

any large bio-molecule - <http://molbio.info.nih.gov/cgi-bin/pdb>.

*Explorations* - Content provided to the user without a great deal of structure for the purpose of letting them explore and gather information to answer a given question. Examples of this include Web pages with a series of links for students to wander through to answer specific questions. More complex uses include pictures, movies, simulations, and animations.

*Immersive environments* - The user is immersed in a context and affects the outcome of what happens to him or her. Usually there is a story element that lends an element of reality. Examples of this type of media include our AirbagsRUs virtual company or the Wiley Liftoff module.

#### 4) Ways of distributing the media

*Internet* - The material is made available on the Internet and is accessible via FTP or Web browsers like Netscape. The limitations with this approach include: the necessity of an Internet connection, slow transmission rates, and limitations to what web browsers allow.

*Floppy disc/s* - The old standard - almost everyone has the capability to read one. Main drawback - cannot hold more than about 1.4 Mb of material.

*Removable discs* - Removable discs such as Zip or Jaz discs hold 100-1,000 Mb of material - plenty but few people have them.

*CD-ROM* - The new (sort of) standard for delivering up to 600Mb of material. Relatively inexpensive but rather slow when looking at complex media pieces.

I hope that by mentioning how I think about media I have stimulated thoughts in you the reader. Be aware that any given multimedia piece can contain various media types. There are numerous other crucial issues that I think of when thinking about media including: 1) Educational value and effectiveness, 2) People, time and costs associated with producing the media, and 3) Strengths and weaknesses of the media. All of these issues are extremely important when you are creating educational media - I will not say more about them here but I will write more about them in the future with references to the latest literature.

As I return to burning more CD-ROMs, I just want to mention that the ways I think about media are in no manner exhaustive and this is really my first stab at putting all of this down on paper. I would welcome and appreciate any comments directed at [molinaro@cchem.berkeley.edu](mailto:molinaro@cchem.berkeley.edu). I find media fascinat-

ing and a wonderful tool to teach chemistry. I am certain that the next few years will bring us wonderful media that will enhance our students' understanding of chemistry, as well as our (at least my) own.

#### **JCE Software: Changes for Changing Times**

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If you read the Journal of Chemical Education, you probably know that an organization called JCE Software publishes computer programs, videodiscs, videotapes, and CD-ROMs for chemistry education. You may not have noticed that JCE Software is actually the Journal of Chemical Education Software and is a publication of the Journal of Chemical Education, owned and operated by the Division of Chemical Education, Inc. of the American Chemical Society. As such, JCE Software is an academic publication with the same high standards of peer review as the Journal. Before I became a Technical Editor for JCE Software in 1994, I did not know much more about it than that, except for a little experience with some of the publications. Since then, I have learned a great deal more - this is a unique way of publishing software, combining rigorous review with a non-profit attitude and a desire to get the materials into the hands of as many educators as possible. Our goals are to provide the academic recognition due authors of electronic media for use in chemistry education and to make these materials available at prices any school or teacher can afford. I feel privileged to be a part of this vital organization. I'd like to tell you a little about some of the changes that have been going on in JCE Software over the past year.

JCE Software has since its beginnings been called the electronic publishing arm of the Journal of Chemical Education, but for the most part it functioned as a separate entity. That changed tremendously in September 1996 when John W. Moore, JCE Software's founding editor, assumed editorship of the Journal of Chemical Education. There are many obvious changes in the move of the Journal's editorial offices from Austin, TX to Madison, WI, home of JCE Software. In the spring of 1996 the JCE Software staff moved into "Journal House" a renovated house owned by the University of Wisconsin-Madison and located about a block away from the chemistry building. As the new members of the Journal staff were hired, they moved into Journal House. Now the Journal of Chemical Education and JCE Soft-

ware really do function as a team. Submissions are received in a central office and directed to the most appropriate publication media: print, disk (or CD, video, etc.), or Internet (Word Wide Web). John Moore's dedication to the promotion of new technology in chemistry education is well known in the chemistry education community. It is very exciting to be a "computer person" under his editorship of the Journal.

