

examining for the degrees, and in a number of other less important directions. The Senate, at its meeting in January, 1912, summoned an annual conference of the professors of the four colleges; the first meeting was held in November, when it was resolved to recommend to the Senate the merging of the two degrees of B.A. and B.Sc. into one, to be called B.A. The attempt by the reformers to introduce the system of intermediate and final examinations for the degree was thrown out, and the general scheme of the Conservatives, if we may so call them, was adopted. It was also resolved to recommend that at the end of five years the present system of examination should cease, and that examinations be conducted by boards of examiners, composed of the New Zealand professors.

THE second part, dealing with financial statistics for 1910-11-12, of "Statistics of Public Education in England and Wales," is now available (Cd. 6551). In the year ending March 31, 1912, the net total expenditure by the Board of Education in England and Wales was 14,298,030*l.* Of this 11,775,390*l.* was spent on elementary education, 758,525*l.* on secondary schools, 587,213*l.* on technical and art schools and classes, and 571,143*l.* on the training of teachers. The amounts allocated definitely to higher education were small; among these sums may be mentioned 20,000*l.* to the Imperial College of Science and Technology, 17,238*l.* to the Science Museum at South Kensington, and 20,170*l.* for the Geological Museum and Geological Survey. A table giving the expenditure of local authorities in England on education other than elementary is of special interest. Their total receipts for this purpose were 4,327,842*l.*, somewhat less than their total expenditure. Of this amount 1,081,835*l.* was from Parliamentary grants, 1,840,155*l.* from rates and borough funds, and 193,957*l.* from local authorities.

THE report for the third session of the faculty of engineering in the University of Bristol has now been published. During the session 1911-12, seventy-four day students attended, of whom fifty-three were matriculated students of this University; the percentage of matriculated students, which was forty in 1909-10 and fifty-eight in 1910-11, increased to seventy-one. This is higher than the corresponding percentage of matriculated engineering students in other provincial universities. Of these day students, three were engaged in post-graduate research work. The number of individual students in attendance at the evening classes conducted by members of the teaching staff of the faculty was 444; of these, eighteen were registered as candidates for the university degree or certificate in engineering, and two had matriculated. The report points out that each year it becomes easier to find places for students who have completed their courses of study. This arises partly from the fact that employers are realising the benefits to be derived from engaging recruits who have had a sound technical training, and partly that students unwilling to work hard enough are dissuaded from continuing their studies. This reduces the number of students in the faculty, but increases enormously the efficiency of the work.

IN his recent report on the work of the Massachusetts Institute of Technology, President R. C. Maclaurin says there can in future be no serious talk of merging the institute with Harvard University, but he shows at the same time how desirable proper cooperation between the two colleges is. The Institute of Technology has received during the past year gifts amounting to about 1,200,000*l.*, and is strong enough either to stand alone or to enter into alli-

ances. Dr. Maclaurin shows how unwise it would be for the institute to establish a group of collections for its students when the splendid University Museum of Harvard is so close at hand. The institute, he points out, is intending to erect the most complete mining and metallurgical laboratories in the world, and it would be a waste of money for Harvard to try to duplicate these. He believes that there should be a further interchange of the strong teachers in both institutions. For years the institute students in geology have had the advantage of Prof. Daly's skill, enthusiasm, and scientific achievements, and now he has gone to Harvard it would be regrettable if the students should be out of his influence, the more so since the number of advanced students in the two schools together is not too large for him to deal with effectively. In return, Harvard is not likely, Dr. Maclaurin says, to attempt the task of duplicating such a man as Prof. Lindgren, now at the institute.

