Teaching with technology

BY PROFESSOR JAMES J. O’DONNELL

Until a couple of years ago, the most powerful technological innovation to affect teaching at Penn in my time here was the introduction of the “Dispennser,” that wooden chalk-and-eraser rack that most of our classrooms now have. We no longer begin a term by hiding bits of chalk strategically in classrooms to have something to fall back on in an emergency. Like most great inventions, it was an empowering tool that expanded the reach and freedom of those who used it. Of course that chalk was a technological innovation in its own way, and for that matter the stick with which ancient teachers drew in the sand to illustrate geometry was technology. But above all, language itself is a gadget, an innovation designed to make it easier to manipulate things and move people in concerted action. There’s nothing new about teaching with technology.

The end of an era

What is new is the end of a long age of relatively stable technological relations. Just as the internal-combustion engine ended the frightening isolation of the farmer in the dead of winter, compelled to cope with everything from starvation to appendicitis with his own resources as the fall drew to a close, so too do we now live in an age when the isolation of the classroom is breaking up and disappearing. Our institutions have long emphasized the autonomy, the authority, and the self-reliance of the teacher in the classroom. That isolation could be hedged in various ways: One senior colleague in my department was famous for disappearing into the classroom behind huge stacks of books taken along for fortification, but when the door closed, we were alone with our students and they with us. The privacy, indeed the intimacy, of that relationship can be an extraordinarily powerful bond in creating the communication that forms the foundation of good teaching.

But it can also be a crippling intimacy. An abusive or negligent teacher, or merely one too reliant on old, yellowed notes, could make that intimacy a barren and pointless thing and cheat the students of their due. There were good days and bad days, but there was never a golden age. (continued on page 10)
ON THE COVER: Title page of an anonymous Latin edition of Euclid’s Elements of Geometry printed in Antwerp around 1645. In the foreground, scholars illustrate the construction of plane figures by drawing in the dirt with a walking stick; in the background a man uses a device to calculate the height of distant objects by triangulation.

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since the spring of 1994 the E-mail Task Force Office Systems Working Group has sought to identify standards and products that meet the University’s requirements for advanced electronic mail. The Working Group has been testing and evaluating products rigorously, and had hoped to recommend replacements for Elm, Eudora, and All-In-1, three widely used e-mail products on campus.

However, like its counterparts in other colleges and universities, the Working Group has been disappointed in the market’s ability to meet core needs for advanced e-mail, particularly location independence and good desktop integration. Although the Group continues to test and evaluate new products, it now recommends continued support for Elm and Eudora. Users of incompatible mail products, such as All-In-1 and VAXmail, are encouraged to switch soon to Elm or Eudora.

Why switch to Elm or Eudora?

Making the switch now means that you will be using products that comply with Penn’s e-mail architecture, and that your eventual migration to successor products will be easier—since new products will comply with the architectural standards. Such standards are increasingly important at Penn because they help keep training and support costs in check and allow people across campus to work together more effectively.

The two standards that form the basis of Penn’s e-mail architecture are SMTP (Simple Mail Transport Protocol), the IP/Internet standard for message transport, and MIME (Multi-purpose Internet Mail Extensions) for document attachment and file enclosure.

Which to choose

Elm is a host-based product offering location independence but limited integration with desktop-computing environments. Eudora is a desktop product that offers good integration with the Mac and Windows desktop environments, but limited support for people working from multiple desktop computers or locations.

Users of incompatible mail products who have sufficient desktop hardware (see the desktop hardware standards recommended for Penn in the February 1995 Penn Printout) and little or no need for location independent access to e-mail should switch to Eudora.

Users of incompatible mail products who either have insufficient desktop hardware or who need access to mail without regard to location should switch to Elm.

Because Elm and Eudora are both SMTP/MIME compliant, departments can switch users to the products that best suit their desktop facilities and work requirements.

If you need help

For assistance in planning or implementing e-mail systems for your department, contact your local support provider or Al D’Souza, Director of Network Services and Support, DCCS (dsouza@dccs or 898-2429). For information on ISC standards, contact Noam Arzt (arzt@dccs or 898-3029). Noam Arzt, Chris Shull (shull@isc or 898-5930), and Katie McGee (kmcgee@sas) are co-chairs of the E-mail Task Force Office Systems Working Group.

NOAM ARZT is Director of Information Technology Architecture for Information Systems and Computing; CHRIS SHULL is Open Systems Specialist for Academic Computing Services; and KATIE MCGEE is Senior Director of Customer Services and Planning for the School of Arts and Sciences.

Requirements for advanced e-mail

Detailed requirements were developed during Fall 1993 and presented to the University community for comment. The core functional requirements are:

• Retention of the basic messaging features supported by the host-based e-mail systems now in use (which SMTP facilitates)

• Support for mailing any kind of file, such as spreadsheets, graphics, or word-processing documents (which MIME facilitates)

Three additional environmental requirements, which often clash with one another, are:

• Integration of an e-mail product with a graphical desktop environment (like MS-Windows or MacOS)

• Support for location independence, which is the ability to work from many locations and have access to the same data, services, user settings, and preferences

• Scalability of the mail server platform to accommodate a large number of users
Remote access to PennNet

BY CELESTE STEWART
AND TONY OLEJNIK

If you haven’t heard about PPP, it’s time to update your network vocabulary. Data Communications and Computing Services (DCCS) recently announced support of PPP software for Windows. PPP, like MacSLIP (a Macintosh product supported at Penn for some time), allows you to access Internet resources such as World-Wide Web (WWW) and NetNews as well as PennInfo and the Library’s many online services, using a high-speed modem and the same point-and-click suite of software already available to those with an Ethernet connection in their campus office or ResNet dorm room. You can, for example, use Mosaic rather than Lynx to access the WWW, or NewsWatcher or Trumpet, rather than the character-based tin newsreader, to read and post news.

