have greatly increased in recent years, and it is much straitened by its inability to increase its expenditure, either on its own establishment, or in other directions, owing to the incessant demands of the catalogue. The council consider that the time has now come for them to appeal to those who are in a position to afford substantial financial assistance, to enable them to complete this great undertaking without devoting any part of their funds, so sorely needed for other purposes, to this object. They are thankful to be able to announce that Dr. Ludwig Mond, F.R.S., has been so impressed with the importance of the catalogue, with the necessity for producing the subject index of the scientific literature of the past century so far as possible in the same complete form as that adopted by the International Council for the literature of the present century, and with the justice of the view that the Royal Society ought for the future to be relieved of the cost of producing the catalogue, that he has most generously added to his previous gift of £2,000 the munificent donation of £6,000, payable in four annual instalments of £1,500.

The president and council have also much pleasure in stating that Mr. Andrew Carnegie, fully appreciating the value of the society's undertaking and the claims that it has on the liberality of those who, though not fellows of the society, are interested in the promotion of natural knowledge, has contributed the handsome sum of £1,000 towards its accomplishment. They venture to hope that others may be willing to contribute towards a fund to provide for the total cost of this national work.

SCIENTIFIC NOTES AND NEWS.

THE Royal Society has this year awarded medals, as follows: The Copley medal to Lord Lister in recognition of his physiological and pathological researches in regard to their influence on the modern practice of surgery. The Rumford medal to the Hon. Charles Algernon Parsons for his success in the application of the steam turbine to industrial purposes and for its recent extension to navigation. A Royal medal to Professor Horace Lamb for his investigations in mathematical physics. A Royal medal to Professor Edward Albert Schäfer for his researches into the functions and minute structure of the central nervous system, especially with regard to the motor and sensory functions of the cortex of the brain. The Davy medal to Professor Svante August Arrhenius for the application of the theory of dissociation to the explanation of chemical change. The Darwin medal to Mr. Francis Galton for his numerous contributions to the exact study of heredity and variation contained in 'Hereditary Genius,' 'Natural Inheritance,' and other writings. The Buchanan medal to Dr. Sydney A. Monckton Copeman for his experimental investigations into the bacteriology and comparative pathology of vaccination. The Hughes medal to Professor Joseph John Thomson for his numerous contributions to electric science, especially in reference to the phenomena of electric discharge in gases.

AT the meeting of the National Academy of Sciences, held in Baltimore November 11 and 12, a grant of eight hundred dollars was made from the income of the J. Lawrence Smith bequest to Dr. O. C. Farrington, of the Field Columbian Museum, Chicago, to enable him to conduct certain investigations upon the meteoric bodies of America.

THE daily papers state that Major Ronald Ross, of the Liverpool School of Tropical Medicine, will receive the award of a Nobel prize.

Nature gives the following list of those who have been recommended by the president and council of the Royal Society for election into the council for the year 1903 at the anniversary meeting on December 1. The names of new members are printed in italics: President, Sir William Huggins, K.C.B., O.M.; treasurer, Mr. A. B. Kempe; secretaries, Sir Michael Foster, K.C.B., and Dr. Joseph Larmor; foreign secretary, Dr. T. E. Thorpe, C.B.; other members of the council, Mr. W. Bateson, Dr. W. T. Blanford, *Professor H. L. Callendar, Mr. F. Darwin, Professor H. B. Dixon,* Professor G. Carey Foster, Right Hon. Sir John E. Gorst, *Professor J. W. Judd,*

C.B., Right Hon. Lord Lister, O.M., Professor G. D. Liveing, Professor A. E. H. Love, Professor H. A. Miers, *Professor E. A. Schäfer, Captain T. H. Tizard, R.N., C.B.,* Professor H. H. Turner, *Sir J. Wolfe Barry, K.C.B.*

MR. ALBERT F. WOODS, chief of the Division of Vegetable Physiology and Pathology of the U. S. Department of Agriculture, has gone to Nebraska to visit the experimental stations and gather information in regard to the beet-sugar industry.

DR. A. D. HOPKINS, of the Division of Entomology, U. S. Department of Agriculture, has returned from an extended trip to Arizona, southern California, northern Idaho, the Puget Sound country and the Black Hills, where he made investigations of the damage done timber by insect pests.

THE jubilee of the eminent anatomist, Golgi, who is now in his eigthy-sixth year, was celebrated at Pavia on October 28. He was presented with an edition of his works in three volumes.