### SOCIETIES AND ACADEMIES.

#### LONDON.

**Royal Society**, January 23.—Sir Archibald Geikie, K.C.B., president, in the chair.—E. Mellanby: The metabolism of lactating women.—Dr. F. W. Edridge-Green: Colour adaptation. As in dark adaptation there is a considerable effect which takes place immediately on entering a dark room, so is there a considerable effect produced when a person enters a room illuminated by an artificial light, having previously been in daylight. This effect, which may be designated colour adaptation, increases with the time during which the eyes are subjected to the adapting light. The effect of colour adaptation was estimated by four methods.—Dr. F. W. Edridge-Green: Trichromatic vision and anomalous trichromatism. The following are the conclusions arrived at after the examination of a large number of persons belonging to each class:—(1) Trichromatic vision (on the author's classification of colour-vision) is not synonymous with anomalous trichromatism. (2) Many persons with otherwise normal colour perception make an anomalous equation. (3) Many colour-blind persons (dichromics and trichromics) make an absolutely normal match with no greater mean deviation than the normal. (4) Colour weakness is not characteristic of anomalous trichromatism but of trichromatic vision. (5) Anomalous trichromatism and colour weakness are not synonymous. (6) A large mean deviation indicates colour weakness. (7) Anomalous trichromatism appears to be due to an alteration in the normal relations of the response to the three colours (lights) used in the equation.—W. E. Agar: The transmission of environmental effects from parent to offspring in *Simocephalus vetulus*. The main result of a number of experiments on the transmission of environmental effects in a common Daphnid, *S. vetulus*, has been to show that certain characters, acquired ontogenetically by individuals placed in abnormal environments, may appear in their offspring which have been born and have lived in a normal environment, *i.e.* one in which control individuals do not show the characters in question.—Dorothy M. Cayley: A preliminary note on a new bacterial disease of *Pisum sativum*.—Dr. J. Homans: The relation of the islets of Langerhans to the pancreatic acini under various conditions of secretory activity.—H. O. Feiss and W. Cramer: Contributions to the histo-chemistry of nerve; on the nature of Wallerian degeneration.—I. B. J. Sollas: Onychaster, a Carboniferous brittle-star.—Prof. H. E. Armstrong, E. F. Armstrong, and E. Horton: Herbage

studies. II., Variation in *Lotus corniculatus* and *Trifolium repens* (cyanophoric plants). During the past summer, by testing very carefully the apparently acyanophoric form of *L. corniculatus* described in part i., it has been found that this contains a minute proportion of cyanide; moreover, two varieties of this form have been met with, in close proximity, the one rich in enzyme, the other having little, if any, enzymic activity towards linamarin. The manner in which the plant has been found to vary, especially in different parts of Scotland, is discussed at some length. Attention has also been directed to white clover in particular, on account of its importance as the chief leguminous plant in pasture lands. The authors have been forestalled by Mirande (C.R., 1912, vol. clv., p. 651) in the discovery that this plant is cyanophoric, like *L. corniculatus*. But their observations go further and show that whilst the wild form of *T. repens* is uniformly more or less cyanophoric, the cultivated form is destitute of cyanide.—T. G. Brown: The phenomena of "narcosis progression" in mammals.—Prof. C. S. Sherrington: Reciprocal innervation and symmetrical muscles.—Dr. F. Medigreceanu: The manganese content of transplanted tumours.—Dr. J. W. W. Stephens and Dr. B. Blacklock: The non-identity of *Trypanosoma brucei* (Plimmer and Bradford, 1899) with the trypanosome of the same name from the Uganda ox. In this paper the authors deal with the *T. brucei* causing Nagana in Zululand and *T. brucei* of Uganda. It has generally been accepted that these two trypanosomes are (morphologically) identical, and that they are both of the dimorphic type, presenting long free flagellated forms and short stumpy forms without free flagellum. The name *T. brucei* was first given by Plimmer and Bradford to the parasite, but they do not mention short stumpy aflagellar forms. Again, Laveran regards *T. brucei* as a monomorphic trypanosome which always has a free flagellum. The authors have had the opportunity of examining both strains of *T. brucei*, i.e. that from Zululand and that from Uganda, and in addition have had access by the courtesy of several observers to their films of the Zululand strain. As a result of their investigations they have come to the conclusion that the trypanosome called *brucei* from Uganda presents very distinct and obvious morphological differences from the Zululand parasite. In order to avoid confusion, it is considered advisable that this Uganda trypanosome should be re-named, and the name *T. ugandae* is proposed.

