Frankenstein revealed

Penn’s electronic edition

BY PROFESSOR STUART CURRAN

The CD-ROM is probably an intermediate technology, destined to disappear before the rapid advance of electronic networks, and yet in terms of literary editions, the technology has up to now yielded nothing like the results of which it is capable. Those may seem contradictory propositions, but they have been the guiding lights for the creation of an electronic edition of Mary Wollstonecraft Shelley’s Frankenstein; or, the Modern Prometheus, which the University of Pennsylvania Press will publish next year as its inaugural effort in electronic editions. I began work on the edition in earnest this summer, and, with the serendipitous advantage of a collaboration with two graduate students, Sam Choi and Jack Lynch, who have considerable depth in the period of British Romanticism and are expert programmers, much ground was covered before the advent of the fall term slowed the project down. But we think our sharp initial focus on accessibility, distinctive features of the hypertext, multiple readerships, and assumptions about the necessary future of such editions will allow steady progress through the year.

Accessibility of the Electronic Edition

The initial question we faced was how to construct the electronic edition so that it would be, from the start, universally accessible and, further down the line, open to the incorporation of technological innovations perhaps unforeseen as of now. After meeting with the campus Interactive Technologies Group, we were confirmed in our initial decision to avoid hitching this wagon to any commercially driven star, the particularities of whose software would make it subject to the limitations of already elaborated purposes, not to mention the whims of a manufacturer juggling various wares or a highly volatile and competitive marketplace. (continued on page 12)
The Library puts the OED online.
By James English and Stephen Lehmann

Protecting Penn’s data assets
By Dave Millar

Working from home to beat the weather.
By Daniel Updegrove

By Julie E. Sisskind

Advice from ISC about what to install on your Macintosh or Windows computer.

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For several years Penn has recognized that external environmental pressures were placing increased constraints on its ability to grow and enhance its academic mission. These pressures caused questions to be raised about the allocation of resources between Schools and the value of support services provided by central administrative offices, and caused the University to examine its administrative structures, processes, and systems. It soon became clear that there needed to be an emphasis on cost containment if resources were to be allocated toward strategic academic priorities. In addition, Penn determined that it needed to improve its information technology infrastructure if it was going to be able to achieve its goals.

The development of a revitalized information infrastructure, which would enable the re-engineering of Penn’s administrative processes, became the focus of Project Cornerstone. Guided by the initial Project Cornerstone work, the University has now acquired the foundation it needs to build the next generation of administrative systems. The primary components of this acquisition include a relational database management system, development tools, and financial application software from Oracle Corporation and UNIX-based server hardware from IBM Corporation.

**Signs and portents**

The acquisitions announced above signal a profound change in how, and why, business applications will be built. They are the first tangible results of putting a principles-based vision of information architecture to work.*

Oracle’s relational database management system (RDBMS) will provide the University with a flexible way to organize and manage data to make it readily available for both operational and planning needs. The RDBMS provides the technical “backbone” for both new business applications and a decision support environment. Oracle’s RDBMS-based financial application software (general ledger, purchasing, and accounts payable) will provide the core of a new financial management environment (FinMIS). Both the RDBMS and FinMIS will significantly enhance Penn’s ability to deal with new and changing business rules and processes.

**The future begins**

The work of Project Cornerstone has entered a new phase. Finance and ISC staff are finalizing implementation plans for the general ledger, purchasing, accounts payable, and student-data decision support components of Penn’s new administrative environment. Project plans have been drafted; Oracle training has been completed. Now, with the help of senior business officers and information technology representatives throughout the Penn community, Project Cornerstone is documenting the current business practices and the needs of individual Schools, departments, and centers in greater detail.

Oracle user and development licenses will soon be deployed throughout Penn. The RDBMS and development tools will provide each School and center with new technical capabilities to use for its own unique academic or administrative projects. The support structure is still being finalized, with details to be announced before the close of 1994.

For more information about the work of Project Cornerstone, contact Robin Beck (beck@umis.upenn.edu or 898-7581).

* For information about Penn’s principles-based information technology architecture see *Making Connections: Building Penn’s electronic future*, available from Linda May (may@pobox.upenn.edu or 898-0005).
The monumental Oxford English Dictionary, the world’s greatest lexicon, is now available to the Penn community in state-of-the-art electronic form, thus becoming the Library’s first locally loaded full-text database. In its 12-volume printed format the OED has been an indispensable research tool for scholars of literature, history, and other fields for over half a century. But with the advent of a computerized version, the OED becomes both more accessible and far more powerful than ever before.

