

## FROM THE CHAIR

The ACS Division of Chemical Education's Committee on Computers in Chemical Education (C.C.C.E.) seeks to promote and publicize the use of computers and computing in chemical education. We do this via this Newsletter, and by organizing and participating in symposia and workshops at regional and national meetings.

This Newsletter serves as a vehicle of communication with those interested in computing. Articles and information are provided for our readers. Ideally, readers communicate with each other by writing articles or short paragraphs describing their use of computers in chemical education. The QUERIES sections provide an opportunity for readers to ask and answer questions. The success of this Newsletter depends upon your willingness to participate in these activities.

Don Rosenthal (Department of Chemistry, Clarkson University, Potsdam NY 13699, 315-265-9242, ROSEN@CLVM.BITNET) is promoting symposia at National Meetings. Al Lata (Department of Chemistry, University of Kansas, Lawrence KS 66045, 913-864-4054, LATA@UKANVAX.BITNET) is assisting with the organization of symposia and workshops at regional meetings. Symposia are being organized by Harry Pence (SUNY Oneonta) and Tom O'Haver (University of Maryland) for the 1992 Fall Meeting in Washington, DC. Lynn James (University of Northern Colorado) and Henry Derr (Laramie County Community College) are organizing a hands-on computer session for the 1993 Spring Meeting in Denver. Jim Beatty (Ripon College) is helping to organize symposia for the 1993 Fall Meeting in Chicago. Al Lata has worked with Joe Casanova to organize a symposium on "Integrating Computational Chemistry Into the Curriculum" for

the Biennial Meeting at Davis in August 1992. Don Rosenthal and Ken Ratzlaff (University of Kansas) are organizing symposium sessions for the 1994 Biennial Meeting at Bucknell University.

Over a dozen C.C.C.E. National Computer Workshops have been held. Workshops are planned for the University of Kansas in August 1993 and at Bucknell University after the Biennial Meeting in August 1994.

C.C.C.E. activities are designed to meet the needs of chemical educators. You can help in identifying these needs. An open meeting of the Committee is planned for the Biennial Meetings in Davis. You are invited to attend. We welcome your suggestions and participation. If you have suggestions or wish to volunteer to assist us, a form at the back of this Newsletter should be filled out and returned.

Don Rosenthal - Co-Chair with  
Al Lata of the C.C.C.E.

### EDITOR---Brian Pankuch

USING A QUADRA 700: The Quadra 700 is one of Apple's latest systems. It comes with a Motorola 68040 processor. Mine has 20 Meg of ram memory, a 520 Meg Fujitsu hard disk and a RasterOps 21 inch monochrome monitor. The operating system is updated 7.01. Since I used four suppliers for the different items my, first surprise, a rather pleasant one, was that all the hardware worked when I assembled it.

After hearing so much about System 7, Apple's latest operating system, I was eager to try it. My first impression on bringing it up was--where is it? My usual manipulations looked and felt the same. After

hunting I did notice a few improvements. Balloon Help is one. To give you an example of how this works, I'm writing this column using Microsoft's Word 5. I can check spelling and grammar within this program. After checking I get a table of statistics giving me information about the column. The different indexes shown are not familiar so I click on Balloon Help, move the mouse pointer to each entry and a balloon similar to those used in the newspaper comics comes up with information about what I'm pointing to. This is much easier than looking it up in over a thousand pages of manuals.

Now imagine a large number of students unfamiliar with either the Mac or the program you want them to use. Balloon Help is a potential time saver. A student can move the mouse to what they want to know about and have the information balloon right up! System 7 gives help on the major features of the Mac interface up on the screen. Not being magic, help for a specific program has to be programmed in by the programs author and many have done this. For instance Word 5 and PageMaker 4.2 have Balloon Help, Hypercard 2.1 does not.

The Quadra comes with a microphone which attaches anyplace convenient and with a simple click of the mouse I can record up to a minute of sound and include it with this column. I could send it to you, and you could read and hear. Neat but I don't personally see much use for it unless I want to practice a few German phrases.