January 30.—Sir Archibald Geikie, K.C.B., president, in the chair.—Prof. W. H. Young: The formation of usually convergent Fourier series.—R. V. Southwell: The general theory of elastic stability. The paper deals principally with the general principles which govern the mathematical investigation of problems in elastic stability, but two examples of some importance are considered for purposes of illustration, viz. the problems of the boiler flue and of the tubular strut.—C. M. Stubbs: A spectro-photometric comparison of the emissivity of solid and liquid copper and of liquid silver at high temperatures with that of a full radiator. (1) The emissivity of solid and liquid copper and of liquid silver at high temperatures, relative to that of a full radiator at the same temperatures, has been measured throughout the visible spectrum. (2) As in the case of gold, the emissivity of copper is discontinuous at the melting point, the "relative emissivity" curve of the liquid showing no flexure. (3) The curve of "relative emissivity" of solid copper at high temperatures differs considerably from that of absorptivity at low temperatures. It possesses a much less marked flexure in the green,

and it is suggested that this is due to the same causes which ultimately bring about the total absence of a marked bend in the curve for the liquid. (4) Contrary to Burgess's results, no appreciable temperature coefficient of "relative emissivity" was found for liquid copper over a range of 100°. (5) The "relative emissivity" of liquid silver is throughout remarkably low, but seems to be somewhat greater than the corresponding values of the absorptivity of solid silver at ordinary temperatures. (6) "Black body" temperatures of solid and liquid copper and of liquid silver at the respective melting points are calculated.—G. W. Walker: A new analytical expression for the representation of the components of the diurnal variation of terrestrial magnetism. Attention is directed to the fact that Fourier analysis of the observed diurnal variation of the components of terrestrial magnetic force does not lead to a concise specification of the data. Thus progress towards a knowledge of the physical causes has been limited. It is suggested that the phenomena are probably purely diurnal, that no physical significance may attach to the twelve-hour, eight-hour, &c., terms, but that the facts may be more suitably expressed by a function that recurs only once in twenty-four hours.—Prof. E. W. Marchant: An investigation into the magnetic behaviour of iron and some other metals under the oscillatory discharge from a condenser. The method adopted in the investigation was to photograph by a revolving mirror the spark caused by the discharge. In order to check the accuracy of measurement spark photographs were taken of the discharge from an air condenser through an air-core inductance. The agreement between calculated and observed frequencies was within 1 per cent. With a glass condenser the capacity measured by the frequency of the discharge through an air-core self-induction was less than that obtained by ballistic measurements. When the discharge from these condensers was passed round a coil having a core of fine iron wires, the discharge consisted of a series of oscillations, the time for each oscillation increasing as the discharge died away. The discharge was much more quickly damped when the iron wire core was inserted. From the measurements of the first half oscillations of a number of discharges the "effective permeability" of the iron wire core was calculated, the "effective permeability" being defined as that which the iron would have if it were constant, in order to give an oscillation of the same periodic time as that which was observed. From these results a curve has been drawn giving the relation between magnetising force and "effective permeability." This curve has been employed to determine approximately the resistance of the spark.—Florence Isaac: The spontaneous crystallisation and the melting- and freezing-point curves of two substances which form mixed crystals and the freezing-point curve of which exhibits a transition point. Mixtures of *p*-bromonitrobenzene and *p*-chloronitrobenzene.