SLIP vs PPP

Both SLIP (Serial Line Internet Protocol) and PPP (Point-to-Point Protocol), the underlying protocols on which MacSLIP and PPP are based, package Internet Protocol (IP) data for transmission over serial wires such as telephone lines. But that’s where the similarity ends. Although SLIP is still widely used, it appears to have exhausted its potential and its development has stagnated. In contrast, PPP is under active development and is widely regarded as the eventual successor to SLIP. PPP has features lacking in SLIP, including error detection and mechanisms for negotiating IP parameters such as IP addresses. More importantly, the PPP specification supports protocols other than IP, such as AppleTalk and IPX (Novell’s Netware). Thus, you will eventually be able to access IP services (FTP, Telnet, WWW, NetNews, etc.) as well as campus AppleTalk and Netware file servers from off-campus locations. The University has already begun to migrate from a mixed PPP/SLIP environment to a unified PPP environment.

Which one is for me?

Simple. If you use a Windows-based PC off campus, install the PPP software (see sidebar on page 5). If you use a Macintosh, install MacSLIP, the SLIP software.

Penn is migrating from SLIP to PPP in two phases. The first phase, implementing a PPP solution for Windows, has been completed. As a result, DCCS will no longer distribute or provide support for the PCSLIP tool included with Novell’s LAN Workplace (LWP) software. Windows users of PCSLIP should migrate to PPP to remain current with supported software. PPP takes advantage of the currently-supported vendor software bundled with LWP, which includes the TCP/IP stack for on-campus access to IP services, as well as extensive vendor support, documentation, and online help. In addition, PPP resolves most of the scripting problems users encountered with LWP’s PCSLIP.

PPP and PennNet

PPP, and not SLIP, will play an important role in the future architecture of PennNet. To complete the transition to PPP, DCCS must implement a PPP solution for the Macintosh and upgrade the University’s terminal servers. Although PennNet itself “supports” both SLIP and PPP, the terminal servers (which enable modems to access PennNet and Internet services) currently only support the Internet Protocol. Therefore, feature-rich PPP services—assigning dynamic IP addresses, built-in authentication, and the much-awaited ability to access AppleTalk and Novell’s IPX services via modem—will not be available until DCCS acquires advanced terminal servers that can support PPP’s functionality. Solutions for both Macintosh
PPP and advanced terminal servers will be announced in the Penn Printout as future phases of the project are completed.

Additional Information

Check PennInfo for more information about MacSLIP (keyword “macslip”) and PPP (keyword “ppp”), call the PennNet help desk at 898-8171, or send e-mail to help@dccs. Additionally, check the following newsgroups for information: upenn.net.ppp, comp.protocols.ppp, upenn.net.macslip, and comp.sys.mac.comm.

CELESTE STEWART is Senior Technical Writer for ISC Communications Group; TONY OLEJNIK is Senior Network Consultant for Data Communications and Computing Services.

Where to get PPP and SLIP

**Windows PC**

PPP is available via ftp at ftp.upenn.edu/pc/ppp. For instructions on downloading and installing the software, see the README file in the /pc/ppp directory. Note that PPP is site-licensed software from Novell and is available via authenticated ftp only, so log on to the server using your PennNet ID and password.

PPP is also distributed on installation disks by the PennNet help desk, (Suite 221A, 3401 Walnut Street) Monday through Friday from 10 AM to noon. Bring two unformatted DS/HD (double-sided/high-density) disks. If these hours are not convenient, call the PennNet help desk (898-8171) to arrange a time to pick up the software.

**Macintosh**

MacSLIP, site-licensed software from Hyde Park Software, is distributed free of charge by the CRC, 3732 Locust Walk. The MacSLIP distribution disk includes MacSLIP, Apple’s MacTCP, some sample networking software, and instructions on how to install the software. To obtain MacSLIP, bring one unformatted DS/DD (double-sided/double-density) disk or two unformatted DS/HD (double-sided/high density) disks.

MacSLIP is also available on Penn’s ApppleShare server, which is in the UPenn-ISC-DCCS AppleTalk zone. Log in as user “Penn” with password “Penn” and then select the Penn Software volume. MacSLIP is in the network_drivers folder.

LIBERTYNET

BY DANIEL UPDEGROVE

• What are the hours of the Free Library?
• What hotels serve the western suburbs?
• What is the next program of the Delaware Valley Total Quality Consortium or the World Affairs Council of Philadelphia?

Such diverse information about our region is now available on the Internet, thanks to a non-profit program of the University City Science Center called LibertyNet. LibertyNet provides an electronic home for Philadelphia area non-profit organizations, schools, government agencies, and businesses seeking to showcase their programs and services to the region and to the world.

LibertyNet currently supports over 100 information providers, each of which makes available one or more pages of multimedia material using the World-Wide Web hypertext markup language (HTML). Browsers then use popular Mosaic, Netscape, or Lynx software “clients” to retrieve and display the information, which is organized by subject and indexed for easy searching. LibertyNet (URL http://www.libertynet.org/) is directly accessible from the Penn home page.

Launched in 1993, LibertyNet has received financial and in-kind support from Bell Atlantic, Ben Franklin Technology Center of Southeastern Pennsylvania, Digital Equipment Company, Free Library of Philadelphia, School District of Philadelphia, Telecommunications Education Fund, University City Science Center, William Penn Foundation, and WHYY, as well as the University. SEAS ‘94 graduate Nathan Gasser serves as principal architect of the LibertyNet database.

