of assertions, assumptions, and predictions, many of which are quite independent of others. Many ingenious and possibly brilliant speculations are to be found in this set. For instance, the authors view fusion of the two hemispheres as occurring along a continuum whose (functionally deleterious) endpoints are complete fusion (holoprosencephaly) and complete separation (agenesis of the corpus callosum) and in which many degrees of 'balance' of 'lateral dissociation' occur in normal individuals giving rise to variation in functional capacities. This is a novel and interesting idea.

This volume thus presents an extensive array of facts regarding functional lateralization, asymmetry and associated conditions. A highly speculative theoretical formulation accompanies these data, but the scientific value of this formulation is hard to evaluate because of the multiplicity of postulates in the theory, and their tangential relationship to the many facts presented. Despite this, the volume presents enough data to suggest strongly that many of the phenomena described are related, and it emphasizes the need for understanding of the cellular, subcellular, and physical bases for asymmetry and lateralized function. It should stimulate research into these topics. □

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Scattered matter

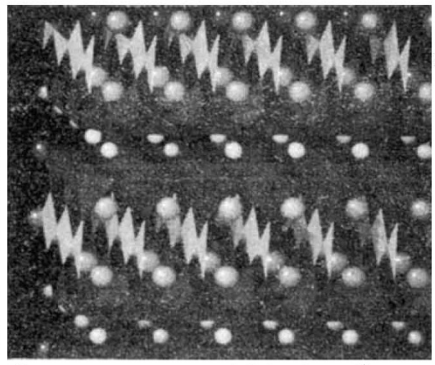
Stephen W. Lovesey

Fifty Years of Neutron Diffraction: The Advent of Neutron Scattering. Edited by G.E. Bacon. *Adam Hilger: 1987. Pp. 280. £30, $66.*

THE Commission on Neutron Diffraction of the International Union of Crystallography (IUC) is fortunate to have enlisted the distinguished experimentalist G.E. Bacon to edit the volume *Fifty Years of Neutron Diffraction*, which it conceived and encouraged. Two previous volumes for the IUC commemorate the fiftieth anniversaries of X-ray (1962) and electron (1981) diffraction. The scattering of radiations (taken to include both elastic diffraction and spectroscopy) are techniques of great importance in modern condensed matter and materials science research, whose results pervade almost all aspects of condensed matter physics, chemistry and biology. Moreover, the techniques continue to improve in quality and to expand in their range of applications. For example, the recent development of intense beams from synchrotron light sources opens the vista of magnetic photon diffraction, whereas previously magnetic structure investigations were conducted only with neutron beams.

Neutron scattering is an intensity-limited technique. In consequence, improvements in spectrometer design and source intensities and characteristics have a very marked effect on the impact of neutron scattering. Today researchers are beginning to reap benefits from spallation neutron sources, which are based on proton synchrotrons, and the development of the next generation of reactor sources is in hand.

Although these current projects are accorded some attention in the volume, most of the 42 contributors write about earlier developments. Some have as their subject the growth over the years of local user communities. On the other hand, B.N. Brockhouse and F. Mezei, for example, describe the research and development for the spectrometers they pioneered. The book includes reminiscences by some of the founding fathers of the technique, discussions of world-wide growth, and mini-reviews of some major areas of application and the impact of so-called high flux reactors. The material is unlikely to appeal to readers without a vested interest in the subject.



Current progress – crystal structure of a superconducting ceramic determined by high-resolution neutron powder diffraction.

A noticeable omission is a survey of the essential part played by theoretical physicists in the development of the subject; for example the two papers by L. Van Hove, published in 1954, can justifiably be argued to be the cornerstone of the interpretation of experimental data. Also absent amongst the contributors are such great scientists as R.D. Lowde, R. Nathans and G. Shirane. However, one suspects that the likes of Shirane are too hard pressed with the demands of current research for the more leisurely task of mulling over the past. □

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Spotting gels

S. P. Spragg

Two-Dimensional Electrophoresis and Immunological Techniques. By Bonnie S. Dunbar. *Plenum: 1987. Pp.371. $59.50.*

IT is eleven years since O'Farrell published his widely acclaimed paper describing the procedure for two-dimensional electrophoresis of proteins, and about 60 years since Tiselius first separated mixtures of proteins by electrophoresis. I wonder what Tiselius and his contemporaries (such as Longsworth) would feel about the present techniques and their applications? Possibly they would miss interpreting the results in terms of electrical constants for the molecules. Instead of measuring boundaries and converting the movements to mobilities, the experimenter now ends up with visually pleasing two-dimensional patterns of spots, each being a separate peptide or protein. Unfortunately, the end-products of electrophoresis are often not as 'clean' as shown in the literature, and a book such as this laboratory manual for novices is to be welcomed.

The contents are divided into two distinct sections. The first, an introductory stroll through results and previously reported procedures, is not cluttered with details of reagents or apparatus: these are left for the second section. The author covers many of the applications and gives references which the beginner will find useful. These references are not intended to be complete, but as reviews are included this is not a serious deficiency. The coverage of the physicochemical basis of electrophoresis is brief, almost to the point of being naive, but possibly this is all that is required for the experiments described. The very useful chapter on trouble-shooting will need to be revised regularly because some of the artefacts known today are not mentioned. It is a pity more information was not given on the analysis of the patterns — gels are fragile and difficult to store, and yet are the primary records, so leaving photographs and processed computer images as the only permanent experimental records.

The second section contains detailed recipes for the preparation of reagents, treatment of proteins to identify components, and photography. Many important experimental details are mentioned making it the lasting part of the book. Most biochemical laboratories will be able to follow the recipes without much trouble.

I feel this book does indeed fill a gap. Laboratories using two-dimensional electrophoresis to separate complex mixtures of proteins would do well to acquire it. □

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