ence of cold water. The crystals are colorless and small, though easily visible with a lens. The tension of dissociation at 0° is about 105 atmospheres, at + 8° 210 atmospheres.

An account of the Jubilee of the Chemical Society of London, in 1891, has just been published by the Society in book form. It contains a record of the proceedings of the Jubilee meeting and also a full history of the Society. Abstracts are given of all the presidential annual reports, the subjects of all lectures before the Society, and the full text of the first Faraday Lecture, which was given in 1869 by Dumas, and which had never before been printed in the Society's publications. The whole volume, which includes 292 pages and gives the full history of one of the most important scientific societies of the world, will be found of value to all who are interested in chemistry.

A series of experiments has been carried out by Messrs. Dixon and Baker, having for their object the determination of the chemical activity of the Röntgen rays. Carbon monoxid and oxygen (dry and moist), hydrogen and oxygen, carbon monoxid and chlorin, hydrogen and chlorin, and dry hydrogen and sulfid and sulfur dioxid, were exposed half an hour to the rays; sparks were passed through dry carbon monoxid and oxygen, both with rays falling on the mixture and when they were not. In no case could any chemical effect of the rays be detected, hence the authors conclude that if there is any chemical activity of the rays it is too small to be measured. The action of the rays on the photographic plate they attribute to the fluorescence of the glass behind the film.

J. L. H.

SCIENTIFIC NOTES AND NEWS.

The attendance at the Liverpool Meeting of the British Association was 3,181, distributed as follows: Old life members, 330; new life members, 31; old annual members, 383; new annual members, 139; associates, 1,384; ladies, 873; foreign members, 41. As had been already arranged, the meeting for next year will be at Toronto under the Presidency of Sir John Evans, beginning August 18th. The meeting in 1898 will be at Bristol and in 1899 at Dover. The sum of £1,355 was appropriated in grants for scientific purposes.

In addition to the lecturers in connection with the sesquicentennial celebration at Princeton, already announced, the exercises will be attended by a number of distinguished men of science as delegates from foreign universities. The names have not as yet been published, but include M. Henri Moissan, the eminent chemist from the University at Paris, and Prof. E. B. Poulton, professor of zoology at Oxford, and personally known to many Americans from his previous visit.

We learn from *Die Natur* that elaborate arrangements are being made in Portugal to celebrate the 400th anniversary of Vasco da Gama's discovery of the sea route to India. The 8th, 9th and 10th of July of next year are to be made national holidays and a number of expositions and congresses are to be held at Lisbon, including agriculture, ethnography, fisheries and hydrography. The event will also be celebrated by the Geographical Society of Vienna, before which an address will be made by Prof. Wilh. Tomaschek.

The Jubilee of the discovery of anæsthesia will be celebrated in France in connection with the meeting of the French Surgical Congress beginning October 18th. The event will also be celebrated in London and in Boston. The first surgical operation under ether was carried out by Dr. J. Collins Warren in the Massachusetts General Hospital on October 16, 1846. The anæsthetic was administered by W. T. G. Morton, who about two weeks before had extracted a tooth from a patient under the influence of ether.

It is stated that Lieut. Joseph E. Maxfield, Chief Signal Officer of the Department of the Missouri, and now stationed in Chicago, will soon make an ascent on a man-carrying kite, to be built by Octave Chanute. The ascent will

be made in an arm-chair fastened to a portion of the kite's frame, and will be for the purpose of testing the efficiency of a flying kite for observation purposes, as an adjunct to the balloon service, which for some time has been an important part of the signal corps work.

ALTHOUGH the 300,000 frs. needed for the Belgian expedition to the polar regions has been collected, it was not found possible to make the necessary preparations, and the expedition has been postponed until July of next year.

THE Danish steamship *Inglof* has returned after two years spent in exploring the coast of Iceland. It is stated that scientific results of importance have been secured.

PRESIDENT JORDAN, with the British and American commissioners sent to study the condition of the seals in Behring Sea, has arrived at Seattle and is reported to have said that there is still a vast body of fur seals on the islands, more than the commissioners were first led to expect, but the number is steadily declining. The only cause of this decline is the killing of females through pelagic sealing. The females are never molested on the islands. Pelagic sealing, as an industry, has already cut its own throat, as the fleet this year will not pay expenses. The killing of surplus young males, as provided for by law, has always been a benefit to the herd. The commissioners believe that the way is open to an honorable and amicable settlement of this question in a manner highly satisfactory alike to the United States and England and to Canada. There can be no longer any difference of opinion as to any facts in question.

