FROM THE CHAIR
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A. SYMPOSIA AT NATIONAL MEETINGS

The 14th Biennial Conference on Chemical Education held at Clemson University on August 4 to 8 contained a considerable number of symposia and papers devoted to the use of computers, multimedia, networks and the Internet in chemical education. This continues a trend noted at the 13th BCCE at Bucknell.

A number of Committee members presented papers or organized symposia at the Clemson BCCE and the Fall ACS National Meeting in Orlando. Charles B. Abrams (McGill University) and Marco Molinaro (University of California at Berkeley) will organize a symposium on "Computer-Aided Immersive Learning Experiences" for the fall 1997 ACS Meeting in Las Vegas, NV.

B. ON-LINE MEETINGS AND SYMPOSIA

An on-line symposium entitled "New Initiatives in Chemical Education" was held June 1 to July 19. The papers and discussion are available on the World Wide Web (http://www.wam.umd.edu/~toh).

An on-line Conference entitled "General Papers in Chemistry and Chemical Education" will be held during the summer of 1997 and the 1997-1998 school year. See the article elsewhere in this Newsletter.

C. ON-LINE INTERCOLLEGIATE COURSES

The CCCE sponsored and helped organize an intercollegiate course entitled "Environmental and Industrial Chemistry". This course was described in the Spring 1996 Newsletter and there are two articles about the course in this issue of the Newsletter. The course papers and discussion are available on the World Wide Web (http://dirac.py.iup.edu/college/chemistry/chemcourse/webpage.html).

I would be interested in hearing from those who are willing to help organize another such course.

D. NATIONAL COMPUTER WORKSHOPS

Three day National Computer Workshops were held last summer before the BCCE at Clemson. Four workshops were offered: The Use of Computers and Computer Software in General Chemistry Jeffrey R. Appling and James D. Spain Using the Internet in Chemistry and Chemistry Courses Thomas C. O'Haver Multimedia in the Classroom Charles B. Abrams et al A Short Practical Introduction to Modern Electronic Structure Methods Wayne Huang.

There were a total of 68 registrants for these workshops. We are exploring the possibility of offering similar Workshops at the 1998 BCCE at the University of Waterloo.

There were over a dozen computer workshops organized during the Clemson BCCE meeting.

E. CCE NEWSLETTER

The publication of this Newsletter represents a major activity of the Committee on Computers in Chemical Education. Articles submitted for publication are printed in a timely manner.

E. OPEN MEETING AT BCCE MEETINGS

In recent years, the CCCE has held open meetings at the Biennial Meetings. These are well attended and provide an opportunity for discussion between Committee members and those attending. A meeting was held at Clemson and another meeting is planned for the 1998 BCCE at the University of Waterloo.

F. WE ALWAYS NEED IDEAS AND SUGGESTIONS

The success of the Committee depends upon our interaction with you and other chemical educators. Please send your ideas and suggestions to me.

Brian Pankuch, Editor
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Book Review

"Silicon Snake Oil- Second thoughts on the Information Highway," by Clifford Stoll,1995, Doubleday ISBN 0-385-41993-7,   247 pp, $22.

Stoll is a computer expert and astronomer who has been on-line for fifteen years. You can tell he thoroughly enjoys computers and the Internet. He made his first splash while at Berkeley and tracked down some hackers breaking into computers in search of information to sell to the KGB. He wrote about it in 'The Cuckoo's Egg' and was featured in a PBS show about his year long hunt for the spies.

I also saw him more recently on PBS hawking this book.

Very dynamic and energetic hopping on and off desks. He's a very enthusiastic computer fan with increasing concern in using the WWW for education and communication. You can sense his ambivalence with his exultant discovery of something new and interesting on WWW, then a swing back with a realization of how little is actually useful.

Concerns:
cheapen actual experiences
undercut schools, libraries
medium oversold
spend too much on technical gimmicks teachers don't want
email is unreliable

Stoll gives an example of collaborating with a Chinese astronomer using a thousand year old set of not-too-reliable star measurements. They were looking for periodic motions such as that of the earth's north pole. The Chinese astronomer was using Fourier transforms calculated by hand! He used trigonometry tables and twelve abacuses. Stoll spent a couple of days writing a computer program to do the 'same thing.' They compared the resulting information and found some discrepancies. Stoll had spent time writing the program, while Professor Li had spent months not just doing the calculations but developing a complex method for analyzing the data taking into account the accuracy of different observers and other ambiguities. Of course a more elaborate program could be written to emulate this procedure. Would it be worth it? A simple data reduction program is straightforward. Writing a sophisticated data analysis front end program might require longer than analyzing the data by hand when you only have one database to explore. Or if a database program were used could you set it up to evaluate ambiguities accurately and correctly?

Stoll points out that the use of the Internet is heavily subsidized. A recent article pointed out that our phone system which is used by the Internet was designed for occasional 3 minute conversations. Increased heavy use by the Internet is causing some interruptions in service-soon to get worse unless massive upgrading takes place. This will probably be paid for by billing users of the telephone for actual usage. A crisis for anyone with teenagers as well as heavy users of the WWW.

