(15) The number of "additional subjects" which may be taken to be increased from two to four.

F.—*Training Colleges.*

(16) Day Training Colleges and a third year of training to be recognized. The Universities and local University Colleges to be utilized for the training of teachers, where suitable arrangements can be made.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The following appointments of Electors to Professorships have been made. Each Board consists of eight members, and it is provided by the Statutes that at least two members shall not be resident in the University or officially connected with it. In certain cases more than two such members have been voluntarily chosen by the Senate.

Arabic: Prof. Bensly. *Music:* Sir George Grove; *Chemistry:* Dr. E. Frankland, F.R.S.; *Plumian of Astronomy;* Mr. W. D. Niven; *Anatomy:* Dr. Huxley, F.R.S.; *Botany:* Prof. D. Oliver, F.R.S.; *Woodwardian of Geology:* Dr. A. Geikie, F.R.S.; *Jacksonian of Natural Philosophy:* Dr. Hugo Müller, F.R.S.; *Mineralogy:* Sir W. Warington Smyth, F.R.S.; *Political Economy:* Mr. R. H. Inglis Palgrave, F.R.S.; *Zoology and Comparative Anatomy:* Dr. Huxley, F.R.S.; *Sanskrit:* Prof. Aufrecht and Mr. R. A. Neil; *Cavendish of Physics:* Sir William Thomson, F.R.S.; *Mechanism:* Mr. W. Airy; *Downing of Law:* Mr. Justice Denman; *Downing of Medicine:* Dr. Richard Quain, F.R.S.; *Physiology:* Prof. Burdon Sanderson, F.R.S.; *Pathology:* Dr. J. F. Payne; *Surgery:* Sir James Paget, F.R.S; *Chinese:* Dr. Peile.

Prof. Robertson Smith being unable on account of the state of his health to lecture this term, Mr. A. A. Bevan, B.A., of Trinity College, has been appointed his deputy.

The Syndicate appointed to consider the probable expense of maintaining and working the great telescope offered to the University by Mr. Newall, report that a capital sum of £2225, and an annual expenditure of £400 will probably be required. They report further that the Sheepshanks Special Fund, founded in 1863 for the benefit of the observatory, will probably be able to furnish a capital sum of £1000, and an annual grant of £100, towards the expenses of the Newall telescope. The remainder, or £1225 at once, and £300 a year, will have to be provided from other sources; but whence is by no means apparent.

SCIENTIFIC SERIALS.

Revue d'Anthropologie, troisième série, tome iv., sixième fasc. (Paris, 1889).—Researches on the cephalic index of the Corsican population, by Dr. A. Fallot (of Marseilles). In an earlier number of this review, the author drew attention to the very appreciable alteration which the cephalic index had undergone in recent times among the inhabitants of Marseilles. Thus in one group of living subjects, born at the beginning of the century, he found that 21 per cent. exhibited an index of 84, while in another group, consisting of men of middle age, this number occurred only in the ratio of 7 per cent. This remarkable difference led the author to continue his determinations of the cephalic index among different communities. With this object in view, he last year visited Corsica, and in the present article we have the results of his craniometric determinations in this island, where from its peculiar geographical position and geognostic features, the inhabitants have preserved a permanence of type, and a homogeneity of ethnic characteristics, probably unequalled in any other European nation. Indeed so inconsiderable have been the changes effected in recent times in the Corsican population, that the observations made by Volney, in 1793, on the country and the people, apply almost equally well to their present condition. At the same time so little addition has been made since that period to our previously imperfect knowledge of Corsica, that Dr. Fallot's observations supply a valuable contribution to ethnological inquiry. All his determinations tend to demonstrate the great uniformity of cranial type and characters in the people. Thus while 54 per cent. of the population present a cephalic index varying from 75 to 78, not more than 13 per cent. gave an index above 80, while in only one out of 200 cases the index amounted to 86, and hence he assumes the mean index to be 76·5. He found that this uniformity was the greatest in the interior of the island, and more especially in the *département* of Corte; while at Bastia, in the extreme north, the cranial characteristics exhibited more variety, and afforded evidence of an admixture with foreign elements, a subbrachycephalic type supplanting the more general Corsican character of dolichocephalism. In the preponderance of this latter type Dr. Fallot thinks we have incontrovertible evidence against the opinion of Lauer, that the Corsicans are of Ligurian descent, and he believes that they may be more correctly characterized as an offshoot from the old Iberian races. The author gives numerous useful tables, and his brief summary of the history of the island is clear and instructive. From his observations on the geological conformation of the island we learn how numerous spurs, thrown off from the central high mountain range, have enclosed and isolated the several valleys, cutting off villages and settlements from their neighbours, and thus exerted so strong an influence upon the character and habits of the inhabitants, that the physical features of the island may be said to supply the key to its history. From the author's observations it may be assumed that in the mountain districts of the interior the genuine Corsican cranial type has been best preserved.—On infibulation, and other mutilations practised among the littoral tribes of the Red Sea, and the Gulf of Aden, by Dr. Jousseaume. The author describes at length the methods by which these processes are effected, and considers that whatever may have been their original motive they are in no way at present connected with religious observances, but are simply carried on from generation to generation as survivals of ancient barbarous customs.—On modern crania in Montpellier, by M. de Lapouge. In 1888 the author obtained 150 tolerably perfect skulls, which had been recovered from the soil of a cemetery at Montpellier used for interments from the seventeenth century until it was closed in 1830. An examination of the author's elaborate series of comparative craniometric measurements shows that the mean for the cephalic index of these skulls, viz. 78·3, is the lowest as yet observed in France, while their general cranial characters have less affinity with a French, than a North African type.—Prehistoric Scandinavia, by M. I. Undset. This is a sequel to a paper published in this review in 1887, the author now bringing his survey of the progress of northern palæontological science up to the present time.

