The ceremonies at Boulder Dam, including the sounds of the first generation of power there, will be brought back by radio to the Auditorium and broadcast there over the amplifying system.

Also scheduled to speak at this special session are Lewis Mumford, the writer, on "Power and Culture"; Arthur Surveyer, eminent Canadian authority, on "Power and Social Progress," and Senor Joa Marques dos Reis, Brazilian Cabinet Minister, on "Power and the State."

The closing session will be held on Saturday afternoon when an impressive ceremony will mark the transfer of the presidency of the World Power Conference from the hands of a German to a representative of the hosts, an American. Dr. Julius Dorpmueller, head of the Reich Railroads, has served as president of the conference since the death of Oskar von Miller, who was elected at the 1930 meeting in Berlin.

THE HARVARD TERCENTENARY CONFERENCE OF ARTS AND SCIENCES

AN article giving full details in regard to arrangements for the Harvard Tercentenary Conference of Arts and Sciences appeared in the issue of SCIENCE for April 3.

The conference began on August 31, and continues until September 12. The program of papers in the biological sciences to be given next week is as follows:

Tuesday, September 8

"The Fundamental Nature of the Respiratory Rhythm." Sir Joseph Barcroft, professor of physiology, University of Cambridge.

"The Influence of Chemical Thought on Biology." Sir Frederick Gowland Hopkins, professor of biochemistry, University of Cambridge.

"Diabetes as a Disturbance of Endocrine Equilibrium." Bernardo Alberto Houssay, professor of physiology, University of Buenos Aires.

"Insect Polyembryony and its General Biological Aspects." Filippo Silvestri, professor of general and agricultural zoology, Regia Scuola Superiore di Agricultura, Portici.

"Plants and Civilizations." Elmer Drew Merrill, professor of botany, Harvard University (late director of the New York Botanical Garden. Invited, before his appointment in Harvard University, to take part in the Tercentenary Conference.)

"The Biology of Whales." Johan Hjort, professor of marine biology, University of Oslo.

Wednesday, September 9

"Relations of Symmetry in the Developing Embryo." Ross Granville Harrison, professor of biology, Yale University.

"Über die Wirkungsweise des Organisators." Hans Spemann, professor of zoology, University of Freiburg.

Thursday, September 10

"Serological and Allergic Reactions with Simple Chemical Compounds." Karl Landsteiner, member of the Rockefeller Institute for Medical Research.

"The Trend of Prevention, Therapeutics and Epidemiology of Dysentery since the Discovery of its Causative Organism." Kiyoshi Shiga, Kitasato Institute, Tokyo.

"The Use of Isotopes as Indicators in Biological Research." August Krogh, professor of zoophysiology, University of Copenhagen.

"Formation of Enzymes." John Howard Northrop, member of the Rockefeller Institute for Medical Research.

"Protein Molecules." The Svedberg, professor of physical chemistry, University of Upsala.

SCIENTIFIC NOTES AND NEWS

THE Hayden Memorial Geological Award of the Academy of Natural Sciences of Philadelphia has been presented this year to Dr. Andrew Cowper Lawson, professor of geology emeritus at the University of California, for his "fundamental geological studies concerning . . . the foundation of the North American continent, . . . significant studies of the classification and internal structures of rocks, . . . of the mechanisms of eruptions of lava, the origin of the Sierra Nevada and Coast Range, seismic phenomena of the Pacific Coast region, and the topographic evolution of arid regions." The award consists of a gold medal endowed in 1888 by Mrs. Hayden as a memorial to Dr. Ferdinand V. Hayden.

ANDREW W. MELLON, formerly Secretary of the Treasury, will receive the Pittsburgh award for outstanding service to chemistry at the ninety-second meeting of the American Chemical Society in Pittsburgh on September 9. The award will be shared posthumously by his brother, the late Richard B. Mellon. The honor was voted in recognition and appreciation of their work in connection with the Mellon Institute of Industrial Research.

DR. J. FRANK DANIEL, chairman of the department of zoology at the University of California, has been created a knight of the Legion of Honor by the Government of France. Last year Dr. Daniel represented the university and the California Academy of Science at the celebration of the three hundredth anniversary of the founding of the National Museum of Natural History in Paris.

DR. EDWARD BARTOW, of the State University of

Iowa, president of the American Chemical Society, has been made an honorary member of the American Water Works Association.