Geological Society, January 8.—Dr. Aubrey Strahan, F.R.S., president, in the chair.—J. B. Scrivenor: The geological history of the Malay Peninsula. A brief statement of the information bearing on the geological history of the Malay Peninsula gathered since 1903. During the Mesozoic era earth-movements took place in a part of the crust now the site of the Malay Peninsula. These movements resulted in two anticlinal folds. The folding admitted of the intrusion of two masses of granite, accompanied by faulting of the rocks in the folds. The rocks affected by the folding are the Raub Series of calcareous rocks, and the Malayan Gondwana rocks. The palaeontological evidence cannot be reconciled with the field evidence. No fixed horizon has been discovered in these rocks,

which may be either Carboniferous or Permo-Carboniferous. At the base of the Gondwana rocks are glacial deposits to be referred to the same horizon as the late Palæozoic glacial deposits of Peninsular India, the Salt Range, Australia, and South Africa, but this horizon cannot be defined exactly. Its presence shows that the Raub Series must be older than the Productus Beds of the Salt Range, or equivalent to the shales below the boulder-bed in the trans-Indus section of the Salt Range. The glacial deposits are succeeded by littoral deposits, and far to the east of the glacial deposits a Rhætic horizon has been described and named the Myophorian Sandstone. The glacial deposits show that this portion of the Gondwanaland coast contained stanniferous granite and also much corundum. Denudation has brought to light the two anticlinal folds and the granite masses upon which they now rest. On the west is the Main Range Anticline, on the east the Benom Anticline. The eastern limb of the former and the western limb of the latter meet in the Main Range Foothills. The eastern limb of the Benom Anticline is formed by the main Gondwana outcrop. The igneous rocks of the Benom Anticline are less acid than those of the Main Range Anticline. The area of the Benom Anticline coincides with the "gold-belt" of the peninsula. Tertiary Coal Measures, unconformable on the Gondwana rocks, are known in Selangor. Their exact age cannot be determined. Evidence has been found in the peninsula supplementing the evidence described by Dr. A. R. Wallace, of changes in the archipelago in Tertiary times. When the land-connection that allowed the migration of the fauna of the archipelago from the north was destroyed by submergence, the subsidence continued until the peninsula became an island or group of islands. Subsidence then gave place to elevation, which restored the peninsula.—**C. T. Trechmann**: A mass of anhydrite in the Magnesian Limestone at Hartlepool. The harbour of Hartlepool owes its existence to the erosion of a mass of anhydrite of great thickness, proved by boring to exist in proximity to the Upper Magnesian Limestone upon which the towns of Hartlepool and West Hartlepool are built. The anhydrite is included in, and represents the time-equivalent of part of, the Middle and part of the Upper Limestones. The former presence of sulphates in the Magnesian Limestone is discussed. Evidence is brought to show that quantities of anhydrite were originally deposited with the Magnesian Limestone, the subsequent hydration and removal of which are responsible for the collapse, brecciation, and other alterations that are features of the present formation. The distribution of organisms in the Magnesian Limestone was influenced by the sulphates present in the water. The Shell Limestone is a chain of reef-knolls. The curious distribution and present position of the Upper Magnesian Limestones in Durham is noticed, and an explanation offered. The Permian succession is shown to be more complete in the southern than in the northern area of the county. Various sections in the Upper and Upper Middle Limestones in the Hartlepool area are described.

**Linnean Society**, January 16.—Prof. E. B. Poulton, F.R.S., president, in the chair.—Prof. E. L. Bouvier: *Les Caridines des Seychelles, avec des observations sur leurs variations.*—Rev. A. E. Eaton: (1) *Psychodidæ of the Seychelles.* (2) *Ephemeridæ of the Seychelles.*—H. Campion: *Odonata of the Seychelles.*—W. A. Harding: A new land leech from the Seychelles.

