Prof. Seligmann on Exostoses in the Meatus auditorius of Peruvian Crania

SOME years ago Prof. Seligmann found on Peruvian crania of the Titicaca form (cylindrical, elongated by bandages) considerable exostoses on the external meatus auditorius, a very rare morbid affection. No traces of such exostoses were found on the other variety of Peruvian crania so nearly related to the North American form, and, like these, flattened by pressure between boards. The crania first referred to are most similar to the so-called *Avarian* skulls, to be met with from Austria as far as into France; but exostoses have never been found on any of these last. The cause of these exostoses was at last found out in the narrative of the conquest of Peru by coeval Spanish authors, all describing the solemn inauguration of the descendants of the Incas, who had come to the age of sixteen years. They were then compelled to undergo most exciting exertions of body and mind, and the hardest privations; the ceremony of piercing the ears being the term of these severe trials. The lobes of both ears were widened by introduction of metallic cylinders, so that a gold or silver disc of the diameter of an orange could find room in each of them. The Spaniards designated the wearers of this distinction as "Orejones" (Great-ears). A Spanish author says, it would scarcely be credible that the lobes of the ear could bear such a weighty ornament if they were not sustained by a loop of a finger's size. The excitement attending the trials, the comparatively late epoch of the operation, together with its rapid and violent mode of performance, may possibly have provoked a pathological process affecting the cartilaginous, and, subsequently, the osseous portion of the ears. Many tribes lengthen the lobes of their ears by introducing pieces of wood, &c., and a South American tribe is named "Orejones" on account of this custom; in these cases, however, the lengthened portion is relaxed. If the above supposition is exact, it leads to the following result: all the Peruvian crania of the Titicaca form, offering the above-described exostoses, are those of male individuals of high caste, having passed their sixteenth year; and the appellation "Inca crania," hitherto applied to flattened Peruvian skulls, is inexact. Deafness was not the necessary consequence of these exostoses, the narrowest aperture of the meatus auditorius being sufficient for the perception of sounds.

Dr. Glatter on the Influence of Race-differences on the Vital Processes

THIS influence is evident in the descendants of an Italian colony, living at Lemberg, who are in the habit of entrusting themselves for treatment to native Italian physicians, who, according to their custom, treat their patients with frequent bleedings, to the amount of 8 to 10 ounces, without any damage to their health. Poles, submitted to the same treatment, often suffer very bad consequences from it. The natives of Alpine regions established at Vienna are endowed with a high degree of vitality, and generally of longevity. The Servians are very prolific in their native country; north of Mohacs, however, the number of births among them is diminishing, so that the population of Servian places approaches extinction. Births are numerous and easy, and deaths comparatively few among Jews in every country, thus proving their strong accommodative power, and consequently their aptitude for commercial business. At Pesth, Jewish merchants reach a higher average age than Christian ones; the reverse is the case there among workmen, as tailors, &c. Suicide is rare, mental alienation frequent among Jews. Among Magyars, the number of births is moderate, the mortality rather great, and as a necessary consequence, the Slavonian population is more and more encroaching on them. Notwithstanding the very notable introduction of Turkish blood during the long occupation in the sixteenth and seventeenth century, the Finnic race and characters have suffered but little alteration, as proved by the striking similitude between Magyar and Finnic crania. The Hungarian Slovacks possess a high degree of vitality, and, notwithstanding certain noxious customs (hot wine given to women immediately after parturition, and brandy given to sucking babes), the mortality among them is anything but considerable. The Wends, living in groups in the Comitate of Wieselburg, are tall, with small heads, and, notwithstanding their irregular and excessive mode of living, generally attain to a good old age. The Germans in the Comitate of Pesth are all very prolific, but their number increases but moderately, as the rate of mortality is rather considerable. The Roumanians are reported to be generally of small size, with rather light brain, and to be subject to tuberculosis and to caries of the teeth. The Poles are more affected by epidemics than the Ruthenians; deaths among them are more numerous than births, while the Ruthenian population is constantly increasing in numbers. Prof. Sigmund has observed in the case of Italians and Spaniards, that wounds are more inclined to gangrene than in individuals of other races.

