the Primordial Fauna much farther west than it had been found before.—Prof. Dana's notice of the address of Prof. T. Sterry Hunt, before the American Association at Indianapolis has already appeared *in extenso* in our columns.—Prof. Roland Irving on the age of the Quartzites, Schists, and Conglomerates of Sauk Co., Wisconsin, holds them to be unquestionably islands in the Potsdam Sea, furnishing beautiful illustrations of wave action on a rocky coast.—Prof. Hayden gives an extremely interesting account, illustrated by maps, of the hot springs and Geysers of the Yellowstone and Firehole Rivers, the result of the recent Government exploration of that district. Prof. T. Sterry Hunt continues his notes on granite rocks, and Mr. A. S. Verrill his contributions to Zoology from the museum of Yale College.

SOCIETIES AND ACADEMIES

London

Royal Society, April 11.—"Researches on Solar Physics."—III. By Warren De La Rue, F.R.S., Balfour Stewart, F.R.S., and Benjamin Loewy.

The authors present in this paper the third instalment of the determination of the areas and heliographic positions occupied by the sun-spots observed by the Kew photoheliograph, comprising the years 1867, 1868, and 1869. They announce that the fourth and last instalment is in active progress, and will be preceded by the final discussion of the whole ten-yearly period, during which the photoheliograph has been at work. This final discussion will contain the determination of the astronomical elements of the sun on the basis of photographic observations, and this work they anticipate will not only settle the question of rotation for a considerable time to come, but will also throw light upon many points which have only recently been brought under the consideration of scientific men. The results in general, they believe, will prove the superiority of photographic sun-observations over previous methods. The second question which will be discussed is the distribution of sun-spots over the solar surface. The facts already brought out indicate that the progress of the inquiry may lead to some definite laws which regulate the distribution; there appear to exist centres of great activity on the sun, and the different solar meridians seem to have various but definite intervals of rest and activity. In conclusion the authors point out the necessity of devoting in future greater attention to the study of the faculæ, and express a hope of seeing photographic sun-observations carried on in this country on a more extended system, connecting from day to day solar phenomena with terrestrial meteorology and magnetism.

Correction to Messrs. De La Rue, Stewart, and Loewy's papers "On some recent Researches in Solar Physics, &c."

The erroneous date given in our paper for one of Professor Wolf's maxima has already been corrected by us, and we give in the subjoined little table the corrections of the few numerical data which are necessitated by the error of fixing the date of maximum at 1846·6 instead of 1848·6.

Prof. Wolf's ratio $\frac{A}{B}$ (p. 86).

Erroneous figures given previously.		Differences.	Corrected figures.		Differences.
I. 1·265		—0·728	1·265		+0·283
II. 2·615	Mean 2·093	+0·522	1·478	Mean 1·548	+0·073
III. 2·400		+0·307	1·900		+0·352

The differences derived from our own results are respectively +0·061, and —0·047, that is, they are still much smaller, and agree singly better with the mean, than if Prof. Wolf's ratio were adopted; hence our conclusion is quite unaffected by this correction.

The remark made by us with reference to this maximum will remain in force even with the corrected date. We stated there that this particular maximum showed alone an appreciable difference from the dates fixed by ourselves, for it will be found that Prof. Wolf's date differs still by about three-quarters of a year from ours.

"Contributions to the History of the Opium Alkaloids."—Part V. By Dr. C. R. A. Wright.

"The Action of Oxygen on Copper Nitrate in a state of Tension." By Dr. J. H. Gladstone, F.R.S., and Alfred Tribe, F.C.S.

In our experiments on the action between copper and nitrate of silver in solution, we frequently noticed that the tips of the silver crystals became red, as though coated with a thin layer of metallic copper.