Future plans call for a network of public information access kiosks, a dial-up modem pool, and extensive outreach programs. In the interim, anyone affiliated with a Delaware Valley organization that seeks to make its information resources available on the Internet is encouraged to call (215) 387-2255 or send e-mail to webmaster@libertynet.org.

DANIEL UPDEGROVE, Associate Vice Provost for Information Systems and Computing, serves on the Organizing Committee for LibertyNet.
Did you know that there are over 5,000 LP and CD recordings of both classical and traditional music of the world listed in Franklin? Try a k= search to locate the recordings of your favorite composer on compact disc or LP (k=beethoven and sound recording), or browse the Library’s CD collection of the music of a specific country or people (k=indonesia and compact).

Microsoft’s home page (http://www.microsoft.com) is now (or will shortly be) offering two free add-ons for Word for Windows. One is the Internet Assistant, a tool that generates HTML mark-up tags; the other is Word Viewer, a product that lets you view and print Word documents.

WHYY. Channel 12, the Philadelphia area PBS affiliate, now has an electronic mail address. Send comments about programming to talkback@whyy.org.

Hypercard 2.3, expected to ship this summer, will allow users to create fat-binary, stand-alone applications.

If you have voice mail, such as Bell Atlantic’s Answer Call, on your home phone, make sure you have no new messages before logging on to PennNet. Otherwise you will receive a “no dial tone” message and be unable to access the modem pool.


The Penn Library’s OVID search system now allows you to save search strategies and execute them at a later date. From the main search screen, use the Save command (^B) to save a strategy and the Search command (^A) followed by Execute to execute a saved search.

The conference “Religion, Television and the Information Superhighway: A Search for a Middle Way” was held at the Annenberg School on April 22-23, 1994. The conference report is available at the URL http://www.upenn.edu/rtvis/.

Archaeology buffs: View the newly discovered paleolithic cave paintings at http://www.culture.fr/gypda.html, or follow the MayaQuest team at http://mayaquest.mecc.com/.

Macromedia’s Authorware 3, expected to ship in April, will allow data exchange with Director movies and will import RTF files.

Test preparation companies Kaplan and Princeton Review provide free information online about subjects ranging from student evaluations of colleges to law school admissions. The URLs are http://www.kaplan.com and http://www.review.com.

Looking for an online Internet workshop? The lesson files of the popular “Roadmap” workshop (80,000 subscribers to the February 95 series) can be accessed from the developer’s home page (http://ual.vm.ua.edu/~crispen/crispen.html) or via e-mail (send a message to listserv@ual.vm.ua.edu with the following text in the BODY, not subject line, of the message: get map package f@mail).

The BugNet newsletter reports on bugs in Windows software, including all Microsoft products, Lotus 1-2-3, Adobe Photoshop, CorelDraw, and others. Info:  BugNet, P.O. Box 393, Sumas, WA 98295.

Franklin has a new service called MATH, which includes the full Math/Science database from the American Mathematical Association. MATH has historical references that go back in some cases as far as the 1940’s.

Under any version of System 7, you can usually quit from a crashed application without restarting your Macintosh by pressing the <Option-Command-Escape> key combination.

Want to create your own home page but need a little help? Try the tutorials available from http://www.sas.upenn.edu/instructions.html. The tutorial, created by DCCS, is also available from http://dolphin.upenn.edu and http://pobox.upenn.edu.
Some of the Macintosh Microsoft Word 6.0 menus seem to be quite a bit different from Word 5.1. I can’t find the Format/Section or the Format/Document menus. How do I change the format of a section?

Word 6.0 for the Macintosh was changed to look exactly like Word for Windows. And Word for Windows does not have the Format/Section and Format/Document menus. To create a section, you must now select Break from the Insert menu. Once a Section Break has been created and appears on the screen, double-clicking on it will launch the Document Setup window in which you can change margin settings and layout options such as Section Break preferences.

—Mary Griffin, CRC

I often get a busy signal when dialing the modem pool in the evening. What should I do?

The PennNet modem pool (898-0834) is usually quite busy from about 8 PM to 1 AM, Sunday through Thursday evenings. Below are some suggestions for dealing with this situation until Data Communications and Computing Services (DCCS) is able to expand the pool (currently consisting of three hundred 14,400 bps modems).

• Try again: Since sessions average about 20 minutes, a line comes available every 4 seconds. (And note that each time you call—unless you hear a busy signal, which indicates that all of the modems in the pool are in active use or “connecting”—you will be assigned to the line least recently called. Thus it is counter-productive to dial any number in the pool except 898-0834. If you see a “ring-no answer,” message, you were connected to a defective modem; try again.)

• Switch some of your network activity to other hours. Over a typical week, the average utilization of the pool is only 195 lines out of 300.

• If you are a student in one of the seven ResNet-wired dorms, get yourself an Ethernet card or adaptor; not only will you have a guaranteed connection but it will be dramatically faster.

• Do e-mail offline if possible. If you do most of your e-mail from one modem-connected machine, consider switching to Eudora, which is designed for local preparation of mail to be sent later, and for batch downloading of incoming mail, which you can read and respond to offline. Even if you can’t use Eudora, consider composing lengthy messages in a text editor, and then uploading (using, e.g., Kermit) or copy/pasting into your host-based mail system (such as Elm or All-in-1).

• Refrain from staying connected longer than necessary, and from “recreational” uses of the network during peak hours.

