geology and zoology. These will provide a quick, convenient survey of the most striking features for the visitor who has but little time to spare. The guide lecturers conducting the parties will give informative talks before each of the exhibits.

On the other days when guide-lectures are to be given—Mondays, Tuesdays, Wednesdays and Fridays —individual sections of the museum will be studied, each subject being treated in more detail. Each month a schedule will be drawn up and announced, so that the person with specialized interests may come when his subject is to be taken up. Eventually, under this plan, all sections of the museum will receive this specialized study treatment. Persons with a variety of interests may profitably attend a large part or all of the lectures. Students of high schools, colleges and universities are expected to find the guide-lecture courses particularly valuable as a supplement to their regular studies.

Following is the schedule of guide-lecture tours for December, in addition to the Thursday general tours:

Dec. 2—11:00 A. M., Eskimos.
3:00 P. M., Systematic mammals.
Dec. 5—11:00 A. M., Northwest coast Indians.
3:00 P. M., Precious and base metals; building stones.
Dec. 6—11:00 A. M., Woodland Indians.
3:00 P. M., Plant life.
Dec. 7—11:00 A. M., Great plains Indians.
3:00 P. M., North American and African game animals.
Dec. 9—11:00 A. M., California Indians; nomadic tribes of southwest.
3:00 P. M., Petroleum, coal, clays, sands.
Dec. 12—11:00 A. M., Sedentary tribes of southwest.
3:00 P. M., Skeletons.
Dec. 13—11:00 A. M., Archeology of Mexico.
3:00 P. M., Economic botany.
Dec. 14—11:00 A. M., South American Indians.
3:00 P. M., Systematic minerals and meteorites.
Dec. 15—11:00 A. M., Melanesia.
3:00 P. M., Fish and reptiles.
Dec. 19—11:00 A. M., Italian archeology.
3:00 P. M., Physical geology.
Dec. 20—11:00 A. M., China.
3:00 P. M., Gems.
Dec. 21—11:00 A. M., Tibet.
3:00 P. M., Marine invertebrates.
Dec. 23—11:00 A. M., Children's toys of the world.
3:00 P. M., North American trees.
Dec. 27—11:00 A. M., Reindeer and relatives.
3:00 P. M., Life of birds.
Dec. 28—11:00 A. M., Historical geology.
3:00 P. M., Textiles.
Dec. 30—11:00 A. M., Pewter and glass.
3:00 P. M., Systematic birds.

THE CLEVELAND MEETING OF THE GEOLOGICAL SOCIETY OF AMERICA

THE official program of the mid-winter meeting of the Geological Society of America, to be held in Cleveland, December 29, 30 and 31, has been issued. Three affiliated and closely associated societies, the Paleontological Society, the Mineralogical Society of America and the Society of Economic Geologists, will hold meetings at the same time and place. Section E of the American Association for the Advancement of Science, which will meet at Nashville, announces its program also with this geological group, although its meetings are separate this year.

The program is expected to occupy three days, with almost continuous sessions and many sectional meetings. One hundred titles are listed on the geological society program alone, and the total of the four societies meeting at Cleveland will exceed one hundred and fifty, representing studies in nearly all branches of this earth science.

Major interest this year centers around large tectonic problems as represented by the symposium on "New Data on North American Structures." No less than twenty-five papers deal primarily with structural questions.

The principal addresses will be as follows:

Arthur Keith, president of the Geological Society of America, "Structural Symmetry of North America."

William A. Parks, president of the Paleontological Society, "Some Reflections on Paleontology."

Austin F. Rogers, president of the Mineralogical Society of America, "Natural History of the Silica Minerals."

Frederick L. Ransome, president of the Society of Economic Geologists, "Directions of Progress in Economic Geology."

The annual dinner will be held on Friday evening, December 30, at the Hotel Cleveland, at which time the newly established Penrose medal for distinguished achievement in geologic science will be awarded.

CHARLES P. BERKEY,
Secretary

PRESENTATION OF THE ROYAL SOCIETY MEDALS

THE awards of the Royal Society Medals have already been recorded in SCIENCE. Sir Ernest Rutherford, president of the society, in presenting the medals to Professor A. A. Noyes, Dr. W. D. Coolidge and Professor J. C. McLennan made the following citations:

The Davy Medal, awarded to Professor Arthur Amos Noyes

Professor Noyes's researches have been chiefly concerned with the properties of solutions, in particular of

electrolytic solutions. Soon after the inception of the electrolytic dissociation theory of Arrhenius, it was recognized that all was not well with the strong electrolytes. Whilst qualitatively their properties were accounted for by the theory, there yet existed marked quantitative discrepancies. Accurate measurement of the properties of such solutions was the first requisite for the attack of the problem, and to this task Noyes applied himself. His investigation of the conductance of aqueous solutions up to temperatures as high as 300° forms a classical example of exact physicochemical measurement executed under conditions of great experimental difficulty.