Prof. C. Vogt on a Microcephalous Subject

THE data concerning this subject have been communicated by M. de Vilanova, Professor of Geology at Madrid. His name is Vincenzo Ortis, of Codina, born at Castillon del Duca (province of Valencia), in 1813. The dimensions of his head are: facial angle, 59°; circumference of the cranium, 0·46 metres; upper arch, 0·19 m.; longitudinal diameter, 0·14 m.; transverse diameter, 12 m. His total length does not exceed 1 metre. The sternal limbs are very long, with a rudimentary sixth finger on each hand; the abdominal members are short, with a sixth toe on each foot; his whole body is covered with long hairs. His character is rather meek and timid; when irritated he tears his clothes without doing harm to others. He is unable to speak, but makes very expressive faces. His mode of progression is by leaps. The comparatively advanced age of fifty-six years, and the existence of six fingers and toes, make Ortis an exception among Microcephalous subjects.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, January 13.—The following papers were read:—"On the Mineral Constituents of Meteorites," by Nevil Story-Maskelyne, M.A., Professor of Mineralogy in the University of Oxford, and Keeper of the Mineral Department, British Museum. Communicated by Prof. H. J. Stephen Smith, F.R.S. [We are compelled to postpone an abstract of this paper.]

"On Fluoride of Silver." Part I. By George Gore, F.R.S. This communication treats of the formation, preparation, analysis, composition, common physical properties, and chemical behaviour of fluoride of silver. The salt was prepared by treating pure silver carbonate with an excess of pure aqueous hydrofluoric acid in a platinum dish, and evaporating to dryness, with certain precautions. The salt thus obtained invariably contains a small amount of free metallic silver, and generally also traces of water and of hydrofluoric acid, unless special precautions mentioned are observed. It was analysed by various methods: the best method of determining the amount of fluorine in it consisted in evaporating to dryness a mixture of a known weight of the salt dissolved in water, with a slight excess of pure and perfectly caustic lime in a platinum bottle, and gently igniting the residue at an incipient red heat until it ceased to lose weight. By taking proper care, the results obtained are accurate. The reaction in this method of analysis takes place according to the following equation: $2AgF + CaO = CaF_2 + 2Ag + O$. Sixteen parts of oxygen expelled equal thirty-eight parts of fluorine present. One of the methods employed for determining the amount of silver consisted in passing dry ammonia over the salt in a platinum boat and tube at a low red heat. The results obtained in the various analyses establish the fact that pure fluoride of silver consists of nineteen parts of fluorine and 108 of silver. Argentic fluoride is usually in the form of yellowish brown earthy fragments; but when rendered perfectly anhydrous by fusion, it is a black horny mass, with a superficial satin lustre, due to particles of free silver. It is extremely deliquescent and soluble in water; one part of the salt dissolves in ·55 part by weight of water at 15°·5 C.; it evolves heat in dissolving, and forms a strongly alkaline solution. It is nearly insoluble in absolute alcohol. The specific gravity of the earthy-brown salt is 5·852 at 15°·5 C.; the specific gravity of its aqueous solution, at 15°·5 C., saturated at that temperature, is 2·61. By chilling the saturated solution, it exhibited the phenomenon of supersaturation and suddenly solidified, with evolution of heat, on immersing a platinum plate in it. The solution is capable of being crystallised, and yields crystals of a hydrated salt; the act of crystallisation is attended by the singular phenomenon of the remainder of the salt separating in the anhydrous and apparently non-crystalline state, the hydrated salt taking to itself the whole of the water. The fused salt, after slow and undisturbed cooling, exhibits crystalline markings upon its surface. The dry salt is not decomposed by sunlight; it melts below a visible red heat, and forms a highly lustrous, mobile, and jet-black liquid. It is not decomposed by a red heat alone; but in the state of semi-fusion or of complete fusion it is rapidly decomposed by the