MR. J. C. HAWKSHAW gave the presidential address before the British Institution of Civil Engineers on November 4. Afterwards medals and premiums were awarded as follows: The Howard quinquennial prize to Mr. Robert A. Hadfield, for his scientific work in investigating methods of treatment of alloys of steel, and on account of the importance in industry of some of the new products introduced by him. A Telford gold medal to Mr. William M. Mordey and a George Stephenson gold medal to Mr. Bernard M. Jenkin, for their joint paper on 'Electrical traction on railways'; a Watt gold medal to Mr. J. A. F. Aspinall, for his paper on 'Train resistance'; a Telford gold medal to Mr. John M. Gray, for his paper on 'The variable and absolute specific heat of water'; a George Stephenson gold medal to Mr. Richard Price-Williams, for his paper on 'The maintenance and renewals of waterworks'; a Watt gold medal to Dr. William B. Dawson, for his paper on 'Tide-gauges in northern climates and isolated situations.' The Miller scholarship, tenable for three years, and the James Forrest medal were presented to Mr. Herbert F. Lloyd, for his paper on 'The design, manufacture and erection of wrought steel conduits for gravitation and pressure water supply.'

THE list of birthday honors in Great Britain includes the names of Mr. W. H. Power, F.R.S., principal medical officer to the Local Government Board, who has been made a companion of the Order of the Bath; Sir J. J. Trevor Lawrence, a Knight Commander of the Royal Victorian Order; and Mr. H. J. Chaney, superintendent of the Standards Department, Board of Trade, Companion of the Imperial Service Order.

DR. H. P. JOHNSON, having undertaken the investigation of icterohæmaturia of sheep, is at present in Helena, Montana, and requests that all correspondence, exchanges, etc., be sent to that address.

MR. G. M. RITCHEY, of the Yerkes Observatory, gave an illustrated lecture on 'Recent Celestial Photography,' under the auspices of the Smithsonian Institution, November 22, in the lecture hall of the U. S. National Museum.

MAJOR WALTER REED, an officer of the Surgeon-General's Department of the Army, and well known for his researches on the relation of the mosquito to yellow fever, died at Washington on November 23, at the age of fifty-one years.

MR. FREDERICK JAMES CARNELL, laboratory assistant in physics in the Sheffield Scientific School, of Yale University, died on November 16 from an accidental shot while hunting.

THE death is also announced of Mr. William Henry Barlow, F.R.S., a well known British civil engineer, on November 12, at the age of ninety years.

THERE will be an examination to fill the position of piece-work computer in the Nautical Almanac Office on December 9 and 10, and to fill a similar position in the Naval Observatory on January 6 and 7.

ACCORDING to *La Semaine Médicale* Dr. Steiner, a Dutch physician, has discovered a method of anæsthesia among the Javanese produced by compression of the carotid artery. From a story collected by Dr. J. R. Swanton,

of the Bureau of Ethnology, when working in the interests of the Jesup North Pacific Expedition, it would appear that the phenomenon involved was known to Indians of our northwest coast.

Formal notification has been received by the Lewiston Land Office from Commissioner Hermann of the General Land Office, of the temporary withdrawal of 2,300,000 acres in Idaho and Boisé Counties, lying south of the present Bitter Root forest reserve, pending an investigation as to the advisability of adding the territory to the reserve. With this addition, the Bitter Root Reserve will comprise 5,300,000 acres, or an area as large as the State of Massachusetts. The land now temporarily withdrawn lies along the Salmon River watershed, and includes Thunder Mountain, Marshall Lake, Warrens and other mining districts.

The sixth meeting of the Congress of American Physicians and Surgeons will be held in Washington, on May 12, 13 and 14, 1903. The subjects chosen for special discussion are 'the pancreas and pancreatic diseases' and 'the medical and surgical aspects of diseases of the gall-bladder and bile ducts.' The president, Dr. W. W. Keen, of Philadelphia, has chosen as the subject of his address 'The duties and responsibilities of trustees of medical institutions.'

On the 14th inst. the chemists of Syracuse organized themselves into a society with the following officers:

President, J. D. Pennock, Solvay Process Co.

Vice-President, Professor E. N. Pattee, Syracuse University.

Secretary, Professor H. Monmouth Smith, Syracuse University.

Treasurer, Dr. J. W. Mathews, Crucible Steel Co. of America.

Councilors, Dr. H. G. Carrell, Solvay Process Co.; Matthew Adgate, General Chemical Co.; Edw. L. French, Crucible Steel Co. of America.

The society begins with a membership of 35. Meetings will be held monthly, except during the summer.

The New England intercollegiate geological excursion, announced a few weeks ago, took place on Saturday, November 1, an exceptionally beautiful autumnal day, when teachers and students to the number of sixty-nine from nine colleges and a number of normal and secondary schools, met at Holyoke, Mass., and were led by Professor B. K. Emerson, of Amherst, to some of the most interesting localities in the district, in connection with the Triassic sandstones and lava flows. A superb view of the Connecticut valley was obtained in the afternoon from the top of Mt. Tom, the summit of which was gained by a funicular railroad. It is planned that the third excursion of the series, a year hence, shall be to the Hanging Hills, near Meriden, Conn., under the leadership of Professor Gregory, of Yale.