THE *American Meteorological Journal* for December contains:—An article by W. M. Davis and C. E. Curry, on Ferrel's convectional theory of tornadoes; his theory, which is remarkably simple, is based on the occurrence of an ascensional movement in the tornado-whirl. The authors state that this fact seems too well established to admit of a doubt, although Faye and others in Europe, and Hazen in the United States, have questioned it. The paper contains graphical illustrations of the instability caused by convection.—Tornado chart of the State of Indiana, by Lieutenant J. P. Finley, compiled from statistics for seventy-one years ending 1888. The average yearly frequency is 4·5 storms. The month of greatest frequency is May.—Theory of storms, based on Redfield's laws, by H. Faye, continued from the November number, and dealing with the mechanics of whirls in flowing water, and with the upper currents of the atmosphere; the conclusion being that cyclones are whirls, originating in the upper regions of the air.—A continuation of the article on the meteorology at the Paris Exhibition, by A. L. Rotch, describing the meteorological instruments in the foreign sections.—The conclusion of Dr. F. Waldo's interesting discussion of wind velocities in the United States, with charts of "isanemonals" for January, July, and the year. The fact that the curves can be drawn with general symmetry shows that there is some uniformity in the exposure of the anemometers for *like* regions. The author points out that the effect of the Rocky Mountains seems to make itself felt on the winds to a distance of 200 or 300 miles to the eastward.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 19, 1889.—"Some Observations on the Amount of Luminous and Non-Luminous Radiation emitted by a Gas-Flame." By Sir John Conroy, Bart.

These experiments show—

(1) that 3 millimetres of glass and 10 centimetres of water transmit a small portion of the non-luminous radiation of an Argand gas-burner, but that, when the thickness of the water is increased to 15 centimetres, the transmitted radiation consists exclusively, or almost exclusively, of those kinds of radiation which affect the eye as light.

(2) That, with the form of apparatus employed (a thermopile and galvanometer), there is no measurable difference between the diathermancy of pure water and of a solution of alum.

(3) That the radiation from an Argand gas-burner consists of about 1·75 per cent. luminous and 98·25 per cent. non-luminous radiation.

January 30.—"On outlying Nerve-cells in the Mammalian Spinal Cord." By Ch. S. Sherrington, M.A., M.B., &c. Communicated by Prof. M. Foster, Sec. R.S.

Gaskell has shown that in the cord of the alligator scattered nerve-cells are to be seen at the periphery of the lateral column. Although nerve-cells appear to be absent from that position in the spinal cord of Mammalia as represented by the rabbit, cat, dog, calf, monkey, and man, yet there are in these animals isolated nerve-cells present in the white matter of the cord, not only in the deeper portions of the lateral column, but in the anterior and posterior columns as well.

