A FINAL COMMENT

Since this column will be my last as the book review editor for "The Newsletter," I wish to take this opportunity to express my thanks to everyone who has helped with reviews and suggestions during the past few years. Even though I can't mention all of you by name, I do wish to offer a special word of appreciation to Don Rosenthal, who first invited me to undertake this job and has helped me so often. I welcome the new book review editor, Larry Julien from Michigan Technological University, and wish him good luck as he begins his new job.

——End—— BYE Harry.

INTEGRATING COMPUTERS INTO THE UNDERGRADUATE CHEMISTRY CURRICULUM

by Harry E. Pence, Department of Chemistry SUNY Oneonta, Oneonta, NY

The Committee on Computers in Chemical Education sponsored a one-day symposium titled "Integrating Computers into the Undergraduate Chemistry Curriculum" at the ACS National Meeting in Washington, DC this Fall. The symposium was organized by Tom O'Haver (Univ. of Maryland) and Harry Pence (SUNY Oneonta) in order to encourage chemistry instructors at all levels to share information on their progress in integrating the variety of available computer software and hardware into an environment that will be most conducive for learning. Both the number of papers submitted to the symposium as well as the attendance demonstrated the high level of interest in this topic.

As might be expected, the various presentations represented a broad spectrum of approaches and technology. These papers covered all levels from high school through the senior year in college, and even at the introductory levels the computer techniques used were often extremely powerful and sophisticated. It was, however, obvious that even modest financial resources were sufficient to create productive computer integration. Several speakers described how they had used inexpensive software, matching grants, and other avenues to develop innovative programs.

The presentations at this symposium demonstrated the wide variety of ways in which computers are being used in undergraduate chemistry courses. Individualized learning is supported not only as computer-assisted instruction, but also by providing each student in large classes with unique homework and quiz assignments. Computer-controlled, multimedia presentation systems ("hyperbooks") will soon be widely available for lecture and self-study. Strategies for electronic literature searches are becoming a routine part of the instructional program. The increasing availability of resource rooms for chemical computing allows students to share their knowledge and participate in applications that go beyond those discussed in class.

It may be unfair to single out one development that was most exciting, but the frequent mention of programs that allow students to visualize chemical systems was especially impressive. Even though such methods have only recently obtained wide acceptance at the research level, several papers described their use in introductory classes. A broad range of software is capable of supporting molecular modelling and visualization, ranging from share-ware like MacMolecule to very elegant and expensive packages, like the CAChe system. These systems allow students at all levels to interact with molecules with a facility that's impossible with models. Allowing students to manipulate molecular systems in this way not only captures their imaginations, but it also seems likely that those who learn three-dimensional visualization in this way will develop a new understanding of chemistry and chemical reactions.

This symposium gave an exciting look at one of the more active areas of innovation in chemical education. No one seriously expects that computers will solve all problems in chemical education, but if these papers are an accurate indication, computers have an important role to play in whatever form the actual solutions may take.

INFORMAL NOTES ON PROGRAMMING-LANGUAGES

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This is a follow-on from Part One (Comp. Chem. Educ. Newsletter, Fall, 1991), which covered the 'classical' languages