A series of investigations is about to be begun by the Division of Hydrography of the U. S. Geological Survey, under M. O. Leighton, resident hydrographer, into the effects of coal-mine refuse upon the rivers of the coal region. It has been commonly observed that the streams running close to the anthracite mines of eastern Pennsylvania and other mining localities are heavily charged with sulphur, and that their waters often have a slightly acid reaction; the beds of the streams are also often overlain by heavy deposits of sulphur precipitated from the water. It is the purpose of the investigations to discover the effects, deleterious or otherwise, upon the rivers which receive the polluted streams. One of the immediate results of the pollution is the driving away of all varieties of fish, which were once abundant in these streams, but a more important consideration is the influence of the sulphur-charged streams on the processes of decomposition of organic matter going on in rivers into which they flow. The mine refuse, especially such as comes from culm-pile washery, is a troublesome source of pollution. The separation of the coal from the waste is accomplished through the use of quantities of water, which are returned to the streams laden with fine coal-dust. For some distance below the outlets of these washeries the streams have the appearance of liquid stove-polish, and the coal-dust, extending for many miles downstream, is gradually deposited, in places even filling the

channels of the streams. Such water is unfit for household or even for manufacturing uses, and though the coal refuse is not an organic pollution, nor a chemical poison, its presence in large quantities is a troublesome factor to be considered when water filtration is projected. The distances downstream to which this material persists under different flow conditions will also furnish an interesting subject for study.

PROFESSOR T. C. CHAMBERLIN, of the University of Chicago, has had charge, during the present season, of the investigations carried on by the U. S. Geological Survey in the deposits of Pleistocene age in the United States. An important part of these deposits consists of the gravel and till widely spread over the northern tier of states by the invasion of the great glacier during a late geological epoch. These gravels are of considerable economic importance on account of the clays found in connection with them in certain localities. In the middle states they are of importance on account of the water retained by them, which is available for wells; while in the western states they are associated with auriferous metals. Professor Chamberlin has been assisted by Professor Salisbury and Mr. W. W. Atwood in the Rocky Mountain region, by Frank Leverett and W. F. Taylor in Michigan and by W. C. Alden in Wisconsin.

THROUGH the influence of Director Stewart, of the Experiment Station at West Virginia University, and with the cooperation of some prominent citizens of Morgantown, the U. S. Division of Good Roads in the Department of Agriculture has been induced to supervise the building of three miles of good road in Monongalia county. Work upon this piece of model road is now going on. It extends from the west end of the suspension bridge at Morgantown down the river three miles, to Randall. A portion of it is to be built of Telford blocks, and the remainder is to be a MacAdam road. Citizens furnish the material and labor and the U. S. government furnishes the machinery and supervises the work.

THE Department of State has received from the Belgian legation, Washington, under date of November 3, 1902, notice of the International Congress of Hygiene and Demography, to be held at Brussels from September 2 to September 8, 1903. An invitation is extended to the United States to be officially represented, and the wish is expressed, in behalf of the Minister of Foreign Affairs, that committees of propaganda, composed of persons eminent in medical science and hygiene, be organized in the different states, with whom the central committee at Brussels may correspond. The questions to be discussed will include bacteriology, microbiology, parasitology applied to hygiene; alimentary hygiene, applications of chemical and veterinary science, sterilization, use of antiseptics; sanitary technology; industrial and professional hygiene; hygienic transportation, best means of disinfection; administrative hygiene, aim and organization of medical inspection, quarantine regulations, and supervision of tenement houses; colonial hygiene, malaria, beri-beri, etc.; demography. Blank applications and copies of regulations and programs, sent by the legation, are filed for reference in the Bureau of Foreign Commerce.

UNIVERSITY AND EDUCATIONAL NEWS.

THE twenty-fifth anniversary of the opening of the State University of Colorado, in Boulder, was appropriately celebrated on November 13, 14 and 15. The general address was given by President Jacob Gould Schurman, of Cornell University, who spoke on 'Problems of Modern University Education as Suggested by the Charter of the University of Colorado.' The other addresses were given before the professional schools. Dr. Frederic S. Lee, of Columbia University, spoke on 'The Scientific Aspect of Modern Medicine'; Mr. Frederick N. Judson, of St. Louis, Mo., spoke on 'The Quarter-Century in American Jurisprudence'; and Professor Dugald P. Jackson, of the University of Wisconsin, on 'The Potency of Engineering Schools and their Imperfections.' The University was established on paper as early as 1861 in the early territorial days of