Section E (Geology and Geography), Dr. Douglas Johnson, professor of physiography, Columbia University.

Section F (Zoological Sciences), Dr. Robert Hegner, professor of protozoology, The Johns Hopkins University.

Section G (Botanical Sciences), Dr. Elmer D. Merrill, director, New York Botanical Garden.

Section H (Anthropology), Dr. William K. Gregory, curator of paleontology, American Museum of Natural History, and professor of paleontology, Columbia University.

Section I (Psychology), Dr. Herbert S. Langfeld, professor of psychology, Princeton University.

Section K (Social and Economic Sciences), Dr. Griffith C. Evans, professor of mathematics, Rice Institute.

Section L (Historical and Philological Sciences), Dr. W. B. Munro, professor of history and government, Harvard University, and the California Institute of Technology.

Section M (Engineering), Dr. Dexter S. Kimball, professor of engineering and dean of the College of Engineering, Cornell University.

Section N (Medical Sciences), Professor Howard T. Karsner, professor of pathology, Western Reserve University.

Section O (Agriculture), C. G. Williams, Ohio Agricultural Experiment Station.

Section Q (Education), Professor Ernest Horn, professor of education, State University of Iowa.

Other elections were as follows:

Council members to succeed Dr. L. E. Dickson, University of Chicago, and Dr. David White, of the U. S. Geological Survey, are Dr. F. G. Cottrell, U. S. Department of Agriculture, and Dr. A. F. Woods, U. S. Department of Agriculture.

Members of executive committee to succeed themselves: Dr. J. McKeen Cattell, Garrison, New York, and Professor Henry B. Ward, University of Illinois.

Members of the committee on grants for research to succeed Professor W. Lash Miller, of the University of Toronto, and Professor Oswald Veblen, of Princeton University, are Professor S. C. Lind (chemistry), of the University of Minnesota, and Professor Carl E. Guthe (anthropology), of the University of Michigan.

Member of the finance committee, Herbert A. Gill to succeed himself.

Nomination for board of trustees for Science Service, J. McKeen Cattell to succeed himself.

Secretary of the academy conference, Dr. S. W. Bilsing, of the Texas Agricultural and Mechanical College.

Secretary of the secretaries' conference, Commander N. H. Heck, secretary of Section M.

SCIENTIFIC NOTES AND NEWS

DR. J. PERRIN SMITH, emeritus professor of paleontology at Stanford University, with which he had been connected since 1892, died on January 1. He was sixty-six years old.

IN the British New Year's list of honors Sir Ernest Rutherford, professor of experimental physics and director of the Cavendish Laboratory at the University of Cambridge, has been made a baron; Sir John Rose Bradford, president of the Royal College of Physicians, and Sir Richard Gregory, editor of *Nature,* have been advanced to be baronets; Frank E. Smith, director of scientific research at the admiralty and secretary of the Royal Society, has been knighted.

THE one thousand dollar award of the American Association for the Advancement of Science for an outstanding paper presented at the Cleveland meeting was given to Drs. M. A. Tuve, L. R. Hafstad and O. Dahl, of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington. Their paper entitled "Experiments with High Voltage Tubes" was presented to the American Physical Society.

DR. J. HOWARD BROWN, professor of bacteriology in the School of Medicine of the Johns Hopkins University, was elected president of the Society of American Bacteriologists at the recent meeting at Boston. Dr. L. A. Rogers, of the U. S. Department of Agriculture, and Dr. Norman MacL. Harris, health commissioner of Ottawa, Canada, were elected members of the council. The society will hold its next meeting at the Johns Hopkins Medical School. In 1932 it is planned to meet at the University of Michigan.

DR. ALFRED C. LANE, Pearson professor of geology and mineralogy at Tufts College, was elected president of the Geological Society of America at the forty-third annual meeting held in Toronto.

DR. W. F. G. SWANN, director of the Bartol Research Foundation of the Franklin Institute, was elected president of the American Physical Society at the Cleveland meeting.

DR. FRANCIS CARTER WOOD, of the Crocker Cancer Research Institute of Columbia University, is president-elect of the Radiological Society of North America.