moisture of the air with separation of metallic silver; dry air does not decompose it. In the fused state it slightly corrodes vessels of platinum, and much more freely those of silver. The salt in a state of fusion with platinum electrodes conducts electricity very freely, apparently with the facility of a metal, and without visible evolution of gas or corrosion of the anode; a silver anode was rapidly dissolved by it, and one of lignum-vitæ charcoal was gradually corroded. A saturated aqueous solution of the salt conducted freely with electrolysis, crystals of silver being deposited upon the cathode, and a black crust of peroxide of silver upon the anode; no gas was evolved; with *dilute* solutions gas was evolved from the anode. By electrolysis of anhydrous hydrofluoric acid with silver electrodes, the anode was rapidly corroded. The electrical order of substances in the fused salt was as follows, the first-named being the most positive: silver, platinum, charcoal of lignum-vitæ, palladium, gold. In a dilute aqueous solution of the salt, the order found was: aluminium, magnesium, silicon, iridium, rhodium, and carbon of lignum-vitæ, platinum, silver, palladium, tellurium, gold. The chemical behaviour of the salt was also investigated. In many cases considerable destruction of the platinum vessels occurred, either in the experiments themselves, or in the processes of cleaning the vessels from the products of the reactions. Hydrogen does not decompose the dry salt, even with the aid of sun-light, nor does a stream of that gas decompose an aqueous solution of the salt, but the dry salt is rapidly and perfectly decomposed by that gas at an incipient red heat, its metal being liberated. Nitrogen has no chemical effect upon the salt, even at a red heat, nor upon its aqueous solution. Dry ammonia gas is copiously absorbed by the dry salt. In one experiment the salt absorbed about 844 times its volume of the gas. The salt in a fused state is rapidly and perfectly decomposed by dry ammonia gas, and its silver set free. A saturated solution of the salt is also instantly and violently decomposed by strong aqueous ammonia. Oxygen has no effect either upon the dry salt at 15° C., or at a red heat, nor upon its aqueous solution. Steam perfectly and rapidly decomposes the salt at an incipient red heat, setting free all its silver. No chemical change took place on passing either of the oxides of nitrogen over the salt in a state of fusion. By passing anhydrous hydrofluoric acid vapour over perfectly anhydrous and previously fused fluoride of silver, at about 60° Fahr., distinct evidence of the existence of an acid salt was obtained. This acid salt is decomposed by a slight elevation of temperature. Numerous experiments were made to ascertain the behaviour of argentic fluoride in a state of fusion with chlorine, and great difficulties were encountered in consequence of the extremely corrosive action of the substances when brought together in a heated state. Vessels of glass, platinum, gold, charcoal, gas-carbon, and purified graphite were employed. By heating the salt in chlorine, contained in closed vessels, formed partly of glass and partly of platinum, more or less corrosion of the glass took place; the chlorine united with the platinum and fluoride of silver to form a double salt, and a vacuum was produced. By similarly heating it in vessels composed wholly of platinum, the same disappearance of chlorine, the same double salt, and a similar vacuum resulted. Also, by heating it in vessels composed partly of gold, an analogous double salt, the same absorption of chlorine and production of rarefaction was produced. And by employing vessels partly composed of purified graphite, a new compound of fluorine and carbon was obtained.

