has shown, are at heart more concerned with contributing to the future scholarship of the world than with becoming lost in the past.

In the physical sciences the startling advances in recent years make the future appear particularly alluring. But it is in the field of biology, as Professor Conklin has shown, and in studies of the immediate life of man, including medicine and hygiene, that the next fifty years offer the promise of greatest returns.

In scientific philosophy devitalization of life is yielding to vitalization of the universe. In biology the chief center of interest has shifted from description and classification, through mechanistic abstraction, to life as lived. In scientific medicine the chief center of interest has passed from the autopsy room through the clinical laboratory to the common health. The nihilism of terminal medicine is yielding to faith in the stitch in time.

Details as to what the next fifty years may offer in aims, means or results in science I shall not attempt to discuss. Those who enjoy letting fancy rove are referred to Francis Bacon's description of Solomon's House written three centuries ago. It will doubtless take another three centuries for the experiments of light to obtain the relative position there pictured. To-day the experiments of fruit enjoy the luxuries, and these are far beyond those dreamed by Bacon.

The luxuries awarded to applied science are nowhere more in evidence than in the field where the movie heroes love the great open spaces. It is to be hoped that in the future heroes endeavoring through experiment to throw light on vital activity may be granted more use of great open spaces. It is significant that state agricultural experiment stations furnished two leaders to our School of Hygiene and Public Health. The work of the late Luther Burbank, foremost of experimental breeders, shows the need of experimental genetics studied on a broad scale. The work of Henry Ford, foremost of experimental sociologists, suggests the value of experimental study of environment on human life. The example of William Mayo, foremost of experimental practitioners, shows the importance of having more space than civic centers allow for experimental studies in the medical sciences. It is noteworthy that the foremost experimental pathologist, Theobald Smith, has always recognized this. The Johns Hopkins should add to its official program for the immediate future the purchase of a tract of land near Baltimore and an endowment for experimental biology and medicine in the open.

In this era of specialization institutions as well as individuals have been becoming more and more specialized. The medical school of the Johns Hopkins University, relatively free from direct social responsibilities, may best make its chief duty the advance of medical science. The medical school of the University of Wisconsin through university, school system and state government, an organic part of the commonwealth, must devote relatively more attention to medicine and hygiene as social arts. Neither school can afford to neglect either the science or the art of medicine, but differentiation and specialization according to responsibilities and opportunities are likely to lead our medical schools and other educational institutions into their respective greatest fields of usefulness.

To sum up: My prayer for the Johns Hopkins Medical School of the next half century is abundance of freedom for the development of scientific research as an independent profession, abundance of means for developing this freedom.

For the realization of this hope ample funds are needed. Gifts to endow free care have seldom been a continued public benefit. Charity should not only begin at home but should represent a sacrifice by those immediately cognizant of its needs. Gifts made to endow schemes to save society are likewise doomed to ultimate failure. Fashions change. Gifts made to endow advancement of knowledge and gifts made to promote perfection of expression of aspiration are the most beneficent contributions of philanthropists. These have made possible mankind's truest treasures, the works of the creative imagination. It is to be hoped that the day may come when the Johns Hopkins may receive gifts which will enable her to develop creative achievement not only in the realm of science but also in that of fine arts. Freedom for both seekers for beauty and seekers for knowledge is needed to release the truth that liberates. *Veritas nobis est liberanda.* It's up to us to see that truth is freed.

C. R. BARDEEN

UNIVERSITY OF WISCONSIN

THE ANNUAL SCIENCE EXHIBITION OF THE AMERICAN ASSOCIATION

THE continued development of the annual science exhibition held in connection with annual meetings of the American Association for the Advancement of Science is showing pronounced activity this year. Those who have attended the last five annual meetings will remember that the exhibition has been a regular part of each meeting since the project of an annual exhibition was taken up at the second Toronto meeting. Through the unusually excellent work of the local committee for that meeting (December, 1921), the first exhibition of this annual series was a remarkable success. The next exhibition, at Boston, was not