• If you are making a toll call to reach PennNet from New Jersey, Delaware, or the PA suburbs, consider subscribing to one of the many area Internet access services. You may save money while reducing demand for Penn’s modems. See the Penn home page (http://www.upenn.edu) for details.

—Dan Updegrove, DCCS

I’m using NewsWatcher to read Internet newsgroups from my Macintosh. When I go back to check for new postings, all the messages I had previously read are still there. I thought NewsWatcher was supposed to show only those I haven’t read yet.

If you are reading messages from the Full Group List, you will see all messages in all newsgroups, even if you have previously read them. To set up NewsWatcher to manage messages for newsgroups you read, first create a personalized group window by selecting New Group Window from the File menu. Now either copy & paste or drag & drop your preferred newsgroups from the Full Group List to your new group window and then save the group window using the Save command under the File menu. Your group window will show the newsgroups you selected (subscribed to) and the current number of unread messages. Remember that newsgroup messages aren’t maintained indefinitely. After a certain period of time, the oldest messages are dropped from the list whether you have read them or not. —Kristin Nelson, CRC
These are just some of the Library’s electronic forms accessible via a World-Wide Web browser at http://www.library.upenn.edu.

With the continuing development of the Library’s Gateway, more and more users have been wondering whether the Library would begin to offer some of its more routine services electronically. Recognizing that this capability is both desirable and useful, Library staff have been working hard to develop electronic service request forms. Now, in conjunction with the scheduled launch of the Library’s Web home page in March, the first batch of electronic library request forms is available to users.
Development

The development effort necessary to create the request forms was managed by a subcommittee of the Library’s Electronic Access Task Group. The Forms Committee was assembled in late November 1994 to create electronic versions of four basic library service request forms. The Electronic Access Task Group wanted to offer the public something early in the Spring semester. At the same time that the Forms Committee was assembled, another sub-committee was set up to create a World-Wide Web home page for the Library. The development of both the electronic service request forms and the Web home page moved forward rapidly and, to some extent, conjointly. Because of these intersecting development paths, the Library decided that a simultaneous launch of both new products was appropriate.

Operational and technical challenges

The Forms Committee faced significant challenges—some operational, some technical—as it began its work. Workplace transitions are often difficult, particularly when existing operations are supplemented rather than replaced. Procedures for handling printed forms have been in place for years. Staff routines have developed to handle the work those forms generated. Even electronic versions of paper forms necessitate the creation of new procedures and work routines. Also, a concern was raised about how much additional work would be generated for an already stretched staff by providing electronic service request capability over the network. The question of whether electronic requests will replace or supplement paper requests is yet to be determined. However, the implications for improved patron service alleviated any doubts about additional workloads. In fact, the enthusiasm for this project is so great that the Committee has moved past its initial mandate to create four electronic request forms, and to date, has created ten.

The technical challenges faced by the Forms Committee were even more daunting. The Committee needed to anticipate not only how Library patrons would use the electronic request forms but also how forms would be accessed. It was essential that the forms be accessible to our large and diverse user population regardless of their individual computing environment.

Designing for the Web

The ability of a Web server to make hypertext documents available across the Internet has redefined the way the Library can provide services. These hypertext documents are text files in machine-readable format that contain special tagging called Hypertext Markup Language (HTML). The Web server transmits the text file with its HTML tagging across the Internet. The user needs client software to interpret the HTML tagging to display the document in a standard style. Some popular client Web browsers are Mosaic and Netscape, which take advantage of a graphical interface and are available for Windows, Mac, and X-terminal platforms, and Lynx, a character-based browser. The electronic request forms we created are a function of HTML, which allows for an interactive environment between the client and the server. Taking advantage of this kind of functionality, we developed request forms that work for both the user and for Library staff.

During the design phase of the forms’ development, the Committee took the most popular client browsers’ functionality into consideration and made compromises to design for the different browsers. As the forms currently exist, text appears on the screen and fields are provided for user input. The server then uses Common Gateway Interface (CGI) scripts to process data gathered from a user. Currently, the CGI scripts that process the request forms capture the input, write it to a file, and then send that file to a predetermined e-mail account. The service request is then reviewed by the appropriate Library staff member.

Printing the forms

Various client browsers can and do interpret tagging in differing ways, which makes processing forms from patrons using those browsers challenging. For example, the Committee realized that a user might want a hard copy of his or her request. Trying to print a form that also includes the user’s input shows how different browsers react. With Lynx, the form prints without any of the user’s data. Users of Mosaic or Netscape, depending on the version, will have varying degrees of success trying to print a completed form. To compensate for this difference we have added a feature to the CGI script that will transform a completed request form into an HTML document that can be printed regardless of the browser.

The future

Refinements will be made as the technology matures and as staff time permits. For example, we want a user to be able to extract information from a source and automatically move it into a service request form. New ideas for forms surface every day. As we gain experience with the ten forms currently available we’ll have a better sense of what we can and can’t do. We urge you to use the forms and let us know what you think. We see form development as an evolutionary process: some forms will change; some will be discontinued and new forms will take their place. As the great evolutionary Charles Darwin so eloquently put it (although in a slightly different context): “...from so simple a beginning endless forms most beautiful and most wonderful have been and are being evolved.”

CARTON ROGERS is Director of Technical Services for the Library and Chair of the Forms Committee; PEGGY YETTER is Senior Systems Analyst in the Library’s System’s Office.
Teaching  (from page 1)

The world at large

Now the world outside forces itself in upon us. Grade school classrooms have special satellite television hooked up for them, with at least some of the students taking the opportunity to reprogram the dish to get livelier fare than the educationists planned—this is the equivalent of my hiding, at age 16, in the back row of class to read Atlas Shrugged undetected. Our university classrooms have already been invaded by the world, a welcome invasion, for decades. The paperback book was the thin end of the wedge, bringing a far wider range of reading material. Various “multimedia” (as it’s now fashionable to call them) tools have been here since the days when we thought they were merely “audiovisual.”

