ural magnesia from the magnesite of Veitsch containing some ten per cent. of impurity, chiefly iron with silica, was found to sinter together in the heat of the graphite furnace and form gas-tight vessels. As the hottest zone of the furnace is very restricted, it was found possible to fire successfully only very small vessels in this manner. Attempts were made to fire larger density tubes in a oxyhydrogen furnace, but at the highest heat obtained the magnesia was still porous. Efforts to glaze the tubes also all resulted in failure. Here this exceedingly difficult investigation now stands, and it is to be hoped that Professor Meyer's assistant, Dr. Bodenstein, who, with Dr. von Recklinghausen, has carried it thus far, will go on with it to success. The value of density determinations at a high temperature is of great importance to chemical theory, and Victor Meyer's work has already afforded very valuable results, but if 500° more could be gained the value would be much increased.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

THE German Society of Men of Science and Physicians will hold its meeting next year at Dusseldorf, under the presidency of Professor Waldeyer, of Berlin. The secretaries of the meeting are Professor Mooren and Dr. von Viehoff, of Dusseldorf.

PROFESSOR A. A. MICHELSON, of the University of Chicago, has been made a member of the International Committee of Weights and Measures in the room of the late Dr. B. A. Gould.

WE called attention last week to the fifteenth Congress of the American Ornithologists' Union. The meetings at the American Museum of Natural History, for the presentation of scientific papers, beginning at 11 a. m. on Tuesday, November 9th, are open to the public and should prove of interest to many residents of New York. Information regarding the Congress can be had by addressing the Secretary, Mr. John H. Sage, Portland, Conn.

DR. FRIDJOF NANSEN arrived at New York on October 23d, and was in the evening the guest of the American Geographical Society, which conferred upon him the Cullum Geographical Medal and elected him an honorary member. Another reception was given to him on Monday night by the Swedish and Norwegian inhabitants of the city. A reception and dinner was offered him by the National Geographical Society, Washington, on October 26th. To-day the American Philosophical Society of Philadelphia will hold a special meeting, at which Dr. Nansen will present a paper on 'Some of the Scientific Results of Recent Arctic Explorations.' Dr. Nansen's first public lecture will be given at the Metropolitan Opera House, New York, on November 6th.

MR. E. E. HOWELL, of Washington, has just received from the U. S. Government Board of Control an order to construct a relief map of the Yellowstone National Park, for exhibition at the coming exposition at Omaha. This model, which will be $6 \times 6\frac{1}{2}$ feet in dimensions, will be based upon the surveys of the Park made by the U. S. Geological Survey and will represent the geology as well as the topography. The scale will be one inch to the mile, and there will be no vertical exaggeration. The map will be very accurate and complete, far surpassing the one made some years ago.

THE U. S. Geological Survey has practically completed the distribution of the Educational Series of Rocks, 175 suites of 156 specimens each having been sent out during the past summer to universities, colleges and technical institutions in the United States. There remains a small number of incomplete sets, which will be placed in such smaller colleges as will make them most useful. The Educational Series were prepared by the Survey with much care, for the purpose of aiding students in acquiring a general and special knowledge of rocks and promoting the study of geology.

THE first meeting of the new session of the Royal Geographical Society will be held on Monday, November 8th. After a short introductory address by the President, Sir Clements Markham, K. C. B., Mr. F. J. Jackson will give an account of the Jackson-Harmsworth expedi-

tion to Franz Josef Land, of which he was leader. At the second meeting Dr. Sven Hedin will describe the results of his four years' explorations in Central Asia. Lieutenant Peary has promised to go to England about the end of November, and it is to be hoped that he will appear before the Society early in December. Other papers which may be expected are by Sir W. Martin Conway, on his recent expedition to Spitzbergen; by Mr. E. A. Fitsgerald, on his explorations on and around Mount Aconcagua; Mr. Warington Smyth, on the Eastern Malay Provinces of Siam, and Dr. John Murray, F. R. S., on his recent investigations in the Scottish lakes. There will be a special meeting early in 1898 in connection with the 400th anniversary of the discovery of the Cape route to India by Vasco da Gama. Special afternoon meetings are being arranged for and Christmas lectures to young people. Under the auspices of the Society and the London University Extension a series of twenty-five educational lectures is being given in Gresham College by Mr. H. J. Mackinder, M.A., on the geography of Great Britain and the British seas.