DR. PASTEUR VALLERY-RADOT, a grandson of Pasteur, associate professor in the University of Paris Medical School and attending physician to Paris hospitals, has been elected a fellow of the Paris Academy of Medicine.

SIR ERNEST GRAHAM-LITTLE, M.P., of the University of London, has been elected a member, *honoris causa,* of the French Dermatological Society.

HENRY L. COLES has resigned as head of the department of chemical engineering at the University of Detroit to accept a similar position at the University of Colorado.

DR. ARNOLD P. HOELSCHER, connected with the division of metallurgy of the department of chemistry at the University of Iowa for the last four years, has joined the faculty of chemical engineering at Purdue University as assistant professor of metallurgy.

AT the University of Michigan J. Henry Rushton, formerly of the Drexel Institute, Philadelphia, has been appointed assistant professor of chemical engineering, and C. A. Siebert, of Wayne University, has been appointed assistant professor of metallurgical engineering.

DR. WILLOUGHBY M. CADY, of Clark University, has been appointed instructor in physics at Cornell University.

M. LOUIS-ALFRED PIEDRO GERMAN, professor of malacology at the National Museum of Natural History, Paris, has been elected for a period of five years director of the museum.

DR. ETIENNE BURNET, known for his work on undulant fever, leprosy, tuberculosis and other work in connection with the Health Section of the League of Nations, has been made director of the Pasteur Institute at Tunis, in succession to the late Dr. Charles Nicolle.

CHARLES S. ELTON, director of the Bureau of Animal Population in the department of zoology and comparative anatomy of the University of Oxford, has been elected senior research fellow at Corpus Christi College.

DR. JOHN HAROLD CROSSLEY THOMPSON has been elected to a fellowship and lectureship in mathematics at Wadham College, University of Oxford.

DR. CLIFFORD G. PARSONS, at present holding the appointment of resident medical officer at the Birmingham, England, United Hospital, has been appointed Walter Myers traveling student for one year from February 1, 1937, to undertake research on "Anemia in Relation to Diseases of the Cardiovascular System" at New York and at Baltimore or Boston.

Nature states that Dr. E. C. Bullard has been appointed Smithson research fellow of the Royal Society as from January 1. Dr. Bullard proposes to continue his present work on the development of methods of measurement and their application to geological problems in the department of geodesy and geophysics of the University of Cambridge.

STEPHEN N. WYCKOFF, who has for thirteen years been in charge of the western office of the Blister Rust Control of the Bureau of Entomology and Plant Quarantine, Spokane, Wash., has been made director of the Northern Rocky Mountain Forest and Range Experiment Station of the Forest Service, with headquarters at Missoula, Mont. He succeeds Lyle F. Watts, who recently became regional forester for the Central States region.

HAROLD R. HARMAN, formerly in charge of battery research at the Eagle-Picher Lead Company at Joplin, Mo., has been appointed chief chemist of the research laboratory.

DR. CHARLES L. WILLIAMS, senior surgeon, U. S. Public Health Service, and officer in charge of the Algiers Quarantine Station, New Orleans, has been promoted to assistant surgeon in the service in charge of the foreign quarantine division for the United States.

DR. WILLIAM BURNS, director of agriculture, Bombay, has been appointed agricultural expert with the British Imperial Council of Agricultural Research in place of the late Dr. F. J. F. Shaw.

THE late Sir Henry Wellcome in his will has appointed Geo. E. Pearson governing director for life of the Wellcome Foundation Ltd. Mr. Pearson has been deputy governing director of the foundation since its formation in 1924.

DR. A. S. PEARSE, of Duke University, has returned from Yucatan, where he spent three months in studying cave animals.

DR. ALBERT W. C. T. HERRE, curator of the Zoological Museum of Stanford University, left on August 27 for the Chekiang Provincial Fisheries Experiment Station at Tinghai, Chusan Islands, China, where he will spend six weeks or two months. Hong Kong and Canton will be visited next, followed by a couple of months in the Philippines. An attempt will be made to collect fresh-water fishes in the northeast quarter of British North Borneo. Two months will be spent in the Malay Peninsula, working on the fresh-water

fishes in collaboration with Raffles Museum, of Singapore.

