mendations on photometry for the official advisory committee.

The bureau has proposed the establishment of a system of photometric units based primarily upon the intensity of the light given by a "black body" radiator at the freezing point of platinum. The adoption of such a basic unit must be supplemented by agreement upon a method for measuring lights differing from that of the basic standard in color. The flicker photometer, with proper allowance for the characteristics of individual observers, affords one of the most simple and practical methods for making such measurements. Its use has, however, not been viewed with favor abroad. Consequently, a basis for international agreement is being sought in spectrophotometric measurements of colored filters, from which standard values for transmission of visible light can be calculated by means of "visibility factors" which have already been accepted by the International Commission on Illumination.

In both of these projects the National Physical Laboratory of Great Britain and the Bureau of Standards have been cooperating. Mr. Crittenden therefore visited London on his way to Paris in order to compare experimental results found at the bureau with those of the British laboratory. These two laboratories have joined in proposing that the new units in electricity and in light be put into general use on January 1, 1935. An alternative proposal is that their introduction be deferred until 1937. The most important duties of the 1933 meeting are to choose between these dates and to agree upon a definite schedule for carrying out the series of comparisons and interchange of standards which will be necessary.

THE PRIESTLEY LECTURES AT THE PENNSYLVANIA STATE COLLEGE

THE seventh annual Priestley Lectures at the Pennsylvania State College will be given at 7:30 P. M., on April 3, 4, 5, 6 and 7.

Two memorials to Joseph Priestley have been established by the faculty and alumni of the department of chemistry: 1. In 1919 the alumni of the department purchased the old Priestley residence at Northumberland, Pennsylvania, about seventy miles from the college. They have built near the house a museum to hold such Priestley relics as can be gathered together. The alumni have assumed responsibility for the maintenance of the whole property in recognition of Joseph Priestley's contributions to early American chemistry. 2. An annual series of lectures was inaugurated by members of the faculty in 1926, bearing the name of the Priestley Lectures. These lectures deal each year with the border-line between physical chemistry and some other branch of science.

In 1931, Phi Lambda Upsilon (honorary chemical fraternity) undertook the financial support of the Priestley Lectures. These lectures, therefore, now constitute a joint memorial to Joseph Priestley on the part of both the faculty of the Department of Chemistry and the Honorary Fraternity of Phi Lambda Upsilon.

This year's lectures deal with the border-line between physical chemistry and metallurgy. They will be given by Professor Eric R. Jette, of the School of Mines of Columbia University.

The former Priestley Lectures are as follows:

The first year's lectures dealt with the border-line between physical chemistry and biocolloids. They were given by V. Cofman, of the Experimental Station of E. I. Du Pont de Nemours and Company.

The second year's lectures dealt with the border-line between physical chemistry and metallography. They were given by Dr. S. L. Hoyt, of the Research Laboratory of the General Electric Company.

The third year's lectures dealt with the border-line between physical chemistry and medicine. They were given by Dr. H. B. Williams, head of the department of physiology of the College of Physicians and Surgeons, Columbia University.

The fourth year's lectures dealt with the border-line between physical chemistry and ceramics. They were given by Dr. Louis Navias, of the Research Laboratory of the General Electric Company.

The fifth year's lectures dealt with the borderline between physical chemistry and electrical engineering. They were given by Dr. John W. Williams, assistant professor of chemistry at the University of Wisconsin.

The sixth year's lectures dealt with the border-line between physical chemistry and biological chemistry. They were given by Dr. Victor K. LaMer, associate professor of chemistry of Columbia University.

THE SIXTEENTH SESSION OF THE INTERNATIONAL GEOLOGICAL CONGRESS

THE International Geological Congress will hold its sixteenth session in Washington, D. C., from July 22 to 29.

The project of holding an International Geological Congress originated in connection with the Centennial Exposition of 1876 at Philadelphia. A Founders' Committee was formed in that year with James Hall, state geologist of New York and one of America's foremost geologists, as its president. The committee included T. Sterry Hunt, of Canada, as secretary, six other members from the United States and Canada, and one each from England, Sweden and Holland. Thomas Henry Huxley was the member from England. This committee asked the Geological Society of France to cooperate in preparing for a congress at the Paris Exposition in 1878 and the French society appointed an organization committee on July 27, 1877.

This meeting was the first of a series of fifteen congresses that have been held as a rule at intervals of from three to four years, in various countries of Europe and in Mexico (1906), Canada (1913), and the United States (1891). The preceding one was held in South Africa in 1929.

The International Geological Congress is regarded as a continuing organization for which the responsibility is passed on from the organization committee of one session to that of the next. Attempts have been made at various times to induce the congress to form an International Union or to affiliate with the International Research Council, but the preference of the members has been in favor of the more informal organization that has always existed.

However, the thirteenth session which met in Brussels in 1922 adopted a set of statutes consisting of twelve articles, which were essentially a formulation of the traditional practises of the congress and which were for the most part very general in character.

In general the meetings of the congress are financed by contributions from governments, organizations and individuals. The coming session was financed, in its early stages, by contributions from members of the organization committee. Subsequently, however, the Geological Society of America undertook to pay the expenses of organizing the congress, and has offered a liberal subsidy to reduce the cost of the excursions to participants.

One of the principal objects of the International Geological Congresses is to enable geologists to acquaint themselves, by personal observation, with some of the most significant and distinctive features of the geology of the country in which the congress is held. For this reason it is customary for the organizers of each congress to carefully plan and prepare a number of excursions to take place before and after the scientific sessions. On each excursion a special type of geology generally predominates. The nature of some of the excursions to be given in connection with the coming congress in Washington is indicated by the following summary descriptions of them:

Eastern New York and Western New England.
Mining districts of Southeastern and Central States.
Appalachian Valley in Virginia.
Paleozoic stratigraphy of New York.
Coastal plain of the Chesapeake Bay region.
Oil fields of Oklahoma and Texas.
Geomorphology of the central Appalachians.
Mineral deposits of New Jersey and eastern Pennsylvania.
Transcontinental excursion starting from San Francisco.