In the anterior columns occasional nerve-cells, of the multipolar kind, lie among those fibre-bundles which pass between the deeper mesial border of the anterior horn and the anterior commissure at the base of the anterior fissure. They, in the instances observed, are smaller than the large cells characteristic of the anterior horn, and lie with two of the processes directed parallel with the horizontal transverse fibres among which they are placed.

In the lateral column, of the spinal cord of man and the other animals named above, it is common to find outlying members of the group of small cells of the lateral horn, Clarke's tractus intermedio-lateralis, situated in the white matter, distinctly beyond the limits of the grey. Some outlying cells here are placed at a great distance from the grey. They are generally placed upon, or at least in close connection with, the fine connective-tissue septa which pass across the white matter. It is probable that the cells are connected with the medullated nerve-fibres running along these septa.

In the part of the lateral column adjacent to the lateral reticular formation numerous nerve-cells are to be found among the interlacing bands of nerve-fibres. These are often fusiform, but in many cases multipolar; they are for the most part small, but occasional large individuals can be found; the latter would appear always to be multipolar. Where the lateral column comes into contact with the lateral limb of the substantia gelatinosa of the caput cornu posterioris ganglion-cells can frequently be seen in it. The larger axis of these cells is parallel to the outline of the caput cornu.

In the posterior columns outlying nerve-cells are also to be found, especially in the human cord. They are best seen in the upper lumbar and lower dorsal regions. They are large, measuring in some instances 70 μ across. In appearance they closely resemble the cells of Clarke's column. They are nearly always of broadly ovate shape. They appear always to lie on or in close relation to those horizontal bundles of nerve-fibres which curve in a ventro-lateral direction from the depth of the extero-posterior column into the grey matter in the neighbourhood of the posterior vesicular group. The longer axis of the cell is placed parallel to the nerve-fibres it lies upon or among. Where a process from the bipolar cell-body can be followed, it disappears in a direction which is that of the surrounding nerve-fibres.

With regard to the cells existing among fibres passing to the white commissure of the cord, it is legitimate to consider their presence as evidence in favour of the view that some of the cells of the median portion of the ventral grey horn are directly connected with medullated fibres passing to or from the opposite half of the cord by way of the anterior commissure.

The cells in the lateral column outside the lateral horn may be taken to point to the connection of the intermedio-lateral group of Clarke with the nerve-fibres which radiate in bundles from the grey matter of that region into the lateral column. Concerning some of the outlying cells in the more dorsal portion of the lateral column, the same inferences may be drawn; and some of them would seem to be connected with fibres of the posterior roots that curve round the lateral aspect of the caput cornu posterioris. Of the outlying cells in the posterior column, if they are outlying members of Clarke's group, the relations which they suggest for that group are—

i. That the group is connected *directly* with certain of the median fibres of the posterior spinal roots—namely, those which after an upward course in Burdach's column plunge into the grey matter of the base of the posterior horn.

ii. That some at least of the cells of that group are interpolated, more or less immediately, into the course of medullated nerve-fibres of large calibre.

The question naturally arises, May not these cells in the posterior column of the Mammalian cord represent the bipolar cells discovered by Freud, in the cord of *Petromyzon planeri*, to be in direct communication with fibres of the posterior roots? If so, may Clarke's column be considered a portion of the ganglion of the posterior spinal nerve-root which has been retained in the interior of the spinal cord in the thoracic and certain other regions?