The principal medal of the Royal Photographic Society, London, has been awarded to Professor Gabriel Lippmann, Paris, for his work in color photography by the interference method.

We regret to record the deaths of Dr. Justin Winsor, Librarian of Harvard University and President of the American Library Association, on October 21st, aged sixty-six years; of Professor John Foster, emeritus professor of natural philosophy in Union College, with the faculty of which he had been connected since 1836, aged eighty-three years; of Mr. E. P. Franz, formerly assistant to Professor Schaeffer at University College, London, in conjunction with whom he carried out important researches in neurology; and of Mr. William Scott, a well-known horticulturist and arboriculturist, director of the Royal Gardens and forests, Mauritius, at Stirling on the 3rd of October, aged thirty-eight years. He was home on leave after an unbroken residence in the tropics extending to sixteen years.

We take from the *British Medical Journal* the following details regarding the late Professor Charles Smart Roy, whose death we were recently compelled to record. Born at Arbroath, Scotland, in 1854, he enjoyed a thorough education in training and research at St. Andrew's, in London and in Germany. Appointed George Henry Lewes student in 1880, he came to Cambridge and worked at the pathology of the heart, spleen and kidneys in Dr. Michael Foster's laboratory, where he gave a course of lectures on physiology to advanced students. On the election of Dr. Greenfield to the chair of general pathology in the University of Edinburgh, Dr. Roy was chosen to succeed him as Director of the Brown Institution. During the tenure of this office he visited the Argentine Republic for the purpose of investigating the causes of an epizoötic disease then raging among cattle in the Province of Entre Rios. He held the directorship for two years and a-half, when in 1884 he was elected to the newly-established professorship of pathology in the University of Cambridge. At first the teaching of pathology was carried on in rooms belonging to the Physiological Laboratory, but in 1889 the old chemical laboratory was transformed and refitted to accommodate the department of pathology. In this building, with the help of such able students as Griffiths, Hankin, Adami, Hunter, Wesbrook, Kanthack, Lorrain-Smith, Lloyd Jones, Cobbett and others, much brilliant work in pathology and bacteriology has been carried on under Professor Roy's direction. He invented many ingenious pieces of apparatus for physiological purposes, some of which, such as the oncometer and oncograph and the tonimeter, are universally known among investigators, and will continue to be called by his name. His researches on the heart, carried out with Professor Adami and independently, have thrown new light on that perplexing organ; it is, perhaps, on these that his reputation will chiefly rest.

A committee has been appointed at the Johns Hopkins University to arrange and execute a memorial to Professor J. E. Humphrey and Dr. F. S. Conant, who died from pernicious malarial fever, contracted at Port Antonio, Jamaica, where they were conducting the Marine Laboratory of the Johns Hopkins University.

Dr. H. L. Clark, also of the expedition, nearly lost his life from the same disease.

THE *Associazione Elletrotecnica Italiana* has appointed the following foreign committee to receive subscriptions to the fund which is being collected for the erection of a monument at Turin in memory of the late Galileo Ferraris: Rudolph Alioth, Professor E. Arnold, Dr. A. D'Arsonval, Professor W. E. Ayrton, Dr. Frederick Bedell, Otto T. Blàthy, Professor A. Blondel, C. S. Bradley, C. E. L. Brown, Professor Dr. Emil Budde, Dr. Coleman Sellers, M. Alfred Cornu, H. Cuénod, Max Déri, E. Desroziers, Dolivo Dobrowolsky, Dr. Louis Duncan, Thomas A. Edison, Edmunds Henry, Professor Jas. A. Ewing, Professor J. A. Fleming, Hippolyte Fontaine, Professor Geo. Forbes, Dr. O. Frölich, Professor Eric Gerard, Ernest Gerard, H. Görges, Eugen Hartmann, F. V. Hefner-Alteneck, Professor H. Hering, Dr. John Hopkinson, Professor Eduard Hospitalier, E. Hüber, J. Joubart, Gisbert Kapp, J. Kareis, Lord Kelvin, Professor Dr. Erasmus Kittler, Dr. Friedr. Kohlrausch, W. John Lieb, Jr., W. H. Lindley, Professor G. Lippmann, Dr. L. Lombardi, Professor E. Mascart, Senat. Montefiore, W. M. Mordey, Alois Naville, Professor Oliver Lodge, Dr. A. Palaz, R. V. Picou, W. H. Preece, Pantaleoni, Emil Rathenau, C. W. Rechniewski, Professor E. Rousseau, Professor Henry Rowland, Alexander Siemens, Dr. A. Slaby, Charles P. Steinmetz, Dr. Gotthold Stern, Professor G. Peter Tait, Nikola Tesla, Professor Elihu Thomson, Professor J. J. Thomson, Professor Sylvanus P. Thompson, Rene Thury, Th. Turettini, Friedrich Uppenborn, Dr. A. von Waltenhofen, Dr. H. F. Weber, Edward Weston, Joseph Wetzler, Dr. V. Wietlisbach, Professor W. Wyssling, Professor Carl Zipernowsky. The American Association for the Advancement of Science, at the Detroit meeting, authorized Dr. Frederick Bedell to collect subscriptions from the members of the Association.