This apparent deposition of a positive on a more negative metal of course raised our curiosity, and led us to look closely into the circumstances under which it occurred. We found that it took place only when the nitrate of silver was exhausted, and only on those silver crystals which remained in metallic connection with the copper. We found, too, that the cupreous coating formed most readily where air had the freest access; and, in fact, that it would not form at all in vessels from which oxygen was excluded, nor on those white crystals which were far below the surface of the liquid, though they might be in immediate contact with the copper plate. When an inverted jar was filled with nitrate of copper solution and silver crystals resting on branches of copper, and the liquid was displaced by oxygen gas, it was found that the tips of the crystals became red, and the solution gradually filled the jar again by the absorption of the gas. In the same way the oxygen was absorbed from air, or from its mixtures with hydrogen or carbonic anhydride. This action was further studied by employing plates of the two metals instead of copper covered with silver crystals. When the two plates, connected by a wire, were partially immersed in an ordinary aqueous solution of copper nitrate, it was found that a slight yellowish deposit made its appearance speedily all over the silver plate, and went on increasing for a day or two, while at the air line there was a thicker deposit, which gradually grew and extended itself a little below the surface. This deposit changed from yellowish to red, and under the microscope presented a distinctly crystalline appearance. Thinking that this slight crust all over the silver plate was due to the air dissolved in the solution itself, we took advantage of the reaction to prepare copper nitrate absolutely free from dissolved oxygen. An ordinary solution of the salt mixed with some silver nitrate was placed in a narrow cylinder, with a long piece of copper foil arranged somewhat spirally so as to retain the deposited silver on its surface, and allowed to rest for twenty-four hours.

The solution thus obtained was exposed to the action of the conjoined copper and silver plates, but even after some hours there was no diminishing of the lustre of the silver plates, except at the air line, which was sharply defined. The same solution shaken for some time in the air produced a yellowish deposit on the white metal in three minutes.

The colour and general appearance of this crust, together with its formation only where oxygen can be absorbed, showed that it was not metallic copper, but the suboxide.

This was further proved by the action of diluted sulphuric acid, which resolves it at once into red metallic copper and copper sulphate. There is also another curious reaction which can only be properly observed under a microscope.

When treated with a solution of silver nitrate, this cupreous deposit does not give the ordinary crystals of the white metal; in fact, it is only slowly acted upon, but presently there shoot forth thin threads of silver which run through the liquid, often twisting at sharp angles, while the yellowish crystals change to black. This also was found to be a property of the suboxide of copper. This deposition of oxide on the silver is accompanied by a corresponding solution of copper from the other plate.

Thus, in an experiment made with nitrate of copper solution that had been exposed to air, and which was allowed to continue for four days, there was found—

Gain of silver plate, 0·016 grm.
Loss of copper plate, 0·015 grm.

The copper necessary for the production of 0·016 grm. of suboxide would be a little above 0·014 grm.

The wire connecting the two plates in this experiment is capable of deflecting a galvanometer. The current takes place from copper through the liquid to silver, that is, in the same direction as if the copper had been dissolved by an acid, and hydrogen evolved on the silver plate.

If the two plates have their sides parallel, the suboxide is deposited not merely on that side of the silver plate which faces the copper, but after about a minute on the other side also, showing that in this, as in other cases, the lines of force curve round.

It became interesting to consider what started this electric current. The original observations convinced us that it was not due to the action of oxygen on the copper; but to make the matter more certain, bright copper and silver plates in conjunction were immersed, the copper in a pure, *i.e.* deoxygenised, solution of nitrate of copper, the silver in an oxygenised solution; the two liquids communicated through the diaphragm of a divided cell. In half an hour the silver plate was covered with a reddish film, while not a trace of oxidation was perceptible on the copper. On continuing this experiment for three hours, it was found that the copper plate lost 0·003 grm., and the silver plate increased proportionately. On cleaning the plates and reversing their position, the copper was covered with a film of oxide, while the silver remained free from cupreous deposit. We believe, therefore, that through the simultaneous action of the two metals the dissolved salt is put into such a state of tension that oxygen brings about a chemical change which otherwise would be impossible, and that this change is initiated in close proximity to the more negative metal.