What has changed now, and what marks the decisive turning, is the degree of interconnection between people that networked information brings. For the most part, there’s no question of replacing the tried and true with the novel, but rather an explosion of opportunities for making links of one kind or another. The Internet and its killer applications of the moment, Mosaic and Netscape, are at one end of a spectrum, but these are high-profile tools that make us think about whether we want them and what their use will be. At one university’s (not Penn’s) parking bureau at the beginning of term crush this January, one staff member of conservative mien emerged shaking her head and saying, to the loud and general approval of bystanders of all ages and conditions, “There’s got to be a way to do this better by computer.” She was absolutely right, but more to the point, we all knew she was right: We are different people today, judging the effectiveness of our enterprises with a canny eye to what technology can do.

The new communication

My point is simple. Tools as powerful as networked computers are going to transform human communication. This transformation will bring with it both loss and gain. Every revolution in communication has both added to the power and range of what is communicated, and taken away some of the intimacy. Writing began the long, slow disestablishment of the face-to-face community of people who all knew each other, and every communication technique introduced since then has furthered that process. At the same time elective communities of discourse have emerged far beyond what the lonely peasant of the Roman empire, or the lonely farmer in Nebraska a hundred years ago, could dream.

I regard this future phlegmatically. My calm and my concomitant venturesomeness are owed to my professional standing as a classicist and medievalist. My dissertation two decades ago was about a sixth century A.D. statesman and monk who helped create the new intellectual order of Latin Christendom through ingenious application of the technology of the codex book. We’ve been here before, and we’ll be here again. It is as exciting to live through the changes we face as it would have been to live through the introduction of print 500 years ago. I publish online book review journals (Bryn Mawr Classical Review and Bryn Mawr Medieval Review), use networked tools in all my teaching, and bring the world (from Hong Kong to Istanbul) into Penn classrooms by adding carefully managed e-mail lists to Penn courses. This past fall, thanks to the gutsy collaboration of the College of General Studies, I even taught advanced Latin to four tuition-paying students who’ve never been near Penn and may not even be quite sure Joe Paterno doesn’t coach here—one in Georgia, one in Texas, one in Idaho, and one in Japan. (It’s still more effective to teach face-to-face, but if there’s a market consisting of one Latin student per town in North America going untaught right now, classicists have every reason to think about how we can reach that audience; and if we can reach it—say if we can teach the thousands of school Latin teachers who soldier on in relative isolation, giving them curricular inspiration and refreshing their linguistic skills—we can make a real difference to the larger educational process of which we are a part.)

But excitement isn’t always easy to take, and the end product of our adventures may be disruptive to our sense of who and what we are; there’s no question about that. I have written a paper that draws on 15th and 16th century sources to show how people reacted to print when it was new. I expected to find Luddites in those days, and to show how wrong they had been, and thus implicitly confute the Luddites of our own time. Instead it became clear that those who feared the new technology were right to fear it. Their cautions and their warnings turned out to be powerfully accurate, but also (and this was the surprising lesson) powerfully irrelevant. A potent new form of communication is so transformative that it creates a new economy of knowledge that is larger, faster, and much wealthier than what has come before, and so simply swamps objections and objectors. A skilled calligrapher, in the face of print technology, may choose to remain a calligrapher, but mustn’t expect to maintain a former privileged social status. It is in many ways a brutal lesson, but taken the right way, it is also a liberating lesson.

Putting technology to use

My experience these last years has been that the new technologies of networked information are indeed liberating, to real teachers and real students. It’s not as though we couldn’t use some help. There are plenty of frustrations for teachers, plenty of obstacles yet to surmount, plenty of barriers separating us from the students we want to reach. The best way to view information technology is to let it address the problems we already know we have. Office hours too cumbersome to facilitate the non-class
communication with students you want? E-mail, listservs, and newsgroups can suddenly bring down barriers. Want a TA in a beginning language course to be available for students when they need help most? Let that TA go home safely through early evening streets, then log in to a “MOO” online conferencing program and hold “office hours” from 10 P.M. to midnight (or the night before an exam) and let the students come online to “converse” with the TA in the target language, with all the errors typed on screen to point to and correct. Want to bring together special resources including text, sound, and images for students to explore? Let a World-Wide Web page organize the information for you. (And incidentally save paper: I never give my students “handouts” any more. Things I’ve been photocopying annually for 20 years I’ve now had scanned and proofread once, and no student can ever misplace a copy again; they’re permanently available online.) Want better graphics and display in the classroom? The Provost’s classroom committee has been aggressively remodeling central pool classrooms like Stitel B-6 and B-21 and Williams 103-105 to have the latest and best technology, and School computing support can often bring surprisingly effective portable equipment to even the most architecturally unprepossessing classrooms. Then the sounds, texts, and images of the WWW can dance interactively for you and your students right then and there.

Penn’s English department has recently shown that these innovations can be managed on a fairly large scale: a standing faculty of 40, all but one on line; 400-some majors, 94% on line; an array of electronic advising services; course materials available in the widely consulted English Gopher, along with current announcements, a departmental calendar of events, profiles of all faculty, an electronic directory of English major alumni, and numerous online literary research tools (gopher.english.upenn.edu); increasingly, similar resources in WWW (http://www.english.upenn.edu); a growing electronic text archive; and now automated electronic mailing lists for every course. (continued on next page)
Where to begin?

