

try to get a feel for each function. On occasion this is necessary as a full explanation of some function's intentions is not always clear. The large number of available options is impressive, but it makes the manual's layout a bit unwieldy for initial usage. However, once the user becomes familiar with the functions and all of the possible combinations, much can be done with the software.

For this review an IBM XT/286 equipped with an EGA board, a Packard Bell color monitor and IBM Proprinter were used and setup difficulties were minimal. Although one of the plotter options (HP7475A) worked well for the examples tested, various levels of difficulty were encountered with "compatibles". When an IBM Color Plotter was used, occasional slight cropping of drawings was noted. Once one becomes familiar with the scaling and/or rotation functions, this turns out to be a relatively minor problem. When an Hitachi 672-XD plotter was used, more severe (and as yet unresolved) problems were noted. In some instances only half of the plot was generated. The software's author was quite helpful in providing suggestions, but some users may feel more comfortable with one of the three-plotter options cited, thus avoiding possible problems with re-configuring other hardware.

A couple of input and error handling problems were noted. Capital letters are required as menu input. So if one enters a lower case letter an error message and buzz occur, thus reminding the user that the "caps lock" should have been set. One is given the opportunity by the program to recover easily from this slightly annoying problem. However, if one misenters a number or letter and wishes to back up, or decides to get out of a function for any other reason, once the enter key has been struck, the user is "stuck" and often may have to start over. This is one major problem that should be corrected. Also, an occasional input error which leads to computational errors may throw one out of the program and back to DOS.

Subject Matter Content and Pedagogic Value

The subject matter seems to be done carefully and accurately. So a specialist would find many useful possibilities. As noted earlier, one already needs to know a good deal about the area to make full use of the programs' capabilities. So the usefulness of the current programs in instructional or tutorial settings may be somewhat limited.

Student Reaction

Two of my junior research students (Kim Maki and Ron Nason), who have some knowledge of twinning and Miller indices, kindly reviewed the SHAPE program and noted difficulties in following the manual and misunderstood some items in it. They also suggested that a "concept review" would be useful. Though this is probably a function of their backgrounds, it does indicate that an instructor cannot just turn a student loose with the programs without a

proper level of background (currently independent of the program) and without the assurance of properly working hardware. Both were impressed (as was this reviewer) with the types of drawings that were generated. One suggested that showing a complete example in conjunction with the option descriptions would be helpful. He also suggested that by putting the end-of-the-book examples into a "line-by-line" simulation format, rather than burying the numbers in a paragraph format following each example, would be easier. Since all options are presented contiguously, one may get the impression that every option needs to be understood before running the program. Since this is not necessarily the case, frequently used options could be presented first to get one started; "exotic", later.

Recommendations for Improvement

As noted earlier, the documentation could be improved by giving various examples of what each separate function can do, rather than how one complete example run appears. If wider audience use is desired, added background and/or references would be quite helpful. To complement the table of contents, a more detailed index of the 54-page booklet also would be useful.

Summary

The programs seem to be quite powerful though they are intended for a somewhat narrow audience. Users need to know a fair amount about PC's, peripherals, and DOS to get some potential problems ironed out.

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Biochemistry

Christopher K. Mathews and K. E. van Holde. Benjamin/Cummings: Redwood City, CA, 1990. xxviii + 1129 pp. Figs. and tables. 22 × 28.4 cm.

This is a new textbook in an exciting interdisciplinary field that is changing rapidly. The book is aimed at the level of advanced undergraduates and graduate students. A background in chemistry (general, organic, and physical), mathematics, and physics is required. The authors decided to introduce this new textbook, because in the teaching of this discipline over the past years it became evident that the present textbooks no longer presented the material in a manner that would guide the student through a modern biochemistry course.

The specific reasons presented for developing a new textbook in this field are as follows: (1) The material currently presented needed to be reorganized. (2) A balance of chemistry and biochemistry needed to be presented with examples drawn from medicine, agricultural, nutritional, and environmental sciences. (3) Effective illustrations needed to be presented along with the flow of the text. (4) The underlying concepts in biochemistry needed to be emphasized.

This at times means repetition of general, physical, and organic chemistry. (5) Historical and experimental basis for our current understanding of the subject matter needed to be developed. (6) A writing style and presentation were needed that kindles the student's interest in the subject matter.

The authors have accomplished what they have set out to do. The material in this textbook is well organized. I was extremely pleased with the development of many of the chapters. The authors also transmit a deep appreciation for the presentation of chemistry (organic and physical) within the book. This is apparent in the chapters dealing with kinetics, molecular structure, and thermodynamics.

Also of interest to the student are the small sections called "Tools of Biochemistry" that are placed at the end of each chapter. They illustrate the methods (old and new) that are currently in use in the biochemical field. These methods may be isolation procedures, analytical techniques, or spectroscopic techniques developed to determine the structure of a macromolecule. I'm particularly pleased that modern spectroscopic methods have been illustrated in the textbook. Oftentimes, the appearance of more complicated, newer techniques in textbooks is delayed. The illustrations are elegant and of high quality; the student will appreciate this. Their placement is typically near the section of the text that it most complements.

The problems given at the end of each chapter illustrate the concepts presented in that chapter. Usually 8 to 10 problems are given. The problems tend to be straightforward and of intermediate difficulty. For a graduate course, there ought to be more problems with a higher degree of difficulty.

On the whole, this is a book well worth looking into for use in an undergraduate biochemistry course. I recommend it and plan to use it in my graduate level physical biochemistry course and as a reference book.

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Profiles, Pathways, and Dreams:

Autobiographies of Eminent Chemists

Jeffrey I. Seeman (Editor). American Chemical Society: Washington, DC, 1990-1991. 22 vols., more than 3500 pp., more than 900 photographs. Figs. & tables. 14.8 × 22.7 cm, \$24.95 per vol. (15% discount [plus postage and handling] on standing order plan with approved credit).

Regular readers of *Beckman Center News* (1989, 6(1), 8; 1989, 6(2), 3; 1989, 6(3), 7; 1990, 7(2), 5) have already been treated to short, illustrated excerpts by four authors (Ernest L. Eliel, Melvin Calvin, R. Bruce Merrifield, and John D. Roberts, respectively) of volumes in this series that reads like a "Who's Who" of organic chemistry during