DR. THOMAS L. PATTERSON, professor of physiology at Wayne University, Detroit, is serving as acting professor of physiology at the Hopkins Marine Station of Stanford University during the summer quarter of 1936, where he is conducting research investigations on the gastric motor mechanism of fishes. He is also giving a course of evening lectures on "The Comparative Physiology of the Mechanics of the Gastrointestinal Tract of Invertebrate and Vertebrate Animals."

THE extension division of the University of California announces a series of ten lectures on "Light and the Application of its Properties through the Microscope, the Spectroscope and other Optical Instruments." The lectures will be given by Haller Belt and George S. Prugh, respectively president and vice-president of the Bausch and Lomb Optical Company of California. They will be given on Friday evenings, beginning on September 11.

THE fourth International Grassland Congress will be held next year at Aberystwyth, Wales, from July 15 to 18.

THE Geographical Conference at Sofia was opened on August 16 by Professor Mishaikoff, the Minister of Education. Some 420 geographers and ethnographers of all Slav countries and visitors from France, Finland, Germany and Austria attended.

THE first annual International Horticultural Exposition will be held in the International Amphitheater at the Chicago Stock Yards, from September 12 to 20. Many educational features will be installed with the cooperation of the U. S. Department of Agriculture, the state departments of agriculture, some thirty agricultural colleges and experiment stations, and a number of national horticultural societies. A corps of practical gardeners and experts upon all phases of horticulture will be on duty to answer questions for visitors, give advice on individual gardening problems and conduct demonstrations on proper methods to employ in various gardening practices.

A BUREAU OF BIOLOGICAL RESEARCH has been organized at Rutgers University to promote biological research through the cooperative efforts of its members. Eleven research projects have been approved for the academic year 1936–37, and work on these investigations is in progress.

Nature states that the curators of the university chest of the University of Oxford have been authorized to receive from the Rockefeller Foundation a sum not exceeding £1,600 annually for five years from October 1, 1936, for researches in the Dyson Perrins Laboratory on the synthesis of proteins.

A PLAN to build a new central technical college at Birmingham, England, costing over £1,000,000 when completed, has been approved by the Education Committee. The building cost is estimated at £560,000, plus £200,000 for the site and compensation, and in addition professional fees, plant, equipment and furnishing are estimated at over another £200,000. The building will incorporate the present technical college departments, the commercial college and various sections of the School of Art, together with a domestic science department, gymnasia, refectory and library.

THE botanical department of the Johns Hopkins University has completed the seventh of the expeditions to the West Indies conducted by Duncan S. Johnson. The party spent two months in Jamaica at work on the coral reefs and coastal plains, and on the rain forests of the Blue Mountains. The botanists of the group included Professors M. A. Chrysler, R. E. Cleland and William Seifriz and Messrs. B. E. Goldberg, H. N. Stoudt and R. N. Webster. Besides collecting herbarium and alcoholic research material, they investigated the reproductive structures of certain marine algae, the vegetative propagation of ferns and the development and anatomy of Cycadaceae, Araceae, Batidaceae, Lauraceae and Myrtaceae. They also explored a biologically unknown valley north of Blue Mt. Peak. The zoologists in the party, Drs. W. G. Lynn, J. B. Buck and C. B. Davidheiser, were engaged in the study of lepidoptera, certain tree frogs with no tadpole stage in their development and the period of luminescence of various fireflies.

DR. A. C. BOYLE, JR., formerly chief geologist of the Union Pacific Railway System, has been appointed acting custodian of Dinosaur National Monument, Jensen, Utah. He is also project superintendent and geological engineer in charge of the operations at the quarry site. The National Park Service, Washington, D. C., is sponsoring the development of the monument, and the work is being done by 100 men furnished by the WPA and living in a camp near the site of excavations. Dr. Barnum Brown, curator of fossil reptiles at the American Museum of Natural History, N. Y., is directing the actual work. A correspondent writes: "The plan is to work the bones out in bas-relief on a solid wall of indurated sandstone which has a regional dip of about 65 degrees. When finished the exhibit promises to be the finest natural portrayal of dinosaur remains yet discovered. This quarry is famous for the skeletons and parts of skeletons which were quarried during the time Dr. Earl Douglass operated the quarry. From present operations it appears that thousands of bones will be encountered in the work of excavation."