To give some ideas and examples, I have created a set of World-Wide Web pages that both describe and demonstrate current applications of networked technology for pedagogy—no vaporware, no pie-in-the-sky, just concrete real-world suggestions for which the technology is already in place at Penn. The new central administration has shown an enlightened, instinctive sense of urgency in supporting these developments, and we can expect from both School and University levels over the next few years a real commitment of resources—not special “computer” resources but the most valuable resources of money and people committed to the central business of the University. We, like all our peer institutions, will need to teach ourselves quickly the prudential economics of how to get the most out of what we have. The new tool box will help.

Hardware maintenance vendors

The Purchasing Department and the task forces for microcomputer and UNIX maintenance recommend the following companies for computer maintenance services for fiscal 1994 and 1995.

For microcomputer maintenance:

<table>
<thead>
<tr>
<th>Computer Fixer</th>
<th>Janice Cuthbert</th>
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<tbody>
<tr>
<td>INTEC</td>
<td>Mike Miller</td>
</tr>
<tr>
<td>System &amp; Service Pros</td>
<td>Gregory Fecca</td>
</tr>
</tbody>
</table>

For UNIX maintenance:

<table>
<thead>
<tr>
<th>Workstation</th>
<th>DEC, SUN</th>
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<tbody>
<tr>
<td>DEC</td>
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<tr>
<td>SUN</td>
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<tr>
<td>IBM</td>
<td>DEC, SUN</td>
</tr>
<tr>
<td>HP</td>
<td>DEC, HP</td>
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<tr>
<td>NEXT</td>
<td>DEC</td>
</tr>
</tbody>
</table>

UNIX maintenance vendor contacts:

<table>
<thead>
<tr>
<th>DEC</th>
<th>James Ingraham</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hewlett Packard</td>
<td>Leslie O’Brien</td>
</tr>
<tr>
<td>Silicon Graphics</td>
<td>Jerry Allen</td>
</tr>
<tr>
<td>SUN/Bell Atlantic</td>
<td>Atul Wadhwa</td>
</tr>
<tr>
<td></td>
<td>Steve Waldman</td>
</tr>
</tbody>
</table>

For further information or assistance, please call Abe Ahmed, 898-2482, or Gail Lindsey, 898-2313.

The Library’s new home page

On March 1st www.library.upenn.edu began running the NCSA Web server software, and the Library was in the business of supporting its own home pages. As with most new Web services, it deserves to be labelled “under construction” and will probably evolve in detail and in scope in the near future (and thereafter). But the Library wanted to get started, and in particular, wanted your feedback on what they have done to date. So give it a try (URL: http://www.library.upenn.edu), tell your friends, and let the Library know what you think. Formal e-mail feedback is welcome by whatever means, but “pennlin@pobox” has been set aside specifically for this purpose. There are also Web-based mechanisms embedded into the various pages to solicit comments.
Electronic Calendar

ISC hands-on courses

These courses meet at the Computing Resource Center (CRC), 3732 Locust Walk.

Prerequisites: A knowledge of elementary DOS commands is required for all training courses on application software for IBM PC/compatible systems. To fulfill the requirement you may complete an ISC DOS seminar or tutorial, or have equivalent experience.

Cancellation: If you cannot attend a course, you must cancel 48 hours in advance. Failure to do so will exclude you from registering for other ISC courses that semester.

Late Arrival: If you are more than five minutes late, your seat will be given to someone on the waiting list. No one will be admitted later than 10 minutes after the start of class.

Registration & Information: Registration is required. Registrants must complete prerequisites before registering for a course. Individuals must register themselves; we will not accept registrations by a third party. Call 573-3102.

Courses for DOS and Windows users

Windows Tutorial Labs
April 7, 1:00 PM–4:00 PM; April 21, 1:00 PM–4:00 PM
Self-directed learning using tutorials, including DOS, Windows, WordPerfect 5.1, Excel for Windows, and Lotus 1-2-3. The DOS tutorial fulfills the DOS prerequisite. Registrants must indicate the tutorial they wish to use when they register.

Introduction to Windows
April 12, 1:00 PM–4:00 PM
Covers basic Windows concepts, including using the program manager, working with menus and dialog boxes, manipulating windows, and using the task list. Prerequisite: DOS seminar or tutorial.

Introduction to WordPerfect 6.0 for Windows
April 19, 1:00 PM–5:00 PM
Covers the basic elements of word processing using the new version of WordPerfect (6.0). Experience in creating, saving, retrieving, editing, and printing files. Prerequisite: Windows course or tutorial.

Introduction to Lotus 1-2-3 4.0 for Windows
April 20, 1:00 PM–5:00 PM
Covers the basic elements of spreadsheets using the new version of Lotus 1-2-3 (4.0). Experience in entering data, formatting ranges, using functions, writing formulas, and printing. Prerequisite: Windows course or tutorial.

Courses for Macintosh users

Introduction to Microsoft Word 5.0 (FLS)*
April 13, 1:00 PM–4:00 PM
*This is a facilitated learning session (FLS). A facilitator is present, but attendees work at their own pace. Covers the basic elements of word processing on a microcomputer. Experience in creating, saving, retrieving, editing, and printing files.

Introduction to Excel Spreadsheets
April 26, 1:00 PM–4:00 PM
Covers the basic functions of an electronic spreadsheet. Includes entering, editing, and formatting data; using functions; writing formulas; and printing.

