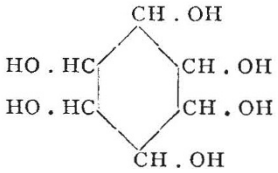
have not been accepted without an examination. Thus it is pointed out that the large proper motion given by Arago in his "Popular Astronomy" for the star in Argus, No. 2151 B.A.C., should be rejected, the comparison of Lacaille's observations with those of Stone and Gould giving, in fact, a motion of about 0″·2 for this star. The magnitude, co-ordinates for 1890·0, proper motion in right ascension and declination, the resultant motion, the direction of this motion, and the authority are given for each star.

OPTICAL ISOMERIDES OF INOSITOL.

DURING the last few months, whilst the brilliant researches of Prof. Emil Fischer on the synthetical production of the glucoses have been attracting so much attention, some very interesting work has been done on a compound which was formerly supposed to belong to the glucose group, viz. inosite. Maquenne, in 1887, showed that this compound, which is fairly widely distributed throughout the animal and vegetable kingdoms, is not a sugar, but a hexahydroxy-derivative of hexamethylene, having the constitutional formula—



It is an alcohol, and in accordance with the usual English nomenclature the name inosite must therefore be altered to inositol.

M. Maquenne has recently examined a compound obtained from the manna-like exudation of one of the Californian pines (*Pinus lambertiana*), and termed β-pinitol. He found that its formula is $C_7H_{14}O_6$, and that on heating with hydriodic acid it is resolved into methyl iodide and a substance which has the same composition as inositol, and resembles it in most of its properties, but melts at a higher temperature and rotates the plane of polarization to the right ($[\alpha]_D = 65$), inositol being inactive. It is therefore called *dextro-inositol*. Almost simultaneously, another French chemist, M. Tanret, obtained from quebracho bark (*Aspidosperma quebracho*) a sugar-like compound to which he has given the name quebrachitol. It has the same formula as β-pinitol, and on treatment with hydriodic acid yields methyl iodide and an inositol which can only be distinguished from the foregoing by its action on the plane of polarized light which it rotates to the left to the same extent as the first compound does to the right, and must therefore represent the *lævo-inositol*. Both these compounds crystallize with two molecules of water in hemihedral crystals, and are very soluble in water.

MM. Maquenne and Tanret then jointly examined the effect of mixing concentrated solutions of equal weights of the dextro- and lævo-compound, and obtained an inactive inositol, which is much less soluble in water than either of its constituents, and melts at a higher temperature (253°), without previously becoming plastic. From its mode of formation, its constitution must resemble that of racemic acid, and the name *racemo-inositol* has therefore been given to it. It is not identical with the inactive inositol previously known, and the latter must therefore have an analogous constitution to mesotartaric acid.

We have therefore the interesting result that inositol, a derivative of hexamethylene, exists in four different forms, corresponding exactly to those of tartaric acid.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—Mr. Buchanan, the University Lecturer in Geography, announces a course on "Oceanography," to begin at 2.15 p.m. on Wednesdays. The subject will be "The Distribution of Land and Water on the Globe."

The Council of the Senate have published a report in which they withdraw their original proposal (October 22, 1888) to suspend for 10 years from 1890 the augmentation of the contributions of Colleges to the Common University Fund prescribed by the present statutes, by way of relief to the depressed finances of some of the Colleges. They propose now to discriminate between Colleges that are financially depressed and those that are not. The latter will receive no relief under the new plan, the former will be allowed to make up their University contributions by devoting one or more Fellowships to University purposes. This proposal seems to have been much more widely approved than the former, and is signed by nearly all the members of the Council of the Senate.

The Special Boards for Physics and Chemistry, and for Biology and Geology, propose a new departure in the conduct of the second part of the Natural Sciences Tripos, with regard to which there are likely to be differences of opinion. Hitherto all the work considered by the examiners has been carried on at the time of the examination under their supervision, and under equal conditions for all candidates. The proposal now is to give credit for work in practical chemistry carried on before the examination in the University or College laboratories. The regulations recommended are :—

"In the second part of the examination, every candidate in chemistry may present to the examiners, at the commencement of the examination, a record of the chemical work which he has carried out in the University laboratory, or in some one of the College laboratories, in some one term. Such record shall be the original notes made from day to day in the laboratory, with the necessary calculations in full, and dated so as to show the work of each day.

