Book Reviews

Histochemistry: Theoretical and Applied. A. G. Everson Pearse. Boston: Little, Brown; London: Churchill, 1953. 530 pp. Illus. + plates. $12.00.

This book purports to deal with the theoretical and practical aspects of microscopical histochemistry. The first part comprises a number of chapters which treat the rationale of the methods discussed. Brief chapters on the history of histochemistry and on fixation are followed by three sections of almost equal size: amino acids and proteins, carbohydrates, lipids, aldehydes and ketones, and enzymes. These are followed by a rather large chapter on pigments and by two very small ones on inorganic constituents and physical methods. The second part of the book, the Appendix, contains simplified instructions for certain recommended methods.

As compared with Glick's book, the treatment of the subjects selected is far more comprehensive and detailed. As compared with Gomori's book, a broader treatment of nonenzymic proteins and other organic substances will be found. Especially emphasized are the methods proposed by Danielli and some derivatives of these methods. Inorganic components are all but neglected.

In a subject as fluid as histochemistry it is advantageous to consult several textbooks with diverse viewpoints, each with its own special emphasis, depending on the experience of the author. This situation is particularly useful for workers in other fields who are seeking some general or specific histochemical method or modification. Particularly helpful for such workers are the more recent references which have appeared since Gomori's book.

In general, the better-known textbooks on technique for histologists or pathologists have been written by workers with an extensive experience in broad biological problems, in the course of which they have used or developed many techniques. This book is an exception, as the author's experience seems to have been confined to a limited number of rather specialized problems. The result is a certain superficiality and immaturity in judgment which I find difficult to recommend. Here are a few examples: A certain method is recommended because it is easy and consistently yields a visible, stable end product. It would seem that the most important factor, scientific reliability, was omitted. The history of histochemistry is replete with the development of methods which are easy, etc., but unfortunately unreliable. In these instances, the use of such methods has led to incorrect and misleading conclusions. The author repeatedly recommends some method for routine work—surely methods which are not suitable for routine work (presumably by a technician) deserve serious consideration because they may lead to concepts more important for the morphologist than many a technical trick. Moreover, it has happened in the past that a method requiring unusual skills or equipment may become routine at a later date.

Quantitative data in support of some morphological procedures are sometimes given, but not frequently or extensively enough. The almost complete divorce of methods from concepts derived through their application constitutes an evasion of a functional relationship which I believe to be a *sine qua non* of a satisfactory book on histochemistry. Despite the general adherence to sound chemistry, the distinction between this and tinctorial cookery is sometimes vague, or even nonexistent, as in some parts of the sections dealing with pigments and the scleroproteins. There are, in addition, far too many instances of specious organization of findings as tables or diagrams, where none is justified by present evidence. And finally, whether for lack of space or otherwise, some summary statements are made categorically, and possibly erroneously, as for example on the functions of phosphatases.

I could not share the author's exaggerated enthusiasm in certain sections ("It was by a stroke of genius . . ."), nor did I find pleasing his reliance on technical jargon. Some sentences were poorly constructed and even unintelligible. The author and subject index are detailed and useful.

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Measurement Techniques in Mechanical Engineering. R. J. Sweeney. New York: Wiley; London: Chapman & Hall, 1953. 309 pp. Illus. $5.50.

This book concentrates on the measurement of mechanical, thermal, electrical, and chemical variables commonly used in the performance testing of fuels, prime movers, and associated power station equipment. Scant attention is given the manufacturing processes usually supervised by the mechanical engineer, and none at all to stress analysis, materials testing, and vibration. It is not a laboratory manual but a reference book which might well be kept at hand for undergraduate laboratory courses. The construction of standard instruments is described or shown schematically, theory needed for their design and operation is set forth, basic standards are described together with suitable methods of calibration, and the pitfalls likely to be encountered in routine use are pointed out.

An opening chapter discusses readability, sensitivity, hysteresis, installation and ambient effects, speed and stability, and dispersion. There are brief chapters on mensuration, mass, time and speed, dynamometers, calorimetry, automatic controls, and the analysis of coal, water, and combustion products. More extended treatment is given to meters for electrical measurands, and to pressure gages. Fluid flow and temperature receive most attention.

For the most part, the factual material seems sound, and the author manages to achieve a presentation suitable for either the undergraduate or the practitioner