"Approximate determinations of the Heating Powers of Arcturus and α Lyræ." By E. J. Stone.—About twelve months ago the author began to make observations upon the heating-power of the stars. At the February meeting of the Royal Astronomical Society he first became aware of what Mr. Huggins had done upon this question: his arrangements, however, did not appear to the author to meet the difficulties. After some trials, he arranged his apparatus in the following novel manner:—He uses *two pairs* of plates of compounds of antimony and bismuth. The areas are about $(0{\cdot}075)^2$ inches, and their distance is about 0·25 inch. The poles are joined over in opposite directions to the terminals of the pile and galvanometer. The whole pile is screwed into a tube of one of the negative eyepieces of the great equatorial. This completely shuts the pile up in the telescope-tube. A thick flannel bag is then wrapt over the eye-piece and terminals. The bag is prevented from actually touching the case of the pile, and is useful in preventing the irregular action of draughts upon the case of the pile and terminals. The wires are led from the terminals of the pile to the observatory library. The two faces of the pile are so nearly alike, that the currents which are generated by any equal heating of them are exceedingly feeble. The telescope is first directed so that the star falls between the two faces, and allowed to remain thus until the needle is nearly steady at the zero. The star is then placed alternately upon the two faces, and the corresponding readings of the galvonometer taken as soon as the needle appears to have taken up its position, which usually takes place in about ten minutes. The author next referred to the way in which he refers his results to those produced by independent sources of heat at known distances. The mean result of the observations on two nights is 0°·0198 F., as a measure of the heating effect of Arcturus in raising the temperature of the plate of antimony and bismuth when the heat is condensed by the object-glass of 12·75 inches. The direct effect without object-glass would be 0°·000000685 F. The author had not yet determined the coefficient of absorption for the object-glass, but if it be provisionally taken at $\frac{2}{3}$, the direct heating effect of Arcturus =0°·00000127 F. The result may be otherwise stated as follows:—That the heat received from Arcturus is sensibly the same as that from the face of a Leslie cube containing boiling water at 383 yards. In the case of α Lyræ the heating power is =0°·0088 F. This result is so much smaller than those obtained from Arcturus, although the observations of Arcturus were made under more unfavourable circumstances, that the author cannot but regard it as a fact that the star Arcturus does give us more heat than α Lyræ—a result probably due to the same cause which gives rise to the difference in colour between these stars, viz., the greater absorption of the red end of the spectrum in the case of α Lyræ than in the case of Arcturus. He mentioned that on June 25, 1869, he made a comparison between Arcturus and α Lyræ. The result gave for the heat received from Arcturus: to that from α Lyræ :: 3 : 2; but on account of the observations of α Lyræ having been interrupted by cloud, they were not, however, sufficiently numerous to eliminate mere errors of reading. From these observations the author concludes that Arcturus gives to us considerably more heat than α Lyræ; that the amount of heat received is diminished very rapidly as the amount of moisture in the air increases; that nearly the whole heat is intercepted by the slightest cloud; that as first approximations, the heat from Arcturus, at an altitude of 25°, at Greenwich, is about equal to that from the cube containing boiling water at a distance of 383 yards. The heat from α Lyræ at an altitude of 60° is about equal to that from the cube at a distance of 860 yards. The form given to the pile appears likely to be useful in many inquiries respecting differences of heating power.

Ethnological Society, January 11.—Dr. Richard King in the chair. Col. Lane Fox read a note on the use of the mere or pattoo-pattoo of New Zealand, in which he showed that this weapon is used as a thrusting-instrument, and should not, therefore, be referred to the type of the club. He regards it as having had its origin from the stone celt, since a series of transitional forms may be traced connecting the two implements. The author's opinion on the use of the mere was supported by a letter from the Rev. J. W. Stack, of Kaiopoi, communicated to Dr. Hooker, C.B., in which the writer explained that the mere was always used for thrusting and not for striking.—A communication was read from Dr. Haast, F.R.S., on some stone implements discovered in Bruce Bay, New Zealand. A polished stone chisel and a sharpening-stone were found by a party of miners in an auriferous "lead." Advancing inland from the present shore of the bay, several distinct belts of land may be observed, each characterised by peculiar vegetation; and it was in the fourth belt, at a distance of 525 feet from the present high-water mark that these implements were found. They are now deposited in the Canterbury Museum, N.Z. Although these polished implements are much more highly finished than are the roughly-chipped implements hitherto found in or near moa-ovens, the author does not venture to express an opinion on the relative antiquity of the two types: indeed, he considers it probable that they may have been used simultaneously by two races co-existing in the islands—the more highly-civilised using polished tools and dwelling near the coast, while the inhabitants of the interior retained the use of roughly-chipped implements, and followed the dinornis as it retreated inland. Mr. Bonwick referred to the great antiquity of these gold-bearing terrace-deposits.—At the same meeting Dr. Gustav Oppert read a paper on the Kitai or Kari-kitai. These are a small race of about 50,000 persons, dwelling near the Caspian Sea in the Russian province of Derbend, and in the Siberian district of Guldja. They are the descendants of a race which once ruled

over China and Central Asia. One of their great princes, Yelintashe, was identified by the author with the celebrated Prester John or Presbyter Johannes. Dr. Oppert referred to the use of the names of metals by the Tatars as proper names and titles of dynasties—such as the Iron dynasty, Golden dynasty, &c. According to their own historical records, the Tatars had come from a district abounding in gold and iron. Dr. Hyde Clarke contrasted the valuable philological arguments brought forward in the present paper with the frivolous mode in which comparative philology is often employed. He alluded to the ethnological cause of the decline of the great empire of the Kitai, and referred it to the inability of any small dominant race to hold in subjection a large population composed of mixed races.