"To the record shall be appended a certificate, signed by the candidate and by the superintendent of the laboratory, stating that all the manipulations involved in the work have been *bonâ fide* carried out by the candidate alone, and that the superintendent has watched the progress of the work and believes the record of it to be faithful.

"In estimating the merits of the candidates, the examiners shall give credit for such work.

"This regulation shall be first applicable to the examination for the Natural Sciences Tripos of the year 1892."

The Report is signed by 12 members of the two Boards, the total number of members being 31. The chemists whose names appear are Prof. Liveing, Dr. Ruhemann, and Dr. Tilden.

Mr. J. Pedrozo d'Albuquerque, B.A., Scholar of St. John's College, First Class, Natural Sciences Tripos, 1887-88, has been appointed Government Professor of Chemistry at Barbadoes.

Applications for permission to occupy the University's tables in the Zoological Station at Naples, and in the Marine Biological Laboratory at Plymouth, are to be sent to Prof. Newton, Magdalene College, Cambridge, on or before May 22.

The Newall Telescope Syndicate have issued a further Report, in which it appears that a means has been found for overcoming the threatened financial difficulty. Mr. H. F. Newall, M.A., of Trinity College, University Demonstrator of Experimental Physics, and son of the donor of the telescope, has offered his services as observer, without stipend, for five years, a sum of £500 for initial expenses, and a guarantee of £200 a year for five years for maintenance, provided the University can furnish the balance of the funds required. He also offers to build himself a private house near the new Observatory, if a suitable site can be found. The Sheepshanks Fund is, moreover, able to promise an additional sum of £100 a year after five years from the present date. The outcome of these offers is that the University will only be required to find at present a capital sum of £125, and an annual subsidy of £30. After five years, it may have to build an observer's house at a cost of £800, and provide £150 a year towards his stipend. Mr. Newall has worthily seconded his father's munificence, and it is to be hoped that no further obstacle will arise to the founding of an adequate observatory of stellar physics in Cambridge.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, March 13.—"The Nitrifying Process and its Specific Ferment." By Percy F. Frankland, Ph.D., B.Sc. (Lond.), A.R.S.M., &c., Professor of Chemistry in University College, Dundee, and Grace C. Frankland. Communicated by Prof. Thorpe, F.R.S.

The authors have been engaged during the last three years in endeavouring to isolate the nitrifying organism.

Nitrification, having been in the first instance induced in a

particular ammoniacal solution by means of a small quantity of garden soil, was carried on through twenty-four generations, a minute quantity on the point of a sterilized needle being introduced from one nitrifying solution to the other. From several of these generations, gelatine plates were poured, and the resulting colonies inoculated into identical ammoniacal solutions, to see if nitrification would ensue; but, although these experiments were repeated many times, on no occasion were they successful.

It appeared, therefore, that the nitrifying organism either refused to grow in gelatine, or that the authors had failed to find it, or that, growing in gelatine, it refused to nitrify after being passed through this medium.

Experiments were, therefore, commenced to endeavour to isolate the organism by the dilution method. For this purpose a number of series of dilutions were made by the addition to sterilized distilled water of a very small quantity of an ammoniacal solution which had nitrified. It was hoped that the attenuation would be so perfect that ultimately the nitrifying organism alone would be introduced.

After a very large number of experiments had been made in this direction, the authors at length succeeded in obtaining an attenuation consisting of about $\frac{1}{10000000}$ of the original nitrifying solution employed, which not only nitrified, but on inoculation into gelatine-peptone refused to grow, and was seen under the microscope to consist of numerous characteristic bacilli hardly longer than broad, which may be described as bacillo-cocci.

Although this bacillo-coccus obstinately refuses to grow in gelatine when inoculated from these dilute media, yet in broth it produces a very characteristic though slow growth.

Nitrification was also induced in ammoniacal solutions by inoculating from such broth cultivations.