Though we have examined only this reaction, we have satisfied ourselves that it is not an isolated fact. Each of the elements concerned may be replaced by others: thus the sulphate may be substituted for the nitrate of copper, or platinum may be used instead of silver. Chlorine may take the place of oxygen with the production of the subchloride instead of the suboxide, and zinc may be employed as the positive metal with zinc chloride as the salt in solution, in which case copper may be taken as the negative metal, and on its surface will form a deposit of oxide of zinc.

Linnean Society, March 21 and April 4.—Mr. Bentham read the continuation and conclusion of his notes on Compositæ, comprising their History and Geographical Distribution. The ancient history of the order is more purely conjectural than that of many other large groups of plants. The geological record is remarkably scanty. The only remains that can be plausibly referred to Compositæ are the impressions of achenes with their pappus figured by Oswald Heer from the upper Miocene deposits of central Europe, which, supposing, as is probably the case, that the identifications are correct, would only show that at that tertiary epoch Compositæ existed in Europe of the same general character as those which are there now to be met with; and that they had thus already attained that highly differentiated character they now possess, and consequently must already have been of an old date. In the absence, therefore, of direct evidence, we are left to judge of the antiquity and origin of Compositæ in general, as well as of the subordinate races they comprise, from their comparative structure and geographical distribution. The paper then proceeds to pass in review in great detail the thirteen tribes of Compositæ, and the several subtribes and principal genera into which they are divided; after which some conjectures are put forward, as derived from the data thus supplied, as to the comparative antiquity of the principal races of Compositæ. Concurring with the arguments which have been brought forward by French and other botanists, to show that the great consolidation and uniform structure of the essential organs of fructification in Compositæ are evidences of their greatest perfection and consequent comparatively recent origin, it is shown that this consolidation and uniformity is least marked in Helianthoideæ, especially in the small subtribe of Petrobieæ, and most so in Cichoraceæ; and this conjecture that the former represent the most ancient, the latter the most recent, races of the order, is confirmed in some measure by the peculiarities of their respective geographical distribution. The study of the various details given would further lead to the supposition that the primitive form of Compositæ had regular gamopetalous flowers with an inferior ovary, the calyx, corolla and uniseriate stamens isomerous and probably pentamerous, the pistil bicarpellary, but the ovary already internally reduced to a single cell with a single erect anatropous ovule, and the seed exalbuminous, enclosed in an indehiscent pericarp, and containing a straight embryo with an inferior radicle; and that it is in the gradual course of subsequent consolidations that the bracts have crowded round the condensed flowers and usurped the functions of the calyx-limb, which has become obliterated or transformed so as to be better adapted to its new duties; the corollas have become contracted, or the outer ones variously developed in forms and colours adapted to assist in the process of cross-fertilisation; the anthers, brought into close contact by the compression of the flowers, have become united, and their styles modified so as to assist them in the discharge of their pollen, and the conversion from hermaphroditism to unisexuality may in various races have variously preceded or followed some or all of these changes, and produced those numerous diversities observed in the order. We might be further led to imagine that several of these changes had taken place at a very early period previously to the disruption of or stoppage of communication between the tropical regions of the globe, that, besides the parent forms above supposed to be represented in some Helianthoideæ, and perhaps a few Cotuleæ, Compositæ then existed, showing several important modifications, such as—(1) the regular and uniform tubular development of the corolla, accompanied by more or less of suppression of the inner bracts, and of the normal calyx-limb, with a substitution of a pappus in the latter case; (2) the reduction of the corolla limb, attended frequently by a sexual dimorphism and occasional oblique development of the outer female flower; and (3) perhaps at a later period, the uniform unilateral development of the whole of the corollas, accompanied usually by a suppression of the inner bracts and conversion of the calyx limb into a pappus. From the first of these modifications would have sprung the Eupatoriaceæ in America, the Vernoniaceæ in the New and the Old World, the Cynaroideæ in the northern, and the Mutisiaceæ in the southern hemisphere. From the second modification would have arisen—first, the more slightly altered Helianthoideæ chiefly in America; secondly, the Helenioideæ in America, and the Anthemideæ in the Old World, with the thinly paleaceous modification or total suppression of the inner bracts and calyx limb; and thirdly, the cosmopolitan Senecionideæ, Asteroideæ, and the majority of Inuloideæ, with an almost universal suppression of the inner bracts and conversion of the calyx limb into a setose pappus. The third general modification, with a very few slight exceptions, has settled down into those Cichoraceæ whose absolute uniformity had been already pointed out. In the third and concluding portion of the paper the present Regions, or chief centres, or areas, of the principal races of Compositæ are passed in review. The position of these great centres is evidently influenced by the prevalent constitution of the order, and the consequent effects of climatological and other physical causes on the gradual migrations of its species. Rarely arborescent and gregarious, still more rarely aquatic, Compositæ are, in a great measure, excluded from the vast forest-clad lowlands of the Amazon region of America, or of eastern tropical Asia, and the species are few in the swampy bogs of the northern hemisphere. Their favourite haunts are treeless or thinly-clad mountain regions, and especially the lower or broken grounds, rocky ridges, or open campos of warm extratropical or subtropical districts. They may be met with, it is true, at the highest altitudes or latitudes which will bear phænogamic vegetation as well as in the warmest tropical deserts, and a few species, as ready colonists, are perfectly ubiquitous in the traces of man; but there are large tracts of open country especially abounding in highly differentiated races of very limited areas, others again where Composite genera and species are as numerous and ill-defined in their subordinate races as wide and vague in their geographical range. These tracts of country severally constitute the centres of differentiation or areas of preservation, of which the definition is attempted as Regions of Compositæ. After alluding to the difficulties arising from the interchange of races across the frontiers of adjoining regions, or from the occasional reappearance of identical genera and species at enormous distances, as well as from our imperfect acquaintance with the Compositæ of certain districts, these regions are severally passed in review, in a series of tables of the genera they contain, either endemic or common to other regions, followed by such general observations as the comparisons may have suggested, commencing with the primary division into the New and the Old World, the former including the Sandwich as well as the more nearly placed Pacific Islands, whilst the Atlantic islands, Australia and New Zealand, are comprised in the Old World. After a general table of the genera of and estimated number of species in each division, a series of tables shows—(1) the connections between the tropical regions of the two divisions, as exemplified by identical genera; (2) the same connections in identical species; (3) the northern, and (4) the southern connections of the New and Old Worlds. Generally Compositæ are nearly equally divided between the two, about 430 genera in the New and 410 in the Old, with at least 4,700 species in the former, 4,400 in the latter; new discoveries being likely to add more to the latter. Of these numbers about 75 genera are common to the two divisions, but the identical species are under 70 out of at least 9,100. These common species are chiefly Arctic, or high northern, the tropical ones being very few and mostly very generally diffused, and ready colonists, such as *Eclipta alba*, *Ageratum conyzoides*, *Adenostemma viscosum*, *Siegesbeckia orientalis*.