Royal Microscopical Society, January 12.—The Rev. J. B. Reade, F.R.S., president, in the chair. Mr. J. Browning read a paper on a new mode of measuring spectra bands. Mr. Browning described an adaptation, by himself, of the micrometer screw to the microscope, which afforded an easy and accurate method of measuring the bands of the absorption spectrum, and the invention was accepted as a valuable improvement on the method hitherto employed for the purpose.—Mr. W. S. Kent, F.Z.S., of the British Museum, read a paper on "the *Calcareous spiculæ* of the *Gorgonaneæ*, their modification of form, and the importance of their characters as a basis for genuine and specific diagnosis." This paper was illustrated by an elaborate series of drawings of the animals and the spicula of the various species.—In consequence of the time occupied by the reading of the previous papers, a contribution from Mr. A. Sanders, M.R.C.S., "On an undescribed stage of development of *Tetrarhynchus corallalus*" was taken as read.

DUBLIN.

Royal Irish Academy, January 10.—Sir Robert Kane in the chair. The Rev. Dr. Dickson read an account of some portions of the "Ars moriendi," preserved in the manuscript room of the College Library, and compared it with the photographs of the perfect copy of this work in the collection of Herr Weigel, of Leipsig. It is an excellent specimen of block-printing. The fragments in the library appear to have been portions of an early printed volume, as well as of one printed with great care, and belonged to the edition in small folio of twenty-four leaves printed on the one side.—Dr. John Barker read a paper on the "illumination of microscopic objects." One of the most important improvements of late years in object-glasses of high powers has been the immersion of objectives of a particular construction into a film of water placed on the glass covering the object, whereby it is found that the definition, light, magnifying power, and working distance are each much increased. The object of the paper was to show how the present principle could be applied with great advantage to the general illumination of objects. The results of some experiments were then detailed. Wenham's paraboloid was altered as follows: the tip was ground flat, and a film of water was introduced between it and the under surface of the glass slide containing the object, free action of the stage movements being thus allowed, and no light was lost. This form of illumination is suitable to all kinds of axial illumination, though it is but right to add that it has only practically been tried in a form corresponding to Wenham's paraboloid. Details of the construction of the paraboloid, its size, and curvature were given; and the paper concluded by the author claiming for this mode of illumination the following advantages:—1. Objects are seen by light reflected from their surfaces, and, if transparent, from their interiors. 2. No disturbing light impinges on the retina. 3. All shadows are avoided. 4. The oblique rays of light are economised. 5. The light is purely achromatic. 6. The interior of partially transparent objects can be lit up. 7. Definition is improved. 8. It is easy of application; and, lastly, it is not expensive.—Dr. Stokes presented, on behalf of W. T. De Visme Kane, Esq., a large stone celt found in Ireland. A copy of the second volume of the "Brehon Laws," just published, was laid on the table. The following were elected members:—W. Archer, Professor R. Ball, R. Day, Sir T. Esmonde, Bart., T. A. Jones, Rev. J. P. Mahaffy, and J. P. O'Reilly.