**Physical Society**, January 24.—Prof. C. H. Lees, F.R.S., vice-president, in the chair.—S. W. J. Smith and H. Moss: The resistance of electrolytes. In ex-

periments described in 1911 a modification of Wien's method was used—the optical telephone being replaced by a vibration galvanometer—and the conclusion was drawn that the resistance of an electrolyte varies to an easily perceptible degree with the frequency of the alternating currents to which it is subjected. It is unsound to use the method to test whether the resistivity of an electrolyte depends upon the frequency of the currents to which it is subjected, unless it is shown that the effects of leakage through the electrolytic condensers can be neglected or allowed for. In order to remove or justify any doubt upon the question test experiments have been performed. The method depends upon simultaneous measurement of the voltage between the ends of a tube containing the electrolyte and of the current passing through it. It was found that the resistivity of the electrolyte was constant within 0.05 per cent., whether steady currents or currents of any frequency up to 2300 alternations per second were used. Until the instruments were calibrated there appeared to be a small difference of about 1 part in 600 between the resistance as measured by continuous currents and the values obtained with alternating currents. Some experiments were made with the object of elucidating the behaviour of the instruments which this calibration disclosed. The fact that the apparent contact P.D. within the voltmeter was a function of the applied voltage, decreasing as the latter was raised, would cause an effect of the same sign as that observed. Unallowed-for leakage, greater with steady than with alternating currents, might also provide a partial explanation of the results.—**W. S. Tucker**: The electrical conductivity and fluidity of strong solutions. In adopting Callendar's association theory of strong solutions difficulty is experienced in getting the strongest solutions of electrolytes to conform to the laws. This is attributed to the inaccuracy of the ionisation data. It may be supposed that the viscosity of the solution will affect its conductivity, and experiments to determine if there were any relation between conductivity and fluidity in the case of calcium chloride solutions were carried out. The feature is the simultaneous observation of viscosity, electrolytic resistance, and temperature. Solutions were contained in an un-silvered Dewar cylinder. A platinum thermometer records the temperature. While the thermometer oscillates the readings of electrical resistance were measured. The viscometer was in the form of a capillary pipette immersed in the solution to a known depth. Viscosities correct to less than 1 per cent. were obtained. Perfectly smooth curves for conductivity and fluidity were obtained. No connection between conductivity, fluidity, and concentration can be derived if the last is expressed in terms of volume, but if concentration is expressed as a ratio of masses—molecules of solute to 100 molecules of solvent—the ratio conductivity  $C$ /fluidity  $F$  stands in linear relation to the concentration  $n$  when the latter exceeds one-fourth its maximum value. One solution of nearly cryohydric strength was examined at temperatures from 40° C. to -50° C. The failure of the fluidity-temperature and conductivity-temperature curves to exhibit the same variations was shown. Conductivities of solutions were examined from 40° C. to their freezing points and the curves  $C/n$  and temperature plotted. The increasing curvature with concentration is shown, and the error involved in applying the ratio, molecular conductivity to that at infinite dilution, obtained at one temperature, to indicate ionisation at another temperature, is quite apparent. The results obtained suggest that no dependence can be placed on ionisation data derived from electrical conductivity observations.

## DUBLIN.

**Royal Irish Academy**, January 13.—Rev. Dr. Mahaffy, president, in the chair.—H. Ryan and J. Algar: Montanic acid and its derivatives. The formula of montanic acid is  $C_{28}H_{56}O_2$ . The acid was converted into its methyl, ethyl, and propyl esters, and the esters when treated with alkyl magnesium halides gave tertiary alcohols, such as dimethyl- and diethyl-heptacesyl carbinol, diphenyl-heptacesyl carbinol, and the corresponding di-*p*-tolyl and di-*o*-naphthyl compounds. The chloride and amide of the acid were prepared, and an unsuccessful attempt to descend the series was made.—H. Ryan and Rev. R. Fitzgerald: Identity of baphinitone with homopterocarpin. In view of a possible relationship between the colourless, crystalline constituents and the red dye of barwood the authors isolated and examined baphinitone. They found that the latter substance, which was discovered by Anderson in 1876, is laevorotatory, and is identical with homopterocarpin, which was isolated in 1874 by Caze-neuve from Sanderswood. Bromination of homopterocarpin gives a colourless crystalline derivative, the formula of which is  $C_{17}H_{14}Br_2O$ .