The dictionary, first published in 1928 and now in its second edition, is valued not just for the scope of its definitions (500,000 words) and the reliability of its etymologies, but for the vast pool of quotations it incorporates to illustrate histories of usage. All told, there are nearly two million citations of usage, drawn from texts as old as the thirteenth-century Life of Beket or as recent as Monty Python’s Life of Brian. For scholars, these quotations are often of considerable interest quite apart from their lexicographical value. Many of them, gathered by Victorian researchers, come from authors or works which have since faded into near oblivion; and as such they serve as an important indicator of the ongoing process of revaluation and reassessment that shapes what we too often think of as a fixed hierarchy of literary value.

Unprecedented search capabilities

One of the major advantages of an electronic OED is that this enormous set of quotations becomes available for rapid searching. Students and scholars are no longer restricted to alphabetical word lookups, as with the printed version, but can, for example, search for all the citations of a particular work or author across the entire OED database. With a few keystrokes, Professor Stuart Curran of the English Department obtained a complete listing of the OED citations of Charlotte Smith, an all but forgotten English poet of the Romantic period. That the computer found no fewer than three hundred and eleven such citations was, says Curran, an astonishing result which “told me more about 19th-century England than anything I’ve seen in years.”

This kind of author search by no means exhausts the capabilities of the online OED. Though designed to be user-friendly, it is such a powerful tool that even faculty in the English department are only just beginning to see some of the ways they can take advantage of it. One professor in the department has already given students an online OED assignment (involving the changing usage of the terms “imperialism” and “colonialism” in England), and two of the department’s spring semester courses will be taught in computerized classrooms where extensive use will be made of the tool. Students in these classes will be asked not simply to perform a particular search, but to come up with their own ways of using the OED to gain knowledge about particular authors, periods, or cultural issues.

It is expected that by next fall the online OED will be widely integrated into the undergraduate program in English. At that time it is likely that the department’s strong Renaissance group, several of whom have been using the print OED in their undergraduate teaching and have been enthusiastic supporters of the Library’s online OED project, will be at the forefront in helping students to conduct their own electronic lexicographical research.

The OED Task Force

Implementing or “mounting” the dictionary on the Library’s computer system was not as simple a project as it may sound. A number of decisions needed to be made about hardware, software, points of access, security, and so on. With these concerns in view, an OED Task Force, including members of both the Library staff and the English Department, was assembled last May to begin
considering the options.

The first and most important decision facing the task force was what sort of interface to adopt. The Library acquired the machine-readable text of the *OED* from Oxford University Press, and the “search engine,” a very powerful but exceedingly arcane full-text search program called PAT, from the Canadian firm Open Text. All libraries that have acquired the online *OED* have found it necessary to devise some kind of “front end,” or friendlier interface, to enable users to work effectively with PAT.

After much searching, the group finally settled on an interface developed at the University of Virginia by John Price-Wilkin. It is relatively straightforward and clear, it seemed to meet the needs of most users, and it was adaptable to Penn’s extremely varied computer environment. Also decisive was the fact that the Virginia interface is an implementation of the World-Wide Web, which makes it available to graphical clients and consistent with the Web implementations offered by SAS, the English Department, and other campus Web servers. Above all, the Library wanted an interface that would enable users both to take full advantage of the wealth of historical and linguistic information in the *OED*, and to do simple dictionary word lookups—and the Virginia interface seemed to offer this kind of flexibility.

**Implementing the interface**

The original charge to the Task Force by Paul Mosher, Vice Provost and Director of Libraries, was to implement the *OED* in such a way that it would be a suitable tool for scholarly research and teaching, as well as a conventional online dictionary for simple definition lookups. Although the Virginia interface was quite usable “off the shelf,” it didn’t fully meet these requirements, and the task group set out to improve both its appearance and its functionality—adding a definition-only feature and the ability to combine terms, for example.

Another important consideration facing the task force was that Penn’s *OED* would need to be accessible both to graphical browsers such as Mosaic (with their ability to display many of the phonetic and other non-standard characters used by the *OED*), and to more rudimentary, text-only browsers such as Lynx, which remain the most common vehicles of access for remote modem users and for vt100-type machines on campus. The Library’s systems experts crafted an interface that works well for almost everyone—although perhaps not always as elegantly as a system designed for a single platform.

Given the vastness and richness of the *OED*, it is a tremendously versatile research tool, working differently for different scholars. Online this will be truer than ever. It is not, however, an expanded Bartlett’s quotation dictionary. Central to an effective use of the *OED* is the understanding that its quotations are chosen to illustrate usage, not necessarily wit or wisdom. Quoted almost as often as Virginia Woolf, for example, is Lady Bird Johnson (“Luci walked in...happy as a lark, saying, ‘Mama, I probably aced it [her zoology final]’.”) Which is not to say that wit is entirely absent: for example, “Dr. Goebbels...is privily known throughout Germany as Wotan’s Mickey Mouse” (Sinclair Lewis), and a W. H. Auden quotation whose inclusion must have given the *OED* editors, and Auden himself, wry satisfaction, “One of my great ambitions is to get into the OED, as the first person to have used in print a new word.”