March 27.—"On the Progressive Paralysis of the Different Classes of Nerve-cells in the Superior Cervical Ganglion." By J. N. Langley, F.R.S., and W. L. Dickinson.

Summary.—Generally speaking, stimulation of the cervical sympathetic in the dog with minimal effective shocks causes pallor in the lips and gums; with weak to moderately strong shocks, primary pallor followed by flushing; with strong shocks, as shown by Dastre and Morat, primary flushing, but the extent and duration of the primary effect and of the secondary effect, if there is any, vary in different dogs.

In the rabbit and cat, stimulation of the cervical sympathetic always causes, as shown by Bochefontaine and Vulpian, primary pallor in the lips and gums, and the after-flush is not great. The pallor we find is bilateral; the degree of the pallor on the opposite side to that stimulated varies in individual cases, it can be seen in the tongue, as well as in the lips and gums.

On injecting nicotin into a vein, certain of the normally occurring effects of stimulating the cervical sympathetic cease before the others, *i.e.* since all the effects can still be produced by stimulating the fibres running from the superior cervical ganglion, the nerve-cells in the ganglion, which are connected with different classes of nerve-fibres, are paralyzed with different degrees of ease by nicotin.

Arranging the various effects in the order of ease of paralysis, we have:—

Rabbit.

(1) Withdrawal of the nictitating membrane.
(2) Opening of eye.
{ (3) Dilation of pupil.
{ (4) Constriction of blood-vessels of conjunctiva.
{ (5) Constriction of blood-vessels of lips and gums.
{ (6) Constriction of blood-vessels of ear.

In one or two cases, no difference in the ease of paralysis between the bracketed actions has been observed.

Cat.

(1) Secretion from sub-maxillary gland.
(a) { (2) Opening of eye.
{ (3) Dilation of pupil.
{ (4) Constriction of blood-vessels of conjunctiva.
{ (5) Constriction of blood-vessels of mouth.
(b) { (6) Constriction of blood-vessels of ear.
{ (7) Withdrawal of nictitating membrane.

(*a*) Constant differences between these have not been observed.

(*b*) These have not been directly compared, but in separate experiments each has been obtained when (1) to (5) were no longer seen.

Dog.

(1) Dilation of arteries of bucco-facial region.
(2) Movements of eye and opening of eyelids.
(3) Withdrawal of nictitating membrane.
(a) { (4) Constriction of the arteries of gums and lips.
{ (5) Dilation of pupil.
{ (6) Secretion from sub-maxillary gland.
{ (7) Constriction of blood-vessels of the sub-maxillary gland.

(*a*) Differences between these have not always been observed.

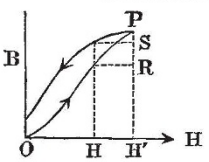
At a certain stage of nicotin poisoning, when stimulation of the sympathetic does not cause withdrawal of the nictitating membrane, but does cause dilation of the pupil, a partial *closing* of the eye is obtained by stimulating the sympathetic.

It will be noticed that in each animal nicotin abolishes most of the effects of stimulating the cervical sympathetic at very nearly the same time. With regard to these, we think that there is only a *primâ facie* case for regarding the differences observed as due to an unequal paralysis of the nerve-cells of the superior cervical ganglion, for it is possible that the differences may be due to an unequal tonic stimulation reaching the parts by nerve-fibres other than the sympathetic. But the greater differences observed, for instance, between the secretion of saliva and the dilation of the pupil in the cat, the flushing of the lips and the constriction of the vessels of the sub-maxillary gland in the dog, we do not think can be due to such a cause, and we attribute them to an unequal paralyzing action of nicotin upon the nerve-cells of the superior cervical ganglion.

