call here on his far more than princely munificence, to be the cry of the poor to heaven for bread and fresh air, in his own country, he finds the progress of Science alone needing his fostering aid. We have before us the first annual report of the Trustees of the *Peabody Academy of Science*, giving a full account of the manner in which the gift of 140,000 dollars is to be expended or invested, and of the progress already made in the buildings, natural history collections, musuems, and published proceedings, which we trust will worthily carry down the name of Peabody to posterity.

M. LOUIS LACAZE has bequeathed to the French Academy of Sciences the funds necessary for the foundation of three prizes of 10,000 francs each, to be awarded every second year. The sciences for which these prizes are to be given are Physiology, Physics, and Chemistry.

WE understand that Mr. James Young intends founding in Glasgow an institution for the study of Technology, to be opened in the course of the ensuing year.

A FRENCH translation of Professor Huxley's Elementary Physiology is announced.

WE understand that the appointment of Master of the Mint has not yet been filled up.

EARTHQUAKES seem approaching inconveniently near us. On Sunday night and Monday morning severe shocks were felt at Frankfort, Darmstadt, Wiesbaden, and Mayence; while a succession of shocks on the night of October 2, seems to have been unpleasantly violent, as the following extract from a letter from Coblentz, with which we have been favoured, will show:—"The greatest event we have had lately was an *earthquake!* It was on the night of Saturday, October 2, a little before 12, when most people were in bed, and were startled out of their sleep. I was wide awake, luckily, so came in for the whole; the noise was most alarming, and when my bed shook under me I guessed what it was. People in the town ran into the streets, and there was general alarm, as the shocks were so severe. The worst was about ten miles off, where chimneys fell and some walls cracked, but everywhere the accompanying noise seems to have been very great, like a train running under the house in bumps and jerks. The whole extent of the earthquake was very considerable, and many said they had never felt so bad a one before."

HERE are some notes from Oxford:—

On the 28th ult., the Warden and Fellows of Merton College elected Professor Clifton, F.R.S. (as Professor of Experimental Philosophy) to a Fellowship in the College. This is, we believe, only the second time that a college has availed itself of the power given by its new statutes of electing a professor to a fellowship, the person so elected being unconnected with the college in question, either by past or present membership, or by his professorship. Instances have occurred of the election of Professors to Fellowships in the colleges to which their Professorships were attached, but in this case the authorities of Merton College, without the least pressure or solicitation from without, have acted up to their increased powers given them by the last statutes, although the professorship is attached to Wadham College. We hail this piece of news with the greatest pleasure, as it indicates the desire which is now beginning to show itself, to devote the funds represented by fellowships to the purposes of University work, rather than to treat fellowships as simple prizes. The triennial elections of members of Council of the University is an important event at Oxford, as that body has sole power of initiation in University matters. The following were elected as the result of the poll on Thursday last:—The Dean of Christ Church; the Presidents of Trinity and Magdalen; Professors Price, H. Smith, and Scott; Mr. Ince, of Exeter; Mr. Liddon, of Christ Church, and Mr. Fowler, of Lincoln. The deputy appointed by Sir Benjamin Brodie to deliver lectures for him this term is Mr. A. Vernon Harcourt, of Christ Church. There are nineteen "unattached students" among the Freshmen, unattached students being persons who have availed themselves of the recently granted privilege of becoming members of the University, without becoming members of any College. Mr. Lawson, the Professor of Botany and Rural Economy, will give a course of Lectures during the ensuing term on the minute anatomy of plants. They are to be delivered in the Herbarium at the Botanic Gardens every Tuesday and Friday at 8 P.M. Is this hour fixed as the one at which it is most likely that members of the University, interested in Botany, will attend? We well remember when Prof. Lindley lectured at University College, London, to audiences of from eighty to a hundred students at 8 A.M. An election to the Lee's Readership in Anatomy will be holden at Christ Church on Saturday, December 18. Candidates for the office are requested to apply for information to the Dean on or before Saturday, the 13th of November.

AND here is a note from Cambridge:—The Rev. T. G. Bonney, B.D., Tutor of St. John's, has been appointed Lecturer in Natural Science at Cambridge; and Mr. Trotter, of Trinity, will lecture on Electricity, Magnetism, and Botany. We understand that these arrangements have been made because the staff of university professors is not large enough to do all the teaching in Natural Science that is required. We congratulate the University on the increased desire for instruction in these subjects; but is the number of men in the University competent to teach them so small that it has been found necessary to entrust Electricity and Botany to the same lecturer?