Royal Meteorological Society, January 15.—Annual Meeting.—Dr. W. Marcet, F.R.S., President, in the chair.—The Council, in their Report, congratulated the Fellows on the generally prosperous state of the Society; the past year's work, though not in any respect exceptional, having been thoroughly successful. The total number of Fellows is 550, being an increase of 25 on the previous year; the finances are improving, and the library is overflowing.—Mr. Baldwin Latham was elected President for the ensuing year.—The retiring President, Dr. Marcet, then delivered an address on "Atmospheric Dust," which he divided into organic or combustible, and mineral or incombustible. The dust scattered everywhere in the atmosphere, and which is lighted up in a sunbeam, or a ray from an electric lamp, is of an organic nature. It is seen to consist of countless motes, rising, falling, or gyrating, although it is impossible to follow any of them with the eye for longer than the fraction of a second. It is difficult to say how much of the dust present in the air may become a source of disease, and how much is innocuous. Many of the motes belong to the class of micro-organisms which are frequently the means of spreading infectious diseases. Many trades, owing to their dusty nature, are very unhealthy. Dust, when mixed with air, is inflammable and liable to explode. After giving several instances of explosions due to fine dust in flour mills and coal mines, Dr. Marcet referred to inorganic or mineral dust, and gave an account of dust storms and dust pillars in India. He then proceeded to describe volcanic dust, which consists mainly of powdered vitrified substances, produced by the action of intense heat. The so-called ashes or scoriæ shot out in a volcanic eruption are mostly powdered pumice, but they also originate from stones and fragments of rocks, which striking against each other, are reduced into powder or dust. Volcanic dust has a whitish-gray colour, and is sometimes nearly quite white. Dr. Marcet concluded with an account of the great eruption of Krakatão in August 1883. The address was illustrated by a number of lantern slides.

EDINBURGH.

Royal Society, January 20.—Sir W. Thomson, President, in the chair.—Prof. Tait communicated an obituary notice of Dr. Andrew Graham, R.N., by Mr. John Romanes, W.S.—The President gave a paper on electrostatic stress. A complete dynamical illustration of electro-dynamic action may be had in an elastic solid, homogeneous in so far as rigidity is concerned, permeated with pores of unalterable size containing liquid. These pores may be in part in communication with each other, and in part closed by elastic partitions. These cases correspond to conductors and non-conductors respectively. Electrostatic stress depends on the curvature and extension of the partitions. The law of capacity in the model is identical with that in conductors.—Prof. C. Michie Smith described the great eruption at Bandaisan, Japan, photographs being shown.—Prof. Tait read a paper, by Prof. Heddle, on a curious set of fog-bows.—Dr. Berry Haycraft gave an account of some experiments which extend our knowledge of volitionary movement and explain the production of the muscle and heart sounds.

PARIS.

Academy of Sciences, February 3.—M. Hermite in the chair.—On the nuclei of the great Comet II. of 1882, by M. F. Tisserand. From the presence of five bright points disposed in a straight line, it is evident that the matter was not uniformly

