output. One to three hours are spent in class instruction each year. As they wish to learn more, fellow students or faculty give them one on one help.

The protection of the Copyrights of the owners of the programs you use is an important responsibility of faculty members. We serve as important role models for our students on ethics and values. In the department we avoid this temptation to violate copyrights by purchasing site licenses, and special programs single license programs are found only on a single computer. For example, our three molecular graphics programs are on three different machines. This saves hard disk room and installation and upkeep time.

Computer viruses have not been bothersome yet on IBM machines on campus. They abound on the College's Macintoshes. It could be luck, our students, the IBM world, or the chemical fumes. Backing up of file is up to the individual, but we hope to have a complete back-up system in place by this year.

Hardware repairs have been few with the exception of two Sweet Pea plotters which were "fried" when live RS-232 cables were connected to live plotters. They were under service contract and were replaced promptly. Our HP plotter has had no such problem. Our computer center and local computer dealer have taken care of all minor repairs promptly with colorful noise and grumbling.

The Future: We plan to replace all of our older computers with new and faster machines. Windows and Excel for Windows are being evaluated. A fibre optics campus network is on the drawing board. Our dreams include: computer bar coding for our chemicals and supplies to keep better track of them, a color laser printer to enrich our documents, a CD-ROM unit to be able to use some of the new educational materials available on CD-ROM, and a graphics super micro computer workstation for powerful molecular graphics programs.

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BOOK REVIEW COLUMN

Reader's responses to this column are always cordially welcomed. If you have some special area of computer expertise that you would like to share with your colleagues, why not write and volunteer to review a book in your field of interest? It's always interesting to hear from the readers, so send your suggestions or opinions to Dr. Harry E. Pence, Book Review Editor, Department of Chemistry, SUNY-Oneonta, Oneonta, NY 13820.

THE SUPERCOMPUTER ERA
by Sidney Karin
and Norris Parker Smith
Harcourt Brace Jovanovich, Publishers, Boston, MA
1987, 313 pages, hardbound,
$19.95
Reviewed by Harry E. Pence

Supercomputers are the fastest and most powerful computing systems available, and they are playing an increasingly important role in many fields of science and engineering. In view of this fact, it's surprising to note that support for supercomputing in this country has been rather erratic. During the 1970s Federal sponsorship of these systems seemed to languish, and more recently one of the major U.S. supercomputer manufacturers, ETA Systems, a subsidiary of the Control Data Corp., has ceased operations, leaving the market to Cray, IBM, and their Japanese competitors.

On the positive side, the National Science Foundation Supercomputing Initiative, begun in 1985, has played a vital role in supporting the creation of both new supercomputing centers and improved communications networks (i.e. NSFnet) to increase connectivity to these centers. In addition, more pharmaceutical and chemical companies are purchasing supercomputers. These developments are making this technology much more readily accessible for both industrial and academic use. Supercomputing is no longer limited to a handful of elite academic institutions.

This availability is broadening opportunities for actually using supercomputers and also creating a need for more discussion of the capabilities of these devices at all levels of higher education. As the authors point out, "Not enough people in the U.S. know enough about supercomputers." Improved accessibility is not enough; the goal must be to greatly expand the number of faculty and students who can make use of this accessibility.

This book is a survey that focuses primarily upon the historical development and current applications of supercomputing. Much of the book deals with the way that supercomputers are used in various academic disciplines. Surprisingly enough, even though chemists are major users of this technology, chemical applications are discussed only briefly. A more extensive discussion of topics like computational chemistry, molecular modeling, and numerical simulation would have been especially welcome, since these methods are becoming increasingly routine in industrial and academic laboratories.

The book is intended to make the reader more aware of supercomputers rather than to serve as a technical primer on how to use one. The relative neglect of chemical applications is unfortu-

nate, but otherwise the authors are reasonably successful at achieving this goal. The writing style is informal, with enough interesting and humorous asides to make the book quite readable. Chemists who wish only a general overview of supercomputers may find this book to be useful.