PROFESSOR WILLIAM KING GREGORY was elected president of the Galton Society and Mr. Frederick Osborn secretary-treasurer at the meeting of the society on December 15.

DR. W. D. LAMBERT, of the U. S. Coast and Geodetic Survey, delivered on January 3 the address as retiring president of the Philosophical Society of

Washington. His subject was "The Variation of Latitude."

DR. DAVID WHITE, senior geologist of the U. S. Geological Survey and home secretary of the National Academy of Sciences, was awarded the Penrose Medal at the Toronto meeting of the Society of Economic Geologists.

DR. JULIUS F. RIEDENWALD, of Baltimore, has been awarded the Phi Lambda Kappa medal bestowed annually upon the Jewish physician who has contributed most to the science of medicine.

DR. F. L. DUNLAP, consulting chemist, of Chicago, has been elected a foreign member of the Masaryk Academy of Czechoslovakia.

RAYMOND G. BRESSLER, deputy secretary of agriculture of Pennsylvania, formerly professor at Texas Agricultural and Mechanical College and vice-dean at Pennsylvania State College, has been elected president of Rhode Island State College. He succeeds Dr. Howard Edwards, who died April 9, 1930. Dr. Bressler will take up his work as president on April 1.

DR. F. E. BREITHUT has been made professor of chemistry and head of the department of chemistry of the Brooklyn College of the College of the City of New York.

DR. FORREST D. MCCREA, of Cleveland, has been appointed professor of physiology and pharmacology at Duke University School of Medicine.

DR. O. E. KIESSLING has been appointed chief economist of the mineral statistics division, and Mr. W. W. Adams chief statistician of the newly created demographical division in the U. S. Bureau of Mines. Dr. Kiessling succeeds the late Frank J. Katz, who had served as chief economist of the mineral statistics division economic branch for many years.

MR. SIDNEY SMITH, assistant keeper in the department of Egyptian and Assyrian antiquities at the British Museum, has been appointed keeper of the department in succession to the late Dr. H. R. Hall.

DR. KARL LANDSTEINER, of the Rockefeller Institute for Medical Research, reached New York on January 3 after a visit to Stockholm, where he went to receive the Nobel prize in medicine.

PROFESSOR PARKE HARDY STRUTHERS, head of the Syracuse-Andean Expedition for the study of rare birds, animals and reptiles, with ten collaborators sailed on December 31 on the way to the Sierra Nevada range of the Andes. The party will disembark at Porto Cabello, Venezuela, where they will be joined by natives and proceed inland more than 500 miles to the jungles of Meridia where the expedition will establish its headquarters. Others in the group include Dr. Robert Crockett, bacteriologist; Dr. Ernest Reed, botanist; Dr. Earl T. Apfel, geologist; Professor Sidman Poole, geographer; Wesley Curran, assistant zoologist, and Philip Barnes, photographer. The expedition is to last six months.

Dr. R. A. MILLIKAN, of the California Institute of Technology, delivered a lecture on December 20 before the Royal Canadian Institute on "The Cosmic Rays in Canada."

DR. F. K. RICHTMYER, of Cornell University, gave a popular talk on "X-rays and Their Uses" on November 11 at St. Lawrence University, Canton, New York, under the auspices of the St. Lawrence (Iota) chapter of Sigma Pi Sigma, national honorary physics fraternity.

CAPTAIN DONALD B. MACMILLAN, the explorer, will give three lectures accompanied by motion pictures at the University of California on January 15 and 16. The subjects are "Iceland" and "Northern Lights."

SIR ARTHUR EDDINGTON formally opened on January 6 the twenty-first annual exhibition of the British Physical and Optical Societies at South Kensington. Two lectures with experiments were given on January 7 and 8 by Mr. E. Lancaster-Jones on "Searching for Minerals with Scientific Instruments," and by Sir Gilbert Walker on "Physics of Sport."

AT a meeting of the Galton Society on December 15, Professor G. Elliot Smith, of University College, London, addressed the society on the Peking Man (*Sinanthropus*). Professor Elliot Smith spoke on the same subject before the College of Physicians of Philadelphia on December 11.

THE Second International Congress of Comparative Pathology will meet in Paris, from October 14 to 18. The secretary of the American committee is Dr. George W. McCoy, National Institute of Health, Washington, D. C.

