Active compounds related to sulfanilamide can be divided into two classes: the first where there is substitution in the amino group, and the second where there is substitution in the sulfonamide group. To the first class belong such compounds as prontosil, neoprontosil, and N^4-benzylsulfanilamide; to the second, such substances as sulfapyridine, sulfathiazole and N^1-acetylsulfanilamide (Albucid). It is probable that substances of the first class owe their activity to their decomposition to sulfanilamide. Although it has been shown definitely that sulfanilamide is formed from these substances in the animal body, it has not been proved that their activity is entirely explained by this. Quantitative comparison of the effectiveness of the same blood concentration and duration of sulfanilamide as obtained from these substances with that obtained by giving sulfanilamide itself is necessary to solve the problem. The sulfanilamide derivatives of the second class are apparently not decomposed in the body and owe their activity to the compound as such. Although not proved, it is probable that nitro compounds act through the amines known to be formed from them.

Numerous other problems might be discussed if time permitted. To mention only a few. Can we obtain a substitute for sulfanilamide with the same activity but less toxicity to the host, or are activity and toxicity intimately linked together? Sulfapyridine, although highly effective, would not seem to be the final answer to the pneumococcus problem. More active drugs against viridans, staphylococcus, tuberculous and other infections are needed, and the whole question of the action of this group of drugs on virus infections needs careful investigation. The relative value of drug and serum and drug alone may be of importance in different types of infection. The marked susceptibility of fungi *in vitro* suggests the trial of these drugs in mycotic infections, while their definite bactericidal action *in vitro* reopens the question of local use.

In conclusion, there is no doubt that bacterial chemotherapy already occupies an important role in the therapy of infectious diseases, and with the solution of more and more of its problems will probably increase in importance. This lusty young infant in therapeutics can hold its own against its father—protozoan chemotherapy—and can even possibly aid it. Ehrlich's aim in chemotherapy was to make a success of the method of *Therapia magna sterilisans,* to destroy the invading parasites within one or two days by a single dose of a drug. Although a certain amount of success with this method was achieved in certain experimental infections in animals, it has not been successful in human diseases of protozoan origin. The alternative was adopted of administering repeated doses separated at intervals. These intervals were frequently sufficiently long to allow the previous dose to disappear from the body. In bacterial chemotherapy, it is now known that maintenance of a more or less constant concentration of drug in the blood and tissues day and night is necessary for the most effective therapy: Both an effective blood concentration and a sufficient duration of this concentration are necessary. To accomplish such a course of therapy, dosage must be thought of in terms of blood concentration and duration rather than in terms of the amount of drug administered. This method should be considered in protozoan chemotherapy; the results already reported in the arsenotherapy of syphilis by the continuous intravenous drip method are encouraging. The method of dosage introduced by bacterial chemotherapy may after all be considered a return to Ehrlich's *Therapia magna sterilisans* with a maintained blood concentration of drug replacing the single massive dose.

SCIENTIFIC EVENTS

THE ENGINEERING SOCIETIES LIBRARY[1]

THE Engineering Societies Library has made available at cost not only photostats, but also microfilm copies of material contained in the 160,000 volumes and thousands of periodicals in its collection. Regardless of residence, any engineer, library or company may order an 11×14-inch white-on-black (negative) photostat print on bromide paper at 30 cents each, which charge includes ordinary postage to any part of the world. Black-on-white (positive) prints are supplied by copying a negative print, which makes the cost 30 cents additional. Microfilm copies on 35-mm film are available at a cost of four cents per exposure (usually one page), with a minimum charge of $1.25 per volume.

Each photostat print contains one or two pages of the original article depending on its size. Reductions to approximately one half or enlargements to twice the original size can be made, if desired, without any extra charge. Unless an enlargement or reduction is specified, prints are made the same size as the original.

For the benefit of those who can come to the library in person, a trained staff stands ready to assist them in their problems. Despite the fact that it is the official library of national engineering societies, all

[1] The library is a joint cooperative enterprise of the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers.

books and periodicals of the library are available for the free use of the public during regular hours. If a translation or list of references on any particular subject is desired, the library staff will prepare this at cost. For those wishing to photograph material in the library, a photographic copying stand, complete with table and electric lights, is available for use with the visitor's own camera.