A DESPATCH to the daily papers from San Diego, Cal., states that the junk *Alta* has arrived from Lower California with Mr. E. A. Anthony, who went there in the interest of the Smithsonian Institution. He brings back a great quantity of shells, mosses and sea flora and natural history specimens, many of them entirely new to naturalists.

DR. DAVIS GARBER, professor of mathematics and astronomy in Muhlenburg College, Allentown, Pa., died on September 22d, aged 67 years.

DR. THEODOR MARGO, lately professor of zoology in the University of Budapest, died on September 6th, at the age of 80 years.

YEN MEN, a commissioner from the Emperor of China, is now in America collecting information regarding American manufactures and methods of transportation. He will also visit the principal countries of Europe.

A LABORATORY built for the Massachusetts General Hospital, Boston, at a cost of over $20,000, will soon be ready for use. The building is 25x97 feet, and includes well fitted laboratories of chemistry, bacteriology and histology. It is hoped that an additional sum of $100,000 will be collected for an endowment.

THE International Congress of Criminal Anthropology will next meet in 1901, at The Hague, at the invitation of the Dutch government.

THE Scientific Alliance of New York has issued its first bulletin for the year, giving the programs of the different scientific societies included in the Alliance for the month of October. Most of the societies give opportunities for report on work carried out during the summer. Prof. J. A. Allen will report to the Linnæan Society, on October 13th, on a visit to some of the natural history museums of Europe. On October 12th, before the Section of Biology of the New York Academy of Sciences, informal reports will be made by Dr. Bashford Dean and Mr. G. N. Calkins, 'On the Columbia University Zoological Laboratory upon Puget Sound;' by Prof. Henry F. Osborn, 'On the American Museum Expedition to the Puerco and Wasatch Beds;' and by Mr. William J. Hornaday, 'On a Tour of Inspection of Foreign Zoological Gardens.'

THE regular October meeting of the American Mathematical Society will be replaced by a special meeting to be held at Princeton, on Saturday, October 17th, at 3 p. m. Addresses will be made by Professors Felix Klein and J. J. Thomson.

THE following field meetings have been arranged by the Torrey Botanical Club: Oct. 3, Englewood, N. J.; leave foot W. 130th St., 1:15 p. m.; guide, Mr. Fay. Oct. 10, Forbell's L. I.; leave Montauk Ave. Station, King's County Elevated R. R., 1:30 p. m.; guide, Mr. Hulst. Oct. 17, Grant City, Staten Island;

leave foot Whitehall St., 1:30 p. m.; guide, Mrs. Britton. Oct. 24, Richmond Hill, L. I., L. I. R. R.; leave foot East 34th St., 12:50 p. m.; guide, Mr. McCallum. Oct. 31, Pelhamville, N. Y., N. H. and H. R. R., 1:30 p. m.; guide, Mr. Ericson.

The President and Secretary of the American Physiological Society have sent out an announcement calling attention to the fact that, at the Baltimore meeting of the Society in 1894, it was recommended that 'The Internal Secretion of Glands' be selected as a suitable subject for public discussion by the Society at the next Medical Congress to be held in Washington in the spring of 1897. At the meeting held in Philadelphia in 1895 it was voted that the President of the Physiological Society be empowered to communicate with the Association of American Physicans regarding a joint public session of the two Societies at the Medical Congress of 1897. In accordance with these instructions communication was had with the Association of American Physicians, with the result that the latter body has decided to join with our Society in a public discussion of the above subject at the Medical Congress of 1897. The details of this joint session, so far as the Physiological Society is concerned, are to be arranged by the Council of the Society; but members of the Society are reminded of the importance of carrying out research along the lines covered by the subject chosen for discussion, and it is suggested that the results might be reported on at the December meeting.

A meeting of the Texas Academy of Sciences was held on October 2d, at which the annual address by the President of the Society, Dr. J. Bruce Halsted, was given, the subject being 'Life and Science in Russia.'

The American Institute of Electrical Engineers held its first meeting for the season on September 30th. The President, Mr. Lewis Duncan, made an address on 'The Present Status of Power Transmission.'

A course of eight lectures, mainly upon science and travel, has been arranged by the Feld Columbian Museum for Saturday afternoons in October and November. The lectures are as follows: Oct. 3, 'Archæological Explorations in Peru,' Dr. G. A. Dorsey, Assistant Curator of Anthropology, Field Columbian Museum. Oct. 10, 'A Trip to Popocatapetl and Ixtaccihuatl,' Prof. O. C. Farrington, Curator of Geology, Field Columbian Museum. Oct. 17, 'San Domingo,' Mr. G. K. Cherrie, Assistant Curator of Ornithology, Field Columbian Museum. Oct. 24, 'Egypt and What We Know of Her,' Dr. J. H. Breasted, Instructor in Egyptology and Semitics, University of Chicago. Oct. 31, 'The Petroleum Industry,' Dr. D. T. Day, Chief of Division of Mineral Resources, U. S. Geological Survey. Nov. 7, 'Alaska and its Inhabitants,' Prof. George L. Collie, Beloit College, Wis. Nov. 14, 'The Economic Geology of the Sea,' Mr. H. W. Nichols, Curator of Economic Geology, Field Columbian Museum. Nov. 21, 'The Physical Geography of New England,' Dr. H. B. Kümmel, Assistant Professor of Physiography, Lewis Institute.