BY the will of the late Rossiter Betts, the residue of his estate amounting to about $1,000,000 is left to Yale University. Legacies of $5,000 each were made to the New York Institute for the Deaf and Dumb, of which the testator was president; the New York Zoological Society, the New York Botanical Garden, the Metropolitan Museum of Art and the American Museum of Natural History. The Hampton Normal and Agricultural Institute at Hampton, Virginia, and the Berry School at Mount Berry, Georgia, receive $2,500 each for scholarships.

MRS. D. A. DUNLAP, as a memorial to her son, has

provided funds for a new astronomical observatory for the University of Toronto to be known as the David Dunlap Observatory. The 24-inch reflecting telescope is already under construction in England, and will be housed in a circular metal building to be erected near the city on a large acreage which will be converted into a park. The observatory will be in charge of the department of astronomy of the University of Toronto, while the faculty of forestry will be in charge of development of the park.

MR. GEORGE EASTMAN, of Rochester, New York, is reported to have given $1,000,000 to the city of Stockholm, Sweden, for a dental dispensary similar to the Rochester Dental Dispensary and to those recently established by Mr. Eastman in London and Rome. The Stockholm clinic will include one feature not provided for in the other foreign cities, a school for dental hygienists similar to that of the Rochester dispensary.

BATTELLE MEMORIAL INSTITUTE at Columbus, Ohio, announces the establishment at the institute of a research project sponsored by the Ohio Steel Foundry Company of Lima and Springfield, Ohio. This will consist of a comprehensive study of steel-foundry practice with a view to developing improvements and economies in practice as well as the betterment of finished products. Dr. C. H. Lorig, a member of the staff and a specialist in foundry practice, will be in immediate charge of this work under the direction of Mr. Clyde E. Williams, assistant director.

FOUR Mississippi State educational institutions were dropped from the eligible list of the American Association of University Professors at the annual meeting at Cleveland. The association voted to condemn wholesale dismissals of faculty members by Governor Theodore G. Bilbo last June and July. The resolution said that "much damage has been done to the cause of education in Mississippi as well as a great injustice to those dismissed or demoted." It charged the 179 dismissals and demotions were made "apparently for political reasons, without due consideration of the welfare of the students affected, and, so far as we are informed, with no notice to those dismissed or demoted." The schools placed on the ineligible list "until such time as the administration of educational affairs in the State of Mississippi has been restored to a status acceptable to this association" are: University of Mississippi, the Agricultural and Mechanical College of Mississippi, the Mississippi State College for Women, and the State Teachers College. This action, effective immediately, means that members can not teach at the institutions and retain their association membership. It was explained that credits of students are not involved, but have been jeopardized by the action of the Southern Association of Colleges and Secondary Schools. The association also adopted a "statement of principle" declaring that "no university professor who receives a fee from any person or association interested in public discussion or in testimony respecting a particular question of public importance should take part in such discussion without making public the fact that he receives such compensation and making public the name of the person or association paying him the said compensation."

THE Czechoslovak Ministry of Education has created a radio section which will have charge of the installation of radios in Czechoslovak schools and the broadcasting of school programs. Special school programs will be broadcast twice daily, according to preliminary plans. Radio sets will be installed in 13,000 primary schools at a cost of approximately 60,000,000 crowns, or about $1,800,000. The larger schools will include the cost of installing radio equipment in their current budgets while arrangements will be made for the smaller schools to receive credit and pay for the equipment over a period of several years.

THE *Journal* of the American Medical Association reports that the erection of the new Institute of Public Health in Rome, in the vicinity of the Policlinico, by the Italian government, toward which the Rockefeller Foundation made a large contribution, was recently begun. The institute will be under the direct control of the public health service and will have functions entirely distinct from those of the university institutes of hygiene. Its chief purpose will be the creation of a school for the education and training of sanitary personnel; it will serve as an aid to the public health service in the country in general, in the provinces and in the communes. The present laboratories of the public health service and of the school for the study of malaria will be reorganized, with new equipment, and will be located in the new institute.

