others, to reduce physiology to physics and "to ornament and enrich it by mathematical demonstrations," and while not unmindful of the great value inherent in the contributions of these pioneers to haemodynamics and the mechanics of muscular movement, will feel, nevertheless, that the physical chemists of our day, like their mathematical predecessors three centuries ago, do not always take into account the complexities encountered in this laudable purpose of reducing life phenomena to fundamental equations. It is not specialized mechanisms, as the muscle, the selective permeability of membranes or certain definite chemical and physico-chemical processes like those of the respiration, which are already capable of thermodynamical treatment, that offer difficulties to the realization of this laudable ambition, but the more general cytological problems of biology such as are encountered in the study of cellular processes as a whole, of cell organization into highly differentiated structures, and of development in general, together with the difficult problems of heredity, that will tax the power of the Gibbses of the future. Or, consider the difficulties that will confront the mathematician of the future in his efforts to express the entire life processes and the reproductive powers of a single-celled organism only, as, say one of the paramoecia, in the form of valid general equations. To the biologist, it must appear that not one Gibbs but perhaps a half dozen or more will be required and their genius will be able to achieve results of value only after many more quantitatively determined biological facts shall be at their disposal than is now the case. The writer is an optimist in regard to the mental powers of the elect of our species, but he can not but feel that a single century will hardly suffice for the realization of these hopes, which biologists in general cherish equally with physicists and chemists.

J. J. ABEL

THE JOHNS HOPKINS UNIVERSITY

(To be concluded)

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

GRANTS IN AID OF RESEARCH, FOR 1928

THE allotment of American Association grants for 1928, in aid of research, will occur next December and all applications to be considered in that allotment must be in the Washington office by December 1. While the amounts of these grants are never large, being usually for sums less than five hundred dollars, yet this annual allotment constitutes an important part of the work of the Association. It is intended that the grants to individuals shall be specially useful in making possible the completion of important pieces of research already begun or that they shall be the means of supplying special apparatus or facilities, in cases where adequate funds can not be secured elsewhere. They are generally announced in January and the funds become immediately available. A grant may be disbursed in a single sum or in suitable installments according to the wishes of the grantee. All undisbursed grants or undisbursed portions of grants revert to the treasury on October 1 of each year, unless special arrangements have been previously made with the permanent secretary's office to have them made available for the next fiscal year. It will be remembered that the official year of the association extends from October 1 to the following September 30.

It is specially important that members of the association should be alert to the possibilities of these small grants and that the older members should give advice and suggestions to the younger members in this connection when occasion arises, to the end that the grants may be allotted to persons who will make the most of them and for projects that are of outstanding and pressing importance. Applications for grants may be made at any time, but no allotments are made excepting at the time of the annual meeting of the association. A special form of blank is now provided for applications. Copies of the blank are to be had from the permanent secretary's office. Each application should be supported by letters from at least two persons who are acquainted with both the applicant and the research project for which a grant is needed.

All applications for grants are referred to the Committee on Grants for Research, which makes allotments in December of each year. At the annual meeting the council makes an appropriation for grants allotted by the Committee on Grants. Each applicant receives a notice in January, informing him whether or not his application has been favorably acted upon. The permanent secretary acts as secretary of the Committee on Grants, but he is not a member of the committee and has no vote. The membership of the Committee on Grants for 1927 is as follows: Dr. Aleš Hrdlička (for Psychology, Anthropology, Education, Economics), *chairman*; U. S. National Museum, Washington, D. C. Dr. B. M. Davis (for Botany); University of Michigan, Ann Arbor, Mich. Dr. Joseph Erlanger (for Physiology); Washington University School of Medicine, St. Louis, Mo. Dr. Nevin M. Fenneman (for Geology); University of Cincinnati, Cincinnati, Ohio. Dr. L. G. Hoxton (for Physics); University of Virginia, University, Va. Dr. Vernon Kellogg (for Zoology); National Research Council, Washington, D. C. Dr. W. Lash Miller (for Chemistry); University of Toronto, Toronto, Canada.