PARIS

Academy of Sciences, January 10.—M. Delaunay communicated a memoir on the physical constitution of the moon, and Father Secchi one on the constitution of the solar corona, and some peculiarities presented by rarefied gases when rendered incandescent by electric currents: we shall return to these papers.—M. Becquerel presented the second part of his eighth memoir on electro-capillary phenomena, in which he treats of the muscular, nervous, and other currents.—M. E. Becquerel communicated a note on the determination of weak electromotor forces, in which he described a method of determining the amount of force developed in organic bodies and their parts.—M. Piarron di Mondesir communicated the second part of his paper on a new method for the solution of problems in mechanics, and M. Verdeil a note indicating two experiments to be made, by means of the pendulum, to determine the variation of the resistance of the air with the velocity.—A discussion on the proposed demonstration of Euclid's postulate of parallel lines, by M. Bertrand, was raised by the opening of a sealed packet deposited by M. Lionnet on the 27th December last. M. Boillot maintained that it is impossible to get rid of the idea of infinity when we attempt to demonstrate Euclid's postulate; and M. J. Hoüel, the impossibility of demonstrating the principle of the theory of parallels by means of a plane figure. M. Fuix called the attention of the meeting to a demonstration of the postulate, independent of the idea of infinity given by him in a published work.—In a memoir on nitrous acid by M. E. Frémy, the author stated that pure nitrous acid dissolves without decomposition in a great excess of cold water, but that it is split into nitric acid and dentoxide of nitrogen by the addition of pulverulent bodies. He also referred to the reducing properties of nitrous acid, and to its behaviour and modification by substitution under the influence of hydrogenated bodies.—MM. Odet and Vignon presented a paper on the action of dry chlorine upon dry nitrate of silver, in which they described an experiment confirming their previous supposition that in the preparation of anhydrous nitric acid by this means, the reaction combines two phases, namely: 1. Production of chloride of azotyle with evolution of oxygen; and 2. Reaction of the chloride of azotyle upon the excess of nitrate of silver.—A memoir was also presented by M. A. Boillot, on the synthesis of hydrosulphuric acid by exposing flowers of sulphur to the action of the electric spark in contact with hydrogen; and one by M. T. Schlœsing, containing analyses of the mineral contents of the waters of arable lands.—M. Feil addressed a reply to a previous note by M. Gaugain on the manufacture of artificial gems; and MM. A. Riche and P. Champion a memoir on the manufacture of tom-toms and cymbals.—Of biological papers only few were communicated, the chief one being a continuation of M. Lacaze-Duthier's researches upon the morphology of the Mollusca, in which the author treats of the *Lamellibranchiate Acephala*, or ordinary bivalved molluscs.—M. Colin discussed the question whether there is any relation between the intelligence of animals and the development of the nervous centres, and showed by numerous tables that there is no exact relation between the size of the encephalon and the observed intelligence.—M. Bergeon noticed the purpose of the lachrymal glands, which he considered to be chiefly the moistening of the air passages, and of the air passing through these to the lungs, so that they are really connected with the function of respiration.—M. Drouyn de Lhuys communicated an extract from a letter noticing the attacks of an *Acarus* upon the grape-vines at the Cape of Good Hope. The parasite is said to live upon the roots, and between the bark and wood of the plants.

VIENNA

Imperial Academy of Sciences, December 9, 1869.—Dr. L. J. Fitzinger communicated the first part of a critical revision of the Rhinolophous family of Bats. It treated of the genera *Cœlops*, *Phyllorhina* and *Asellia*.—Director Tschermak presented a memoir on the form and composition of the Felspars.—Dr. J. Peyritsch communicated a memoir on abnormities of structure in the Umbelliferæ, containing the description of a series of malformations of the flowers in *Carum Carui*, *Daucus Carota*, *Torilis anthriscus*, and *Peucedanum Chabræi*.—In connection with these the author discussed the axial or carpellar nature of the fruit of the Umbelliferæ, and remarked that such cases show that the distinction between leaf and axis is not well founded in nature.—M. Schrauf noticed the occurrence of Brookite in iron-glance from Piz Cawradi, to the south of Chiamut in the Tavetsch valley of Graubündten.—The table of observations at the Central Meteorological Observatory, for the month of November, was communicated.

December 16, 1869.—Professor Reuss communicated a memoir by Dr. Manzoni "On the Italian Fossil Bryozoa," in continuation of previous papers by the same author. The present paper related exclusively to the genus *Lepralia*, of which the author described and figured 21 species, 15 of them as new