THE Indian government has asked for twelve medical men to be sent out from England to the Bombay Presidency for duty in the plague-stricken districts.

THE Linnæan Society of New South Wales, Sydney, desire applications for the position of Macleary bacteriologist, the salary of which is about $2,000 per annum.

THE late Edward C. R. Walker has bequeathed $20,000 to the Massachusetts Horticultural Society, to be known as the Samuel Walker Fund. The bequest is subject to several life interests.

THE Staff of the North Carolina Agricultural Experiment Station has been reorganized as follows: Alex. Q. Holladay, Chairman of Council; W. A. Withers, Chemist and Acting Director; Frank E. Emery, Agriculturist; W. F. Massey, Horticulturist, Botanist and Entomologist; F. E. Hege, Poultry Manager; B. S. Skinner, Superintendent of Farm; A. Rhodes and C. W. Hyans, Assistants in Horticulture, Botany and Entomology; J. A. Bizzell, C. B. Williams, H. K. Miller, C. D. Harris, A. W. Blair, J. D. Hufham, Jr., and F. G. Kelley, Assistants in Chemistry.

AT a recent meeting of the New York Zoological Society the executive committee reported that the plans for the zoological park are practically complete, and that it is imperative that the remainder of the first $100,000 of the building fund should be subscribed at once in order that the plans may be submitted to the Park Board without delay. If the needed sum is subscribed the completed plans will be laid before the Park Board at its meeting on November 1st.

PROFESSOR LESTER F. WARD gave, last week, a course of six lectures at the University of Chicago, his subject being 'The Evolution of the Plant World as shown by Paleobotany.'

THE Secretary of Agriculture will, on November 17th, deliver an address at the opening of the new building devoted to agriculture at the Tuskegee Normal and Industrial Institute for Negroes.

NORTH DAKOTA Agricultural College and Station have in course of construction a wing for a new chemical laboratory. The laboratory, when completed, will cost $20,000.

THE Journal of the Boston Society of the Medical Sciences will be enlarged to octavo size in October. By general consent of the Heads of

Departments it will contain full abstracts of experimental work carried on in the following institutions: the Medical School of Harvard University, the Experimental Laboratories of the Massachusetts General and the Boston City Hospitals, the Physiological and Biological Departments of the Massachusetts Institute of Technology, and Clark University. The numbers of the Journal will be issued promptly after each meeting of the Society, furnishing a very rapid means of communication of the results of investigation. There will be published at least ten numbers a year—running from October to June. The subscription price will be $2.00 a year.

Messrs. Henry Young & Sons, Liverpool, announce the publication of the 'Bulletin of the Liverpool Museums,' issued by authority of the City Council. It will be edited by Professor H. O. Forbes, Director of the Museums.

Messrs. G. P. Putnam's Sons have, in course of publication, in cooperation with Messrs. Bliss, Sands & Co., of London, a series of scientific hand-books to be issued under the title of 'The Progressive Science Series.' The general editorial supervision of the series will be in the hands of Mr. F. E. Beddard, M.A. (Oxon), F.R.S. Each volume will be complete in itself and will be devoted to one distinctive subject. It is not proposed to consider the series from the purely technical side of the various sciences, but social and economic questions will be considered from their scientific aspect. In each treatise it will be the endeavor of the author to present not merely a study of his subject in its present status, but also to indicate the probable lines of future investigations. The publishers promise that the volumes will be fully illustrated, in so far as the subject matter calls for illustrations, and will be suitably and attractively printed and bound. Among the earlier volumes that have been arranged for are:

'The Earth's Structure,' by Professor Geikie.

'Volcanoes,' by Professor Bonney.

