plication, and the student must at all times be alive to the situation before him. It is the province of the mathematician to point out the limitations placed upon the use of the principles, not in the spirit of criticism, but of mutual help; for approximations must come into the work of the engineer, and a lot of the calculus used must be of the rough and ready sort. If the treatment can not be rigorous at all times it is the province of the mathematician to point out just how far the engineer may go and how near ideal conditions he is working—not to suggest that the whole structure is built on an insecure foundation. The engineer and mathematician can help one another, on the side of the engineer in presenting live problems in which the mathematician should be interested, and on the side of the mathematician in helping put the whole subject on a safe foundation; both working with the spirit of mutual assistance toward the doing of things worth while, not only to the engineer, but also to the mathematician.

ERNEST W. PONZER

SCIENTIFIC NOTES AND NEWS

THE Palmer Physical Laboratory of Princeton University will be formally opened on the evening of October 22, when Dr. Elihu Thomson will give the principal address. The American Physical Society will meet at Princeton on the following day, and in the evening there will be a reception at the Nassau Club.

DR. T. W. RICHARDS, professor of chemistry at Harvard University, has been given the honorary degree of doctor of philosophy by the Czech University of Prague.

THE British Institute of Marine Engineers has awarded the Denny gold medal to Mr. W. P. Durtnall, for a paper on the generation and electrical transmission of power.

IT is proposed to celebrate the fortieth year of university teaching of Professor Enrico H. Giglioni, of Florence, by presenting him with an album containing the autograph signatures of zoologists and anthropologists throughout the world. Those who wish to join in this testimonial are requested to send their autograph to Dr. Enrico Balducci, Via Romana 19, Florence.

DR. JOSEF VON HEPPERGER, professor of astronomy at Vienna, has been appointed director of the University Observatory.

THE trustees of the Lincoln State School and Colony, at Lincoln, Ill., have provided for the establishment of a department of clinical psychology in the state institution for the feeble-minded. Dr. Edmund B. Huey, who has spent the past year in clinical study in Paris, on leave from the University of Pittsburgh, has been appointed to take charge of the new department, and has begun his work at Lincoln.

PROFESSOR R. S. TARR, of the department of geology of Cornell University, has sailed for Europe, where he will spend a year on sabbatical leave.

NEWS has been received from Dr. T. G. Longstaff to the effect that he has arrived at Leh, in Ladak, after having connected the Tarim river with the Saichar glacier.

MR. SHACKLETON has left England on a continental tour, and is to tell the story of his Antarctic expedition in the principal cities of Europe. On October 9 he was to be the guest of the Royal Geographical Society at Copenhagen. He will proceed to Stockholm and Christiania, and afterwards will visit Brussels, Antwerp, Berlin, Rome, Vienna and Paris. In March he leaves England for America on an extended tour.

THE program for the meeting of the American Mathematical Society on Saturday, October 30, will include a paper by Professor Carl Runge, Kaiser Wilhelm professor at Columbia University, on "A hydrodynamic problem treated graphically."

THE faculty of fine arts of Columbia University announces a series of four lectures to be given on Monday afternoons at 4:10 o'clock in Havemeyer Hall, by Charles E. Pellew,

E.M., adjunct professor of chemistry, upon the subject "Practical Dyeing," as follows:

October 18—"Dyeing of Cotton with Modern Dye-stuffs."

October 25—"Tied and Dyed Work."

November 8—"Dyeing and Adulteration of Natural Silk."

November 15—"Manufacture and Dyeing of Artificial and Imitation Silk."

THE first Hunterian lecture of the Hunterian Society was delivered on October 13 at the London Institute by Dr. Sidney Martin, who discussed certain infective processes in the intestine and their results and treatment.

A COURSE of twelve free lectures under the Swiney trust will be given at the Victoria and Albert Museum, beginning November 6, by Dr. T. J. Jehu, on "The History of Northwest Europe during Tertiary Times."

M. J. A. FRAISSINET, secretary of the Paris Observatory, died on August 29, in his sixty-third year.

DR. GEORGE EDWARD POST, for many years head of the Medical College at Beirut, the author of text-books in Arabic on biological subjects, has died at the age of seventy-one years.

THE second International Congress for the Repression of Adulteration in Food, Chemical Products, etc., to be held in Paris on October 17–24, will include sections as follows: (1) wines, alcohols, syrups, liquors, beer, cider; (2) farinaceous foods, baking, pastries, meat and other pastes, spiced confectionery; (3) cocoa, chocolate, confectionery, honey, sugar and sugar candy; (4) vinegar, mustard, pepper, spices, tea, coffee, chicory; (5) butter, milk, cheese, eggs; (6) lard and edible fats, margarine, provisions preserved in oil, bacon, sausages and pork products, salted provisions and canned and bottled goods; (7) drugs, chemical products, essential oils, etc.; (8) mineral water (medicinal) aerated waters, ice.