forms. Of the species described, 12 are from the middle miocene of Turin, 4 from the middle pliocene of Castelarquato, and the remaining 5 from the upper pliocene of the neighbourhood of Reggio in Calabria.—Professor A. Winckler presented a memoir on some formulæ and methods relating to the theory of definite integrals.—Dr. Tiele, of Bonn, and Dr. T. Oppolzer communicated statements of the elements of Comet III., 1869, and the latter a memoir on the determination of the path of a comet.—Professor E. Hering presented a first memoir on the influence of respiration on the circulation of the blood, in which he maintained that the system of the vasomotor nerves experiences a periodic innervation by the respiratory nervous centre, which causes periodic contractions of the muscular coat of the vessels. These he regarded as respiratory movements of the vascular system.—Dr. F. Steindachner communicated the second portion of his memoir on the Fishes of the Senegal, in which he described the species (28 in number) belonging to the families Gobiidæ, Mugilidæ, Gerridæ, Chromidæ, Anabatidæ, Pleuronectidæ, and a part of the Siluridæ. Four of these were described as new, namely: *Eleotris senegalensis*, *daganensis*, and *Lebretonis*, and *Mugil Dumerili*. The first two belong to Bleeker's sub-genus *Culius*, the previously known representatives of which occur in the Indian Ocean and Polynesia. The author regarded *Chromis mossambicus* (Peters) as specifically distinct from *C. niloticus*, *Hemichromis bimaculatus* and *auritus* (Gill), and *H. guttatus* (Günther) as varieties of one species, *Chrysichthys acutirostris* (Günther) as identical with *C. nigrodigitatus* (Lac.), and *Gerres octactis* (Bleeker) with *G. melanopterus* of the same author.

BERLIN

German Chemical Society, January 10.—The following papers were read:—Wichelhaus, "On a base isomeric with cyanide of ammonium." By the action of the tribasic formic ether CH $(OC_2H_5)_3$ on acetamide $NH_2C_2H_3O$, a base of the following composition, $CH.NC_2H_3O.NHC_2H_3O$, was obtained. This substance is converted by water into the acetate of the new base $CH.NH.NH_2$. The latter is a volatile liquid, yielding crystallised salts.—Philipp, "On perchloride of iodine;" Hansen, "On the ethylides of thallium;" P. W. Hofmann, "On the manufacture of sulphuric acid." The author, who is at the head of the manufactory of Dienze in France, accounts for the loss of oxides of nitrogen in the manufacture of sulphuric acid, by proving that these oxides are partly reduced to nitrogen, when the sulphuric acid in the lead-chambers sinks below a certain strength. The loss can therefore be avoided by carefully regulating the steam admitted into the chambers.—Schoras, (1) "On the influence of sunlight on the reduction of metallic chlorides through oxalic and tartaric acids;" (2) "On the colorisation of dry platinocyanides through traces of moisture."—Friedel and Ladenburg, "On silicopropioxic acid;" Tieman, "On derivatives of guanidine;" Junning, "Mechanical explanations of chemical reactions;" Schuchard, "On the preparation of zirconium."

BONN

Lower Rhenish Society for Natural and Medical Science—*Chemical Section*, November 13.—Professor Binz exhibited a new body, "Dihydroxylchinin," obtained by G. Kerner from quinine by treating the latter with potassic permanganate. It gives all the reactions of the alkaloid, but differs from it amongst other things in the want of basic properties and the absence of influence on the organ of taste. It likewise differs from it essentially in its physiological properties, being entirely indifferent even in large doses. Dr. Zinke gave an account of new synthesis of aromatic acids. He has obtained phenyl-acetic acid from Monochloracetic acid, and brombenzol by treatment with finely-divided silver. Professor Kekulé communicated the results of some experiments of Dr. Thorpe, showing that bromine free from iodine enters the ethyl-group of ethylbenzole even at a low temperature, and that from the bromide thus formed various derivatives can be obtained, some of which have already been proved by Berthelot. Dr. Budde gave a preliminary report on his researches on the electric conductivity of hydrogen, oxygen, and nitrogen, at various pressures. His results agree most nearly with those of Faraday, and show a greater decrease of resistance than of pressure.

November 27.—Dr. Muck communicated his recent researches on the formation of manganic sulphide from various manganese salts and various soluble sulphides. Professor Rhitthausen likewise made some communications on the occurrence (not hitherto observed) of amygdaline in vetch seeds.

DIARY

THURSDAY, JANUARY 20.

ROYAL INSTITUTION, at 3.—On the Chemistry of Vegetable Products: Prof. Odling.

ROYAL SOCIETY, at 8.30.—On the Mechanical Performance of Logical Inference: W. Stanley Jevons.—Preliminary Paper on certain Drifting Motions of the Stars: R. A. Proctor.—On Jacobi's Theorem respecting the relative Equilibrium of a Revolving Ellipsoid of Fluid, and on Ivory's Discussion of the Theorem: J. Todhunter, F.R.S.

LINNEAN SOCIETY, at 8.—On the Flora of Iceland: Prof. Babington.—On New British Spiders: Rev. O. P. Cambridge.