'The Science of Ethics,' by M. Berthelot.

'The Cell and Cellular Reproduction,' by Professor Hertwig.

'The Animal Ovum,' by the editor, Professor Beddard.

The Royal Society of Victoria has issued the ninth volume of the new series of its proceedings, containing papers read before the Society during 1896. These are seventeen in number, including several valuable contributions to the natural history, geology and anthropology of Victoria.

The *International Journal of Microscopy and Natural Science*, edited since its foundation, sixteen years ago, by Mr. Alfred Allen, and published by Messrs. Bailliere, Tindall & Cox, London, has been discontinued with the present issue. The editor explains that this is due to the sales not being sufficient to pay the printer's bills, but that the Postal Microscopical Society, with which the *Journal* was connected, will be continued.

The University of the State of New York, following the plan it has adopted of lending to the schools libraries and pictures, offers to make loans of specimens of natural history from the State collections.

At the recent meeting of the Medical Association of Central New York papers were presented on expert testimony in medico-legal cases, and a committee reported in favor of a change of the statutes, requiring all medical testimony to be brought in by a commission appointed to examine the subject, the medical experts being appointed by the Court as referees, and being paid by the county, not being allowed to receive fees from either the defense or the prosecution.

At the opening meeting of the Royal Photographic Society, London, the President, the Earl of Crawford, made his annual address, his subject being 'Weights and Measures as they are used in Photography.' He spoke especially of the importance of using the metric system in photography, and urged makers to use the metric dimensions in their cameras, plate-holders, etc.

The London *Times* reports that the experiments in wireless telegraphy which are being made near Dover by the Post Office authorities are being continued, and have reached an interesting stage. They are continued daily with varying results, according to atmospheric con-

ditions. Mr. Preece, the Chief of the Telegraph Department, although he does not personally conduct the experiments, goes down occasionally to witness them and compare results, and advise as to future operations. The authorities are endeavoring to obtain as satisfactory results as those achieved by Marconi, but up to the present time they do not appear to have been so successful. The receiving apparatus is sent out every morning on a trolley, so that it can be transferred to different parts of the country to be experimented with. Strict secrecy is maintained in regard to the instruments, and when the experiments are concluded at the end of the day the apparatus is brought back to Fort Burgoyne and carefully guarded. The experiments are now being made within a radius of three miles of the Fort. Hitherto they have been confined to two miles with the most successful results, messages being freely and distinctly transmitted. At the three miles' radius, it is stated, the results are not nearly so satisfactory. In order to transmit to a greater distance the height of the vertical wire has to be increased. As the pole at Fort Burgoyne is already a considerable height, the use of the flying kite has been resorted to in order to test at still greater heights. The kite is composed of thin copper, a wire running from the tail to the transmitter.

IT is said that Dr. Alexander Edington, Bacteriologist to the Cape of Good Hope government, has found that the blood of animals affected by rinderpest, when treated with citric acid and kept for such a time as to ensure the death of the contagium, will, when injected, immunize all animals exposed to infection. Dr. Edington has practiced his protective injection on several large herds, and always with satisfactory results, the largest mortality having been a little over 3 per cent., or eight animals in a herd of 234.

IT is stated in *Natural Science* that the trustees of the Albany Museum, Grahamston, have decided to erect a new and more commodious building. The necessary funds are already in hand, and the work is to be proceeded with at once. The plans have been prepared by Mr. Viesebosse, architect of the Cape Town Museum. The new museum will be a two-storied building, 150 feet long by about 60 feet deep.

WE learn from *Garden and Forest* that the lumbermen now controling a large block of Big Tree forest, on the western slope of the Sierra Nevada, in California, are making a determined effort to obtain from Congress authority to cut the Sequoia timber in the General Grant National Park. This particular portion of the Sierra Reservation includes about fifteen hundred acres, and is covered with an exceptionally fine growth of Sesquoias and Sugar Pines, probably the oldest living organisms on the face of the globe. As *Garden and Forest* says, every individual is a monument which should be sacredly preserved for the benefit of future generations. To cut down one of these trees is a crime, and it should be a matter of national humiliation that a considerable part of the Sequoia forest has been allowed to pass from government control into the hands of lumbermen. There was no excuse for this; there would be less excuse in allowing those portions of the Sierra forest which have already been reserved for the benefit of the people to be opened to entry. The lumber, even, is not needed by the community, which can be abundantly supplied from the Redwood forests, and no one but a little group of men who expect to make money by this transaction has any interest in the success of the movement.