The daily papers state that the great engineering work of removing the obstruction in the Danube known as the Iron Gates, between Alt-Orsova, in Hungary, and Gladova, in Servia, has been finally accomplished, and on September 11th the river was opened to navigation with elaborate ceremonies by Emperor Francis Joseph, accompanied by the Kings of Rumania and Servia. The program included a procession of steamers through the Iron Gate.

The Report of the Tenth Annual Meeting of the American Association for the Advancement of Physical Education contains a number of papers on anthropometry. The Association, through its Committee on Anthropometry and Statistics, is doing a good work in systematizing and improving the anthropometric methods applied in gymnasia. The following are the titles of anthropometrical papers in the present volume: 'Anthropometry Individualized,' by David P. Lincoln, a plea for investigating the laws of growth by studying the growth of individuals, rather than by the generalizing method. 'The Growth of Boys,' by Schuyler P. Moon, a discussion of the proportions of the body during the period of growth. Bowditch's 'Law of Growth and What it Teaches,' by E. M. Hartwell, in which attention is drawn to the correla-

tion between mortality and freeness from certain disorders and the rates of growth. 'Proposed Standard Chart of Proportions of American Females,' by Anna Richards and Bessie Belle Little. 'What Nervous Tests shall we use to Complete the Picture of the Individual?' by G. W. Fitz. 'The Use of Anthropometrical Measurements in Schools,' by Wm. T. Porter.

THE first number of the *Journal of Physical Chemistry* has now been published by the editors, Professors Wilder, D. Bancroft and Joseph E. Treevor. It contains articles by Mr. A. E. Taylor and Prof. Bancroft in continuation of work on Irreversible Cells and on Ternary Mixtures previously published in *The Physical Review* and on Chemistry and its Laws by Dr. F. Wald, starting from Prof. Wolcott Gibbs' propositions concerning the equilibrium of missible substances. 18 pages are devoted to reviews written by a special board consisting of Messrs. W. Lash Miller, E. H. Loomis, C. L. Speyers and R. B. Warder, in addition to the editors. The *Journal* will be issued monthly with the exception of July, August and September, and will contain from 48 to 64 pages.

AT the recent meeting of the British Association Prof. Ramsay read a paper on helium, in the course of which he gave an account of his experiments undertaken with a view to determining the character of helium by comparison with hydrogen, oxygen, argon, acetylene and other gases. He has obtained the remarkable result that different samples of helium have different densities, which indicate that helium may be a mixture of two gases.

Appletons' Popular Science Monthly for October opens with an article by President Mendenhall, in which he reviews seriatim the letters by Mr. Herbert Spencer first printed anonymously in the London *Times* and subsequently, under Mr. Spencer's signature, in the *Monthly*. President Mendenhall finds no difficulty in answering the rather weak arguments of Mr. Spencer, which, indeed, have under his hands the appearance of men of straw set up on purpose to be knocked down.

Nature states that letters have been received from Prof. Sollas, by the Chairman and Secretary of the Coral Reef Boring Committee of the Royal Society, which show that, so far as the main object of the expedition is concerned, the effort has been an almost complete failure. When the party had landed on Funafuti from the 'Penguin,' they selected the most promising site, as it appeared, for a bore-hole. The apparatus was landed and set up, and a bore-hole carried down to a depth of about 65 feet, when further progress became impossible, for material like a quicksand was struck, which choked the bore-hole. Very little solid coral rock was pierced. To pass over the steps then taken, it may be enough at present to say that another attempt was ultimately made nearer to the edge of the island, where there appeared some hope of finding more solid coral rock. This boring was carried down to 72 feet, and then similar difficulties prevented further progress. The material struck was a kind of quicksand containing 'boulders' of coral. As fast as the sand was got out, fresh material poured in, and the water pumped down the tube, with a view of cleaning it, actually flowed out into the surrounding bed, while the coral boulders made it impossible to drive the tubes through the quicksand. So far as the reef was pierced it appeared to be not solid coral, but more like a 'vast coarse sponge of coral with wide interstices, either empty or sand-filled.' Although the expedition has failed in its main object, it has met with great success in all the others. Large collections have been made. Messrs. Gardiner and Hedley have thoroughly investigated the fauna and flora, both land and marine, of the atoll. Dr. Collingwood has obtained information of ethical interest, and Captain Field a series of soundings, both within and without the atoll, which Prof. Sollas states are more complete than have yet been obtained, and must greatly modify our views as to the nature of coral reefs. Of all these matters it would be premature to speak, till Prof. Sollas has returned and been able to give fuller particulars, and Captain Field has reported to the Admiralty.