January 27.—Rev. Dr. Mahaffy, president, in the chair.—G. P. Farran: Marine Entomostraca (in connection with the Clare Island Survey). Four species of Cladocera, sixty-five Ostracoda, and 152 Copepoda are recorded from the Clare Island district. The list of Ostracoda, due almost altogether to the work of Brady and Norman, comprises two-thirds of the total number known from the west coast of Ireland, and probably includes all the common forms. The list of Copepoda is, as regards its largest section, the littoral species, merely a preliminary one, and it is evident, on comparing it with the fauna of other localities, that, although it adds at least seventy species to the Irish fauna, it does not contain half the species which may be expected to occur. Four new species of Copepoda are described in the paper.

## EDINBURGH.

**Royal Society**, January 6.—Prof. Hudson Beare, vice-president, in the chair.—Dr. G. E. Gibson: A method of determining vapour densities at high temperatures, and a new form of quartz manometer. The essential feature of the manometer was the thin flexible membrane which terminated the small quartz bulb, and which responded to the changes of pressure in the same manner as the metallic membrane in an aneroid barometer. To this membrane was attached a small quartz plate, the upper surface of which was polished so as to act as a mirror. Close to this quartz mirror, and lying as nearly as possible in the same plane, was a second quartz mirror attached by a rigid connection to the quartz tube, the enlargement of which formed the bulb. The reflected ray from this second mirror acted as the zero with reference to which the movements of the first mirror were measured. With this apparatus highly accurate measurements had been made on mercury vapour and on phosphorus vapour up to temperatures of  $912^{\circ}$  C. and  $1250^{\circ}$  C. respectively.—J. S. Anderson: The absorption of light by inorganic salts. No. vii., aqueous solutions of iron salts.—A. R. Brown: The absorption of light by inorganic salts. No. viii., alcoholic solutions of copper, cobalt, and nickel salts in the ultra-violet. These were further instalments of a series of investigations planned by Dr. Houston. In the case of the iron salts, both the visible spectrum and the infra-red were studied. It was found that ferric chloride and ferric bromide showed the same increase in absorption with concentration which characterised the chlorides and bromides of cobalt, nickel, and copper. The formation of colloid hydroxide was a dis-

turbing factor in the case of weak solutions of ferric salts. The alcoholic solutions were studied in the ultra-violet region, and the conditions were found to be very complex. The absorption of light by ethyl alcohol was also measured for the first time.