distributed in the head of this comet. There exist several centres of condensation with apparent diameters of 1″ or 2″, their mutual distances changing from time to time, but their position remaining constant in the same straight line, which revolves progressively round the principal nucleus. These conditions are specially favourable for the development of secondary nuclei, which the author regards as so many minor comets submitted to the attraction of the sun alone, moving in very elongated elliptical orbits with a common perihelion and different long axes, disposed, however, according to the same straight line. Hence the comet contained within itself the germs of disrupture, its elements in this respect resembling those of the 1843 and 1880 comets.—On the roots of an algebraic equation, by Prof. A. Cayley. Resuming the theory of the roots of the equation $f(u) = 0$, instead of the surface $c - z = P^2 + Q^2$, the author now studies the surface $(c - z)^2 = P^2 + Q^2$, taking into consideration the positive values only of z that are not greater than c. He hopes to apply this theory to the case of a cubic equation, where the calculations, however, are much more difficult.—Determination of regulated harmonic surfaces, by M. L. Raffy. Very few surfaces are known whose linear element is reducible to the harmonic form (Liouville's form). To find others, the author employs two distinct processes. The first consists in taking the analytical form of the co-ordinates of the surface in function of two parameters, and determining the unknown functions, so that the linear element may be harmonic; the second, in seeking for harmonic surfaces amongst those which may be generated by taking their linear element alone.—Solar observations for the last six months of 1889, by M. Tacchini. Excluding the month of August, the observations here tabulated for the spots and faculæ show that the period of calm has continued to the end of the year, and the observations already made for January 1890 show that this period still continues. The same result is shown in the case of the protuberances, so that we appear to have entered the period of absolute minimum.—On the propagation of sound, by MM. Violle and Vautier. These experiments, made with a cylindrical tube, lead to the inference that, whatever be the nature of the initial impulse, the sound-wave tends towards a simple, determined form, and this form once acquired, the various parts of the wave are propagated with a uniform velocity which must be regarded as the normal velocity of the sound. The velocity in the open air is greater than in a tube, where the influence of the walls causes a retardation in inverse ratio to the diameter, and exceeding 0·46 m. in a tube with diameter of 1 meter. The normal velocity of sound in a dry atmosphere at zero is 331·10 m., with probable error less than 0·10 m.—On the state of the magnetic field in conductors of three dimensions, by M. P. Joubin. The results of these researches, which agree with experience, show that the magnetic field produced by a current exists in the medium traversed by the electric flux as well as in the exterior medium.—On the mechanical actions of variable currents, by M. J. Borgman. In reproducing, with the limited resources of a laboratory, the interesting experiments exhibited by Prof. E. Thomson at last year's Exhibition, the author has obtained some fresh results, which are here described.—Results of the actinometric observations made at Kiev in 1888-89, by M. R. Savelief. These observations lead to the general conclusion that 63·5 per cent. of the annual solar heat reaching the earth is absorbed by the terrestrial atmosphere, only 36·5 arriving on the surface of the ground; in October the proportion is 41, in January and February 28 per cent. The maximum received on a fine day in the beginning of July is 610, and in December 87 calories on a given space.—On the compounds of the metals of the alkalies with ammonia, by M. Joannis. In continuation of his previous communication (*Comptes rendus*, cix. p. 900) the author describes some further experiments, which are totally at variance with the theory advanced by M. Bakhuis Roozeboom (*Comptes rendus*, cx. p. 134) to explain the phenomena already observed by M. Joannis.—On the combinations of ammonia and phosphuretted hydrogen with dichloride and dibromide of silicon, by M. Besson. With ammonia a solid, white, amorphous substance, of the formula Si_2Br_4, $7NH_3$, is obtained, in all respects resembling the corresponding compound of the chloride. Phosphuretted hydrogen has no action on silicon dichloride at the ordinary temperature, but is absorbed at low temperatures. At − 60° C. the composition is approximately Si_2Cl_4, $2PH_3$.—On the part played by certain foreign substances in iron and steel, by M. F. Osmond. The author here gives results for boron, nickel, copper, silicium, arsenic, and tungsten, reserving for a future paper full treatment of the subject.—On lussatite, a new crystallized variety of silica, by M. Er. Mallard. To the substance here described as nearly pure silica, the author gives the name of lussatite, from the deposits of bitumen at Lussat, near Pont-du-Château, where its properties may best be studied.—On the oxides of manganese, by M. Alex. Gorgeu. In this paper, the author studies the psilomelanes and wads, reserving for a future note the manganites, properly so called: hausmannite, acerdese, and braunite.—Papers were read by M. Paul Marchal, on the structure of the excreting organ in the prawn; by M. P. A. Dangeard, on the junction of stem and root in the gymnosperms; by M. Stanislas Meunier, on a new method of artificially producing ferriferous platinum with magnetic poles; and by M. Alexis de Tillo, on the hypsometric chart of European Russia.—M. Gilbert was nominated Corresponding Member of the Section for Mechanics in place of the late M. Broch.

BERLIN.