**JAMES ENGLISH is an Associate Professor in the English Department; STEPHEN LEHMANN is the Library’s Humanities Bibliographer.**

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The result of a search on “word.” To reach the online OED, telnet to library.upenn.edu and choose OED from the menu.
Qué será será?

Disasters caused by fires, floods, or hurricanes are rare and never touch the lives of most people. But a burst pipe, a hard disk failure, or the accidental slip of a finger onto the “delete” key are much more likely, and can have devastating effects. If you’re a faculty member, could your research survive the loss of your data? Could you continue classes without access to your teaching materials, grade records, or classrooms? If you’re a student, could you recover your classwork—papers, problem sets, projects? If you’re a staff member, could you continue to provide critical services to the University following a disaster? You can take steps to minimize the impact of a disaster. By developing a disaster recovery plan, you can increase the likelihood that you will be able to perform critical tasks. The three elements to a disaster recovery plan—the risk management plan, the emergency response plan, and the business continuity plan—are described below.

Risk management plan

The risk management plan identifies how you will protect the key resources on which you rely.

If you rely heavily on paper files, consider:

• Use of off-site archival storage (The University Records Center provides secure storage for University records. For details, see the green pages of the Penn telephone directory.)
• Purchase of a fireproof vault or cabinet to protect documents
• Use of microfilm/fiche or imaging to copy irreplaceable documents

If you rely on computer data, be sure that your data is backed up. As Penn’s computing environment becomes more distributed, responsibility for the integrity of institutional data that may reside on personal computers or workstations becomes distributed as well. In order to ensure the integrity of distributed data residing on personal computers or workstations, individual computer users must assume primary responsibility for taking adequate precautions against loss of their data.

Whether you provide your own computing capability or rely on others for that service, make sure that backups of your files are kept, and that they meet your needs. Make sure that files are backed up frequently enough, that no critical files are omitted, and that backups are kept in secure locations separate from where the original files are stored.

Penn offers PennBack, a PennNet-based backup service. PennBack provides a way to automatically schedule your backups over the campus network. Platforms supported include Macintosh; IBM PC/compatibles
Comptroller’s Office staff developed a disaster recovery plan this year, following an analysis of Penn’s disaster readiness by Dataguard Recovery Services of Louisville, Kentucky. Each department within Comptroller’s planned how it would provide critical functions to the rest of the University following a disaster. An emergency response coordinator was appointed to maintain the plan and ensure continued employee awareness.

DATAGUARD surveyed most departments at Penn and assessed their preparedness. If you want a copy of the report for your department, contact the information services provider for your group or Dave Millar at security@isc.

Dave Millar is University Information Security Officer.
The University’s emergency information line, 898-MELT, can tell you if Penn is closing early, opening late, or not opening at all in response to ice or snow storms, power outages, and other disasters. But what if you’re at home and have work to do that requires access to information or colleagues?

The PennNet modem pool, 898-0834, may be the answer. Via a personal computer, modem, and phone line at home, you can access the University’s library resources, PennInfo and other local information systems, electronic mail and NetNews discussion groups, UMIS and other administrative systems, as well as the resources of the worldwide Internet. To access PennNet from home, however, you must be prepared—especially in an emergency.

The following information on remote access to PennNet is intended primarily for faculty, students, and “non-essential” staff. According to the Human Resources policy on Emergency Closing (11/01/93), “staffs who are designated as ‘essential’ are expected to remain at work if the closing occurs during their regular work schedule, or to report to work if the closing announcement is made before their regular work schedule begins.”

Accessing PennNet from home

To access PennNet from home, you will need the following:

• A personal computer, such as an IBM PC or compatible, or an Apple Macintosh (or a “dumb” terminal, although these are increasingly rare).

• Communications software to provide “terminal emulation” for the computer, such as ProComm for PCs or MicroPhone for Macs.

• A modem, cabled between the computer (or terminal) and your phone line, to convert the computer’s digital signals to the analog signals used for telephony. The modem now recommended for compatibility with the modem pool is the U.S. Robotics model (v.32bis, or 14,400 bits per second data transmission; V.42 error correction; V.42bis data compression), available at the Computer Connection for around $150.

• Appropriate configuration of the communications software (8 data bits, 1 stop bit, and no parity) and modem.

• A Network ID and password, available at no cost to all faculty, students, and staff, via PENNcard-swipe stations at the ID Center, 3401 Walnut; SEAS CETS (Moore 169); Biomedical Library; and the Computing Resource Center on Locust Walk.

This much would enable you to access PennLIN, the online library resources; PennInfo, Penn’s Gopher, and Penn’s World-Wide Web home page; and hundreds of remote library and other databases accessible via the Telnet (remote login) command.