THE SUMMER MEETINGS OF THE AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

THE national meetings of the American Society of Plant Physiologists will be held in Seattle, Washington, from June 18 to 22. The program includes three symposia:

1. A symposium on photosynthesis jointly with the Botanical Society of America. This symposium stresses work done in the West and will have a broad educational character.
2. A symposium on aquatic botany also to be held jointly with the Botanical Society of America.
3. A symposium on phosphate nutrition to be held jointly with the Society of Soil Scientists.

A joint meeting with the Society of Horticultural Science is planned.

Three half days have been reserved for submitted papers. Those wanting to present papers are strongly urged to send in titles as soon as possible, and to reach the secretary of the Western Section at the California Institute of Technology, Pasadena, California, not later than April 27.

An excursion to the Oceanographic Laboratories of the University of Washington at Friday Harbor is planned on June 22. This provides an opportunity to become acquainted with the beautiful Puget Sound area. Those planning to participate are requested to get in touch with the secretary of the Western Section so that arrangements can be facilitated.

J. VAN OVERBEEK,
Secretary, Western Section

WESTINGHOUSE RESEARCH FELLOWSHIPS

ANNOUNCEMENT of appointments of the third annual group of five Westinghouse Research Fellows has been made by the Westinghouse Research Laboratories. The appointees were selected from a group of forty-two applicants for fundamental research in physics, chemistry, mechanics and metallurgy. The men selected are:

DR. JERALD E. HILL, *University of Rochester,* for research in nuclear physics with the large electrostatic generator. Dr. Hill will be particularly interested in measuring thresholds and excitation functions for proton-neutron reactions.

DR. SIDNEY KRASIK, *Cornell University,* for research on fundamentals of velocity-modulated electron beams as generators of ultra high frequency radiations. Dr. Krasik has been associated with Professor L. P. Smith, of Cornell, in electronics research.

DR. WALTER KAUZMANN, *Princeton University,* for research in application of the absolute reaction-rate theory of chemical kinetics to liquid flow and solid plasticity problems. Dr. Kauzmann is also interested in the study of the solvent effect on optical rotatory power as a tool for studying molecular interactions in liquids.

DR. FREDERICK W. STALLMAN, *University of Illinois,* for research in nuclear physics. Dr. Stallman is particularly interested in the study of the photo-disintegration of the deuteron by gamma rays and of the angular distribution of the protons produced in this way.

DR. DAVID P. STEVENSON, *California Institute of Technology,* for research in chemical bond resonance energies with the aid of the mass spectrometer. Dr. Stevenson is also interested in the study of resonance energies by use of gaseous electron diffraction methods.

The aims of the company in establishing the fellowships are:

1. To make a worth-while contribution to the development of the fundamental sciences on which modern industry is based. The company feels that all research leading to a better understanding of matter and energy will ultimately prove valuable to technology even though the immediate field of application is not apparent.
2. To enable a group of able investigators to become familiar with the scientific problems confronting the electrical industry. It is believed that this contact will be of great value whether the men turn to industrial research or to academic work after completion of their fellowship period.

Fellows will devote their entire time and energies to work on their research projects at the Westinghouse Research Laboratories. The usual two weeks' vacation at the end of each year, together with liberal time for attendance at scientific meetings and for visits to other laboratories will be allowed.

It is expected that fellows will also participate in the seminars and colloquia held at the laboratories and in the neighboring institutions of higher education. From time to time progress reports will be expected and a final report in form suitable for publication will be required toward the end of the fellowship period.

Appointments are made for a period of one year and fellows are eligible for one reappointment for a like period. The salary will be paid semi-monthly at the rate of $2,400 a year.

The laboratories include the following six divisions —mechanics, electromechanics, electrophysics, chemical and metallurgical, magnetic and insulation. The work of the fellows will be carried on within the appropriate division under the general supervision of Dr. E. U. Condon, associate director.