Physiological Society, January 17.—Prof. du Bois-Reymond, President, in the chair.—Dr. Weyl gave an account of experiments which he had made in conjunction with Dr. Kitasato on the biology of anaërobic Bacteria. Koch had only imperfectly overcome the difficulty in the way of a pure culture of these Bacteria, viz. the exclusion of atmospheric oxygen, by covering the plates on which they were being grown with films of mica. Livonius was more successful by means of a deep layer of Agar-Agar, and by replacing the air by an atmosphere of hydrogen. The speaker had endeavoured to arrive at the same result by mixing the material on which the cultivation was carried on with some substance which has an affinity for oxygen, and obtained good results with dioxyphenols and aldehydes, but more particularly with formate of soda. The members of the first class of substances, of which a large number were tried, had for the most part to be abandoned, for they exerted a toxic action on the Bacteria when they were employed in quantities sufficient to insure the complete absorption of oxygen. Very fine pure cultures of the anaërobic Bacteria of "quarter-evil" (*Rauschbrand*), of tetanus, and of malignant œdema, were obtained on Agar-Agar by the use of eikonogen and of formate of soda, and were exhibited to the meeting. By means of these pure cultures it was possible to demonstrate that the anaërobic Bacteria exert a powerful reducing influence; this was shown on preparations in which the culture-material was deeply coloured with indigo-blue, the latter being then reduced by the organisms to indigo-white. These simple methods of cultivation facilitate greatly the further investigation of these Bacteria.—Prof. Liebreich spoke on the function of the bladder in fishes. During his investigations of the inert layer on the upper surface of fluids, he had allowed a float whose specific gravity was slightly less than that of the fluid to ascend through the fluid, and observed that it came to rest a short distance below the surface and remained there. During these experiments the slight changes of temperature which are unavoidable in large masses of fluid produced irregularities which led him to study the phenomena exhibited by a "Cartesian diver." These are not correctly described in either the older original works on the subject or in the more recent text-books of physics. The equilibrium of the diver is unstable for any given pressure exerted upon the elastic membrane which covers the upper end of the vessel in which he is contained. This the speaker proved, not only by developing the formulæ which hold good for a system composed partly of solids and partly of air when immersed in a liquid, but also by means of a series of striking experiments. When the attention is directed to the experiment, it may readily be noticed that it is impossible to keep the diver in a condition of rest at any given level by exerting a *uniform* pressure with the finger on the elastic membrane, but that in order to produce this result the pressure must be continuously varied. If the pressure is applied by a screw instead of the finger, the diver does not remain at rest. When the air is compressed until the specific gravity of the diver is slightly greater than that of the liquid, he sinks to the bottom and remains there, however great the air-pressure may be. If now he is drawn to the top of the liquid by means of a magnet attracting a small slip of iron attached to the diver, he similarly remains at rest at the surface. If, again, he is now drawn slightly down, he rises towards the surface again, when left to himself, until he reaches a level above which he no longer rises but now sinks to the bottom. This layer of fluid—such that when drawn above it he rises and when drawn down below it he sinks—may be called his "hydrosphere," or, in other words, it is a layer of liquid within the limits of which his specific gravity is unity. A fish possessed

of a swim-bladder is in exactly the same condition as the diver, for it also is in unstable equilibrium in the water. The fish can only remain at rest in the water by continually readjusting its "hydrosphere" by means of slight contractions of the bladder, and thus balancing itself in a position of rest. When the fish rises or sinks, or moves horizontally, the alterations of the swim-bladder and the changes in specific gravity which are the result of this, play an important part, inasmuch as they strike a continual balance between the forces tending to raise and depress the fish's body. The laws according to which the swim-bladder plays its part in a fish are in general the same as those which hold good for the Cartesian diver, and these laws are now considerably cleared up by the speaker's researches.

DIARY OF SOCIETIES.

LONDON.

THURSDAY, FEBRUARY 13.

ROYAL SOCIETY, at 4.30.—The Liquation of Gold and Platinum Alloys: E. Matthey.—On the Unit of Length of a Standard Scale by Sir George Shuckburgh: General Sir J. T. Walker, R.E., F.R.S.

MATHEMATICAL SOCIETY, at 8.—Concerning Semi-invariants: S. Roberts, F.R.S.—Ether-Squirts: Prof. K. Pearson.—On Class-Invariants: Prof. G. B. Mathews.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—The Theory of Armature Reaction in Dynamos and Motors: Jas. Swinburne.

ROYAL INSTITUTION, at 3.—The Three Stages of Shakspeare's Art: Rev. Canon Ainger.

FRIDAY, FEBRUARY 14.

ROYAL ASTRONOMICAL SOCIETY, at 3.—Anniversary Meeting.

AMATEUR SCIENTIFIC SOCIETY, at 7.30.—Annual General Meeting.—Election of Council, &c.—The Old Red Sandstone of North-East Scotland: J. W. Evans.

ROYAL INSTITUTION, at 9.—Problems in the Physics of an Electric Lamp; Prof. J. A. Fleming.

SATURDAY, FEBRUARY 15.

ROYAL INSTITUTION, at 3.—Electricity and Magnetism: Right Hon. Lord Rayleigh, F.R.S.

SUNDAY, FEBRUARY 16.