Computer systems in different libraries tend to be quite different so mastering one in NJ may not help me in Arizona because it is not likely to be the same. What about looking up a reference only partly remembered? I can flip through the section in our card catalogue and target in quickly, very difficult to do on our computer system. Maybe yours is better, but if you use several libraries it is likely they are different with different commands, etc., and very likely to 'improve' over time. This requires you to keep up with the improvements even if you are doing the same thing.

Your friendly librarian also needs to spend time keeping up with newer techniques which detracts from time available for other functions such as helping patrons. Most libraries can't afford to keep up both the computer system and a card catalogue, so you use the new system or don't use any.

There are many examples of finding very interesting things on the Net. It's fun just exploring, but..."Our networks can be frustrating, expensive, unreliable connections that get in the way of useful work. It is an overpromoted, hollow world, devoid of warmth and human kindness.
The heavily promoted information infrastructure addresses few social needs or business concerns. At the same time it directly threatens precious parts of our society, including schools, libraries, and social institutions."

He's not negative on the Net, just some of the directions we're moving in and the potential consequences. When are we really learning and when is it just a diversion?

Stoll is quite impassioned about giving over libraries to using the WWW. Why not have students sit at home and receive great instruction from the finest teachers? One reason because home-study dropout rates are around 60%. The WWW can deliver information, but how to see interrelationships. Stoll doesn't think you can use computers to teach fundamental concepts like dimensional analysis. I've been using programs that help to do this very well for years. He feels that money would be better spent on smaller classes, and getting more support and respect from communities. How do you requisition this?

Too much multimedia might make straight reading much less practiced and attractive. A tendency not to think a paper through, because it's so easy to rewrite on a computer. Stoll feels that reactive thought which benefits from experience, such as pilot of a plane, is learned well on computers. Reflection where we hypothesize and work out solutions are more difficult to get from a computer.

An example from his own dissertation- simulating the atmosphere of Jupiter is interesting. He developed a model of Jupiter's atmosphere from '..a few spacecraft images, a bit of physics, and two years of number crunching, I was able to measure the size of ammonia crystals on a planet halfway across the solar system.'

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Fascinating too he's not sure he believes his own model.

So we have a guy who loves computers, books, and learning. His ideal library of the future is the community library we have now. A problem is electronic storage not the media, but the reading equipment. Tried to buy a record player instead of a CD player lately? Other problems are with the ability to scan books and other printed media you can, but its not 100% accurate. By the way does anyone know of a scanning program that can read super and subscripts? Material might have to be replicated in a more modern format every twenty to thirty years-very expensive.

Electronic library searches are very effective if you want to find a specific book, especially if you can do it electronically from home or office. Electronic searches for connections between different topics are much less effective than card searches. Another problem is the myriad search systems used and changes made during 'updates.' ..."Even though I constantly use computers, I still have to figure out how to look up a book. I forget the commands between library visits. Every library has a different on-line system: my own library has three, all mutually incompatible. Their terminals have sticky keys. At the very moment I need the command menu, its scrolled off the top of the screen." Electronic books are definitely not the way to read a novel, but it's convenient to have reference material on-line.

We are shifting resources from books and librarians to on-line access to the computerized catalog of the Library of Congress. Of course you'd have to go to Washington to read the books. Perhaps its reassuring to know the book you want is there? Actual material form the Library of Congress is now becoming available.

He like many of us is finding it increasingly difficult to download information due to heavier use of available bandwidth. So increase the bandwidth (the amount of information you can push through) to take care of the increased traffic-sure just like adding highways cures traffic problems. Of course the electronic highway is much more amenable for a technology breakthrough, I'm already hearing of many possible solutions for adding increased capacity and speeding up existing infrastructure. On the other hand companies like Apple are coming out with software which will allow us to cut and paste color 3-d clips and send the resulting color 3-d movies over the WWW. So we're gong to need a lot of bandwidth. It should be an interesting unending race.

Book Review2- by Brian Pankuch

"Being Digital," by Nicholas Negroponte, 1995, Alfred A. Knopf, Inc. ISBN 0-679-43919-6,   247 PP, $23.00.

Nicholas Negroponte is a Professor of Media Technology at MIT, and Director of the Media Lab. He is enthusiastic about what increases in bandwidth will do. Bandwidth is the ability to send information down a given channel, whether copper wire, optical fiber, or as electromagnetic radiation. Fiber is especially impressive since we are already close to sending a trillion bits per second. Capable of carrying a million channels of television at the same time or all the Wall Street Journals ever printed in a second. That's a lot of information.

The book for the most part is a string of essays and articles done before and not particularly well connected. If you like his column in *Wired* magazine, you'll probably enjoy his book.

As one might expect he has been involved in many interesting projects. Asked to help ready our commandos for different hotspots, he set up a system for storing tapes of potential hotspots on videodisks which could give our antiterrorist commandos the computer equivalent of a drive down streets and corridors they might soon be fighting in.

He is inclined to go where the action is. People who are interested in applied research are reading the Wall Street Journal instead of scholarly journals. The action is in entrepreneurial companies so you're more likely to find cutting-edge information in the Wall Street Journal.

With the increasing inexpensive power available to use in computers Negroponte is strongly in favor of using it to improve our interface with computers and other electronics, and appliances. "....At home I used to have a very intelligent VCR with near perfect voice recogni-