Quicktime is an extension for System 7. The examples I have allow me to open a window and play a 'movie' with sound. One example is a wind surfer bouncing along in rough water during a thunderstorm. You can see the lightning and hear the thunder. This becomes interesting when you realize you could be watching a chemical reaction occurring in color on the screen. You stop, step,

go backwards as often as you want. About 10 seconds of the wind surfer requires about 500 K of storage. Not bad, but we won't be showing movies this way for a while. The ability to have moving picture included in an interactive chemistry program is very intriguing.

Apple supplies a utility with System 7 that checks all the programs on your hard disk and estimates compatibility with System 7. I was happy to find that the estimated compatibility was usually conservative and almost every program I had still worked despite warnings. If you don't need maximum speed from the system, it is wise to shut off the cache switch and 32 bit addressing. With them off everything I've looked at worked, except Mathematica. When both are on older programs such as Microsoft Works and Word 4 would crash, when both are off Works and Word 4 are OK.

One surprise I got was with Symantec's Think Pascal. I use this program about 30 hours a week and called Symantec technical support to check the compatibility before I got the new Quadra. They assured me that Think Pascal 4 worked fine. It didn't, so back to tech support, who at first claimed yes it did. A few exasperating days later they admitted a patch was needed. It seems that Apple made a few 'improvements' in the newest Quadra's and neglected to tell Symantec.

Symantec was kind enough to Express mail the patch to me. I still couldn't get it to work. Back to tech support, yes it should work, no one else is having problems, did I try..., etc. After a couple of hours of going through every permutation I could think of, tech support admitted something must be wrong plus I had noticed the dates on all the programs were 1988. Odd for a 1992 update. They sent a second patch that had the same problems.

On my final try the head of tech

support personally copied the patch on to a diskette and mailed it to me. It worked! It seems that Symantec was recycling diskettes of old unsold programs and someone was putting a new label on but was forgetting to put the new programs on. Some days....

In general I seem to find it easier to customize and make changes under System 7. Adding new fonts or sounds, changing the appearance of folders or the screen are easier. I'm lucky it works because the Quadra won't allow you to use any older system like 6.07. Overall once things are working it's a fun adventure exploring the innovations that are available and experimenting with new tools.

Several new programs I've tried have been from diskettes in compressed form. They had automated installers but this seemed quite time consuming. The only real problem I had was getting the laser printer to work after automated installation of System 7. The system installed the wrong software. Luckily I had several sources available, and found one that worked on a CD from Apple.

#### **Introducing computers to freshman classes:**

After 3 years of experimenting with using the Mac in our four beginning courses we found the results were quite positive. We now introduce the use of chemistry programs to all freshman, taking about 30 minutes during the first lab period to move each lab class to a separate Mac lab. We share the computer's with the rest of the college and have had a few problems with scheduling.

Since the computers are sometimes down it would help if to have a second group of Macs in our academic learning center. They will also provide additional tutoring when our human tutors get swamped by students wanting to learn the last month's material an hour before

their test.

We have over a thousand students a year who are exposed to using Macs for drill and practice, tutorials and simulations. We have a large number of students for whom English is not their native tongue, and another group who are returning to college to make themselves more competitive in the job market. Both groups are finding the programs a helpful bridge to the textbooks.

As I reported in the last issue we've had very good results in increased student ability to do chemistry problems and a concomitant increase in test scores for those students who use the programs more than a few hours. This year I have shown an overhead to my students indicating the better student results here at Union and other colleges by those who use computer programs. I have had student use of the programs jump from the 30-50% of a class to 76-92% of a class. The ability to have much of the basic drill, practice, and tutorials available on the Macs has had the pleasant side effect of having more penetrating and interesting questions asked in class. Since the programs also seem to increase student confidence in their problem solving ability more students are tackling problems beyond just those assigned. A number of students are doing all the problems at the end of each chapter in their text.

Except for the initial introduction to the Macs, use is voluntary. We make it convenient by having the Macs available from 8 AM to 11 PM and on Saturdays.

We are looking for more high quality programs that work. If you have come across any, how about reviewing it and sharing it with the rest of us.