so satisfactory in some ways, but it carried on. The one at Cincinnati showed great improvement in the number and importance of the exhibits, although it was not so attractively arranged as was desirable. In these first three cases the exhibitions were held without collecting any funds from the exhibitors (entry of exhibits was free to all), the services of those in charge were all contributed gratis and very little if any money was spent by the association. The Washington exhibition (December, 1924) was much larger and more satisfactory than any of the earlier ones in the series. Exhibits by commercial firms were more numerous and more complete than ever before and the gymnasium of the George Washington University was thoroughly filled. For the first time, the commercial exhibitors joined together in contributing a small fund to care for exhibition expenses, but not much was needed; this, as well as the earlier exhibitions, was distinctly "home-made" in style. Considering the limited financial possibilities and other limitations, due to the fact that the exhibitors and those in attendance had only begun to realize the great possibilities of the annual science exhibition, that Washington exhibition was a mile-stone. Its success was mainly due to the efforts of Mr. W. J. Showalter and his coworkers on the Washington local committee, and to the devoted services of Dr. Chas. A. Shull, who had the then new responsibility of securing exhibits. A separate catalog of exhibits was prepared and published, through the assistance of Dr. Sam F. Trelease and Dr. Earl S. Johnston. The idea of making the annual American Association science exhibition a prominent feature in American science began to take form from these crude and limited beginnings.

For the next exhibition (that held at Kansas City last year) many new departures were introduced and this feature took on, for the first time, the characteristics of an outstanding part of the annual meeting. The management of the Kansas City exhibition was placed in charge of Major H. S. Kimberly, who devoted much time and energy to it. Those who attended the Kansas City meeting will not forget the very attractive and valuable exhibition, in the ball-room of the Aladdin Hotel, with its New-Year's-Eve entertainment, its service of afternoon tea and its extensive displays of both commercial and research science. At Kansas City the exhibition was first placed on a proper financial basis by having a regular schedule of rates charged for space occupied by the commercial exhibits. A large number of apparatus firms and publishing houses cooperated by taking space, and the remarkable success of the exhibition was fundamentally due to the help they thus gave to the association. About $2,000 was expended on the exhibition, without drawing on regular association funds. This was another mile-stone in our progress; the aim of having a really extensive, well-arranged and attractive science exhibition in connection with the annual meeting had been achieved.

Plans for the science exhibition at the approaching fifth Philadelphia meeting of the association and associated societies have now gone far enough to warrant the safe prediction that it will greatly surpass the Kansas City exhibition in every way. Its financial success is already assured, through the many commercial firms that have contracted for space and the exhibits of those firms will be finer than ever before. The gymnasium of the University of Pennsylvania (Weightman Hall, at Spruce and 33rd Sts.) affords much more space than we have ever had previously, and it will be well filled.

The annual exhibition is in charge of the committee on exhibition, the members being as follows:

H. E. Howe, *chairman;* editor of Industrial and Engineering Chemistry, Mills Building, Washington, D. C.
C. E. K. Mees, of the Eastman Kodak Company, Rochester, N. Y.
L. M. Potter, of the Spencer Lens Company, Buffalo, N. Y.
M. E. Leeds, of the Leeds and Northrup Company, Philadelphia, Pa.
J. Edward Patterson, of Arthur H. Thomas Company, Philadelphia, Pa.

In addition to these, who represent the exhibiting firms as well as the scientific interests of the association, are the following *ex-officio* members:

L. H. Bailey, president of the association.
Burton E. Livingston, permanent secretary of the association.
H. S. Kimberly, manager of the exhibition.

The secretaries of the sections of the association are consulting members of this committee. All moneys paid into the exhibition fund are cared for by the Washington office of the association and all disbursements for exhibition expenses are made from that office. The accounts are a part of those of the association.

The section secretaries were asked last spring to canvass their respective fields of science and furnish the committee on exhibition with suggestions, especially with reference to the research aspect of the Philadelphia exhibition. It was hoped that the sections of the association might generally each be represented in the exhibition by demonstrations of some recent and outstanding advance in science. Not much came of that attempt to secure suggestions and it became necessary for the committee on exhibition to undertake to select some exhibits to be invited for this

very important part of the undertaking. Exhibits by individuals and research laboratories are being arranged, by invitation. The committee welcomes concrete suggestions as to exhibits that might be requested. No fees are to be paid on account of these invited exhibits, the expenses of the exhibition being covered by the fees from the commercial exhibits. Individuals having newly developed apparatus or methods, etc., suitable for the Philadelphia exhibition should make inquiry from the permanent secretary's office immediately; in some cases these exhibits may be placed in the main exhibition hall. If necessary, a separate room is to be arranged for an overflow.