In the separate distribution of Compositæ in America and the Old World there is one striking difference in the two divisions with regard to the extratropical or subtropical races which form the great bulk of the order. In America the northern and southern tribes are the same, although in different proportions, and there are a considerable number of identical genera and even species in the north and in the south. In the Old World on the contrary two large northern tribes, Cynaroideæ and Cichoraceæ, are all but absent from the south, whilst the southern Aretotideæ, as well as several subtribes of other tribes, are wanting in the north. The genera common to the Mediterranean and South African regions (except such cosmopolitan genera as *Senecio*) are very few, and the common species scarcely any. This great difference in the two divisions of the globe may be due in a great measure to the direction of the great chain of mountains which in America, running north and south, facilitates or has facilitated means of intercommunication to races of the constitution of Compositæ, to which the east and west mountain ranges plains seas and deserts of the Old World only oppose obstacles. The regions of which the Compositæ are severally tabulated and commented upon are, in America: (1) the Mexican region including California, a portion of Western Texas and Central America north of Veraguas, remarkable for the large number of endemic genera, 135 out of 240, and the small average number of species; (2) the United States region, comprising the general area of North America from the Oregon and Texas eastward and northward, with about 118 genera, out of which only 25 are endemic, or nearly so, but the average number of species more than double that of the Mexican genera; (3) the West Indian region, of which the three principal islands, Cuba, St. Domingo, and Jamaica, have 13 endemic genera of one to three species each; and three South American regions, the Andine, the Brazilian, and the Chilian, not so distinct from each other, nor showing any such remarkable contrasts as the two northern ones. In the Old World six regions are distinguished—(1) the Mediterranean, extending from Spain to Affghanistan, with at least 140 genera, more than half of them endemic, and an average of nearly 10 species to a genus; (2) the great Europæo-Asiatic region, extending from Western Europe to Eastern Asia, with a large number of species, but only 10 endemic genera out of 87; (3) the Tropical African, with 18 endemic genera out of 109; (4) the Tropical Asiatic, with only 9 out of 78 endemic or nearly so; (5) the South African, the smallest in extent but the richest in endemic highly differentiated genera and species, 100 out of 148 genera being limited to that locality, and out of about 1,400 species not above a dozen common to other regions; and, lastly, (6) the Australian region, with 39 out of 83 genera endemic, and, notwithstanding its isolation, nearly 60 species common to other countries, chiefly tropical Asia and New Zealand. The Compositæ of the principal Oceanic islands are also separately tabulated and considered; after which, in the general summary, it is conjectured that Africa, Western America, and possibly Australia may have possessed the order at the earliest recognisable stage, Africa showing the greatest variety of individual isolated remnants of extinct races; Andine America, and some of the scattered Oceanic islands, exhibiting a few of what may be deemed the nearest approach to the previously mentioned conjectural primitive form of the order; that at this early period there must have been some means of reciprocal interchange of races between these regions; that since the disruption of this intercourse between the two great divisions of the globe, there must have been for a time a certain continuity of composite races from north to south across the tropics—a continuity which was probably further prolonged in America than in the Old World; that as Compositæ began to disappear from these tropical regions which thenceforth opposed to them impassable barriers, they became rapidly differentiated to the northward and southward, with greater structural divergences in the Old than in the New World, owing to the isolation being more complete in the former than in the latter; and that those forms, those more or less differentiated races, which had reached and accommodated themselves to high northern latitudes or mountain altitudes, retained some means of communication and interchange between the Old and the New World, long after it was broken off in the warmer parts of the globe. Finally the homes where Compositæ now flourish in the greatest luxuriance of specific variety and individual numbers, appear to be tropical America, exclusive of the great alluvial low grounds and forest regions, the United States, South Africa, the Mediterranean region, West Central Asia, and extra-tropical Australia.