Linnean Society, April 17.—Mr. Carruthers, F.R.S., President, in the chair.—Lord Arthur Russell, on behalf of the subscribers to a portrait of Sir Joseph Dalton Hooker, which had been painted at their request by Mr. Hubert Herkomer, R.A., formally presented the portrait to the Society, and in a few words expressed the satisfaction which he was sure would be felt at the acquisition of the likeness of so distinguished a botanist. It was announced that a photogravure of the portrait was in preparation, of which a copy would be presented when ready to every subscriber to the portrait fund.—Prof. P. M. Duncan, F.R.S., exhibited a vertical section through a large coral, *Fungia echinata*, cutting through and across the septa and synapticulæ and the so-called base. The union of the sides of contiguous septa at the base is either incomplete or by means of synapticulæ.—Dr. Edward Fischer, of Zurich, exhibited and made remarks on certain species of *Polyporus* bearing a sclerotium possessing the structure of *Pachyma cocos*, but it was doubtful whether the *Polyporus* represented the fructification of the *Pachyma*, or was merely parasitic on it. Mr. George Murray expressed himself in favour of the latter view.—Mr. J. E. Harting exhibited alive a so-called "singing mouse" which had been captured at Maidenhead a week previously, and which uttered sounds like the subdued warbling of a linnet. He desired to be informed whether the cause usually assigned for the phenomenon was correct—namely, some obstruction or malformation of the trachea. Prof. Stewart stated that he had observed alive, and dissected when dead, a similar specimen, and had found no trace of any organic disease or malformation.—Sir Charles Sawle, Bart., exhibited a specimen of the Little Green Heron, *Butorides virescens*, of North America, which had been shot by his keeper at Penrice, St. Austell, Cornwall, in October last, and which he had sent for preservation to a taxidermist at Bath. Mr. J. E. Harting offered some remarks on the occurrence, and suggested various ways in which the bird might have reached England. He observed that the larger American Bittern, *Botaurus lentiginosus*, had been met with some five-and-twenty or thirty times in the British Islands, and, strange to say, had been described and named by an English naturalist, and a Fellow of this Society, Colonel George Montagu (who obtained a specimen of the bird in Dorsetshire), a year before it was described by Wilson as a native of the United States.—A paper was then read by Mr. Spencer Moore, on some micro-chemical reactions of tannin. In this an account was given of the behaviour of Nessler's test for ammonia upon tannin, which it usually colours almost immediately some shade of brown or reddish brown. The great value of the reagent is held to reside in the rapidity of its action; moreover in none of the many experiments did it fail. Reference was also made to some other new tannin tests, especially to some in which, as in Nessler's fluid, caustic potash furnishes the basis, and which, like that fluid, are very rapid in their action.—A paper by Mr.

E. Saunders, on the tongue of the British Hymenoptera Anthophila, in the absence of the author was read by Mr. W. Percy Sladen, and was illustrated by excellent drawings.

Physical Society, April 18.—Prof. W. E. Ayrton, F.R.S., President, in the chair.—Prof. Rücker described the results of some recent magnetic work undertaken by himself and Prof. Thorpe in connection with their magnetic survey of the United Kingdom.—Mr. T. H. Blakesley (Hon. Secretary) read a paper, on a theory of permanent magnetism, by M. Osmond. The author stated that iron exists in two distinct physical states, one soft, or "*α iron*," and the other hard, or "*β iron*." The β variety is non-magnetic, and is formed during heating, hardening, or by electrolysis, whilst the soft or α modification is produced by long annealing. In a piece of steel the author considers the β molecules to form a rigid framework in which the α molecules become interlocked under the influence of magnetizing force, and on the degree of interlocking the permanent magnetism depends. By a graphical method it is shown that the permanent magnetism should be a maximum when the two varieties are present in equal quantities. If the proportions of carbon and manganese in the steel are considerable, then nearly all the iron is of the β variety, and the steel is nearly non-magnetic. In hardening a piece of ordinary steel, the surface layers being cooled most rapidly contain more β molecules than the interior; hence for a certain degree of hardness (when the outer layers have more α molecules than β ones) a laminated magnet will be a better permanent magnet than a solid one, but for a much greater degree of hardness the reverse may be the case. Mr. Swinburne asked if the theory would account for the increase of induction which occurs when the circuit of a permanent magnet is closed; most theories founded on the orientation of particles by the magnetizing force seemed defective in this respect. Some time ago he had suggested that the permeability of iron should be tested by first magnetizing it one way, and then at right angles to the first direction; recently he had been informed that no increase of permeability was observed when the experiment was performed. Prof. Perry said he had subjected iron to magnetization in one direction and found the permeability for small forces in a direction at right angles much smaller than he had anticipated; the first magnetizing force was kept constant when the small perpendicular one was applied. Mr. Swinburne thought that for such small perpendicular forces the permeability should be nearly infinite. He also said there seemed to be a sort of angular hysteresis in iron, for if a loose running armature was turned slowly round by hand, it would come back 2° or 3° when left free. The President remarked that, as far as he could see, M. Osmond's theory does not account for the great influence which a small percentage of tungsten has on the magnetic property of steel, and all theories which failed in this particular must necessarily be imperfect. Mr. Blakesley pointed out that the ordinary hysteresis curves showed that a small superimposed magnetizing force in a direction different from the primary one produced only a small change in the induction, and hence would give a small