Dr. Oswald Veblen (for Mathematics); Princeton University, Princeton, N. J.

Each person receiving a grant for any year is expected to send to the permanent secretary's office a report on the grant project, this report to be in hand before December 1. The report shows what has been done during the year. If the project has been completed the report may be final, otherwise a later report should be sent in. A progress report should be sent each October or November until the final report is rendered. In these reports grantees are expected to give references, with full citations, to any publications they have made on the grant project and reprints or copies of such publications should accompany the reports. It is also expected that, in the publication of results partly or wholly secured by reason of a grant from the American Association, shall be included due acknowledgment of that aid. A suitable acknowledgment may have such form as this: "Financial aid for the work here reported was received from the American Association for the Advancement of Science in the form of a grant for the year 1927." Apparatus purchased or constructed with funds from a grant was formerly held to be the property of the association, but it is now to be given by the grantee to his institution or laboratory, or is to be otherwise disposed of by him so as to be of further use in scientific research. The final report on a grant should show what disposal has been made of such apparatus. Any unused portion of a grant should be returned to the association.

BURTON E. LIVINGSTON,
Permanent Secretary

ALBERT WILLIAM SMITH

ALBERT WILLIAM SMITH was born in Newark, Ohio, on October 4, 1862, and died in Cleveland on March 4, 1927. He attended the school of pharmacy of the University of Michigan, from 1883 to 1885, graduated from Case School of Applied Sciences in 1887, and received his doctor's degree in Zurich in 1891. Even before his absence in Europe he was a member of the instruction staff in Case School, and he resumed his connection with the faculty upon his return in 1891. His life's work has therefore been very especially associated with this community. In 1897 he became professor of metallurgy, but upon Professor Mabery's retirement in 1911 he returned to the department of chemistry as professor of chemical engineering. In these years he has guided many generations of students into careers of usefulness, and each graduate carried out with him a special measure of regard and affection.

His time and experience he readily placed at the service of others. He served on the commission which studied the problem of Cleveland's water supply and recommended the filtration system. In the world war he was in the Chemical Warfare Service under the Bureau of Mines. He has for many years been consulting engineer and director of the Dow Chemical Company. He belonged to and took an active interest in the proceedings of the American Chemical Society, the American Institute of Chemical Engineers and the American Institute of Mining and Metallurgical Engineers. He was a member also of the American Association for the Advancement of Science.

In the Cleveland Section of the American Chemical Society and its parent organization, the Cleveland Chemical Society, he played a prominent part. Always valuable in its councils and its activities, he was three times its chairman and has for a long time represented it as councilor in the national organization.

To those who knew Professor Smith well and came within the sphere of his personal influence, there will always remain outstanding an impression of charm which graced and enhanced the value of his academic and scientific achievements. His character was so gentle, so kindly, yet so strong withal, that his influence was doubly effective and the circle of his admirers included all with whom he dealt. For his intimate contemporaries the void left by his loss will never be filled. It is pleasant to realize that the kindness and consideration which he measured out so generously to others found a rich return in the happiness of his family life and in the delightful relations which existed between him and his friends and associates.

H. G.

SCIENTIFIC EVENTS

RESEARCH FELLOWS OF THE LONDON ZOOLOGICAL SOCIETY

THE Zoological Society has lost both its anatomical and its aquarium research fellows, and the posts will be filled before the end of the year. We learn from the London *Times* that on the death of Dr. Sonntag in 1925, the council decided to transform the post into a research fellowship, tenable for a limited number of years, in the hope of securing ambitious young anatomists who would desire to devote themselves for two or three years to research on the rich material for comparative anatomy available in the Prosectorium, before passing to professional work at a medical school or university. It was arranged, moreover, to allow the anatomical fellow to combine his work at the Zoological Gardens with a certain amount of teaching at a London medical school, in order that he