Mainframe course

Electronic Data Retrieval and Download
Class given on demand
Developed and taught by UMIS staff; covers data retrieval from the administrative mainframe using TableTalk. Call 573-3102 for details.

Registration for April ISC hands-on courses begins Wednesday, March 22. Registration is required. Call 573-3102 or stop by the CRC.
**Electronic Calendar**

**ISC B&P seminars**

Bits & Pieces seminars meet for one hour at the CRC, 3732 Locust Walk, unless otherwise noted. Registration, required for asterisked seminars only, begins Wednesday, March 22. Call 573-3102.

**Accessing the Internet using PennNet**

April 5, noon–1:30 PM

An overview of PennNet services and demonstration of how to access popular Internet resources via PennNet.

**What You Really Need to Know about DOS**

April 6, noon–1:30 PM

Covers basic system parts, terms, and commands needed to get started using DOS. Includes a 1/2-hour practice session. Fulfills DOS prerequisite.

**Introduction to NewsWatcher (Mac)**

April 12, noon

Introduction to newsgroups, covering subscribing, setting preferences, and posting and reading messages.

**Introduction to WS_FTP (Windows)**

April 13, noon

Introduction to file transfers over the Internet using WS_FTP. Covers starting WS_FTP, connecting to a host, short cuts, and viewing and downloading files.

**Introduction to Mosaic**

April 20, noon

Introduction to Internet browsers using Mosaic. Covers configuring Mosaic to launch Penn’s home page, setting preferences, creating hotlists, and navigating to popular Internet sites.

**Introduction to Fetch (Mac)**

April 27, noon

Introduction to file transfers over the Internet using Fetch. Covers starting Fetch, connecting to a host, short cuts, and viewing and downloading files.

**Biomedical Library Courses**

All courses meet in the Biomedical Library. Registration: Call 898-5817.

**Intro to the New OVID MEDLINE and CINAHL/Nursing**

March 24, 9–11 AM; March 30, 3–5 PM; April 5, 11 AM–1 PM; April 11, 10 AM–noon; April 24, 3–5 PM

Covers OVID subject, author, journal, and search techniques that can be used in either MEDLINE or CINAHL. Topics include using the online subject thesauri, hierarchical subject heading structure, limit commands, remote access, printing, and downloading.

**Biomedical Information on the Internet**

April 4, 10 AM–noon; April 19, 3–5 PM

An overview of basic Internet applications, touching on activities such as e-mail, discussion groups, telnet, file transfer protocol, and gopher servers, as they relate to the biomedical community. Registrants must obtain a network ID and password before attending the course.

**Effective Subject Searching in MEDLINE**

April 10, 9–11 AM

Focuses on effective searches using the thesaurus of subject headings. Topics include choosing broad or narrow terms to refine searches, using subheadings to focus results, combining subject headings to develop a search strategy, and changing search strategies when searches fail to retrieve articles.

**RefMan/EndNote Macintosh Demonstration**

By appointment. Call 898-9905.

Topics include limiting by subfile, limiting by latest entry month, and basic keyword searching.

**Van Pelt Library Courses**

All courses except the online training course meet in Room 502, Van Pelt-Dietrich Library Center. Registration is required. Sign up at Van Pelt Reference, call 898-8118, or send e-mail to librefer@pobox.

**LEXIS/NEXIS Training**

March 27, noon–1 PM; April 3, noon–1 PM; April 10, noon–1 PM; April 17, noon–1 PM; April 24, noon–1 PM

Introduces Penn students and faculty to LEXIS/NEXIS and its many full-text files, including dozens of national and international newspapers, transcripts from news programs such as McNeil-Lehrer and NPR,
state and federal legislation, opinion poll data, and more.

Navigating the Internet
March 29, noon–1 PM; April 21, noon–1 PM
Focuses on Internet information resources such as library online catalogs, electronic journals, and specialized research resources available through the Penn Library Gopher.

RLIN/Eureka Training
April 11, noon–1 PM
Focuses on searching the RLIN/Eureka bibliographic database, which lists over 22 million books, journals, and manuscripts in more than 50 research libraries. We’ll also look at its collection of journal index databases.

Term Paper Research Tips
April 6, noon. Registration required.
Strategies for searching electronic and print resources.

Latin American Online Resources
April 20, noon–1 PM
A demonstration via PennLIN of the Hispanic American Periodical Index, the Handbook of Latin American Studies, LEXIS/NEXIS files, and other electronic resources available on the Internet for Latin American studies.

Language and Literature Databases
March 28, noon–1 PM; April 27, noon–1 PM
Focuses on how to search for words and quotations in the Oxford English Dictionary and provides tips for searching the MLA bibliography via First Search.

Van Pelt Online Training
Monday to Friday, 9–9:30 AM, Moelis Online Search Room. Registration required.
For students, faculty, or staff who want individualized half-hour training on systems such as DIALOG, BRS, NEXIS/LEXIS, or CDs.

Human Resources Courses

Registration is required. Call 898-6176.

Overview of the Personnel/Payroll System
April 3, 3–5 PM. Fifth Floor Conference Room, 3401 Walnut St.
This workshop designed for new employees provides an understanding of personnel/payroll terminology, processes, time frames, and contact offices.

Online Personnel Processing
April 4, 9 AM–noon. UMIS, Suite 265C, 3401 Walnut St.
This hands-on workshop covers how to use the UMIS administrative computer to maintain employee records. Prerequisite: A basic understanding of employee types, job class codes, accounts, and subcodes.

Hot Dates

March
29 Interactive Technologies Group meeting
Noon–1:30 PM. Place to be announced
Info: Donna Milici, 898-0426 or donna@acs; James Gist, 898-9090 or gist@crc.