THE *British Medical Journal* states that a new and unexpected agency is having a most beneficial effect in contributing to the abatement of the smoke nuisance in London. The relative clearness of the London atmosphere within the

last twelve months has been plainly apparent, and the smoke cloud which obscures the London atmosphere appears to be progressively lightening. Mr. Ernest Hart, Chairman of the Smoke Abatement Exhibition in London, frequently pointed out that the greatest contributors to the smoke cloud of London were the small grates of the enormous number of houses of the poor, and a great deal of ingenuity had been exhausted with relatively little success in endeavoring to abate this nuisance. The use of gas fires was urgently recommended, but had hitherto been difficult, owing to its cost and the want of suitable apparatus. The rapid and very extensive growth of the use of gas for cooking as well as lighting purposes by the working classes, due to the introduction of the 'penny in the slot' system, is working a great revolution in the London atmosphere. During the last four years the South London Gas Company alone has fixed 50,000 slot meters and nearly 38,000 small gas cooking stoves in the houses of the workingman.

UNIVERSITY AND EDUCATIONAL NEWS.

THE faculty of Cornell University has resolved that, in place of the degree of Master of Arts, Master of Philosophy, Master of Letters and Doctor of Sciences, the one degree of Master of Arts be conferred; and that in place of the degree of Doctor of Philosophy and Doctor of Sciences, the one degree of Doctor of Philosophy be conferred.

PROF. COLLIER COBB contributes to *Appletons' Popular Science Monthly* for October an interesting article in which he calls attention to the modern plan of instruction in the sciences offered by the University of North Carolina more than one hundred years ago. The course planned in 1792 gave great prominence to scientific studies, especially those which could be applied to the arts. The report of the committee recommended the purchase of apparatus for experimental philosophy and astronomy, in which must be included a set of globes, barometer, thermometer, miscroscope, telescope, quadrant, prismatic glass, electrical machine and an air-pump. The ancient classics were made elective, the degree of B. of A. being obtainable without the study of either Latin or Greek.

DR. D. K. PEARSONS, who had promised $10,000 to the trustees of the Mount Holyoke Association, has agreed to give them $40,000 for the building fund.

Garden and Forest states that the name of the donor of the new range of greenhouses recently completed for the department of botany of Smith College has up to the present not been announced. Last week, however, a bronze tablet placed at the entrance of the Palmhouse bears this inscription: 'The Lyman Plant House. A Memorial Tribute to Anne Jean Lyman, by her Son, Edward Hutchinson Robbins Lyman.'

IT is proposed to create a chair of biology in the University of Christiania, to be filled by Mr. Nansen.

A NUMBER of promotions and new appointments have been made at the Massachusetts Institute of Technology. Four associate professors have been advanced to full professorships. Dwight Porter, in Hydraulic Engineering; Alfred E. Burton, in Topographical Engineering; C. F. Allen, in Railroad Engineering, and Peter Schwamb, in Mechanism. Linus Faunce has been appointed Associate Professor of Drawing. Four new assistant professors have been appointed: George H. Barton, in Geology; William H. Lawrence, in Architecture; George G. Robbins, in Civil Engineering, and Joseph J. Skinner, in Mathematics. Seven assistants have been raised to the rank of instructors. They are William J. Drisko, in Physics; George B. Haven, in Mechanical Engineering; Frank P. McKibben, in Civil Engineering; Alexander W. Moseley, in Mechanical Engineering; James F. Norris, in Organic Chemistry; Joseph W. Phelan, in General Chemistry, and Samuel C. Prescott, in Biology, and in addition A. W. Weysse has been made Instructor in Biology. Fourteen new assistants have been appointed, as follows: In Civil Engineering, Reuben E. Bakenhus, Minor S. Jameson, Charles M. Spofford and Harold C. Stevens; in Geology, Amadeus W. Grabau; in Industrial Chemistry, Leonard W. Goodhue and Harrison W. Hayward; in Mechanical Drawing, Albert J. Wells; in Mechanical Engineering, Edward M. Bragg and Frank B. Masters; in Oil and Gas Analysis,