THE usual annual compilation of statistics relating to mines and quarries in the United Kingdom in 1896 has been issued by the Home Office and is abstracted in the London *Times*. The sources from which minerals are obtained in the United Kingdom are classed under five heads: (1) Mines under the Coal Mines Regulation Act; (2) mines under the Metalliferous Mines Regulation Act; (3) quarries more than 20 feet deep, which are now under the Quarries Act; (4) quarries les than 20 feet deep, which are not under the Quarries Act; (5) brineworks. Except in the case of iron ore and a few less important substances, the present volume contains no account of minerals raised from the quarries less than 20 feet deep. It is true that the amounts of clay, brick-earth, sand and gravel so obtained must be large; but without

further statutory powers no accurate account of the quantity and value can be given. Thanks to the courtesy of the owners, who have furnished returns voluntarily, accurate statistics of the output of the shallow ironstone quarries of the Midlands have been secured; and in like manner the output of salt from brineworks has been calculated. The exports and imports of each of the principal minerals, furnished by the Board of Customs, are given after the tables of production, and in several cases information as to distribution, supplied by railway and navigation companies, is added. Lists of smelters of the principal metallic ores follow the export and import tables, and in the case of iron the quantity of ore and coal used in the blast furnaces, and the make of pig iron, have been ascertained from voluntary returns furnished to the Home Office by the owners. The volume includes a table of the mines inspection districts, with the names and addresses of the inspectors of mines, assistant inspectors, secretaries to boards for examinations, and the Clerk of Mineral Statistics. The return also supplies a general summary of the value of minerals obtained from the colonies. The figures for 1895 were: Africa and Mediterranean, £5,506,739; Asia, £5,874,144; Australasia, £13,919,068; Europe, £139,289; North America, £3,842,586; South America, £446,695; and British West India Islands, £101,550; total, £29,830,071, as compared with £28,765,009 in 1894.

UNIVERSITY AND EDUCATIONAL NEWS.

Professor James M. Crafts has been elected President of the Massachusetts Institute of Technology. Professor Crafts holds the chair of organic chemistry in the Institute and has been the acting president since the death of General Walker.

At Cambridge University Mr. J. B. Peace, M.A., Fellow of Emmanuel College, has been appointed demonstrator in mechanism and applied mechanics for five years, and Mr. H. Higgins, M.A., of King's College, has been reappointed demonstrator of anatomy for five years.

Dr. Mollier, of Göttingen, has been appointed professor of mechanical engineering in the Technological Institute at Dresden

The New York City Board of Superintendents hold an examination for principalships of grammar schools on November 3d, 5th and 8th, which are open to candidates from any part of the United States having an experience of ten years in teaching. The salaries are from $2,500 to $3,500 per annum.

DISCUSSION AND CORRESPONDENCE.

LEWIS ON THE DIAMOND.

In two papers* recently published Mr. George F. Kunz has reviewed 'Papers and notes on the genesis and matrix of the diamond by the late Henry Carvill Lewis.' In each he attributes to Lewis the theory that South African diamonds have resulted from the intrusion of igneous rocks into and through carbonaceous shales, and the crystallization of the carbon throughout the rock as it cooled, from hydrocarbons distilled from the shale that had been broken through. In his communication to Science, however, Mr. Kunz admits that in these papers Lewis does not distinctly assert that the shales are the origin of the carbon. Mr. Kunz derives his authority for his representations on this point from conversations with Lewis ten years or more ago.

It seems to me that Mr. Kunz does Lewis a serious injustice. Had the latter wished to commit himself in print to this theory it would have been easy for him to express himself in terms as positive as those which Mr. Kunz employs. Far from doing so he appears to support a radically different theory, viz., that the diamonds are phenocrysts and an integral part of the lava. In the following paragraphs I shall quote every phrase in these two papers which bears on the subject, the rest of the text consisting of lithological discussions and the like.

In his first paper, page 6, Lewis properly attributed the hypothesis of the derivation of the carbon from the shales to Mr. E. J. Dunn.† Lewis expresses no assent to this hypothesis, at least in this connection, and merely comments:

* Production of Precious Stones in the United States, U. S. Geol. Survey, Mineral Resources, 1896; and this Journal, Sept. 17, 1897.

† Quar. Jour. Geol. Soc., Vol. 37, 1881, p. 610.