IT is stated in *Nature* that an Italian National League against malaria has been formed, and the first meeting has been held at Milan. The inaugural address was by Professor Baccelli, and the following communications have been promised: the present state of knowledge in regard to malaria, by Professor Bordoni-Uffreduzzi; prophylaxis against malaria, by Professor Castellino; the pathology of malaria, by Professor Golgi; some questions relating to the pathology and treatment of malaria, by Professor Grassi; little known abortive forms of malaria, by Professor Queirolo.

IT is stated in the *Nation* that the Russian Ministry of Marine is equipping three expeditions to be sent out in the year 1910 to explore the coasts of the Arctic Ocean. One steamship will go from Vladivostok to find its way along the coast of northeast Siberia from Bering Strait to the mouth of the Lena, and is to spend from three to four years in this task. A second expedition will visit the Taimyr Peninsula for hydrographical and topographical investigations. The third expedition, which, like the last, starts from St. Petersburg early in 1910, will follow the land route to the Taimyr Peninsula, and will study particularly the courses of the rivers and the geology, climate and meteorology of the country, establishing local meteorological stations.

AT the New York November meeting of the American Society of Mechanical Engineers, to be held on the ninth in the Engineering Societies Building, 29 West 39th Street, at 8:15 o'clock, there will be two papers presented. One by Professor Gaetano Lanza and Lawrence S. Smith, of the Massachusetts Institute of Technology, on "Reinforced Concrete Beams," and the other by Professor Walter Rautenstrauch, of Columbia University, on "Stresses in Curved Machine Members." The paper on reinforced concrete beams is the same as that given at the Boston meeting of the society on October 20. It compares the results of tests upon full-sized beams made at the Massachusetts Institute of Technology and the University of Illinois with three different theories of beams of this type. The paper on stresses in curved machine members outlines the method of procedure for the design of principal sections of hooks, punch and shear frames and other curved machine parts. Experimental results are submitted in support of the theory presented.

THE following lectures will be given in the department of chemistry, of the College of the City of New York:

November 5—"The Latent Photographic Image," by Professor W. D. Bancroft, professor of physical chemistry, Cornell University.

November 19—"The Warfare of the Future," by Mr. Hudson Maxim.

December 3—"Explosions in Coal Mines," by Dr. J. A. Holmes, chief of the Testing Bureau, U. S. Geological Survey.

March 11—"Coal Tar Colors," by Professor I. W. Fay, professor of chemistry, Brooklyn Polytechnic Institute.

March 18—"Enzyme Action," by Dr. P. A. Levene, chief of the division of chemistry, Rockefeller Research Laboratory.

April 8—"Chemical Equilibrium," by Professor Arthur E. Hill, professor of chemistry, New York University.

April 15—"Chemistry of Digestion," by Professor W. J. Gies, professor of physiological chemistry, College of Physicians and Surgeons.

April 22—"Conservation of the Waters of the State," by Dr. Ernst Lederle, former chairman of the Board of Health, and sanitary engineer.

DURING the year 1909–10 the series of lectures given by Cornell University in cooperation with the New York State Department of Health upon the subject of "Sanitary Science and Public Health" will be continued. Following is a list of the lectures for the first term:

October 5—President Schurman: Introductory lecture, outlining the field and subject matter of the course.

October 7—Dr. G. W. Goler, health officer, Rochester: The history of therapeutics, showing the barbarism of ancient methods of hygiene and medical knowledge.

October 12, 14—Dr. E. H. Porter, state commissioner of health: Public health administration in general; state control of certain specified diseases and insanitary conditions.

October 19, 21, 26, 28—Professor J. W. Jenks: Social problems in their relation to public health.

November 2, 4, 9, 11—Professor W. F. Willcox: Prolongation of human life; the classification of causes of death; marriage and divorce; the birth rate.

November 16, 18—Professor F. A. Fetter: Philanthropy and public health.

November 23—R. A. Pearson, State Commissioner of Agriculture: The relation of rural communities to the public health.

November 30, December 2—A. H. Seymour, secretary of the state department of health: The development of the public health law and the state control of health; provisions of the public health law as applied to specific regulation.

December 7—Professor S. H. Gage: The application of the laws of heredity to public health.

December 9—Professor E. B. Titchener: The influence of the mind upon private and public health.