For personal communication, you also need a userID and password on one of the University’s electronic mail systems. E-mail is provided for all students and many faculty and staff. If your School or department does not provide e-mail, contact DCCS (898-8171) to set up an account. Most e-mail services also include access to News, an international bulletin board system that includes many Penn-only discussion groups.

An ounce of preparation

Don’t assume that hardware and software in shrink-wrapped boxes will work in an emergency! Everything must be tested in advance.

• Do you have current documentation at home? In addition to manuals for software and hardware, pick up PennNet Passport at Wharton Repro or The Book Store ($4).
• Do you have the right cable fittings and lengths from computer to modem, and from modem to phone outlet? Some computers, especially laptops, have internal modems, so only a phone cable is needed. Hard-wired telephone cables need to be updated to the modular jacks.

• Have you checked communications software settings? Most software can store the modem pool number and dial automatically; you can defeat call-waiting by preceding the number with *70 (e.g., *70-898-0834).

• Do you remember your Network ID and password?

• Is your University ID number—required for access to the Library’s journal databases (ABI/Inform, MEDLINE, Current Contents, et al.)—still valid in the Library’s database? If not, call Van Pelt Reference (898-7555). Also, be sure your PENNcard has not expired.

• You can use e-mail to transmit spreadsheets and formatted documents, but only if you understand the procedures and limitations.

• Do you have paper and ink cartridges/laser toner for your printer?

Other caveats

A pool of 300 modems is a modest number for such a large and computer-literate university. Please limit casual and recreational use of the network during peak times, including evenings from 7 PM to 1 AM and during any emergency closings.

If your on-campus PennNet connection is via Ethernet/IP, you may prefer to connect to PennNet via SLIP (Serial Line Internet Protocol) or PPP (Point-to-Point Protocol) in order to use the same software you use at the office. If so, you will need not only the applications software (Eudora, Mosaic, et al.) but also the SLIP or PPP and TCP “stack” appropriate for your computer; see PennInfo (keyword SLIP or PPP).

If you bring your office laptop computer home, it may need to be reconfigured to access PennNet from home.

The central modem pool does not currently provide access to departmental local area network (typically AppleShare or Novell) file servers. If you require remote access to software or documents stored on such servers, check with your departmental computing administrator.

Although it’s a good idea to have a Faculty-Staff Directory at home, information in an annual publication is inevitably dated. Your department should distribute updates of office direct lines and home numbers for any staff needed in emergencies.

Many e-mail addresses in the Faculty-Staff Directory are also outdated. For more current addresses, telnet to whois, Penn’s online directory. If your own e-mail address is incorrect, telnet to whois; login as update; enter your NetID and password; and make the corrections.

Many high-speed modems also let you use your computer to send and receive faxes. Again, be sure to test the settings, software, and procedures in advance.

For network assistance or to report problems, call the PennNet Help Line, 898-8171, or the CRC, 898-9085.

If the power goes out

During a University power outage, most computing and network services will either abort precipitously or be shut down gracefully (depending on availability of battery or generator backup). Saving work frequently and keeping current backups could avert a disaster. Also, multi-line telephone sets at Penn require power to operate, although single-line and fax phones work without power.

If the power goes off in your home, you may have more urgent problems than reading your e-mail. In addition to batteries for flashlights and radios, dry firewood, and a food supply, be sure that at least one telephone set in your house or car will operate without power (most plain sets will; most home cordless sets won’t). But if you have a battery-operated laptop and a working phone line, you could keep working through a power outage at home.

If power is out both at Penn and at home—and you have not been designated as “essential”—then settle in with family and friends and let the work go ‘til tomorrow. It will most assuredly be waiting for you.

DANIEL UPDEGROVE is Associate Vice Provost, Information Systems and Computing, and Executive Director, Data Communications and Computing Services.

NOVEMBER 1994
Ever wonder if the Information Superhighway reaches Africa? It does, to an extent—there are now at least 30 African countries with access to the Internet. Regional networks that primarily provide e-mail to African users, such as FidoNet, enable approximately 83 percent of that connectivity. Developing countries are quickly discovering how cost-effective the Internet can be, especially when e-mail is compared to more traditional forms of telecommunication. They are also beginning to discover an important roadside attraction—Penn’s own African Studies WWW (World-Wide Web).

The attractions

The African Studies WWW provides high quality information about Africa that can be used to enhance curriculum development, academic collaboration, and community awareness. Africans and African Studies scholars worldwide can now access the African Studies WWW—an indexed, searchable repository for files on the topics listed below.

- Current events: conferences, newsletters, travel, urgent action items, etc.
- Documents: books, articles, bibliographies, constitutions, speeches, etc.
- Educational resources: audio-visual, K-12, languages and programs, etc.
- Electronic technology: African networking, BBS, e-mail, discussion groups, software, etc.
- Job and grant opportunities: grants, fellowships, etc.
- Multimedia archives: graphics, interactive maps, presentations, etc.