## PARIS.

**Academy of Sciences**, January 27.—M. F. Guyon in the chair.—E. H. Amagat: The laws of corresponding states.—L. Maquenne and E. Demoussy: The value of the respiratory quotient for green plants. Modifications in the method of measuring respiratory coefficients have been described by the authors in earlier papers; data are now given for forty-six plants. The coefficient for young plants is generally greater than unity, and this appears to hold for all green leaves during their period of active growth.—Pierre Duhem: The adiabatic growth of entropy.—M. Graebe was elected a correspondent for the section of chemistry in succession to Sir William Ramsay, elected foreign associate.—Francesco Severi: The algebraic correspondences existing on the curves of a linear system traced on a surface.—A. Rosenblatt: The algebraic surfaces which possess an irrational bundle of curves of genus 2.—V. Kostitzin: Some remarks on complete systems of orthogonal functions.—Angelo Tonolo: The potential of an analytical line.—E. Benoit: Formula appropriate to the calculation of the coordinates of the summits of a primordial geodesic chain.—Ch. Maurain and A. Toussaint: The measurement of pressures and rarefactions on large surfaces in motion in the air. Results of experiments bearing on the motion of aeroplanes.—Marcel Brillouin: The theory of black radiation.—A. Schidlof and Mlle. J. Murzynowska: The application of the law of Stokes to the fall of very small drops, and the determination of the charge of the electron. An experimental study of the fall of minute drops of olive oil in air, a modification of Millikan's method being employed. Cunningham's theorem was found to be applicable in this case.—P. Vaillant: A method of measuring large polarisable resistances and its application to the measurement of the resistance of bubbles in a liquid.—A. Perot: Certain peculiarities of the velocity of the luminous centres in hydrogen tubes.—Marcel Bolt: The measurement of the energy of an ultra-violet radiation given off by a mercury arc working under different conditions. The difference of potential was found to be a linear function of the watts consumed by the lamp. The energy of wave-length 2536 A.V. emitted by a mercury arc is a parabolic function of the power expended.—Félix Bidet: The displacement of the primary amines by ammonia gas.—Émile Baud: The partial miscibility of liquids.—A. Portevin: The deformation of the plastic alloys and their annealing after deformation. For an isolated grain of the alloy the elastic limit is a vectorial quantity, and the effect of a deformation depends on the direction of the applied force.—Paul Pascal: Remarks on the additivity of diamagnetism in combination. A comparison of atomic magnetisation coefficients determined directly with those found in combination shows a close agreement, proving that this coefficient is an additive property.—P. Lebeau and A. Damiens: A method of analysis of mixtures of hydrogen and saturated gaseous hydrocarbons. Complex mixtures. A development of the method described in an earlier paper, based on fractional distillation at low temperatures, together with a eudiometric analysis of the fractions, each fraction containing only two hydrocarbons. Details are given of the results of the analysis by this method of a mixture of ethane, propane, and butane.—E. Chablay: Some reactions of sodium amide in presence of liquid ammonia. Forma-

tion of ethylenic hydrocarbons. The alkyl iodide, if allowed to fall into sodium amide in suspension in liquid ammonia, generally reacts with production of an unsaturated hydrocarbon, propyl iodide giving propylene, and isobutyl iodide, isobutylene; methyl iodide behaves differently, methylamine being formed.—Ém. **Bourquelot**, H. **Hérissay**, and M. **Bridel**: Syntheses of galactosides of alcohol with the aid of emulsine.  $\beta$ -Propylgalactoside and  $\beta$ -benzylgalactoside.—Marcel **Goéchet** and Felix **Taboury**:  $\alpha$ -Chlorocyclopentanone and its derivatives.—Albert **Robin**: The comparative mineral contents of regions of the liver affected by cancer and regions relatively healthy. Cancerous liver contains a higher proportion of mineral matter than healthy liver; the composition of the mineral matter is also modified in the parts affected by cancer.—A. **Desmoulière**: The antigen in the Wassermann reaction. Further remarks on the preservation and use of the syphilitic antigen, the preparation of which has been described in earlier communications.—L. **Tribondeau**: The use of plant extracts in the Wassermann reaction. Extracts of certain plants (oats, lentils, peas) behave like animal lipid extracts; they become the complement in presence of syphilitic sera, but not with normal sera. The most suitable solvents are indicated.—E. **Bodin** and F. **Chevrel**: The bacterial purification of oysters in filtered sea-water. Experiments confirming those of M. Fabre-Domergue, proving the complete bacterial purification of oysters in artificial sea-water in six days.—J. **Loris-Melikov**: Anaerobic bacteria in typhoid fever.—F. **Maignon**: Influence of the seasons and of the genital glands on respiratory combustion in the guinea-pig.—Jacques **Mawas**: The function of the conjunctive tissue of the ciliary body, in the transmission of the contraction of the ciliary muscle, and the importance of the zonule in the accommodation of the eye.—Ed. Le **Danois**: The Medusæ collected in the plankton during the 1912 expedition of the *Pourquoi-Pas?* in the North Sea, under the control of Dr. J. B. Charcot.—M. **Painvin**: The prosiphon of the Spirula.—E. **Chaput**: An attempt to date the old alluvial deposits of the Loire and its affluents.—Robert **Douvillé**: The individuality of the Ammonite fauna in the *Peltoceras athleta* layers.—R. de **Kövesligethy**: Study of the constitution of the globe by means of the seismic radii.

