Association, the Abbé Lamey, under the above heading, endeavours to explain by a new theory, certain abnormal temperatures which in one case, at least, has formed the subject of popular tradition. "The Summer of St. Martin," as the common phrase runs, presented itself, according to the Abbé, in a very definite manner in the last year ; the month of November commenced colder than usual, but on the 12th it suddenly became warmer than from the sun's altitude could have been expected. Long-continued notice of a similar rise in temperature about the feast of St. Martin the Abbé considers is a proof that our ancestors were excellent observers, while the existence of a tradition upon the point shows clearly that the phenomenon has not been confined within restricted limits ; it has been exhibited, he says, simultaneously in Europe and in the United States, and this without being materially affected by the climacteric conditions of the places of observation. One circumstance only he thinks appears to influence it, viz., the latitude ; it vanishes as the equator is approached, and is not yet known to be recognised in the southern hemisphere.

The anomalous thermometric effect is not, however, perceptible only about St. Martin's Day. There is an analogous phenomenon according to the Abbé, in August : "une chaleur torride qui règne subitement après quelques jours de refraîchissement de l'air," and a similar effect, though in an opposite direction, has been noticed at the end of April or at the beginning of May, when vernal frosts so disastrous at this season occur, and have often been preceded by "une douce chaleur précoce," as the Abbé terms it, which has hastened forward the vegetation.

After remarking that the cause of such abnormal changes of temperature is not to be sought in any influence residing either in the sun or in the earth's atmosphere, it is suggested by the Abbé that it may be more probably found in what he calls cosmical meteorology, or as we are more accustomed to term this branch of science, meteoric astronomy. In November, August, and April meteors are more numerous than usual, and two of the greatest periodical showers yet observed, fall in November and August. His theory is that when a large number of meteors are passing between the earth and the sun, the solar rays are intercepted to a sufficient extent, to cause a diminution of temperature on the earth's surface, while, when a similar large number of meteors are so placed that they might reflect the heat derived from these rays, and so produce an effect of the opposite nature, that, to use his own words, those calorific rays "qui viendront frapper l'essaim météorique encore voisin de la terre seront *réverbérés* sur notre planète, de façon à recevoir alors un surcroît de chaleur." The Abbé lays some stress also upon another point of apparent coincidence : the intensity of the periodical meteoric showers of November varies from year to year, and "the summer of St. Martin" does not present itself under the same circumstances in every year.

In thus noticing the Abbé Lamey's attempt to explain a phenomenon which has been so long remarked as to have become a popular belief, at least in France, it will be understood that we are by no means advocating the probability of such a theory.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

OXFORD.—In a Convocation held May 23 a decree was carried, without opposition, to the effect that the Vice-Chancellor and Proctors be authorised to nominate a delegate to represent the University at the 400th anniversary celebration of the University of Upsala, in September next.

In a Convocation to be held on June 5 it will be submitted to the House that the Curators of the University Chest be authorised to expend a sum not exceeding 7,000*l.* on the construction and fittings of new chemical laboratories at the University Museum.

Also that a sum not exceeding 2,400*l.* be expended on certain additions to the University observatory.

An examination will be held in common at Magdalen, University, and New Colleges, on Tuesday, June 26, for election to the following mathematical scholarships :—One demyship at Magdalen College, of the annual value of 95*l.*, inclusive of allowances ; one scholarship at University College, of the annual value of 80*l.*, tenable for five years during residence ; one scholarship at New College, of the annual value of 100*l.*, tenable for five years during residence. Testimonials of conduct, &c., to the President of Magdalen College, Mr. C. J. Faulkner, of University College, or the Sub-Warden of New College, between 4 and 6 or 8 and 9 P.M., June 25.

The commemoration fixed for June 13 will, it is understood, be held in the Sheldonian Theatre, although no official notice to that effect has appeared. There will be the usual round of festivities attendant on the event, though it has not transpired if the University will confer any honorary degrees on distinguished persons at the commemoration.

CAMBRIDGE.—The Museums and Lecture-rooms Syndicate, in their Eleventh Annual Report, just issued, state that the buildings are in an efficient state of repair, and the collections, to which many valuable additions have been made during the past year, are in good order. They draw attention to the munificence of the Chancellor of the University, the Duke of Devonshire, who has now completely furnished the Cavendish Laboratory with the instruments required by the present state of science. Profs. Liveing, Dewar, and Stuart complain of want of suitable accommodation for the work of their several departments, and the Syndicate concur in the reasonableness of their complaints.