ASTRONOMY

The Astronomical Congress at Vienna

THE German Astronomical Society, although it dates from only one or two years back, is already in earnest work, and this year a Congress, extending over several days, was held at Vienna, at which not only were the president and council elected for the next year, but many papers of astronomical importance were read. Count Marshall has been good enough to send us the following account of the meeting:—The Society numbers actually 209 members, most of them superintendents of German and Extra-German Observatories; about 50 met at Vienna, among whom MM. Struve, of Pulkowa (President), Möller (Sweden), Forster (Berlin), Scheibner (Leipzig), Hersch (Neufchâtel), Lieut.-Gen. Bager (Berlin), Prof. Schaub (Trieste), Prof. Julius Schmidt (Athens), Mr. Schönfeld (Mannheim), were perhaps the most eminent. On Sept. 13, the first day of meeting, M. Struve opened the session with an exposition of the purpose of the Society and the recent progress of astronomy, especially of the knowledge of the physical nature of celestial bodies. Since the last meeting at Bonn, the number of members, the pecuniary resources, and the library have notably increased, and the following publications have been issued: Two years of the Quarterly Periodical, Dr. Auwers's paper on Variable Proper Movements, Dr. Lesser's Tables of Pomona, and Dr. von Asten's new Tables of Reduction for the "Histoire céleste Française." The study of the Asteroids, new Tables of Jupiter and of Comets, especially of the periodical ones, are in active preparation. Prof. Auwers distributed copies of tables for the reduction of positions of fixed stars from 1750 up to 1840, prepared at the Observatory of Pulkowa; and gave an account of his own new reduction of Bradley's observations, undertaken by order of the same Observatory, and of his tour to England for this purpose, during which he found, at Oxford, a number of old and very complete observations of fixed stars. The President referred to his connection with the German North Polar expedition. Prof. Julius Schmidt exhibited and explained a map of the Moon 6 feet in diameter, made at the Observatory of Athens. Prof. Zöllner (of Leipzig) detailed his recent observations of the Sun on the Janssen-Lockyer method.

September 15.—Prof. Bruhns (Leipzig) commemorated the hundredth birthday of A. von Humboldt, and distributed the

prospectus of a biography of this illustrious man of science, which he intends to publish. Forty new members were admitted. Prof. Zöllner continued his lecture on his observations of the solar protuberances, and on a method of ascertaining the movements of celestial bodies by means of spectral analysis. His views were discussed by MM. Oppolzer, Scheibner, and Struve. A number of proof-prints of Prof. Heis' (Münster) stellar maps were committed to MM. Julius Schmidt and Prof. Galle, to report upon. M. de Littrow, superintendent of the Vienna University Observatory, communicated and explained the plan of the new Observatory to be built there, and commented upon the recent endeavours of some calculators of the solar parallax to derive useful results from Father Hell's observations, dating from 1769, proving these attempts to be altogether useless, by exhibiting the original diaries of this observer, and distributing fac-similes of the most important passages of them. A communication, concerning the establishment of a Humboldt Foundation at Vienna, was read.

September 16.—The president and council were elected; M. Struve, President; Prof. Bruhns, Vice-President; MM. Auwers and Winnecke, secretaries; Prof. Zöllner, Librarian; M. Auerbach, Treasurer; MM. Argelander and de Littrow, members of the Council. A new member was admitted. Mr. Julius Schmidt read his report on Prof. Heis's stellar maps. Prof. Forster read a paper concerning the solar eclipse of August 18, 1868, with Dr. Tieb's remarks on the photograms of it, taken at Aden, and proposed that the President and Council should ensure their assistance on the occasion of the next transit of Venus to any astronomers who should apply for it. The motion has been adopted. Dr. Kaiser gave an account of his observations concerning the ellipsoidal form of the Moon, and the solar protuberances, which elicited a reply from Prof. Zöllner, M. de Littrow communicated the first report of the permanent Adriatic Commission, and the programme of the prizes for the discovery of comets, lately proposed by the Imperial Academy of Vienna. Prof. Schönfeld exhibited a letter from Fabricius to Tycho Brahe (1596), in which the first notice of Mira Ceti is given, and entered into historical details concerning this variable star. The session of 1869 was closed by thanks voted to the Imperial Academy for having placed suitable localities at the disposal of the Society.

CHEMISTRY

Preparation of Uranium

M. PELIGOT has communicated to the Annales de Chimie et de Physique [xvii. 368] a short note on the preparation of uranium. A mixture of 75 grammes of uranous chloride, 150 grammes of dry potassium chloride, and 50 grammes of sodium in fragments, is introduced into a porcelain crucible, itself surrounded by a plumbago crucible. The reaction is effected in a wind furnace, at the temperature of redness; but the heat must be increased for a short time at the close of the operation. In the black slag may be found, after cooling, globules of fused uranium. Throughout the operation, it is necessary to avoid the presence both of moisture and atmospheric air.

A specimen of the metal prepared in this way by M. Valenciennes had the specific gravity, 18·33. Uranium, is, therefore, one of the densest of metals.