permeability. For example, the increment HH′ (see diagram) causes an increase RP in the induction, whilst an equal decrement H′H produces only a change PS.

Geological Society, April 16.—J. W. Hulke, F.R.S., Vice-President, in the chair.—The following communications were read:—On the disturbed rocks of North-Western Germany, by Prof. A. von Könen, For.Corr.G.S.—On the origin of the basins of the Great Lakes of America, by Prof. J. W. Spencer, State Geologist of Georgia. From the study of the hydrography of the American lakes, from the discovery of buried channels revealed by borings, from the inspection of the glaciation of the lake region, the consideration of the late high continental elevation, and the investigation of the deformation of old water-levels, as recorded in the high-level beaches, the explanation of the origin of the basins of the Great Lakes becomes possible. The original Erie valley drained into the extreme western end of Lake Ontario—the Niagara river being modern—by a channel now partly buried beneath drift. Lake Huron, by way of Georgian Bay, was a valley continuous with that of Lake Ontario; but between these two bodies of water, for a distance of about 95 miles, it is now buried beneath hundreds of feet of drift. The old channel of this buried valley entered the Ontario basin about twenty miles east of Toronto. The northern part of Lake Michigan basin was drained into the Huron basin, as at present; whilst the southern basin of that lake emptied by a now deeply drift-filled channel into the south-western part of Huron. The buried fragments of a great ancient valley and river, and its tributaries, are connected with submerged channels in Lake Huron and Lake Ontario, thus forming the course of the ancient St. Lawrence (Laurentian) river, with a great tributary from the Erie basin and another across the southern part of the State of Michigan. This valley is of high antiquity, and was formed during times of high continental elevation, culminating not long before the Pleistocene period. The glaciation of the region is nowhere parallel with the escarpments, forming the sides of, or crossing the lakes or less prominent features. During the Pleistocene period, and especially at the close of the episode of the upper Till, the continent was greatly depressed, and extensive beaches and shore-lines were made, which are now preserved at high elevations. With the re-elevation of the continent these old water-levels have been deformed, owing to their unequal elevations. This deformation is sufficient to account for the rocky barriers at the outlets of the lakes. Some of the lakes have been formed, in part, by drift obstructing the old valley. The origin of the basins of the Great Lakes may be stated as the valley (of erosion) of the ancient St. Lawrence river and its tributaries, obstructed during and particularly at the close of the Pleistocene period, by terrestrial movements, warping the earth's crust into barriers, thus producing lake-basins, some of which had just been formed in part by drift deposited in the ancient valley. The reading of this paper was followed by a discussion, in which Dr. Hinde, Prof. Bonney, Dr. Irving, Mr. Clement Reid, Rev. E. Hill, Prof. Seeley, Mr. Whitaker, and the author took part.—On Ornithosaurian remains from the Oxford Clay of Northampton, by R. Lydekker.—Notes on a "wash-out" found in the Pleasley and Teversall Collieries, Derbyshire and Nottinghamshire, by J. C. B. Hendy.

