pains to insure a high degree of mutual understanding among themselves and this potent body of advisor-research workers. The present report speaks briefly of the vexing fear that the existence of much money for a given area of scholarship may distort a university or college program. There is the even more vexing, because unspoken, fear that scholars may come to be measured in terms of their grant money rather than their intellectual abilities.

It is a little startling to me to find the statement: "Research Grants however, and particularly those sponsored by the Federal Government, seem to be concentrated in a relatively few institutions of higher learning." The implication of this statement is that other institutions are neglected. So far as life sciences are concerned at least, federal funds do turn out, in fact, to be distributed roughly in proportion to academic populations of states. What more could be asked?

Since "sponsored research" deals mainly with scientific research, it is natural that the present volume is biased in that direction. Working next door to this scientific mountain may have profound effects on the life of a nonscientific researcher, and this deserves most serious attention within the educational world. It is indeed important that studies such as the one under consideration be carried out, that the results be published and widely discussed. To survive, the academic institution needs to know thoroughly what its aims and ideals really are and develop policies to achieve them.

I commend to the attention of the committee an earlier report (1605) on university policies contained in a volume entitled *The Advancement of Learning*. In it, Francis Bacon quotes Diogenes who, upon being asked "How it happened that Philosophers followed the rich, and not the rich the Philosophers?" replied "Because the Philosophers know what they want, but the rich do not."

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Introduction to the Theory of Neutron Diffusion. vol. 1. K. M. Case, F. de Hoffmann, and G. Placzek. Los Alamos Scientific Lab., Los Alamos, N.M., 1953. viii + 174 pp. Illus. Paper, $1.25. (Order from Supt. of Documents, GPO, Washington 25.)

This slim volume is based on a series of lectures given by G. Placzek in 1949 on methods of treating the one-velocity diffusion problem in homogeneous, isotropic media. It includes "Streaming in vacuum," "Purely absorbing media," "The equations for a general medium," "Uniform infinite medium with isotropic scattering," and "Application of the results obtained for the uniform infinite medium to the solution of finite problems." This last chapter, unfortunately, is cut off after a single application (to the source-free half-space). The remaining applications are promised in the projected volume II.

Although the subject matter is limited, it is basic and well chosen. The treatment is clear, detailed, and thorough. Included are many extremely useful tables and curves (for example, on the escape probabilities for uniform sources in purely absorbing media). Especially noteworthy and impressive is the thorough discussion of the approach to the asymptotic (diffusion) density in strongly absorbing media.

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Structure of Molecules and Internal Rotation. San-Ichiro Mizushima. Physical chemistry, a series of monographs. Eric Hutchinson, Ed. Academic Press, New York, 1954. x + 244 pp. Illus. $6.

The work discussed in this book is closely related to that of Mizushima and his colleagues at the University of Tokyo during the past two decades. The book is organized into two parts, the first of which deals with a description of the development of the investigations on internal rotation. The second part presents a more detailed explanation of some of the theoretical aspects of the problem and a description of experimental methods.

Ethane and its derivatives are treated in considerable detail. A summary is given of the results of investigations using infrared absorption, Raman scattering, dipole moment data, electron diffraction, and heat-capacity measurements. The interpretation of these studies is developed to show support for the model that describes the liquid and gas phases as consisting of a mixture of *trans* and *gauche* rotational isomers. The *trans* form seems, in general, to be stabilized in the crystalline state. The influence of internal hydrogen bonding is briefly covered, and the nature of the potential barrier hindering internal rotation is discussed in connection with the treatment of thermal data.

A chapter is devoted to simple molecules, other than ethane derivatives, that may show internal rotation. Rotational, or orientational, isomerism in cyclic molecules is also treated. The remainder of part I is devoted to a discussion of more complicated systems, such as long-chain hydrocarbons, polypeptides, and related compounds. The various possibilities of extended, folded and helical peptide chain structures are discussed in terms of rotational orientation about appropriate bonds. Experimental evidence for one or another of these structures in specific proteins is cited.

Part II begins with a description of several experimental techniques used or developed by the group at the University of Tokyo. A brief introduction to the theory of normal vibrations is followed by application to special cases involving torsional oscillation, again with emphasis on ethane derivatives. One section is devoted to the vibrations of long-chain molecules, and one to sum and product rules applicable to rotational isomers. Finally, the analysis of the Raman and infrared spectra of dichloroethane is given as an example.

The book constitutes an interesting introductory account of the application of studies in infrared and Raman spectroscopy to simple molecules having internal rotational or torsional vibrational degrees of freedom. The possible extension of these results and/or techniques to the elucidation of structures for more complex molecules is discussed and illustrated by some examples.

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The Structural Chemistry of Proteins. H. D. Springall. Academic Press, New York; Butterworths, London, 1954. x + 376 pp. Illus. $6.80.

The author states that this book grew out of a course of lectures given to undergraduates in the final year of an "Honours School of Chemistry" and to postgraduate research workers. After an introduction defining the biological importance of the proteins and considering the amino acids derived by hydrolysis, Springall discusses successively the chemical methods of peptide synthesis, the fibrous proteins, the globular proteins, and finally the analytic chemistry of the proteins and amino acids. Each chapter has a self-contained biblography, and there are author and subject indexes as well as an index of "named" proteins and peptides. Each chapter has a reasonably detailed introductory summary of its subject, which should serve to orient the student in the subject and its literature.

The chapters on fibrous and globular proteins contain discussions of physicochemical methods applicable to proteins including x-ray and electron beam diffraction, infrared and ultraviolet absorption, electrophoresis and sedimentation. The relationship of these studies to molecular sizes and shapes and to the various detailed models of folded, pleated, and helical peptide chains is clearly stated.