SUNDAY LECTURE SOCIETY, at 4.—Norway; its Scenery and its People (with Oxyhydrogen Lantern Illustrations): H. L. Brækstad.

MONDAY, FEBRUARY 17.

SOCIETY OF ARTS, at 8.—Stereotyping: Thomas Bolas.

ARISTOTELIAN SOCIETY, at 8.—The Distinction between Society and the State: J. S. Mann.

VICTORIA INSTITUTE, at 8.—Iceland (concluding paper): Rev. Dr. Walker.

TUESDAY, FEBRUARY 18.

SOCIETY OF ARTS, at 8.—Ocean Penny Postage and Cheap Telegraph Communication between England and all Parts of the Empire and America: J. Henniker Heaton, M.P.

ZOOLOGICAL SOCIETY, at 8.30.—First Report on Additions to the Lizard Collection in the British Museum (Natural History): G. A. Boulenger.—On a Guinea-fowl from Zambesi, allied to Numida cristata: P. L. Sclater, F.R.S.—Notes on the Genus Cyon: Dr. Mivart, F.R.S.

ROYAL STATISTICAL SOCIETY, at 7.45.

INSTITUTION OF CIVIL ENGINEERS, at 8.—The Shanghai Water-Works: J. W. Hart.—The Tytam Water-Works, Hong-Kong: Jas. Orange.—The Construction of the Yokohama Water-Works: J. H. T Turner.

ROYAL INSTITUTION, at 3.—The Post-Darwinian Period: Prof. G. J. Romanes, F.R.S.

WEDNESDAY, FEBRUARY 19.

SOCIETY OF ARTS, at 8.—The Organization of Secondary and Technical Education in London: Prof. Silvanus P. Thompson.

ROYAL METEOROLOGICAL SOCIETY, at 7.—Observations on the Motion of Dust, as illustrative of the Circulation of the Atmosphere, and of the Development of certain Cloud Forms: Hon. Ralph Abercromby.—Cloud Nomenclature (illustrated by Lantern Slides): Captain D. Wilson-Barker.—An Optical Feature of the Lightning Flash (illustrated by Lantern Slides: Eric S. Bruce.

UNIVERSITY COLLEGE CHEMICAL AND PHYSICAL SOCIETY, at 5.—The Chemical History of a Crystalline Schist: E. Greenly.

THURSDAY, FEBRUARY 20.

ROYAL SOCIETY, at 4.30.

LINNEAN SOCIETY, at 8.—On the Fruit and Seed of Juglandia; on the Shape of the Oak-leaf; and on the Leaves of Viburnum; Sir John Lubbock, Bart., P.C., M.P., F.R.S.

CHEMICAL SOCIETY, at 8.—The Behaviour of the most Stable Oxides at High Temperatures: G. H. Bailey and W. B. Hopkins.—The Influence of Different Oxides on the Decomposition of Potassium Chlorate: G. J. Fowler and J. Grant.

ZOOLOGICAL SOCIETY, at 4.

INSTITUTION OF ELECTRICAL ENGINEERS, at 8.

ROYAL INSTITUTION, at 3.—The Three Stages of Shakspeare's Art: Rev. Canon Ainger.

FRIDAY, FEBRUARY 21.

GEOLOGICAL SOCIETY, at 3.—Annual General Meeting.

PHYSICAL SOCIETY, at 5.—On a Carbon Deposit in a Blake Telephone Transmitter: F. B. Hawes.—The Geometrical Construction of Direct Reading Scales for Reflecting Instruments: A. P. Trotter.—A Parallel Motion Suitable for Recording-Instruments: A. P. Trotter.—On Bertrand's Refractometer: Prof. S. P. Thompson.

INSTITUTION OF CIVIL ENGINEERS, at 7.30.—Some Types of American Locomotives, and their Construction: C. N. Goodall.

ROYAL INSTITUTION, at 9.—Magnetic Phenomena: Shelford Bidwell, F.R.S.

SATURDAY, FEBRUARY 22.

ROYAL BOTANIC SOCIETY, at 3.45.

ROYAL INSTITUTION. at 3.—Electricity and Magnetism: Right Hon. Lord Rayleigh, F.R.S.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

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CONTENTS.