luncheons which were served in the hall of the society on Thursday and Friday afforded many opportunities for meeting old friends and making new ones. The culminating social event was the dinner given by the resident to the non-resident members at the Hotel Bellevue on Friday evening. On this occasion addresses were made by the president of the society, Professor Edgar F. Smith, of Philadelphia; Hon. George F. Baer, of Philadelphia; Professor Simon Newcomb, of Washington; Professor Edward S. Morse, of Salem; Professor George F. Barker, of Philadelphia; Professor William B. Scott, of Princeton; Professor Josiah H. Penniman, of Philadelphia; Mr. Henry LaBarre Jayne, treasurer of the society, and Dr. I. Minis Hays, one of the secretaries.

SCIENTIFIC BOOKS.

Vorlesungen über Experimentalphysik. Von August Kundt. Friedrich Vieweg und Sohn. 1903.

Few courses of lectures on general physics have been so well known as those of Professor Kundt at the University of Berlin. They were renowned throughout the world of students for their clearness of exposition, the enthusiasm both of lecturer and of listener, and the wonderful manner in which the facts of physics were illustrated by lecture-room experiments. Professor Kundt died in May, 1894, and steps were immediately taken to present to the world, in the form of a text-book of physics, his famous course of lectures. This has just been done, and the volume at hand from the press of Friedrich Vieweg is one of 851 pages illustrated with more than 500 figures in the text. There is an excellent portrait of Kundt, and a short but appreciative biography.

The lectures which are here reprinted are those given in the winter and summer semesters of 1888–9, which were noted by one of his students and afterwards were revised and worked over by Kundt himself. They are now published under the editorial supervision of Karl Scheel, who very wisely has made no attempt to add chapters, or even notes, with the idea of making the lectures describe the facts of physics which have come into prominence since the death of Kundt.

The course of lectures in general physics which has been given at the University of Berlin by a long line of distinguished men, including Helmholtz, Kundt and Kohlrausch, is one designed specially for students of medicine, or those who wish to become acquainted with the phenomena of physics, but who do not necessarily intend to follow more advanced work in physics, and who do not regard this course as of fundamental importance. This fact necessarily has a most important bearing on the character of the lectures given. In the majority of cases in American universities and colleges physics is now taught largely owing to its educational value, in the sense that in order for a student to follow the course intelligently he must exercise certain mental qualities which are of the utmost importance in any scheme of education. The character of text-book, therefore, which would best represent the needs of these two kinds of classes is quite different; and the main interest in this book of lectures of Kundt centers in his mode of presentation of the various branches of physics in order to meet the demands made by his conditions.

One can not do better in reviewing the book than to give a few details in regard to the number of lectures assigned to various subjects, and to note their order of arrangement. In all there are 150 lectures: 39 in mechanics and properties of matter, 17 in acoustics, 31 in heat (including five on the kinetic theory of gases), 43 in electricity and magnetism and 20 in light. This division is most interesting and, in some respects, surprising. In treating the subject of mechanics there are one or two introductory chapters followed by one in which are introduced the ideas of mass, force, work and energy; then the subjects of equilibrium and machines are introduced; gravitation and various pendulum problems are next discussed, and then the lectures return to the questions of centrifugal force and moments of inertia. There follow six lectures on liquids, seven on gases, three on solids and six on the bound-

ary phenomena between two different kinds of matter. It will be seen at once that the order of presentation adopted by Kundt is one which lends itself most easily to simplicity of treatment, and is not at all concerned with the logical development of the subjects. Throughout the whole book all mathematical points are avoided and the utmost required is a most elementary knowledge of geometry. There is no discussion whatever as to our mode of understanding what is meant by mass or force, and no attempt is made to show the logical connection between various subjects. As one reads the lectures one is struck with their clearness of thought, the beauty and vigor of expression, but above all with the fact that from the standpoint of interest to the class it would be impossible to present the subject in a better manner. All difficulties seem to vanish and the student is led from one phenomenon to another, and back again to more complex illustrations of the former, until all the essential facts of the subject are brought before him. If the treatment of the subjects of electricity and magnetism is analyzed, it is seen to be of the same general character as that of mechanics. There are a few chapters on the subject of electrostatic phenomena followed by a discussion of magnetism; then the ideas of electrostatic potential and capacity are introduced, and this leads to a discussion of electric currents. Special emphasis is laid throughout the whole book upon the description of instruments for measurement and for ordinary laboratory use, and the question of the development of ideas is in many cases subordinated to this. A marked illustration is afforded by the fact that, since an induction coil is ordinarily used in producing electric currents through gases, therefore the whole subject of induced currents is taken up before the chapter on conduction through gases. An illustration of the fact that the main object of these lectures is to describe physical phenomena and not explain them is shown by noting that there is no discussion whatever as to the energy of electrostatic or electromagnetic fields or of the reasons underlying electric and magnetic attraction and repulsion, and yet interference with convergent polarized light, quartz compensators, systems of multiplex telegraphy, etc., are discussed in full.

The publishers of this volume in their preliminary announcement express the belief that it will be useful to those who are following courses in physics as a text-book to accompany their lectures, and also to the scholar in general as an introduction to physical phenomena. They say, moreover, that every one who is familiar with the teaching of physics will receive, as he reads the book, continual pleasure from the elegant and original method of presentation of facts already known to him. These statements of the publishers fall short of the whole truth. There is no book at the present time, so far as known to the reviewer, which presents the subject of physics in such an attractive manner, and a translation of it in English would be of the greatest use in many colleges and schools. To the teacher of physics the great interest of the book lies in the fact that one has here an opportunity of seeing how a great master in the art of lecturing prepared his course; and, further, because he can not fail to learn many ways by which the subject may be made more interesting to his class and at the same time less difficult.

J. S. AMES.
THE JOHNS HOPKINS UNIVERSITY.

Disinfection and the Preservation of Food. By SAMUEL RIDEAL, D.Sc. New York, John Wiley and Sons. 8 vols., 504 pages, illustrated. $4.00.

THIS valuable work gives in convenient form the latest information respecting disinfection and the preservation of food. The greater part of the work is devoted to the subject of disinfection, and is so presented as to make it possible not only to carry this important process on on a large scale for public purposes, but also in a small way in private families. The various substances used for disinfection are described and their methods of application explained.

The different methods are grouped under the heads 'Mechanical Disinfection,' 'Sterilization by Heat' and 'Chemical Disinfectants.' Both sterilization by heat and the use of chemical disinfectants are also employed in the