Geologists' Association, April 7.—The Rev. J. Wiltshire, F.G.S., president, in the chair. "On the Excavations at the Site of the New Law Courts," by W. H. Hudleston, F.G.S., and F. G. H. Price. The authors commenced with a general description of the area in question, which faces the Strand for 500 feet, and is in shape a rough square of some seven acres in extent. The floor of the excavation is about 33 feet above ordnance datum line at the south-east corner. Four varieties of beds are recognised. (1) Brick rubbish, &c.; (2) gravels and sands; (3) red clay; (4) blue clay. The nature of the changes which the London clay undergoes in its upper portions was noticed, and the chemical agencies acting upon the clay and its included septaria pointed out. The changes from blue to red were thus summarised:—Conversion of dyad iron, existing partly as carbonate partly as as a basic element of the silicate, into tryad iron, oxidation of the included pyrites, removal to a considerable extent of the resulting sulphuric acid and diminution of the carbonate of lime and magnesia. The several sections carefully examined by the authors showed that on the north side the gravels have a thickness varying from 9 to 13 feet, and thin out and disappear before the Strand is reached. The contour of the London clay is irregular, one line of 30 yards giving a variation of 7 feet in the thickness of the overlying gravels, due to this cause. Deposits of oxide of manganese and sulphide of iron occur in the gravels; the former, it was contended, due to natural causes, while the latter was probably owing to sewage contamination. The bones of *Bos*, *Capra*, and *Equus*, were found in the gravels, and in the underlying clay twenty-three species of mollusca, including *Fusus bifasciatus* and *Pyrula smithii*, characteristic, in the opinion of Mr. C. Evans, of a line of the London clay 130 feet above the base. The gravels belong to the west London block of the Middle Level gravels, the ascertained thickness of which at various points was compared with the thickness of the Lower Level gravels at South Kensington, Battersea, and Westminster. These latter the authors concluded were double the thickness of the western block of the Middle Level gravels. In conclusion the authors drew attention to the results of the operations of the existing river, and several accurate measurements of the bed of the Thames were given in illustration.—Mr. E. Charlesworth brought before the notice of the Association some sharks' teeth from the Red Crag, having certain perforations which, should they be proved to be the result of human agency, would seem to carry the advent of man on the earth back to Pliocene times.