## BOOKS RECEIVED.

Coal, and the Prevention of Explosions and Fires in Mines. By Dr. J. Harger. Pp. vii+183. (Newcastle-on-Tyne: A. Reid and Co., Ltd.; London: Longmans and Co.) 3s. 6d. net.

Hausa Superstitions and Customs. By Major A. J. N. Tremearne. Pp. xv+548+plates+map. (London: J. Bale, Ltd.) 21s. net.

The Travels of Ellen Cornish. By Dr. Vaughan Cornish. Pp. xvi+293+65 plates. (London: W. J. Ham-Smith.) 12s. 6d. net.

La Biologie Synthétique. By Prof. S. Leduc. Pp. iii+206. (Paris: A. Poinat.)

Cambridge County Geographies: Middlesex. By G. F. Bosworth. Pp. x+165+2 maps. (Cambridge University Press.) 1s. 6d.

The Vertebrate Skeleton. By Prof. S. H. Reynolds. Second edition. Pp. xvi+535. (Cambridge University Press.) 15s. net.

Text-book of Mechanics. By Prof. L. A. Martin, jun. Vol. iv., Applied Statics. Pp. xii+198. (New York: J. Wiley and Sons; London: Chapman and Hall, Ltd.) 6s. 6d. net.

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Messmates: a Book of Strange Companionships in Nature. By E. Step. Pp. xii+220+48 plates. (London: Hutchinson and Co.) 6s. net.

Injurious Insects: How to Recognise and Control Them. By Prof. W. C. O'Kane. Pp. xi+414. (New York: The Macmillan Company; London Macmillan and Co., Ltd.) 8s. 6d. net.

Eugenics Record Office. Bulletins Nos. 1, 4, 5, 6, 7, 8. Memoir No. 1, The Hill Folk. Report on a Rural Community of Hereditary Defectives. By F. H. Danielson and C. B. Davenport. Pp. v+56+3 charts. Memoir No. 2, The Nam Family. A Study in Cacogenics. By A. H. Estabrook and C. B. Davenport. Pp. iii+85+4 charts. (Cold Spring Harbor, New York.)

Mendel's Principles of Heredity. By W. Bateson. Pp. xiv+413+vi plates. (Cambridge University Press.) 12s. net.

Propriétés Cinématiques Fondamentales des Vibrations. By A. Guillet. Pp. 405. (Paris: Gauthier-Villars.) 16 francs.

Guide Scientifique du Géographe-Explorateur. By P. Crepin de Beauregard. Pp. x+250+2 plates. (Paris: Gauthier-Villars.)

The Petrology of the Sedimentary Rocks. By Dr. F. H. Hatch and R. H. Rastall, with an Appendix on the Systematic Examination of Loose Detrital Sediments. By T. Cook. Pp. xiii+425. (London: G. Allen and Co., Ltd.) 7s. 6d. net.

A Dictionary of Entomology. By N. K. Jardine. Pp. ix+259. (London: West, Newman and Co.) 6s. net.

Chemie der Fette, Lipoide und Wachsarten. By Dr. W. Glikin. Erster Band. Pp. xvi+789. Zweiter Band. Pp. xi+788. (Leipzig: Gebrüder Borntraeger.) 72 marks.

"Red Books" of the British Fire Prevention Committee. No. 177, Fire Tests with Fire Extinguishers. Petrol Fire Extinguishers, &c., the Committee's Report. Pp. 32. (London: 8 Waterloo Place, S.W.) 2s. 6d.

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