A number of the societies associated with the association will hold small, technical exhibitions in connection with their sessions at Philadelphia, and exhibits by individuals may, in many cases, be accommodated there. The societies have been requested not to enter commercial exhibits in their society exhibitions unless the exhibitors have taken space in the great, general exhibition for all science. The local committee at Philadelphia is arranging rooms for society exhibitions as well as for sessions.

Arrangements for exhibits by commercial firms are to be made with the manager of the Philadelphia exhibition, Major H. S. Kimberly, who is to be addressed at the association office, in the Smithsonian Institution Building, Washington, D. C. Some spaces are still available.

The registration offices for the Philadelphia meeting, in charge of the executive assistant, Mr. Sam Woodley, will be located in the central portion of the large exhibition hall (Weightman Hall, Spruce and 33rd Streets). The offices will be open from 9 to 6 daily, throughout convocation week. The visible directory of those in attendance will be arranged as usual. The news offices, for releases to the daily press, in charge of the director of news, Mr. Austin H. Clark, of the National Museum, will be located in the same building, on the floor below the general exhibition.

There will be one or more evening entertainments given by the commercial exhibitors, especially a Christmas-tree affair on Tuesday evening, December 28, and a New-Year's-Eve gathering on Friday evening, December 31. The general exhibition will be a social center for the meeting. Tea will be served every afternoon.

BURTON E. LIVINGSTON,
Permanent Secretary

SCIENTIFIC EVENTS

BIOLOGICAL RESEARCH IN RUSSIA

PROFESSOR R. RUGGLES GATES, who has returned to London after a visit to Russia, gives, in a letter to *Nature,* some interesting information as to the position of scientific work and institutions there. In the course of his letter he says that much valuable work is being done in the various plant-breeding stations which he visited. These included Tammisto, near Helsingsfors, Finland, as well as Khibiny in Russian Lappland, north of the Arctic Circle, which is devoted chiefly to the production of northern vegetables and oats for fodder; Peterhof and Desto Selo, near Leningrad, where extensive genetical, biometric, cytological and physiological investigations are being carried on, especially with cereals, under the direction of Professors Philiptschenko, Vavilov and Levitsky, and Drs. Pissarev and Karpetschenko; Petrovsky-Razoumovsky, where extensive experiments, particularly with oat-breeding, are being made by Dr. Schegalov, and Saratov, where the greatest interest attaches to a series of unique wheat-rye hybrids of Professor Meister and where Dr. Plachek is improving the varieties of sunflowers, which are extensively grown as a crop in Southern Russia.

In Moscow, the Institute of Experimental Biology is one of several laboratories under the direction of Professor Koltzoff, in which a great range of genetical and cytological as well as other experimental work in animal biology is being done. The genetical section is in charge of Professor Tschetverikoff. Much eugenical work is also being done in Moscow and in Leningrad, especially in the collection of pedigrees, and a Russian *Journal of Eugenics* is edited by Professors Koltzoff, Liublinsky and Philiptschenko. The Timiriazev Institute in Moscow, under the direction of Professor Navashin, is chiefly devoted to research in plant cytology and genetics. Professor Gates also visited the Botanical Gardens in Leningrad, Tiflis and Batoum, the chief interest of the Tiflis garden being its large collection of Caucasus plants. A study was made of the tundra vegetation in the far north and the steppe region in Southern Russia and the Caucasus. While in Moscow Professor Gates was present at the opening of a small museum of Metchnikoff relics in the Institute of Experimental Pathology. Madame Metchnikoff came from Paris for the occasion.

PAUL KAMMERER'S LETTER TO THE MOSCOW ACADEMY

THE following letter was sent to the officials of the Moscow Academy of Science by Dr. Paul Kammerer, professor of biology in Moscow University, a few days before his death.

Vienna, September 22, 1926.

To the Presidium of the Communist Academy, Moscow.
Respected Comrades and Colleagues:

Presumably you all know about the attack upon me