Society of Biblical Archæology, April 2.—Dr. Birch, F.S.A., president, in the chair. "Notice of a Curious Myth respecting the Birth of Sargina, from the Assyrian Tablets containing an account of his Life." By Henry Fox Talbot. In this paper Mr. Talbot showed that Sargina the First was a very ancient king of Babylonia. The date of his reign is uncertain, but it may be roughly estimated at fourteen or fifteen centuries before the Christian era. He was a legislator and a conqueror, and his arms appear to have reached the distant Mediterranean. He fixed his capital at Agani, in Babylonia, a city whose site has not yet been discovered. His history, like that of other ancient conquerors and legislators, has become partially involved in fable. An account of his birth and infancy, preserved on a tablet in the British Museum, offers a great similarity to that of the infancy of Moses, as related in the second chapter of Exodus. This account agrees very closely with the conduct of Sargina's mother as described by the Assyrian tablet. "In a secret place my mother had brought me forth. She placed me in an ark of bulrushes; with bitumen she closed up the door. She threw me into the river, which did not enter into the ark. The river bore me up, and brought me to the dwelling of a kind-hearted fisherman. He saved my life, and brought me up as his own son," &c. The inscription appears to have been a long one, but only a small portion of the beginning has been well preserved.—"On the Rise of Semitic Civilisation, chiefly considered upon Philological Evidence." By the Rev. A. H. Sayce. The author stated that comparative grammar has shown that the Semitic language belongs to a late period in the history of the development of speech, and presupposes a parent-language, possibly connected with the old Egyptian and the sub-Semitic dialects of North Africa. Many objections, however, lie against the biliteral theory, and most of the biliteral roots are probably of foreign origin. This is Accadian, also the source, it would seem, of the early Semitic traditions. Thus two at least of the rivers of Paradise are Babylonian, and the Sisuthrus of Berosus (the Biblical Noah), is the Accadian Susru or Na (Anu). Like the traditions, a large proportion of the words in the Semitic languages which express the objects of civilised life are borrowed from the Accadian—the ordinary terms for "city," "weighing," "measures," "ciphers," &c., come from this source. We are thus enabled to gauge the primitive civilisation of the Semitic nomads, and to determine that their home had no great rivers or mountains, like the deserts of Northern Arabia.