ZOOLOGICAL SOCIETY, 8.30.—Descriptions of a new genus and of eighteen new species of Land and Marine Shells: Henry Adams.—On the genus Pelargopsis of the family Alcedinidæ: R. B. Sharpe.—Description of a new Fish from the vicinity of Aden: Lieut.-Colonel R. L. Playfair.

CHEMICAL SOCIETY, at 8. ANTIQUARIES, at 8.30.

NUMISMATIC SOCIETY, at 7.

FRIDAY, JANUARY 21.

ROYAL INSTITUTION, at 3.—On Haze and Dust: Professor Tyndall.

PHILOLOGICAL SOCIETY, at 8.15.

SATURDAY, JANUARY 22.

ROYAL INSTITUTION, at 3.—On Meteorology: Mr. Scott.

ROYAL BOTANIC SOCIETY, at 3.45.

MONDAY, JANUARY 24.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.

ENTOMOLOGICAL SOCIETY, at 7.—Anniversary Meeting.

LONDON INSTITUTION, at 4. MEDICAL SOCIETY, at 8.

TUESDAY, JANUARY 25.

ROYAL INSTITUTION, at 8.—On the Architecture of the Human Body: Prof Humphrey.

ETHNOLOGICAL SOCIETY, at 8.—On the Origin of the Tasmanians, geologically considered: J. Bonwick.—On a Frontier-line of Ethnology and Geology: H. H. Howorth.—The Nicobar Islanders: G. M. Atkinson.

INSTITUTION OF CIVIL ENGINEERS, at 8.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY, at 8.30.

WEDNESDAY, JANUARY 26.

SOCIETY OF ARTS, at 8.—On the Modes of Reading in Use by the Blind, and the Means for arriving at Uniformity: Thomas Armitage, M.D.

GEOLOGICAL SOCIETY, at 8.—On the Crag of Norfolk and associated Beds: Joseph Prestwich, F.R.S., F.G.S.—On the Fossil Corals of the South Australian Tertiary Deposits: Dr. P. Martin Duncan, F.R.S., Sec. G.S.—Note on a very large undescribed Wealdean Vertebra: J. W. Hulke, F.R.S., F.G.S.

ARCHÆOLOGICAL ASSOCIATION, at 8.

BOOKS RECEIVED

ENGLISH.—The Year-book of Photography for 1870: G. W. Simpson (Piper and Carter).—The Bible in India: Louis Jacolliot (J. C. Hotten).—The Body and its Health: E. D. Mapother, M.D. (Simpkin, Marshall and Co).—Natural Phenomena and Chronology of the Seasons, Part I.: E. J. Lowe, F.R.S. (Bell and Daldy).—Journal of the Statistical Society.—The Geology, Botany, and Zoology of the Neighbourhood of Alnwick: G. Tate (H. Hunter).

FOREIGN.—Note sur les Surcharges à considerer dans les Calculs des Tabliers Metalliques: M. L. Leygue.—Chênes de l'Amerique Tropicale.—Compendium der Physiologie des Menschen: Julius Budge.—Untersuchungen aus dem Physiologischen Laboratorium in Würzburg: R. Gescheidlen.—Die Praktische Markscheidekunst: E. Borchers.—Industries anciennes et moderne de l'Empire Chinois: Paul Champion.—Annales des Sciences Géologiques: Hébert et Alph. Milne-Edwards. Cours Elémentaire de Mecanique Theorique et Appliquée: Ch Delauny.—Cours Elémentaire d'Astronomie: Ch. Delaunay.—Recherches sur l'Ancienneté de l'Homme dans les Grottes et Monuments Megalithiques du Vivarais: J. Ollier de Marichad—Berliner Astronomisches Jahrbuch für 1872: W. Förster.—Handbuch der Chemischen Technologie: P. A. Bolley.—Ueber die Altesten Formen des Organischen Lebens: Ferd. Roemer.—Ueber den Parasitismus in der Organischen Natur: Maximilian Pertz (through Williams and Norgate).

CONTENTS

ERRATA.—Page 238, second column, line 34 of footnote: for "habitude" read "hebetude."—Page 289, second column, line 37: for "rectorial" read "vectorial."