THE American Institute of Mining and Metallurgical Engineers in cooperation with the Metal Prod-

ucts Exhibits, Inc., has assembled an exhibit which shows the metallic elements present in the earth's crust, their availability, the locations of commercial sources and the flow of metals and minerals in world trade. Genuine ores, metals and typical fabricated metal products, including specimens and displays supplied by state and federal agencies as well as the major metal producing companies, are included. The exposition opened on August 17 and will close on October 17 at the Metal Products Exhibits in the International Building at Rockefeller Center. It is open every weekday from 10 A. M. to 6 P. M. except Saturday, when the closing hour is 3 P. M. Admission is free.

DISCUSSION

THE EIGHTIETH ANNIVERSARY OF PROFESSOR S. N. WINOGRADSKY

PROFESSOR SERGEI NIKOLAEVITCH WINOGRADSKY, who will reach the venerable age of eighty on September 1, 1936, may be considered by common consent as the dean of soil microbiologists. In the words of his prominent student, Omeliansky, whom he has survived, Russia produced two outstanding bacteriologists, I. Metchnikov in the medical field and S. N. Winogradsky in the non-medical.

Born of a rich and aristocratic family in the region of the Ukraine, Winogradsky was educated in the Universities of Kiev and St. Petersburg. His first scientific interests were directed to the morphology and physiology of bacteria. Finding that the Russian institutions offered only limited facilities for conducting investigations in this field, he left for western Europe, but he did not become expatriated, as was the case of Metchnikov. Winogradsky spent several years in the laboratory of De Bary in Strasbourg and, when the latter died, he settled at the University of Zürich. At these two institutions, he made his epoch-making contributions to the knowledge of autotrophic bacteria. First, the sulfur-oxidizing organisms, the iron bacteria and finally the nitrifying bacteria. The principles laid down by Winogradsky concerning the metabolism of these highly interesting and important groups of microorganisms served as the foundation for the numerous investigations that were to follow. Winogradsky not only developed but discovered this field of microbiology.

In 1891, Winogradsky, while still in Zürich, received a tempting invitation from Pasteur to come to Paris and organize a division of soil microbiology at the Pasteur Institute. He refused, in order to accept another invitation extended to him simultaneously from his home land, to organize a division of general microbiology at the newly established Institute of Experimental Medicine in St. Petersburg. He soon became the first editor of the *Archives of Biological Sciences* and was later made director of the institute. His scientific interest was now turned to the study of the nature and physiology of non-symbiotic nitrogen-fixing bacteria, and later of pectin-decomposing bacteria. Executive duties soon interrupted his scientific work, leading to his final retirement both from active research and from his executive position at the institute, in 1905. Some of his investigations were continued by his capable assistant, Omeliansky, who later took his place at the institute.

Winogradsky retired to his estate in the Podol to engage in practical agriculture. Here, surrounded by his family, he would have spent the remaining years in the manner of a Russian landlord, so well described by the novelists Turgeniev and Tolstoi. However, fate willed it otherwise. The Russian revolution resulted in the complete economic destruction of the class of landowners. Winogradsky, among many others, was forced to leave his native country and seek refuge in foreign lands. In 1921 he found himself in Yugoslavia, without any means of support. Although he was immediately appointed professor at the University of Belgrade, he had little opportunity for pursuing scientific work. Upon learning of his fate, the Pasteur Institute renewed again the invitation extended to him 30 years previously, which he now accepted. In 1922 he established a division of soil microbiology at the Pasteur Institute. A small estate, located at Brie-Comte-Robert, some 40 kilometers outside of Paris, was placed at his disposal.

In his new laboratory, Winogradsky devoted himself primarily to the study of the microbiological population of the soil. In rapid succession, he carried out a series of brilliant investigations on methods of studying microorganisms in the soil, on the nature of cellulose decomposing bacteria, nitrogen-fixing bacteria and nitrifying bacteria. His annual critical reviews dealing with the subject of soil microbiology in the *Bulletin* of the Pasteur Institute and a series of 8 memoirs published in the *Annals* of the institute and dealing with his own investigations, attracted considerable attention and aroused new interest in the science.

At the age of 80, Winogradsky is still engaged in research work. He has few assistants, his daughter, Helene, being his only collaborator. His mind is as active, vigorous and critical as ever. He is anxious