An important report has been issued by the Musical Examinations Syndicate, which states that under existing regulations for obtaining a degree in music no provision is made for testing the literary and scientific qualifications of the candidates. They therefore recommend that no candidate be admitted to the examination for the degree of Mus. Bac. unless he have passed Parts I. and II. of the Previous Examinations, or one or other of their equivalent examinations. As to the examination for the degree of Mus. Bac., it is proposed to divide it into three parts—1, a preliminary examination, consisting of acoustics, harmony, counterpoint ; 2, the exercise ; 3, a more advanced examination in musical science ; and that no person be accepted as a candidate for the second or third parts until he has qualified in the previous part or parts. In order to encourage the study of music, that it be recognised as the subject of an additional special examination for the ordinary B.A. degree, and that a student who has passed the Previous and the General Examinations, and is in his ninth term of residence at least, having previously kept eight terms, shall, on passing the preliminary examinations in acoustics, harmony, and counterpoint, be entitled, when he has kept nine terms, to receive the degree of Bachelor of Arts.

The "Rede" lecture was delivered on May 25 in the Senate House by Sir C. Wyville Thomson, who gave a brief sketch of the main results obtained by the *Challenger* expedition.

LONDON.—A new and additional Chair of Clinical Surgery has been created at King's College, which is to be filled by Prof. Lister of Edinburgh. The Chair of Systematic Surgery is thus still vacant.

EDINBURGH.—The students at the University have, during the past session, taken a step which it seems surprising they have not taken long ago. There is, in the Scotch universities, no college life as in England, the students appearing at their classes at the proper hours, and then dispersing to their respective lodgings in various parts of the town. While this system has undoubtedly its advantages, it is attended with not a few social, moral, and physical drawbacks, so that we are glad to learn that the Edinburgh students have started a Students' Club which has been thoroughly successful, and calculated we believe, if prudently conducted, to be productive of considerable benefit to the raw and lonely Scotch youth "when first he leaves his father's fields," to get what training and equipment for the future fight Edinburgh can give him.

By the transference of Prof. Lister to London, the Chair of Clinical Surgery in the University becomes vacant.

SIR JAMES KAY-SHUTTLEWORTH.—The death took place on Saturday last of Sir James Kay-Shuttleworth, a name well known in connection with educational and social reform. The

deceased baronet, who was born at Rochdale on July 20, 1804, was for some time secretary to the Committee of Council on Education, and whilst fulfilling the duties of this post he was mainly instrumental in establishing a system of school inspection by officers appointed by the Government. On his resignation he was succeeded by Mr. Lingen, now permanent secretary of the Treasury, who was succeeded in his turn by Sir Francis R. Sandford. Under Sir James's scheme teachers were divided into nine grades, and received money grants, not according to the number of their scholars or of their passes, but largely, according to the grade they had obtained by examination or service. He was hostile to the Revised Code, which was introduced, about twelve years after his resignation, by Mr. Lowe and his successor. It is undoubtedly to Sir James that we owe the training colleges and the pupil teacher system, without which it would have been impracticable for us to advance educationally even as we have done. At the close of the year 1849 he received a baronetcy at the recommendation of Lord Russell, then Prime Minister. In 1870 he received the honorary degree of D.C.L. from the University of Oxford.

SPELLING REFORM.—An influential Conference on English Spelling Reform was held on Tuesday at the Society of Arts, under the presidency of the Rev. A. H. Sayce and Sir Charles Reed. Many weighty reasons were urged against the present system, and a deputation consisting of Prof. Max Müller, the Rev. A. H. Sayce, Dr. Morris, Mr. Ellis, Mr. Sweet, Dr. Murray and others, was appointed to wait upon the Education Department in reference to the subject. A proposal having the support of such names as we have mentioned deserves at least serious consideration.

A SIBERIAN UNIVERSITY.—It has been finally decided that the New Siberian University, to which we referred some time since, is to be established at Omsk. So long ago as 1803 a wealthy Uralian landowner named Demidoff gave 100,000 roubles to the Treasury, to be expended in the establishment of a University. This sum has now swollen to 150,000 roubles, to which a Siberian merchant has added 100,000 roubles more. Orders have been issued to begin the construction of the university buildings at once, so as to have them ready for occupation by July, 1880. The estimated cost of the future professional staff, together with other incidental expenses connected with the university, is 307,000 roubles yearly.