A student interested in South Africa can read Nelson Mandela’s most recent speech online, learn how to send e-mail to Johannesburg, download the latest country map, search the job listings for South Africa, or connect to the Rhodes University library. A graduate student planning to do research in Senegal can identify sources of potential funding, find the current State Department travel advisory, locate other research being done in the region, contact the Senegalese Embassy in Washington, D.C., and even learn how to prepare Senegalese cuisine.

Who’s using what, and how?

Graphics and audio-visual aids (e.g., maps, pictures, artwork) are by far the most popular items on the African Studies WWW. Practical information about Africa (e.g., grants, jobs, travel tips) is also in great demand.

Users are from myriad academic, commercial, and private sector institutions worldwide. The limited access to telecommunications resources by African institutions is clearly reflected in usage statistics. For example, last October, usage broken down by country revealed that only
African Studies

The African Studies WWW can be accessed from a
WWW browser (e.g., Mosaic, Cello, Lynx) or via Telnet.
To access it from a Web browser use the URL: http://
www.african.upenn.edu/African_Studies/AS.html. Or
/telnet to www.upenn.edu (enter “pennweb” at the login
prompt), select “WWW Servers” from Penn’s home page,
and then select “African Studies at Penn.”

Under construction

The African Studies WWW promotes interdisciplinary
instruction and research in African languages and area
studies by undertaking projects that relate information
technology with African Studies. Here is a sampling of
current and future directions:

File retrieval via e-mail. African Studies is currently
working with SAS Computing’s Workstation Services and
others in international networking to implement a file
retrieval tool that will enable e-mail-only users within
much of Africa to access online WWW resources and
interactive services by request. Without such a tool,
African participation in WWW development would be
limited to the small percentage of African countries that
have full Internet connectivity.

Hornet. The African Studies WWW receives a direct
file feed from a local FidoNet node in Addis Ababa,
Ethiopia, called Hornet. The in-country reports and
regional information provided by Hornet are invaluable to
both the African Diaspora and the academic communities.
African Studies hopes to encourage similar information
provision from Africans operating local bulletin boards and
networks.

Country-specific archive. The African Studies
WWW is developing a virtual library of country-specific
information that can be used by educators and the general
general public to access up-to-date files on topics such as geography, language, arts, education, economy, culture, politics, geography, demography, literature, literacy, and history.
The African Studies Program at Penn envisions a collabora-
tive project among Penn Africanists and other African
Studies information networks that will serve as an ever-
current, ever-growing, “living” encyclopedia of African
Studies information.

Videoconferencing to remote locations. Rapidly
improving information technology will soon allow the use
of videoconferencing software for collaboration with
African scholars around the globe in real time. Such

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The Internet can potentially bypass many of the
regional conditions that have impeded communications in
developing countries in the past, such as poor quality phone
lines and mail service, as well as social factors like internal
strife and lack of basic resources. It provides a cost-
effective means of disseminating data on a global scale. As
Internet connectivity expands, more and more users in
Africa will not only be able to send and receive e-mail
through regional networks that link Africa to the rest of the
online world; but they will also be able to use interactive
services for the price of a local phone call. This will allow
users in remote locations to access publications and other
data for which they would otherwise pay a premium.

While African networking pioneers are steadily
building on-ramps to the Information Superhighway, the
African Studies WWW hopes to enhance such endeavors by
making quality information about Africa and interactive
services available in developing countries. It will be in
collaboration with our African counterparts on the Internet
that the “African route” on the Superhighway is ultimately
paved.

JULIE E. SISSKIND is Outreach Coordinator for the
African Studies Program at the University of Pennsylvania.

Weaving a Web

The African Studies WWW began as one of
some 70 information providers on PennInfo.
Within a year of operation this service became the
most utilized and comprehensive international
source of African Studies information on the
Internet, with a growth rate of almost 200 percent.
Subsequently, PennInfo’s gateway to and from the
World-Wide Web encouraged experimentation with
a new type of document, a document with multimedia
capabilities and richer communication possibil-
ities. Finally, thanks to the collaborative efforts of
Data Communications and Computing Services
(DCCS) and SAS Computing’s Workstation Ser-
dices, the service moved to the World-Wide Web.

As a WWW provider, African Studies at Penn
is now developing multimedia projects that incor-
porate a mixture of text, video, sound, graphics, and
links to other African resources on the Internet.
These interactive documents, or hypertexts,
facilitate a whole new way of presenting informa-
tion, and a new forum for Africans communicating
around the world.
Rather, we decided to gear the edition to the World-Wide Web (WWW). The WWW has all the earmarks of establishing a universal standard for electronic access and gives us the added advantage of being able, when the technology and network linkages become sufficiently developed to warrant it, to shift the edition painlessly to Internet licensing, which might greatly increase its usability and free it from dependence on a mediating disk. All aspects of this edition will be keyed to HyperText Markup Language (HTML), which like its cousin Standard Generalized Markup Language (SGML), is under continuing construction and revision—once again reinforcing the technological fluidity that one must learn to live with in embarking on these exciting, but as yet uncharted, waters.

