lead, are controverted. It is found that lead sulphide fuses at 935°, but exerts a considerable vapour pressure at temperatures much lower; hence the explanation of the volatilisation of galena requires no new compound to be supposed to exist. The long-admitted equations expressing the reactions taking place in the reverberatory furnace are completely verified by the author.—On campholenic derivatives, by M. A. Béhal.—On crystallised cinchonicine, by M. Ferdinand Roques.—Transformation of an aniline salt into an anilido-acid. Pyruvic acid forms with aniline a condensation product, $CH_3 . C (NC_6H_5) . COOH$. Phenylglyoxylic acid, under the same conditions, forms the salt, $C_6H_5 . CO . CO_2H . NH_2 . C_6H_5$. On dissolving this in methyl alcohol, the condensation product, $C_6H_5 . C (NC_6H_5) . CO_2H$, separates out in the crystalline form in a few minutes in the cold.—On ozobenzene, by M. Adolphe Renard. By the action of ozone on benzene a white explosive substance is produced having the composition $C_6H_6O_6$.—On the fixation of iodine by potato-starch, by M. Gaston Rouvier.—On the elimination of magnesia in the urine of infants suffering from rickets, by M. Oechsner de Coninck.—On the employment of serum from animals immunised against tetanus, by M. L. Vaillard. The antitetanic serum is able to confer complete immunity for from two to six weeks, but if the tetanus has become established, inoculation is not able to prevent progress of the disease. The toxine in tetanus is perhaps the most active of the bacterial poisons, yet the antitoxine of the serum is even more active.—The relation between relief and the frequency and intensity of earthquakes of any region, by M. de Montessus.—Atmospheric and seismic perturbations of the month of May last and their connection with solar phenomena, by M. Ch. V. Zenger.

BOOKS AND SERIALS RECEIVED.

BOOKS.—On certain Phenomena belonging to the Close of the last Geological Period and on their Bearing upon the Tradition of the Flood: Dr. J. Prestwich (Macmillan).—Fallacies of Race Theories as applied to National Characteristics: W. D. Babington (Longmans).—A Junior Course of Practical Zoology: Prof. A. M. Marshall and Dr. C. H. Hurst, 4th edition (Smith, Elder).—Handbuch für Botanische Bestimmungsübungen: Dr. F. Niedenzu (Leipzig, Engelmann).—Cours Élémentaire d'Électricité: M. B. Brunhes (Paris, Gauthier-Villars).—Verlagskatalog von Wilhelm Engelmann in Leipzig bis ende des Jahres 1894 (Leipzig, Engelmann).—The Time Machine: H. G. Wells (Heinemann).—A Text-Book of Physiology: Dr. M. Foster, 6th edition, Part 2, comprising Book 2 (Macmillan).—The Lumleian Lectures on certain Points in the Ætiology of Disease, and the Harveian Oration: Dr. P. H. Pye-Smith (Churchill).—Meteorological Charts of the Red Sea (Eyre and Spottiswoode).

SERIALS.—Proceedings of the Royal Society of Edinburgh, Vol. xx. pp. 305-384 (Edinburgh).—National Review, June (Arnold).—Humanitarian, June (Hutchinson).—Natural Science, June (Rait).—Contemporary Review, June (Isbister).—Scribner's Magazine, June (Low).—Zeitschrift für Physikalische Chemie, xvii. Band, 1 Heft (Leipzig, Engelmann).—Fortnightly Review, June (Chapman).—North American Fauna, No. 8 (Washington).—Proceedings of the American Philosophical Society, May 1893 (Philadelphia).—Ditto, July to December, 1894 (Philadelphia).—Proceedings of the Academy of Natural Sciences of Philadelphia, 1894, Part 3 (Philadelphia).—Bulletin from the Laboratories of Natural History of the State University of Iowa, Vol. 3, No. 3 (Iowa).—Geographical Journal, June (Stanford).

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