THE Forest Service recently sent congratulations to the Forest School at Eberswalde, Germany, on the school's one-hundredth anniversary. These congratulations are in the form of an illuminated parchment with gold-colored hand-drawn letters and design bearing the message: "The Forest Service of the United States Department of Agriculture congratulates Forstliche Hochschule, Eberswalde, Germany, upon the occasion of its one-hundredth anniversary."

ACTING upon the recommendation of Secretary of the Interior Wilbur, President Hoover by proclamation, dated November 14, added approximately 11,010 acres of land to the Petrified Forest National Monument, Arizona. With this addition the total area of

the monument now is 36,918 acres. The new area contains many features of scientific interest which will be easily accessible to visitors upon the completion of the bridge which the National Park Service plans to build across the Rio Puerco. This bridge is necessary for the convenience of visitors to the Petrified Forest and the new addition contains the most feasible site for its construction. In the past, flood conditions in the river have frequently made impassable the road leading into the forest. The age of the petrified trees, whose fragments cover the ground over an area of over 100 square miles, of which more than half is included in the monument, is estimated at 200,000,000 years. None of the trees is standing. The petrified trunks, more or less fractured, dismembered, and lacking branches, all lie prostrate on or in the ground. Where a trunk or stump is found in an upright position, it is due to tilting of the already petrified log by natural forces. The ancient living forests which supplied these logs did not grow in the location in which they now are found. When the trees fell or were knocked over, they drifted down some prehistoric stream, became waterlogged and sank. Sand and pebbles gathered around and over them and finally thousands of feet of sandstone settled upon them. Changes then took place in the trees, turning them from wooden trunks into a mass of agate and carnelian, still in the shape of the original trees. Then, as the ages went on, there was a slow upheaval of the land, and erosion finally exposed the now thoroughly petrified logs and the innumerable small fragments. In the Petrified Forest National Monument there are three principal forests. Although they are the same geologically, erosion has produced different results in the three areas, and the color and texture of the "wood" also varies considerably.

INVENTIONS made in carrying on research work in the Engineering Experiment Station at the Ohio State University may, at the discretion of the trustees of the institution, be patented either for the benefit of the university or for the benefit of an individual, firm or corporation for which the research work was done, according to a ruling of the Attorney General, Gilbert Bettman, given in response to an inquiry from Dr. George W. Rightmire, president of the university. Persons with whom the university cooperates in experiments have not, by mere force of the relation of the parties, any exclusive rights under the law in inventions made possible as a result of such experiments, the attorney general held, even though such work is financed by funds contributed by them.

DISCUSSION

METEOR BUTTE

THE origin of the geologic formation in Arizona called Meteor Butte (formerly known as Coon Butte), near Sunset Station on the Atchison, Topeka and Santa Fé Railway, has long been considered something of a mystery, although in recent years it has positively been ascribed to the impact of a giant meteor—hence the change of name. The dimensions of the huge basin are: diameter about 4,000 feet, depth 570 feet: a truly remarkable hole in the ground.

In SCIENCE, November 7, 1930, Professor H. L. Fairchild expounds most learnedly his explanation of the origin by collision with a meteor as well as the reason why no vestige of the colliding mass is found either in the butte or anywhere near it.

Inasmuch as no evidence is discoverable of a meteoric body capable of excavating such a large basin, notwithstanding long, competent and diligent examination, and as my poor intelligence sees nothing reported that substantiates in the slightest degree the meteor theory, I venture to disbelieve that theory in toto.

For my part I have always been skeptical in the matter, but I have patiently waited for the drillings and investigations to turn up some credible evidence. No evidence has come that appears to me at all competent.

Mr. D. M. Ballinger, some years ago, caused numerous drillings to be made to considerable depths. He reported the results in an admirable paper read before the National Academy of Sciences in 1909; later printed. This paper he accompanied with a number of very clear diagrams and some excellent photographs of the "butte" taken both inside and outside the so-called crater.

All this drilling and investigating proved one thing *definitely:* that the underlying rock strata are in "continuous and undisturbed position." They also developed the fact that there exists copious ground water. This latter fact is to be specially noted with reference to what follows.

According to Professor Fairchild, whose competency in geology is unquestioned, the topmost continuous stratum is the Kaibab Permian limestone,