LABORATORY LOTUS
A Complete Guide to Instrument Interfacing
by Louis M. Mezei
Prentice Hall, Englewood Cliffs, NJ
317 pages, hardbound $36.00, 1989

Reviewed by Harry E. Pence

Lotus 1-2-3ubiquitous business spreadsheet, is already widely used in chemistry laboratories to organize large data sets and to do simple, repetitive calculations. Mezei's‹f‹book describes how this software can not only do calculations and make graphs but also collect data from and control laboratory instrumentation.

Much of the book is devoted to explaining how to use either
Lotus 1-2-3 or Symphony to interface instruments having RS-232 communications. The presentation is extremely systematic and clear. The author provides brief summaries at the beginning and end of most chapters and also includes a running outline to make the discussion clearer. Sample programs are developed one section at a time to make these examples easier to understand. This modular approach also helps to simplify the explanation and minimize the chances for error.

The instruments chosen to serve as examples include the ACROSYSTEMS ACRO-900 interface, the Perkin-Elmer LS-2B
Filter Fluorimeter, the Mettler AE163 analytical balance with optional data interface, and the Bio-Tek EI-309 Microplate Reader, but for readers who don't have access to these specific instruments, the author explains how these lessons can be applied more generally to other instrumentation. The discussion is not limited to data collection and treatment, but also covers how Lotus can set up the instrument, take the sample, and accumulate the data.

The presentation covers both RS-232 as well as IEEE-488 communications. For older instruments that lack a modern communications port, instructions are provided on how to access the data through a chart recorder output, an analog voltage output, or a digital display. Although considerations of cost and convenience cause the author to express a preference for the basic spreadsheet programs, he also discusses how to use Lotus Measure®R for instrument interfacing.

The final chapter includes a general summary and some excellent general advice about developing a communications program for a laboratory instrument. This section offers some especially valuable tips on programming and troubleshooting. Appendices are provided that cover RS-232 cables and pinout specifications and also review the most useful Lotus functions and commands.

Among the profusion of books on Lotuss delightful to find one that is specifically aimed at chemists. It is even more pleasant to be able to report that the discussion is so systematic and lucid. This book should be both an excellent resource for those who are already dedicated Lotus users as well as an effective argument to convince new users that this software can play a valuable role in their laboratories.

PERSONAL COMPUTERS FOR SCIENTISTS
by Glenn I. Ouchi
American Chemical Society, Washington, DC, 1987
300 pages, paperbound, $22.95, hardbound $34.95

Reviewed by Harry E. Pence

Glenn Ouchi is a well-known advocate of laboratory uses of microcomputers, who has written articles for many widely-read computer journals, taught ACS short courses, and edited a newsletter on computing in the chemistry laboratory. He is well qualified to fulfill the promise that the book will "help you select and use a personal computer (PC) to solve problems in your work."

The initial section of the book covers the fundamental hardware and operating systems characteristic of microcomputers. The author does not presume very much prior computing knowledge on the part of the reader. The clear and concise explanations are accompanied by many excellent illustrations and line drawings. First-time computer users should find this book to be both attractive and readable.

The core of the book is the section on applications software. Ouchi emphasizes that when choosing a computer the essential consideration should be to identify the critical problems which are to be solved and then to select a machine that will run the software that is best able to accomplish those jobs. Advanced hardware capabilities, such as high performance or extended memory, are worthless unless the software needed for the tasks at hand will run on the computer. As many users have sadly learned, purchasing a computer based on the assurance that the
required software will be available "real soon now" will usually lead only to frustration and wasted time.

The author discusses the "big three" types of software: word processors, spreadsheets, and data bases, but also includes applications of major interest for scientists, such as graphics and statistics programs. Much of the software that he describes is widely©used for business applications, but he provides good examples of how those commercial packages are equally applicable to scientific projects. The realistic, sample experiments are excellent for showing