The JCE Software staff has undergone some major reorganization. The role of editing JCE Software now belongs to Jon L. Holmes, formerly the JCE Software Senior Technical Editor. He is not only responsible for JCE Software, but for all the electronic publications of the Journal, including the newly developed JCE Online and JCE Internet. More responsibility for JCE Software now rests with me. In addition to my former duties, I now do all the page-layout and desktop-publishing of the printed documentation. I have a greater responsibility for all aspects of materials published on disk or as video. The transition has required a great deal of adjustment from everyone involved. It has also given us an opportunity to examine some of our procedures and in many cases to streamline them. I am pleased with the results so far, and I hope that both our authors and subscribers agree. More changes are ahead with the redesign of software documentation currently underway, and the growing submissions of Web-based materials.

JCE Software has some new and different publications that you may have seen abstracted in the Journal. Here are brief descriptions of three that we are particularly excited about:

Journal of Chemical Education on CD-ROM (JCE: CD 1996) was announced in January of this year. As the name implies, this is the full text of the Journal of Chemical Education on CD, for Macintosh and Windows computers. It includes all the text and graphics of the September-December 1996 issues of the Journal including the complete 1996 Index. All text is fully searchable for author's name, titles, words, and phrases. Production of this CD has truly been a joint venture of the Print and Software staffs. This CD is a prototype for future CD's that will contain a full year of the Journal. Users are asked to complete a survey about the CD. We will use the results to make future issues of JCE: CD the best possible resource for chemistry educators.

The JCE Software General Chemistry Collection for Students, (Special Issue 16) marks two firsts for JCE Software. It is the first time that all of our most popular general chemistry software for PC-Compatible, Macintosh, and Windows computers has been available in a single package, and it is our first publication to be sold specifically to students. We are working on an instructor's version of the CD for publication later this

year. As a larger and larger fraction of students own their own personal computers, we believe that direct access to JCE Software publications recommended or assigned by their instructors will prove very beneficial to learning. We are very excited about the possibilities.

Periodic Table Live! (Special Issue 17) combines three JCE Software issues, the Periodic Table CD (Special Issue 10), Chemistry Navigator (Volume 6C, No. 2), and Illustrated Periodic Table (Volume 2D, No. 2) in one integrated, easy to use CD-ROM. These are three of JCE Software's most popular publications and we believe that this issue will quickly become a best seller. An abstract for this issue will appear in the April issue of the Journal. With publication of this issue, JCE Software for the first time in its history will have all of its periodic table materials "off the drawing board" and in distribution. Will Periodic Table Live! be the ultimate periodic table package? We can't wait for our users to let us know!

What is next for JCE Software? With "Big Changes" like new offices, and new editors and "small changes" like the removal of the colon from our name (formerly JCE: Software), we are moving toward the future, ready to adapt to meet the needs of the chemistry education community in times of changing technology. In the next year you can count on seeing some great chemistry video on CD-ROM and more instructional software from chemistry educators, but we will not know exactly what is coming next until you tell us.

Upcoming publications depend entirely on submissions from dedicated chemistry instructors (like those who read this newsletter!) who devote their time and energy to the development of innovative new media for use in their own classes, and then decide to share it with the rest of us by submitting it to the Journal of Chemical Education: Print, JCE Software, or JCE Internet. With all of us contributing, there are no limits to the possibilities!

There are also new ways to get in touch with JCE Software. Point your WWW browser to <http://jchemed.chem.wisc.edu/>, send an email message to [jcesoft@chem.wisc.edu](mailto:jcesoft@chem.wisc.edu), call toll free in the USA (800) 991-5534, or from anywhere in the world dial (608) 262-5153, or send a FAX to (608) 265-8094. And the old way still works too-send a letter to JCE Software, University of Wisconsin-Madison, Department of Chemistry, 1101 University Avenue, Madison, WI 53706. Authors interested in submitting any new media for chemistry education for publication in JCE Software can contact me directly at [gettys@chem.wisc.edu](mailto:gettys@chem.wisc.edu) or JCE Software, 209 North Brooks Street, Madison, WI 53715.