PARIS

Academy of Sciences, April 1.—M. Serret presented a continuation of M. A. Mannheim's geometrical researches upon the contact of the third order of two surfaces.—A paper was read by M. C. Decharme on the spontaneous ascensional movement of liquids in capillary tubes. The author here stated as the result of his experiments that each liquid possesses a proper ascensional velocity, which he proposes to call its "capillary velocity," and he indicated the peculiarities presented by certain liquids as regards the relation between this velocity and the length of the column, &c. An aqueous solution of hydrochlorate of ammonia has the greatest capillary velocity, and next to it chloride of lithium; both these have a greater velocity than pure water.—A note by M. de la Rive on the theory of polar auroras was read; the author maintains the atmospheric nature of the phenomenon.—The second part of a paper by M. A. Crova on the phenomena of interference produced by parallel nets was read.—M. Faye gave a long account of an association recently founded in Italy under the title of "Societa dei Spettroscopisti Italiana," and also presented a memoir on the hypothesis of persistent winds on the sun.—In a second communication on the history of fermentation, M. E. Chevreul described in some detail the chemical labours of Stahl, and especially his theories of fermentation and combustion, which the author regarded as physical rather than chemical.—M. Joseph Boussingault presented a note on sorbite, a saccharine material allied to mannite, obtained from the juice of the berries of *Sorbus aucuparia*.—A note was read by M. A. Clermont, on some metallic trichloracetates, and M. Balard presented a note by M. E. Reboul on the identity of the brominated hydrobromate and hydriodate of propylene, with dihydrobromate and iodohydrobromate of allylene, and on the dihydrobromate of acetylene.—A note by M. Duval-Jouve, on the anatomy of the dissepiments presented by the leaves of certain species of *Juncus*, was communicated by M. Duchartre.

April 8.—M. Serret presented a note by M. E. Combescure on a peculiar system of equations with partial differences; and a paper entitled "Investigations upon substitutions," by M. C. Jordan, was read.—M. Le Verrier communicated two notes by M. Diamilla-Müller, one on terrestrial magnetism, the other on the cosmical origin of auroras. In the latter he claimed priority in having put forward the notion of these phenomena being due to solar influences.—M. J. Silbermann read a continuation of his memoir on the laws of atmospheric tides; and M. C. Sainte-Claire Deville communicated a note by M. O. Silvestri, giving a chemical and microscopic analysis of the sand-shower which fell in Sicily on March 9, 10, and 11 in the present year.—M. Chevreul read a second note on the crystallisation of barytic salts, the acids of which originate from the maceration of dead bodies.—A memoir on the alteration of the sulphurous waters of Eau-Bonnes in contact with a limited atmosphere, by the late M. Louis Martin, was read.—M. H. Sainte-Clare Deville presented notes by M. A. Ditte on the apparent volatilisation of selenium and tellurium, and on the dissociation of their hydrogenated compounds; by M. B. Renault, on the reducing properties of hydrogen and vapours of phosphorus, and on their application to the reproduction of drawings; by M. de Tommasi, on a compound of binoxide of chrome and potassic dichromate, kalichromic dichromate $[(CrO^2)^3 (CrO^3)^2 K^2O] H^2O$; and by M. L. Grandeau, on the function of the organic materials of the soil in the nutrition of plants.—M. Cahours presented a note by MM. S. Cloëz and E. Guignet on the chemical composition of the Chinese green (*lokao*).—An interesting note on the polymorphism of *Mucor mucedo*, by MM. P. Van Tieghem and G. Le Meunier, was communicated by M. Decaisne.—M. A. Vulpian read a memoir on the alteration of the muscles produced under the influence of traumatic or analogous lesions of the nerves, and on the trophical action of the nervous centres upon the muscular tissue; and M. Gauthier de Claubry presented some observations on M. Champouillon's recent remarks as to the rapid decomposition of the bodies of alcoholised subjects. He adduces facts which seem to show that the difference in the rate of putrefaction may be otherwise accounted for.—M. A. de Lapparent read a note on the date of the elevation of the district of Bray.

BOOKS RECEIVED

ENGLISH.—History of the Birds of New Zealand. Part 1.: W. L. Buller (Van Voorst).—The Teeth, and How to save them: L. P. Meredith (W. Tegg).