These excursions will take place before the sessions in Washington and last from 4 to 12 days. In addition, a committee of New York geologists has arranged a group of one and two day excursions in the vicinity of New York for those who do not care for the longer trips. There will also be short excursions from Washington during the session.

After the Washington sessions there will be two transcontinental excursions, each lasting thirty-one days. These will include a wide range of geologic features with some choice of side trips. There will also be two shorter excursions after the congress, one for glacial geology and one to study the iron and copper deposits and the pre-Cambrian geology of the Lake Superior region.

In the minds of the founders of the congress one of its principal functions seems to have been to bring geologists together so that they could standardize by international agreement certain methods and ideas. This is clearly formulated by the president of the Organization Committee of the first congress in his address of welcome where he says, "The dominant motif in organizing this congress has been the need, felt by all, of mutual agreement on geologic classification and nomenclature," though he goes on to say "We can not invoke here the law of numbers; no majority can impose convictions which the sense of truth alone can bring about." The inherent limitations to such activity in a rapidly growing science, except as regards the standardization of cartographic symbols, has become increasingly clear with successive congresses, so that the tendency has been more and more away from standardization and towards exchange of ideas.

Thus, out of the program of the first Congress which consisted of the following topics:

1. Standardization of geologic publications from the point of view of nomenclature and symbols.
2. Discussion of various questions relating to the limits and characters of some formations.
3. Representation and coordination of alignment features (faults and veins).
4. Relative value of faunas and floras from the point of view of the delimitation of formations.
5. Value of mineralogic composition and texture of rocks from the point of view of their origin and age.

two lines of activity have developed, one represented by the program of topics for discussion, the other by the commissions for organizing the knowledge in certain fields and increasing international agreement in them.

As a result of this development the organization committee of the sixteenth session has proposed the following topics for special discussion at the coming meeting:

Measurement of geologic time by any method.
Batholiths and related intrusives.
Zonal relations of metalliferous deposits.
Major divisions of the Paleozoic era.
Geomorphogenic processes in arid regions and their resulting forms and products.
Fossil man and contemporary faunas.
Orogenesis.
Geology of petroleum.
Copper resources of the world.

In proposing for discussion such a topic, for instance, as "Major Divisions of the Paleozoic Era" it is hoped that as a result of the formal papers presented and the discussion that accompanies them, a closer approach to agreement in this very controversial field will be reached; but there will be no attempt to formulate certain conclusions as representing the opinion of the congress as a whole.

The international commissions of the congress appointed at any session carry over to the next session, at which they are expected to present their reports. They may be and many of them have been continued from session to session. Those appointed at the fifteenth session are:

1. Spendiaroff prize.
2. Palaeontologia Universalis.
3. Lexicon of Stratigraphy.
4. Glaciers.
5. Fossil Man.
6. Crust of the earth.
7. Geophysics and Geothermics.
8. Map of Europe.
9. Map of the Earth.
10. Distribution of the Karroo (Gondwana) system.
11. International Map of Africa.
12. Sub-Commission of African Surveys.

The success of several of these which are charged with the preparation of definite publications depends largely on funds from outside sources. The Prussian Geological Survey, under the auspices of the committees of the International Geological Congress, has supervised the compilation of the geologic maps of Europe and of the World, which have been published and are sold through regular publishers.

Other commissions have fostered work in the fields with which they were concerned or provided for the publication of results in current journals. There are obvious difficulties in the way of effective action by a commission whose members are scattered over the entire earth, as is the case with most of these commissions. However, even when they can not produce definite results they promote international agreement in the fields with which they deal.

The organization committee of the eleventh session held in Sweden in 1910 decided that it was desirable for the congress to exert a more extensive and systematic influence on the development of applied geology. They, therefore, published a volume on "The Iron Ore Resources of the World." It has been the practise of the organization committee of most congresses since then to prepare a similar volume on the resources in some major mineral deposit. Volumes on coal, phosphate and pyrite, and gold have been published by previous congresses and the organization committee of the sixteenth session is preparing one on copper.

These volumes aim to describe the geology of deposits all over the world and as far as possible to estimate reserves. They have been found very valuable by those concerned with the mineral industries and have probably helped to secure financial support for the congress.

Not the least valuable function of these congresses, as of all gatherings of scientists, is to bring about personal acquaintance and friendship among those who attend and to afford opportunity for informal discussion. During the scientific sessions of the International Geological Congresses some formal entertainments as well as informal gatherings of groups and individuals provide for this, but the best opportunity is afforded by the excursions, on which the participants are constantly together for a number of days, and discuss many of their problems with the evidence before them.

Any one may become a member of the Congress For information address General Secretary, International Geological Congress, U. S. Geological Survey, Washington, D. C.

M. I. G.

SCIENTIFIC NOTES AND NEWS

DR. ROBERT F. GRIGGS, professor of botany at George Washington University, Washington, D. C., has been elected president of the Washington Academy of Sciences.

GEORGE W. FULLER, of Fuller and McClintock, New York, has been elected chairman of the Engineering Foundation. He succeeds H. Hobart Porter, president of the American Water Works and Electric Company.

DR. SYDNEY CHAPMAN, chief professor of mathematics at the Imperial College, South Kensington, has been made president for 1933 of the Royal Meteorological Society.

CONRAD BECK, director of R. and J. Beck, sci-