His work on the influence exerted by one salt on the solubility of another, on transport numbers and the mobilities of the ions, on the ionization of pure water at different temperatures, is all directed to the same end. Noyes showed the importance of the classification of the strong electrolytes according to their valency type and, more than twenty years ago, attempted to take into account the electrostatic forces between the ions. He thus foreshadowed the modern theory now so widely developed by Noyes himself amongst other workers.

The Hughes Medal, awarded to Dr. William David Coolidge

Science is under a great debt to Dr. Coolidge for the invention and production of a new type of X-ray tube, called by his name, of great flexibility and power, which has proved of great service not only to medical radiology but also in numerous scientific researches. In the last few years he has applied his unrivalled technical knowledge to the generation of high-velocity cathode rays, which can be passed into the air through a thin window as in Lenard's pioneer experiments thirty years ago. Such researches are of great importance to science, as they promise to provide us with new methods of obtaining a copious supply of swift electrons and high-speed atoms of matter for experimental investigations.

A Royal Medal, awarded to Professor John Cunningham McLennan

For more than thirty years Dr. J. C. McLennan has been an industrious and enthusiastic experimenter, his papers being mainly concerned with radioactivity, gaseous conduction of electricity, the spectra of the elements and the liquefaction of gases. Among his works of outstanding merit may be mentioned the measurements he has made with his pupils on the fine structure of spectral lines, which are of much importance to modern theories of the mechanism of the atom. Recently he has had quite sensational success in tracing to its source the elusive auroral line $\lambda 5577$, an extremely difficult task which had baffled the skill of many previous investigators. This is important not only in itself but also on account of the information it yields as to the structure of the upper atmosphere. Apart from his own private researches he has built up a most efficient school of physics in Toronto, and is largely responsible for the present strong position of physical science in Canada. He has devoted much energy to the establishment of a cryogenic laboratory in Toronto, a heavy task which he has carried out with much success.

SCIENTIFIC NOTES AND NEWS

THE Edison medal, conferred annually by a committee of the American Institute of Electrical Engineers for "meritorious achievement in electrical science, electrical engineering or the electrical arts," has been awarded for the year 1927 to Dr. William D. Coolidge, assistant director of the research laboratory of the General Electric Company, "for his contributions to the incandescent electric lighting and to the X-ray arts."

THE Catherine Wolfe Bruce gold medal of the Astronomical Society of the Pacific, given annually for "distinguished services to astronomy" upon the nominations made by six of the world's great observatories, has been awarded for 1928 to Dr. Walter Sydney Adams, director of the Mount Wilson Observatory. The formal presentation will be made in the early part of next year. Since its foundation in 1897, the medal has hitherto been conferred upon Simon Newcomb, Arthur Auwers, David Gill, Giovanni V. Schiaparelli, William Huggins, Herman Carl Vogel, Edward C. Pickering, George W. Hill, Jules Henri Poincaré, Jacobus C. Kapteyn, Oskar Backlund, W. W. Campbell, G. E. Hale, Edward Emerson Barnard, Ernest William Brown, Henri A. Deslandres, Frank W. Dyson, E. B. Baillaud, A. S. Eddington, Henry Norris Russell, R. G. Aitken and Herbert Hall Turner.

THE board of managers of the Franklin Institute has voted to award to Dr. Vladimir Karapetoff an Elliott Cresson gold medal, "in consideration of the inventive ability, skill in design and detailed theoretical knowledge of kinematics and electrical engineering displayed in the development of computing devices." This medal will be presented at the annual medal day meeting of the institute, which will be held on May 16, 1928.

ON the occasion of a celebration, marking the fiftieth anniversary of the founding of the Engineers' Club of Philadelphia, the University of Pennsylvania conferred the degree of doctor of science upon the following engineers on December 10: John Hays Hammond, of Washington, past-president of the American Institute of Mining Engineers; Charles M. Schwab, of New York, honorary member of the Engineers' Club and president of the Iron and Steel Institute, and Howard Elliott, of New York, chairman of the board of the Northern Pacific Railway.

AT the annual meeting of the American Society of Mechanical Engineers in New York, the Melville medal, awarded for the first time, was given to Leon