In view of the special circumstances surrounding the summer meeting, the permanent secretary's office was authorized to extend invitations to persons living within a radius of three hundred miles from Chicago to join the association until July 15, 1933, without making payment of the usual entrance fee.

Information was presented to the executive committee that a volume containing papers delivered at the symposium on "The Stabilization of Employment," held in connection with the Atlantic City meeting, had been printed by the Principia Press. The volume was edited by Dr. Charles F. Roos, former permanent secretary. The Principia Press and the Far-Reaching Foundation of Denver proposed to distribute a special edition of the volume to the president, members of Congress and other national officers. The permanent secretary was authorized to prepare and approve the use of a statement to accompany each volume to indicate the part of the association in the undertaking.

The payment of life membership fees in instalments as approved by the council in the Atlantic City meeting was further considered by the executive committee and it was voted that such payment be approved in instalments of not less than $20 in each of five successive years. Such periodic payments would include the annual dues for each year during this period. The permanent secretary was requested to formulate the exact conditions of the plan and present the same for record and approval at the next meeting of the executive committee.

Dr. Henry Norris Russell, president of the association, was delegated as its representative for the meeting of the British Association for the Advancement of Science to be held in Leicester, from September 6 to 13, 1933.

Correspondence from the general secretary of Phi Beta Kappa was presented to the committee, and the permanent secretary was asked to invite that organization to arrange for an address at the Boston meeting, the address to be given by a leading scholar.

Various communications concerning the great increase in the cost of German scientific publications were read to the committee and discussed at considerable length. The possible complications as affecting intimate contacts and proper exchange of information between scientific men were pointed out. In view of the opportunity for misinterpreting definite action, the matter was laid aside for the present.

The proposal to select from the fellows in membership in the association a certain number to be designated as research fellows was presented and after much consideration was on recommendation of the chairman made a special order of business for the June meeting.

The finance committee presented a report regarding defaulted interest payments on mortgages held in the endowment funds, and it was voted that collection of interest should not be pressed during present conditions.

The committee was entertained at luncheon Saturday noon at the Administration Building of the Century of Progress Exposition. Following the luncheon there was a joint meeting with some of the officers of the Century of Progress and with the local committee for the Chicago meeting. Opportunity was afforded for seeing plans of the exposition, learning of the progress made on the installation of scientific features of the same and the general outlook for the exposition. Reports were made by members of the local committee representing individual sections and affiliated societies. They showed that the plans had been adequately worked out, that the work was well advanced towards completion, and that the exhibits, facilities and programs assured not only satisfactory conditions for the summer meeting but a scientific gathering of unusual extent and significance.

HENRY B. WARD,
Permanent Secretary

HOTEL HEADQUARTERS FOR THE CHICAGO MEETING

THE local committee has arranged for the Chicago meeting, the hotel headquarters of the association and its sections as follows:

General Headquarters: Stevens Hotel, Michigan Avenue at 7th Street.
Section A (Mathematics): Judson Court, University of Chicago.
" B (Physics): Windermere Hotel, 1642 E. 56th Street.
" C (Chemistry): Hotel Sherman, 106 W. Randolph Street.
" D (Astronomy): Hotel Stevens, Michigan Avenue at 7th Street.
" E (Geology): Southmoor Hotel, 67th at Stony Island Avenue.
" F (Zoology): Hotel Stevens, Michigan Avenue at 7th Street.
" G (Botany): Hotel Stevens, Michigan Avenue at 7th Street.
" H (Anthropology): Bismarck Hotel, 175 W. Randolph Street.
" I (Psychology): Great Northern Hotel, 237 S. Dearborn Street.
" K (Social and Economic Sciences): Hotel Stevens, Michigan Avenue at 7th Street.
" L (Historical and Philological Sciences): Drake Hotel, Lake Shore Drive and Michigan Avenue.
" M (Engineering): Palmer House, 15 East Monroe Street.

Section N (Medical Sciences): Knickerbocker Hotel, 163 E. Walton Place.
" O (Agriculture): Morrison Hotel, Madison and Clark Streets.
" Q (Education): Drake Hotel, Lake Shore Drive and Michigan Avenue.