**Hypertext Links**

What is most stimulating about this venture is the extent to which we may ourselves do a large amount of the initial mapping of these waters. The enormous potentiality of a hypertext environment is as clear to us as has been the self-evident incapacity of the publishing industry up to this point to tap it in a responsible and substantive way. A perfect example—but one that for obvious reasons will remain nameless—is a CD-ROM edition marketed last year, with many clever and glibty features (which, however, like many electronic games pall once you figure out how they work) but with a text that was clearly the last thing anyone thought about, because it is literally unreadable, having at some late stage through officious tinkering with its format become hopelessly scrambled. Although it is inconceivable to produce an electronic edition of *Frankenstein* and ignore the glitz (not to say, kitsch) with which some 60 years of cult-worship have decorated it, still, this work is almost uniquely suited to becoming a model for hypertext technology. It manifests a series of problems, all of them needing to be worked through by a serious student of the novel, yet at the same time being in the aggregate beyond the capacity of print technology. These include 1) two fairly diverse editions of the novel, in 1818 and 1831, with a few intervening manuscript variants; 2) the fascinating issue of textual interpolations from Mary Shelley’s husband, the poet Percy Bysshe Shelley; 3) a pervasive intertextuality, so that the novel becomes virtually a commentary on such diverse works as Aeschylus’ *Prometheus Bound* and Milton’s *Paradise Lost*; 4) a daunting array of linked contexts within the cultural icons and passions of the turn of the 18th-century, involving a number of humane and physical sciences; 5) political and social undercurrents within the text that are not always immediately discernible on its surface; 6) the legacy of stage and film reproductions; and 7) a vital history of commentary that one may assume will continue at its present level of intensity but that is largely confined to the last two decades. Within the constraints of copyright and reproducibility, we can embed all—all—of this material on a single disk.

**A Multiplicity of Readers**

“Who would want all this?” one undoubtedly might ask. And the proper answer might be, “no one.” But what is so attractive about a hypertext format is that it is the equivalent of a supersaturated solution. There are undoubtedly those who might want such an edition only for being able to reproduce a Boris Karloff snarl at some appropriate place in the novel (of course, those who have read the novel know that Mary Shelley’s *Creature* does not snarl but speaks with acuity and eloquence). There are, conversely, those (and I confess I count myself among them) who would want this work as a convenient repository of otherwise widely scattered scholarly and critical materials. And in between there is every shade of reader one might think of. I have a suspicion that I, Sam, and Jack will, indeed, be the only three people ever to read everything contained in this edition, but it is exactly this likelihood that will turn what is in its intent a totalized intellectual realization of the novel’s history and criticism, specifically designated as a dictatorial “Read Only Memory,” into something that is effectively interactive with every individual user’s interests and needs.

In constructing an electronic edition one is continually forced up against the assumptions to which long years of conventional reading have accustomed us, and it is probable that this will be true for the reader of this edition as well. The University of Pennsylvania Press plans to market the CD-ROM in a packet that will contain an inexpensive paperback of the 1818 edition of *Frankenstein*. If one is just reading, that would be the text of choice, and it will be the default text of the disk as well. But, then again, what is “just reading”? The flexibility of the technology allows one on screen to read either of the two editions, with a fully annotated apparatus for both, or back and forth between the two with variants highlighted. It will allow one at salient points to consult manuscript sheets for further comparison of texts. Or, since there will be literally dozens of other literary works included as portions of the informing context for *Frankenstein*, a reader might wander into Milton’s *Paradise Lost* or Percy Shelley’s *Prometheus Unbound* and decide to stay there for the rest of the afternoon. One would be continually tempted to such wandering, because unlike a conventional book the apparatus will not just refer one, let us say, to ten lines of Milton’s epic; it will instead take the reader to those lines within the structure of his entire poem. Multiply these possibilities by the large number of ancillary texts, and you have a sense of what an assault this technology portends on a normative, atomistic conception of the act of reading. One doesn’t, it is true, exactly curl up with
a good book here. Rather, one is faced with dozens of possibilities at once, literally replicating the ways intertextual allusions play against and within any literary work of dimension and intellectual ambition. Perhaps the first time through the text readers will pursue the course we conventionally assign to the reading experience; thereafter, however, they will be encouraged to browse.