Chemical Society, March 20.—Dr. W. J. Russell, F.R.S., President, in the chair.—Prof. J. W. Judd, F.R.S., delivered a lecture on the evidence afforded by petrographical research of the occurrence of chemical change under great pressure, in which he discussed the question as to how far the phenomena observed by the geologist in the study of rocks under the microscope can be explained by the laws that have been experimentally determined by the physicist and chemist.—The following papers were read:—The formation of triazine-derivatives, by Prof. R. Meldola, F.R.S.—Contributions to the knowledge of mucic acid; Part 1, hydromuconic acid, by Dr. S. Ruhemann and Mr. F. F. Blackman.—The molecular weights of metals when in solution, by Messrs. C. T. Heycock and F. H. Neville. The authors give the results of their observations on the effect of various proportions of silver, gold, copper, nickel, sodium, palladium, magnesium, zinc, lead, cadmium, mercury, bismuth, calcium, indium, aluminium, and antimony on the solidifying point of tin. Of all these metals, antimony alone behaves abnormally, producing a rise instead of a depression in the solidifying point. In the majority of cases the atomic depression is a number not far removed from 3, the theoretical value calculated from Van't Hoff's formula. Assuming the truth of Raoult's generalization, that the depression produced by a molecular proportion of any substance in the solidifying point of the same solvent is the same whatever the substance, it would therefore seem probable that the molecules of most metals are of the same type, M_n, where n is the number of atoms in the molecule; and if it be supposed that the molecules of zinc, for example, when dissolved in tin are monatomic as in the gaseous state, it would follow that n is unity in the case of many other metals. In the case of aluminium, the atomic depression is so nearly half the average value that it seems probable that the molecule is diatomic. Indium resembles aluminium in producing an abnormally low depression, and it is noteworthy that the value for mercury is also distinctly low.

March 27.—Annual General Meeting for the election of Officers and Council.—Dr. W. J. Russell, F.R.S., President, in the chair.—The President, in his address, discussed the teaching of chemistry to medical students, and drew attention to the

importance of the medical man being well trained in elementary chemistry, pointing out that it was too seldom recognized that the fundamental action of medicines—the origin of their power—is a chemical change, and that if an understanding and appreciation of their effects are to be sought for, the first steps must be to learn the laws which govern chemical change, and the chemical nature of the substances employed. He urged, that in place of the present unsatisfactory system, chemistry should be placed on an equal footing with anatomy, medicine, and physiology, in which subjects the Examining Board of the two Colleges insists that the student shall have studied at a recognized medical school, thus recognizing most wisely the importance of study under efficient instructors and at places properly equipped.

PARIS.