April
10 Super User Group meeting
Noon–1:30 PM. 285-6 McNeil Building
Info: Donna Milici, 898-0426 or donna@acs.

18 DTP Special Interest Group meeting
Noon–1:30 PM. Place to be announced
Info: Randall Couch, 898-6243 or check PennInfo.

26 Computers In Healthcare Education Symposium
9 AM–5 PM. Thomas Jefferson University, Jefferson Alumni Hall, 1020 Locust Street
A three day symposium (26th–28th) of the Health Sciences Libraries Consortium and Thomas Jefferson University. If your registration is sent in prior to April 26, you may deduct 20% off conference and workshop registration fees. Info: Jerilyn Garofalo, 222-1532 or garofalo@hslc.org.

22 Interactive Technologies Group meeting
Noon–1:30 PM. Place to be announced
Info: Donna Milici, 898-0426 or donna@acs; James Gist, 898-9090 or gist@crc.

Lippincott Library Courses

Lippincott Online Training
Tuesdays, 9 AM, Computer Services Room, second Floor, Lippincott; registration required. Friday, 9 AM, Room 502 Van Pelt Library; no registration required.
Focuses on learning how to use Lippincott’s online databases for business research.

Lippincott Advanced Online Training
Fridays, 10 AM, Room 502 Van Pelt Library; no registration required.
Focuses on advanced techniques for using Lippincott’s online databases for business research.
In Penn’s decentralized computing environment, the Office of Information Systems and Computing provides technology leadership for administrative computing, active brokering and advocacy for academic computing, and critical computing infrastructure and services in both areas.

ISC has seven divisions:
- **Academic Computing Services**—ACS (573-3587) serves users of information technology in the academic community. It advises on “open systems” technologies including Unix, negotiates volume purchase agreements and site licenses, and provides referrals to electronic resources for instruction.
- **Computing Resource Center**—CRC (898-9085) provides computing support to complement the services offered by Schools and departments, including consulting, file translation, antiviral software distribution, hardware and software evaluation, and contract services for systems integration and on-site support.
- **Data Administration**—(898-2171) promotes standards for data access, data security, and the University data dictionary; develops the University Data Model, a high-level blueprint of data relationships; provides business continuity planning; and assists in investigations of information security violations.
- **Data Communications and Computing Services**—DCCS (898-2883) plans and manages PennNet and its Internet gateways, as well as a set of network-based services, including electronic mail, NetNews, Whois, PennInfo, World-Wide Web, and Gopher. DCCS also consults on AppleTalk and Novell local area networks.
- **ISC Communications Group**—(898-1786) produces print and electronic documents, including Penn Printout, and works with other ISC units to make new services easier to learn and use.
- **Technology Learning Services**—TLS (898-9090) provides computer learning resources for the University, develops and coordinates ISC training programs, and develops and delivers learning programs for Schools and other University units, and monitors technology skill needs across campus.
- **University Management Information Services**—UMIS (898-4961) consults with administrative clients to identify information needs and acquires, implements, operates, and maintains administrative systems.

**If you’re interested in:**

**Contact:**

<table>
<thead>
<tr>
<th>Service</th>
<th>Contact Information</th>
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<tbody>
<tr>
<td>Administrative data dictionary, data model</td>
<td>(215) 898-2171</td>
</tr>
<tr>
<td>Administrative systems development</td>
<td>898-7581</td>
</tr>
<tr>
<td>Administrative systems access</td>
<td>898-5045</td>
</tr>
<tr>
<td>CRC help desk (crc@isc)</td>
<td>898-9085</td>
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<tr>
<td>Personal productivity software</td>
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<tr>
<td>Purchase advice: Macs and PCs</td>
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<tr>
<td>Hardware troubleshooting</td>
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<tr>
<td>Antiviral software distribution</td>
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<tr>
<td>Desktop Publishing Interest Group</td>
<td>898-6243</td>
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<tr>
<td>Interactive Technologies Group</td>
<td>898-0426</td>
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<tr>
<td>Information security (security@isc)</td>
<td>898-2172</td>
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<tr>
<td>Ingres database software (ingres@dccs)</td>
<td>898-3029</td>
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<tr>
<td>PennBack backup service</td>
<td>898-6449</td>
</tr>
<tr>
<td>PennNet help desk (help@dccs)</td>
<td>898-8171</td>
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<tr>
<td>PennNet info, IDs, installation</td>
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<tr>
<td>E-mail on dolphin, pobox, and relay</td>
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<tr>
<td>Local area network consulting</td>
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<tr>
<td>PennInfo, Gopher, World-Wide Web</td>
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<tr>
<td>PennNet modem access (8 databits, no parity)</td>
<td>898-0834</td>
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<tr>
<td><em>Penn Printout</em> (printout@isc)</td>
<td>898-0007</td>
</tr>
<tr>
<td>Penn Video Network</td>
<td>898-4336</td>
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<tr>
<td>Research and instructional site licenses (ssl@isc)</td>
<td>573-3587</td>
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<tr>
<td>ResNet Help Desk (resnet@isc)</td>
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<tr>
<td>Super User Group (sug@isc)</td>
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<tr>
<td>Training and learning services</td>
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<tr>
<td>UMIS billing</td>
<td>898-4961</td>
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<td>UMIS training facility</td>
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<tr>
<td>UMIS operations hotline</td>
<td>898-1099</td>
</tr>
<tr>
<td>UNIX Users Group</td>
<td>898-5930</td>
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</table>

**Not sure? CRC at 898-9085 or crc@isc**