**Hypertext as Education**

One obvious and defined audience for this edition will be advanced secondary school and undergraduate college students, and on this level the temptation to browse will be truly salutary. It is not easy for inexperienced students to feel comfortable using the multiple resources of a major library for individual research. But if all that is needed is on a single disk—and, the crucial point, if there is so much material there available that it bears the character of a small and pointedly directed library—the urge to explore should be a natural response to the medium. One student may bog down in Milton; but there, too, another will dig into Humphry Davy's *Discourse, Introductory to a Course of Lectures on Chemistry*, and yet another into Joseph Priestley's *History of Electricity*, two major contemporary influences on this first work of science fiction. When the Creature demands of Frankenstein that he be given the means to be happy, it is going to dawn on some student somewhere that this being has somehow gained access to the Constitution of the United States of America, and just in case that putative student wants to be refreshed on what constitutes "the pursuit of happiness," a copy of that document will be available (and, for good measure, the Declaration of the Rights of Man of the French National Assembly). Part of the sheer fun of constructing this edition comes from allowing one's mind to play across such possibilities with the knowledge that the power is there to realize them all.

There is a further power here as well, one that will test the barriers that laws formulated for a previous century and a very different technology interpose upon our access to learning. We are hoping to create here for the first time an electronic variorum—that is to say, a record of the criticism and scholarship on Mary Shelley's novel, which will be instantly, intricately, and, yes, massively accessible to every user. As this is a non-profit venture, we are hoping that we can gather this totalized critical context at little or no expense, partly because, if this edition fulfills the function we expect of it, a few years down the line to have an essay left out of this compendium might just mean being unread. The other side of this equation, however, is that, like every other aspect of the new electronic technology, the presentation of critical opinion will be radically democratic, allowing the reader access to all the voices available without hierarchies, limitations, abridgments, or some editor's decision about what constitutes the party line. It will likewise be updated at regular intervals so that it remains current with the scholarship. As all these statements are framed and indexed, as well as cross-referenced with each other and with the text, they will be accessible in a synthesized way that is virtually unattainable by any other means. This, too, will constitute a new level of interactive intellectual engagement. It may be intimidating to be confronted with all these voices—both of the far past and the current scene—but it seems to me very much like the underlying essence of education, which is meant to liberate one's own voice as a vital part of this century-spanning process. That, at least, is what I hope will be seen to be the essential principle of our editorial project and, even more, its legacy for the use of this technology.

DR. STUART CURRAN is Andrea Mitchell Term Professor of English in the English Department and Director of the Center for Italian Studies.
This is the software the ISC recommends you install on your Mac or Windows desktop computer to reach Internet services on and off campus (e.g., e-mail, library catalogs, the OED, departmental Gophers, and remote databases). With an IP network connection you can access network services using powerful desktop “client” software featuring graphical user interfaces. With an asynchronous connection signalled by a Dial or Annex network prompt, you use a single software package known as a terminal emulator, which provides character-based access to network services.

For general networking information, see the PennNet Passport, available for $4 at the Book Store or Wharton Reprographics (see the announcement on page 19 for information about the new online version of the Passport). For advice and assistance about recommended software, contact your local support provider, the DCCS Help Desk (898-8171 or help@dccs), or the CRC (898-9085, crc@isc, or drop by the CRC at 3732 Locust Walk).

### For IP-connected computers (Ethernet or SLIP/PPP)

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<tr>
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<th>Macintosh</th>
<th>Windows</th>
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<tr>
<td>“Drivers” (enable other IP functions)</td>
<td>MacTCP 2.04</td>
<td>Novell’s TCPIP.Exe 4.x + assoc files</td>
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<tr>
<td>TCP/IP “stack”</td>
<td>MacSLIP 2.0x</td>
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<tr>
<td>SLIP/PPP (IP access via modem)</td>
<td>Eudora for Mac 1.3x and 1.4x</td>
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<tr>
<td>Electronic mail (client/server)</td>
<td>Fetch 2.1x</td>
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<tr>
<td>File transfer</td>
<td>MicroPhone Pro 2.01</td>
<td>MS-Kermit 3.x*</td>
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<tr>
<td>FTP transfer</td>
<td>TurboGopher 1.0xb</td>
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<td>Kermit transfer</td>
<td>Newswatcher 2.0bx</td>
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<tr>
<td>Gopher browser</td>
<td>PennInfo 4.1p</td>
<td>PennInfo (TechInfo) for Windows 1.5b</td>
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<td>Netnews reader</td>
<td>NCSA Mosaic 2.0ax</td>
<td>NCSA Mosaic for Windows 2.0a</td>
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<tr>
<td>PennInfo browser</td>
<td>SoundMachine 2.1</td>
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<td>World-Wide Web (WWW) browser</td>
<td>Sparkle 2.1x</td>
<td>MPEG Player v1.5</td>
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<td>WWW audio player</td>
<td>JPEGView 3.3</td>
<td>LView v3.1</td>
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<td>WWW video player</td>
<td>Acrobat Reader 1.0</td>
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<td>WWW image viewer</td>
<td>TCP3270 1.0xb</td>
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<tr>
<td>WWW PDF file viewer</td>
<td>Comet 3.0x</td>
<td>TCP3270 1.0xb</td>
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<tr>
<td>Terminal emulation</td>
<td>MicroPhone Pro 2.01 and</td>
<td>Host Presenter (LWP) 4.x*</td>
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<tr>
<td>tn3270 emulation</td>
<td>NCSA Telnet 2.6</td>
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<tr>
<td>vt100 emulation</td>
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### For asynchronously connected computers