SOCIETIES AND ACADEMIES
LONDON

Mathematical Society, May 10.—Lord Rayleigh, F.R.S., president, in the chair.—Mr. Tucker communicated a short account of a paper by Dr. Hirst on the correlation of two planes. In a former paper on the subject (*Proceedings*, vol. v., p. 40), the nature and properties were described first, of an ordinary correlation satisfying any eight given conditions; secondly, of an exceptional correlation of the first order, possessing either a singular point or a singular line in each plane, and satisfying seven conditions; and thirdly, of an exceptional correlation of the second order, having in each plane not only a singular point but also a singular line passing through that point, and satisfying six conditions. Moreover, the two following numerical relations were established between the (π, λ) exceptional correlations of the first order, with singular points and singular lines respectively, which satisfy any seven conditions, and the (μ, ν) ordinary correlations, which, besides satisfying these same conditions, possess a given pair of conjugate points or conjugate lines respectively ($2\nu = \mu + \pi$, $2\mu = \nu + \lambda$). It was by means of these relations that the number of ordinary correlations was determined which satisfy any eight elementary conditions. Before they could be applied, however, the exceptional correlations of the first order which satisfy any seven elementary conditions) had to be directly determined, and this determination not unfrequently necessitated the consideration of the projective properties of curves of high order. In the present paper the writer shows that the object just referred to can be attained in a very much simpler manner, by means of two general relations, hitherto unobserved, connecting the number of exceptional correlations of the second order, which satisfy any six conditions, with the numbers of exceptional correlations of the first order which, besides satisfying the six conditions in question, possess a given pair either of conjugate points or conjugate lines.—The secretary then read part of a paper by Prof. H. Lamb, of the

University of Adelaide, on the free motion of a solid through an infinite mass of liquid. Suppose that we have a solid body of any form immersed in an infinite mass of perfect liquid, that motion is produced in this system from rest by the action of any set of impulsive forces applied to the solid, and that the system is then left to itself. The equations of motion of a body under these circumstances have been investigated independently by Thomson and by Kirchhoff, and completely integrated for certain special forms of the body. The object of the present communication is, in the first place, to examine the various kinds of permanent or *steady* motion of which the body is capable, without making any restrictions as to its form or constitution; and, in the second, to show that when the initiating impulses reduce to a couple only, the complete determination of the motion can be made to depend upon equations identical in form with Euler's well-known equations of motion of a perfectly free rigid body about its centre of inertia, although the interpretation of the solution is naturally more complex. Free use is made throughout the paper of the ideas and the nomenclature of the theory of screws as developed and established by Dr. Ball.— Herr Weichold (Head-master of the Johanneum, Zittau, Saxony) sent a paper (read in part by the secretary) containing a solution of the irreducible case, *i.e.*, of the problem to express the three roots of a complete equation of the third degree, in the case of *all* these roots being *real*, directly in terms of its coefficients, by means of purely algebraical and really performable operations, whose number shall always be limited, except in the case where all these roots are incommensurable.—Mr. H. Hart made three communications : First On the "Kinematic Paradox."—Prof. Sylvester has described a system of Peaucellier's cells, the poles of which all move in a straight line, but two of which not directly connected always remained at a constant distance. Such a result is very easily obtained by means of the following relations connecting six points A, B, C, D, E, F, lying on a straight line. If

$$\begin{array}{ccccc} & \text{E} & \text{D} & & \text{F} \\ \hline \text{A} & & \text{C} & & \text{B} \end{array}$$

$$\left. \begin{array}{l} AB \cdot AC = a^2 \\ BC \cdot BD = 4a^2 \\ EB \cdot ED = a^2 \\ FA \cdot FE = 2a^2 \end{array} \right\} \text{ then } FB = a.$$

He then spoke on the solution of the algebraical equation $f(x) = 0$ by linkwork, considering three points, the preparation of the equation (put under the form $\dfrac{A}{x+a} + \dfrac{B}{x+b} + \ldots = k$), the representation of the terms of this equation, and the method of adding these terms. He showed that for the solution of the cubic $x^3 + p\,x^2 + q\,x + r = e$, treated under the form—

$$x + p + \frac{\left(q - \dfrac{r}{p}\right)x}{x^2 + \dfrac{r}{p}} = 0,$$

two reciprocators alone are required. He then spoke on the production of circular and rectilinear motion. The particular problem considered, he thus enunciated "to find if possible the relations that must exist between the fourteen segments of the bars placed as in the figure in order that the system may be capable of free motion." He showed that seven equations can be obtained connecting the fourteen quantities only, so that any seven being given, the remaining seven can be determined in terms of them.—Mr. Hart then proceeded to the application to the cases of 5-bar motion, laid before the Society at its April meeting. Mr. Kempe stated that the cases submitted by Mr. Hart at the previous meeting had also occupied some of his attention, and he proceeded to remark that he had determined the positions that the lines GE, KM must have, and that the determination of one involved the determination of the other, as the position of either turned upon the fact that the angles at A and H must be equal. Prof. Cayley also made a few remarks on the subject. Mr. J. W. L. Glaisher stated that he had had all the cases in which there are more than fifty consecutive composite numbers looked out from Burckhardt's and Dase's tables, which cover six millions, and that he had found that in the first million there is a stretch of 111 numbers without a prime (about 310,000), and a stretch of 113 numbers without a prime (about 500,000); so that there are two very long sets of composite