December 14—F. L. Hoffman, statistician of the Prudential Insurance Company: Problems of life and health in industry.

December 16—Dr. W. L. Russell: Insanity and public health.

December 21—Dr. H. J. Webber: Betterment of agricultural conditions.

January 6—Dr. B. R. Wakeman: Modern surgery with reference to the prolongation of human life.

January 11, 13—Director V. A. Moore: The nature of disease; micro-organisms and their relation to disease.

THE *Scottish Geographical Journal* gives some details in regard to Captain Scott's proposed Antarctic expedition. The main object would be to attempt to reach the pole, and with this object two bases would be established, one at McMurdo Sound, and one if possible in King Edward VII. Land. The attack on the pole would be made from one or other of these bases according to circumstances. Three separate means of traction would be employed—ponies, dogs and motor-sledges. The experience gained by Mr. Shackleton's party would be utilized as far as possible in determining the special circumstances in which each would be employed. Thus, ponies proved suitable for traction over the surface of the barrier, but not for glacial work, for which dogs would be used. Although Mr. Shackleton's motor-car did not prove a success on the soft snow of the barrier, much is hoped of a new type of motor-sledge with which experiments have been recently made. Food would therefore be transported to the foot of the glacier either by ponies or by motor-sledges, while the final dash to the pole, once the plateau had been reached, would be made with the help of dogs.

The scientific objects of the expedition may be briefly stated as follows: 1. Geographical.—To explore King Edward's Land, to throw further light on the nature and extent of the great Barrier ice formation, and to continue the survey of the high mountainous region of Victoria Land. 2. Geological.—To examine the entirely unknown region of King Edward's Land and continue the survey of the rocks of Victoria Land. 3. Meteorological.—To obtain synchronous observations at two fixed stations as well as the weather records of sledge journeys. 4. Magnetic.—To duplicate the records of the elements made by the *Discovery* expedition with magnetographs. The comparison should throw important light on secular changes. 5. Miscellaneous.—In addition, attention will be paid to the study of marine biology at both stations and in the ship, and the examination of physical phenomena will be continued. The plan which has been outlined to secure the main object of the expedition, together with subsidiary plans for the complete exploration of the region of King Edward VII. Land, will necessitate the establishment of a strong party of men at the winter stations and a more ample equipment than has hitherto been taken. It follows that the ship in which the expedition embarks must be suitable in size as well as strong enough to enter the heavy pack ice likely to be met with in the region of King Edward VII. Land. These considerations prevent the full realization of the project under a total estimated expenditure of £40,000. The steamship *Terra Nova,* which served as a relief ship in the *Discovery* expedition, has been purchased for the expedition.

UNIVERSITY AND EDUCATIONAL NEWS

Mr. Andrew Carnegie has subscribed $100,000 to McGill University as a part of the general fund of $2,000,000 which friends of the university are trying to raise.

The University of California has purchased 250 acres of land adjoining the campus. This land comprises the inner portion of Strawberry Cañon, running to the crest of a ridge of the Berkeley Hills.

The John Morley Chemical Laboratories of Manchester University were opened on October 4 by Sir Henry Roscoe, who was for many years the professor of chemistry of the university. Lord Morley, the chancellor of the university, in whose honor the laboratories are named, made the principal address.

At Princeton University Dr. E. P. Adams, assistant professor of physics, and Dr. L. P. Eisenhart, instructor in mathematics, have been promoted to professorships.

Dr. Ralph Edward Sheldon, associate in anatomy in the University of Chicago, has been appointed as assistant professor of anatomy, in charge of histology, embryology and neurology, in the University of Pittsburgh Medical School.

At Cornell University H. E. Howe and H. O. Taylor have been appointed instructors in physics.

At Wellesley College, Miss Louise S. McDowell has been appointed instructor in physics.

At Birmingham University the chair of zoology, rendered vacant by the death of Professor T. W. Bridge, F.R.S., has been filled by the election of Dr. Frederick William Gamble, F.R.S., and Professor Peter Thompson, of King's College, London, has been appointed professor of anatomy in the place of Professor Arthur Robinson.

Professor George A. Gibson, of the Glasgow and West of Scotland Technical College, has been elected to the chair of mathematics at the University of Glasgow.

DISCUSSION AND CORRESPONDENCE

A NEED OF INTERNATIONAL CONGRESSES

In Science for September 17 appeared the very interesting account of the proceedings of the Seventh International Congress of Applied Chemistry, held in London in May, 1909. This account is impressive in many ways, and especially in one, of which, possibly, the author, Professor Baskerville, was not conscious. The report throws into strong relief the great