Academy of Sciences, April 21.—M. Hermite, President, in the chair.—On the theory of the optical system formed by a double plane mirror in front of the object-glass of an equatorial, and movable about an axis, by MM. Loewy and Puiseux. In a previous note (April 14) the authors dealt with the formulæ relative to the employment of one plane mirror movable about an axis. They now study the system obtained by replacing the single mirror by two reflecting surfaces cut on the same block of glass in the form of a prism.—On Weber's law of electrodynamics, by M. H. Poincaré.—On the heat of formation and reactions of hydroxylamine, by MM. Berthelot and André. One of the results of the investigation is to confirm the similarity between ammonia and hydroxylamine, their heats of formation showing only a slight difference. Hydroxylamine cannot therefore be regarded as oxidized ammonia.—On the nutrition in hysteria, by M. Bouchard. The author quotes a work by M. Empereur, "Sur la Nutrition dans l'Hystérie," published in 1876, in which demonstrations of the normal pathological state during hysteria, similar to those described by MM. Gilles de la Tourette and Cathelineau, are given.—Observations of Brooks's comet (*a* 1890) made with the *coudé* equatorial (35 cm. free aperture) of Lyons Observatory, by M. G. Le Cadet. On March 28 the comet appeared as an almost perfectly round nebulosity without any noticeable point of condensation. Its magnitude was estimated as 11·5.—On the actual minimum of solar activity, and the spot which appeared in March 1890 at a remarkably high latitude, by M. A. Riccò. A comparison of the number of spots that appeared in 1890 with the number observed in 1878 indicates that the minimum certainly passed towards the end of last year.—On a transformation of differential equations of the first order, by M. Paul Painlevé.—Construction for radius of curvature in certain classes of curves, notably Lamé's curves, parabolas and hyperbolas of various orders, by M. G. Fouret.—On mica condensers, by M. C. Bouty. The author finds that at ordinary temperatures, and for differences of potential from 1 to 20 volts, a thin lamina of mica opposes an absolute obstacle to the continued passage of electricity through it; also, that residual charges do not appear to depend on the penetration of electricity, so to speak, into the dielectric, but rather on a progressive increase of the dielectric constant.—On the mechanical action of alternating currents, by M. J. Borgman. In a note presented on February 3, the author described a method by means of which it was easy to produce the repulsion of conducting masses by a coil traversed by an alternating, or simply an intermittent current, discovered by Elihu Thomson. To determine the influence of various conditions on this phenomenon, the author has undertaken, and describes a series of experiments made with modified apparatus.—Halos and parhelia observed at St. Maur Park, by M. E. Renou. The relative number of halos and parhelia observed in different years and in different months of the year are given.—On one of the causes of the loss of iron ships on account of the perturbations of the magnetic needle; determination of the amount of deviation for each ship, by M. Léon Devaureix. The author has observed the deviation of the compass during six consecutive voyages from Bordeaux to La Plata, returning by Dunkirk.—Note on the preparation of iridium dioxide, by M. G. Geisenheimer. Iridium dioxide is obtained in fine brown-red microscopic needles by heating potassium iridate in a platinum crucible for an hour with 15 times its weight of a mixture of equivalent quantities of chloride and bromide of potassium. The crystals are isolated by washing first with water and then with aqua-regia. Analysis proves them to be pure IrO_2.—Action of hydrogen peroxide on the oxygen compounds of manganese; Part I, action on the oxides, by M. A. Gorgeu. The author concludes that in the process of decomposition of hydrogen peroxide by the peroxides of manganese, the latter, especially in presence of acids, are themselves reduced to some extent if they contain more oxygen than is indicated by the formula Mn_2O_4, $\frac{1}{2}H_2O$, and that the analysis of hydrogen peroxide should not therefore be carried out by means of the hydrated higher manganese oxides.—Preparation and heat of formation of sodium erythrate, by M. de Forcrand.—Note on the chlorine derivatives of the amylamines, by M. A. Berg. Three chlorine derivatives—namely, monochloramylamine, dichloramylamine, and chlorodiamylamine—have been prepared by the action of hypochlorites on amylamine and diamylamine hydrochlorides. Analyses and descriptions of the properties of the three bodies are given.—On the alcoholic fermentation of inverted sugar, by MM. U. Gayon and E. Dubourg. Following the progress of the fermentation by means of the polarimeter, the authors show that the two components of invert-sugar are attacked with different degrees of rapidity, and that different ferments do not act in the same manner, some attacking the lævulose by preference, others the remaining component.—Note on alcoholic fermentation and the transformation of alcohol into aldehyde caused by *champignon du muguet*, by MM. Georges Linossier and Gabriel Roux.—A geological paper, by M. Stanislas Meunier, gives an account of the results of the lithological and geological examination of the meteorite from Jelica (Servia), 1889.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Studies in Evolution and Biology: A. Bodington (E. Stock).—Glimpses into Nature's Secrets: E. A. Martin (E. Stock).—A Manual of Anatomy for Senior Students: E. Owen (Longmans).—Monograph of the British Cicadæ: Part 2: G. B. Buckton (Macmillan).—Fur Seal and other Fisheries of Alaska (Washington).—National Academy of Sciences, vol. 4, Part 2; 3rd Memoir—The Temperature of the Moon: S. P. Langley (Washington).—The Solar Corona: F. H. Bigelow (Washington).—Photographs of the Corona taken during the Total Eclipse of the Sun, January 1, 1889; Structure of the Corona: D. P. Todd (Washington).—National Health: B. W. Richardson (Longmans).—The Function of Labour in the Production of Wealth: A. Philip (Blackwood).—Magnetism and Electricity: W. J. Harrison and C. A. White (Blackie).

CONTENTS.