Stannous Chloride and Acids of Arsenic

A. BETTENDORFF has examined the action of stannous chloride on the oxygen acids of arsenic. When a solution of stannous chloride in fuming hydrochloric acid is added to a solution of arsenious or arsenic oxide in the same acid, a brown precipitate is formed, which, after proper washing and drying, consists of metallic arsenic mixed with a small quantity of stannic oxide. In an aqueous solution of arsenious or arsenic acid, stannous chloride produces no precipitate; but on adding strong hydrochloric acid till the liquid fumes slightly, precipitation takes place. Arseniferous hydrochloric acid of sp. gr. 1·182 to 1·135 gives an immediate precipitate; the same diluted to sp. gr. 1·115 gives imperfect precipitation after some time; and in a similar solution of sp. gr. 1·100, no precipitation takes place. From this it may be inferred that the reaction occurs only between stannous chloride and arsenious chloride; further, that in a solution of arsenious acid in hydrochloric acid of sp. gr. 1·115 part of the arsenic is present as chloride, but that hydrochloric acid of sp. gr. 1·100 dissolves arsenious acid as such, without converting it into chloride. The reaction above described is extremely delicate, and capable of detecting 1 pt. of arsenic in a million parts of solution. On antimony compounds stannous chloride exerts no reducing action, even after prolonged heating: hence the above-described reaction may be used to detect the presence of arsenic in antimony compounds, the solution being previously saturated with hydrochloric acid gas. Another useful application of the same reaction is to the preparation of hydrochloric acid free from arsenic: 421 grms. of crude hydrochloric acid of sp. gr. 1·164 were mixed with a fuming solution of stannous chloride, the precipitate separated by filtration after twenty-four hours, and the hydrochloric acid distilled, the receiver being changed after the first tenth had passed over, and the remaining liquid distilled nearly to dryness. The acid thus obtained gave not the slightest indications of arsenic, either by Marsh's test or by precipitation with hydrogen sulphide.—[Zeitschr. f. Chem. (2), v. 492.]

Dichlorinated Aldehyde

PATERNO has obtained dichlorinated aldehyde $C_2H_2Cl_2O$ by the action of sulphuric acid on dichloracetal. It is a liquid boiling at 89°—90°, attracts moisture from the air, and is thereby converted into a hydrate, which crystallises in beautiful laminæ, Left to itself, even in sealed tubes, it becomes dense, and changes into a white amorphous mass, which has the aspect of porcelain; but, when heated to 120°, is reconverted into the original product. Dichlorinated aldehyde dissolves without decomposition in alcohol and ether; when poured into water, it first sinks to the bottom and then dissolves, especially on application of heat; in short, it exhibits the most complete analogy with chloral. It is difficult to oxidise, its vapour not undergoing any sensible alteration when mixed with air or oxygen and passed over red-hot spongy platinum; but when gently heated with several times its own volume of fuming nitric acid, it is energetically attacked and converted into *dichloracetic acid* $C_2H_2Cl_2O_2$. Phosphoric pentachloride attacks it strongly, producing the compound $C_4H_4Cl_6O$ or $C_2H_2Cl_2O$. $C_2H_2Cl_4$, the action doubtless consisting in the replacement of O by Cl_2 (as in the action of PCl_5 on aldehydes in general), whereby $C_2H_2Cl_4$ is produced, which, as soon as it is formed, unites with a portion of the undecomposed dichlorinated aldehyde, producing the compound $C_4H_4Cl_6O$. The constitution of this body may be represented by the following formulæ:— $CHCl_2—CH_2—O—CCl_2—CHCl_2$,

or perhaps by $CHCl_2—CHCl—O—CHCl—CHCl_2$.

The compound $C_4H_4Cl_6O$ is a colourless oil, having an irritating odour, heavier than water, soluble in alcohol and ether; it distils at 250° emitting acid vapours. Alcoholic potash attacks it strongly, with evolution of heat, and formation of potassium chloride; and, on adding water to the resulting liquid, a heavy aromatic oil separates, boiling at 196°, and having the composition $C_4H_2Cl_4O$—that is to say, containing 2HCl less than the preceding. This last compound unites directly with four atoms of bromine, forming the crystalline compound $C_4H_2Cl_4Br_4O$. In this respect, the compound $C_4H_2Cl_4O$ is analogous to Malaguti's *chloroxethose* C_4H_6O, which he obtained by abstracting four atoms of chlorine from perchlorinated ethylic oxide $C_4Cl_{10}O$. According to this analogy, the compound $C_4H_4Cl_6O$ may be designated as *hexchlorinated ethylic oxide*, and $C_4H_2Cl_4Br_4O$ as *tetrachloro-tetrabrominated ethylic oxide*. The two compounds C_4Cl_6O and $C_4H_2Cl_4O$ may also be regarded, respectively, as *perchlorinated vinyl oxide* and *tetrachlorinated vinyl oxide*.—[Giornale di Scienze di Palermo, v. 123, 127.]

Colouring Matter of Wine

FR. PONCHIN proposes the use of a solution of potassium permanganate acidulated with sulphuric acid to distinguish between the natural colouring matter of wine and the various substances added to imitate that colour. For this purpose a normal solution of 2 grammes of the permanganate in 100 grammes of distilled water is prepared when wanted for use; 15 grammes of this solution acidulated, and 3 drops of pure sulphuric acid, are added to 15 grammes of normal red wine contained in a test-tube, and the liquid after being shaken is left at rest. The greater part of the colouring matter is then slowly precipitated in red flocks, while the supernatant liquid retains the same colour, without weakening, for 24 hours afterwards. After a few days, however, the precipitate acquires a deeper red colour and the liquid becomes nearly colourless. For very deeply coloured wines a larger proportion of the normal solution must be used, care being, however, taken not to add it in excess, as that