FOREIGN.—Verhandlungen der k. k. zoologisch-botanischen Gesellschaft in Wien, Band 21.—Die Grundlagen der Vogelschutzgesetzes (Ritter v. Frauenfeld)—Die Pflege der Jungen bei Thieren (Ritter v. Frauenfeld).—Ueber die Weizenverwüsterin Chlorops tæniopus: Prof. Max Nowicki.—La Photographie appliquée aux études géographiques: Jules Girard.—(Through Williams and Norgate.)—Die Metamorphose der Squilliden: Prof. C. Claus.

DIARY

THURSDAY, APRIL 18.

ROYAL SOCIETY, at 8.30.—On the Connection between Explosions in Coal Mines and Weather: R. H. Scott, F.R.S., and W. Galloway.—On the Fossil Mammals of Australia. Part VII. Genus Phascolomys. Species exceeding the existing ones in size: Prof. Owen, F.R.S.
ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.
SOCIETY OF ANTIQUARIES, at 8.30.—Test of Certain Centurial Stones: H. C. Coote.
LINNEAN SOCIETY, at 8.—On *Begoniella*, a new genus of Begoniaceæ: Prof. Oliver.—On three new genera of Malayan plants: Prof. Oliver.—On *Camellia scottiana* and *Ternstrœmia coriacea*: Prof. Dyer.
CHEMICAL SOCIETY, at 8.—Notes from the Laboratory of the Andersonian University; On a Compound of Sodium and Glycerine; and On Benzylisocyanate and Isocyanurate: E. A. Letts.

FRIDAY, APRIL 19.

ROYAL INSTITUTION, at 9.—On the Sulphurous Impurity in Coal Gas and the means of removing it: A. V. Harcourt, F.R.S.

SATURDAY, APRIL 20.

ROYAL INSTITUTION, at 3.—The Star-Depths: R. A. Proctor.
GOVERNMENT SCHOOL OF MINES, at 8.—On Geology: Dr. Cobbold.

SUNDAY, APRIL 21.

SUNDAY LECTURE SOCIETY, at 4.—On the Hindûs—Ancient and Modern—their Manners, Customs, &c.: Dr. F. J. Mouat.

MONDAY, APRIL 22.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Letter from Dr. Kirk on the Movements of Dr. Livingstone.—On Recent Explorations of the North Polar Regions: Capt. Sherard Osborn, R.N.
ANTHROPOLOGICAL INSTITUTE, at 8.—On the Hair and some other peculiarities of Oceanic Races: Dr. J. B. Davis, F.R.S.—On the Hair of a Hindostance: Dr. H. Blanc.—On the Descent of the Esquimaux: Dr. Rink.—Le Sette Communi: Dr. R. S. Charnock.

TUESDAY, APRIL 23.

ROYAL INSTITUTION, at 3.—On Statistics, Social Science, and Political Economy: Dr. Guy.
SOCIETY OF ANTIQUARIES, at 2.—Anniversary Meeting.

WEDNESDAY, APRIL 24.

GEOLOGICAL SOCIETY, at 8.—Notes on the Geology of the Colony of Queensland: R. Daintree; with Descriptions of the Fossils, by R. Etheridge, F.R.S.—Notes on Atolls or Lagoon Islands: S. J. Whitnell.
SOCIETY OF ARTS, at 8.—On Nuts; their Produce and Uses: P. L. Simmonds.
ROYAL SOCIETY OF LITERATURE, at 4.30.—Anniversary Meeting.
LONDON INSTITUTION, at 12.—Anniversary Meeting.

THURSDAY, APRIL 25.

ROYAL SOCIETY, at 8.30.
ROYAL INSTITUTION, at 3.—On Heat and Light: Prof. Tyndall, F.R.S.
LONDON INSTITUTION, at 7.30.—Turner and Mulready: Dr. Liebreich.

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