The affiliated societies are in general housed in hotels of the section to which they are related. The engineering societies, however, are distributed as follows:

Palmer House: American Society of Civil Engineers; American Society of Mechanical Engineers.
Edgewater Beach: American Institute of Electrical Engineers.
Stevens Hotel: American Institute of Mining and Metallurgical Engineers; American Society for Testing Materials; Society of Industrial Engineers; American Ceramic Society; Society for the Promotion of Engineering Education; National Council of State Boards of Engineering Examiners; American Foundrymen's Association.
Hotel Sherman: Institute of Radio Engineers.

For those who may be coming to Chicago by car and may be interested in automobile camps, the following operated by the Century Cabins, Inc., 7 South Dearborn Street, have been approved by the Century of Progress:

Desplaines Avenue where crossed by Chicago Rapid Transit Line, Forest Park, Illinois. On World's Fair marking—Illumination Route—U. S. 330—Lincoln Highway.

Milwaukee Avenue and Oakton Street, Park Ridge, Illinois. On World's Fair marking—Radio Route—Illinois Route No. 21—Milwaukee Avenue.

22nd and Manheim Road, Westchester, Illinois. On World's Fair marking—Illumination Route—U. S. 330—Lincoln Highway.

Other camps are no doubt available, information concerning which can be obtained from automobile associations and clubs.

Correspondence regarding reservations should be sent directly to the appropriate hotel. Members are advised to make early application for rooms and to specify their connection with the association. It is important to have a definite understanding regarding space and rates.

THE NATIONAL ACADEMY OF SCIENCES

ABSTRACTS OF PAPERS PRESENTED AT THE WASHINGTON MEETING

AT the annual meeting of the National Academy of Sciences, held in Washington, D. C., on April 24 and 25, the following papers were presented:

Geometry of the Laplace equation: EDWARD KASNER. The Laplace differential equation, $\frac{\partial^2\varphi}{\partial x^2}+\frac{\partial^2\varphi}{\partial y^2}=0$, has its origin in the theory of gravitation, φ being the potential; but of course it is of importance in many other branches of physics and in the theory of functions of a complex variable. The curves $\varphi(x, y) =$ constant constitute an isothermal family, so called because they are the curves of equal temperature in a steady flow of heat. The author finds purely geometric properties of such families. We state seven of these properties as follows, each one being completely characteristic: (1) If we construct the osculating circles at any point P of the curve of the given isothermal family and the orthogonal trajectory, these circles meet at another point P_1, and the transformation T from P to P_1 is conformal. (2) A related transformation is of the Darboux type. (3) If we construct all the ∞^2 isogonal trajectories these form a natural family of the kind arising in optics and in the dynamics of conservative forces. (See Kasner's Princeton Colloquium Lectures.) (4) Of all the isogonal trajectories at any point P, two will admit circles of curvature of higher than second order contact, and these two will be orthogonal. (5) The isogonal trajectories form a linear family (as proved by the writer in *Math. Annalen*, 1904), and therefore we can form a Desargues configuration. This gives a characteristic construction in finite form. (6) Any isothermal family and the two families of minimal straight lines form a Blaschke hexagonal web. (7) Any isothermal net may be regarded as the orthogonal projection of the asymptotic lines of some surface. In conclusion, various geometric operations are described by means of which given isothermal families yield new isothermal families. The generalization to the Laplace equation in three dimensions is not direct and will be studied in another paper.

The geometry of spinors: OSWALD VEBLEN.

Finding the velocities of the spiral nebulae: V. M. SLIPHER. This paper gives a brief account of the velocity studies of the spiral nebulae made at the Lowell Observatory, where work in this field was begun. It touches on the development of the efficiency of the instruments for the work and gives results. There are mentioned the early tests and the reasons stated in support of the velocities being real in spite of their most extraordinary magnitudes. Examples of nebulae in rapid rotation are cited, and objects are referred to which are of exceptional interest because of their speeds of translation or rotation or because of their exceptional spectra.