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<th>Macintosh</th>
<th>Windows</th>
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<tr>
<td>File transfer (Kermit)</td>
<td>MicroPhone Pro 2.01</td>
<td>ProComm 2.4.3* and ProComm 2.4.3*</td>
</tr>
<tr>
<td>Terminal emulation (vt100)</td>
<td>MicroPhone Pro 2.01</td>
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*MicroPhone Pro for Windows, a commercial product that is expected to provide both IP and asynchronous functionality in the near future, is being considered for site licensing and support.
**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.

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**Courses for DOS and Windows users**

**Introduction to WordPerfect for Windows**
- December 6, 1–4 PM; January 26, 1–4 PM; February 8, 1–4 PM; February 23, 1–4 PM
  - Covers the basic elements of word processing using WordPerfect for Windows. Experience in creating, saving, retrieving, editing, and printing files. **Prerequisite:** Windows course or tutorial.

**Introduction to Windows**
- December 14, 1–4 PM; January 19, 1–4 PM; February 1, 1–4 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.

**Windows Tutorial Labs**
- January 13, 1–4 PM; January 27, 1–4 PM; February 10, 1–4 PM; February 24, 1–4 PM
  - Learning lab tutorials may be used to brush up your current skills or to meet prerequisites for hands-on courses. Tutorials are offered for DOS, Windows, WordPerfect for Windows, Excel for Windows, and Lotus spreadsheets. **Registration required.**

**Introduction to Lotus 1-2-3 Spreadsheets**
- February 9, 1–4 PM
  - Covers creation and basic use of Lotus spreadsheets: entering data, formatting ranges, using Lotus functions, writing formulas, and printing.

**Courses for Macintosh users**

**Introduction to Excel Spreadsheets**
- December 20, 1–4:00 PM; February 15, 1–4 PM
  - Covers the basic functions of an electronic spreadsheet. Includes entering, editing, and formatting data; using functions; writing formulas; and printing.

**Introduction to Microsoft Word (FLS)***
- January 25, 1–4:00 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.

**Intermediate Microsoft Word**
- February 16, 1:00 PM–4:00 PM
  - Covers features needed in complex documents, such as glossary, spelling checker, hyphenation, footnotes, merge, moving text between documents, and setting up tables. **Prerequisite:** Introduction to Microsoft Word or equivalent.

**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.

**ISC B&P seminars**

**Bits & Pieces seminars meet for one hour at the CRC, 3732 Locust Walk. Registration required for asterisked seminars only, begins Friday, December 2. Call 573-3102.**

**What You Really Need to Know about DOS**
- December 7, noon–1:30 PM; January 18, noon–1:30
  - Covers basic system parts, terms, and commands needed to get started using DOS. Includes a 1/2-hour practice session. Fulfills DOS prerequisite.

**Accessing the Internet using PennNet**
- December 13, noon; January 31, noon; February 9, noon
  - An overview of PennNet services and demonstration of how to access popular Internet resources via PennNet.
Electronic Calendar

Introduction to Fetch (Macintosh)
February 2, noon; February 15, noon
Covers starting Fetch, connecting to a host, short cuts, and viewing and downloading files via FTP.

Introduction to NewsWatcher (Macintosh)
February 22, noon
Covers subscribing to newsgroups, setting preferences, and posting messages and reading messages.

Biomedical Library

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

Intro to the new OVID MEDLINE and CINAHL/Nursing
December 2, 1–3 PM; December 5, 9–11 AM; December 8, 10 AM–noon; January 11, 9–11 AM; January 12, 3–5 PM; January 17, 11 AM–1 PM; January 20, 10–noon; January 25, 4–6 PM; January 26, 2–4 PM; January 30, 9–11 AM; February 7, 3–5 PM; February 13, 11 AM–1 PM
Covers OVID subject, author, journal, and search techniques that can be used in either MEDLINE or CINAHL. Topics include using the online subject thesaurus, hierarchical subject heading structure, limit commands, remote access, printing, and downloading.

Biomedical Information on the Internet
January 18, 9–11 AM; February 9, 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 biomedicall community. Registrants must obtain a network ID and password before attending.

Effective Subject Searching in MEDLINE
January 30, 1–3 PM
Focuses on effective searches using the thesaurus of subject headings. Topics include choosing terms to refine searches, using subheadings, combining subject headings, and changing search strategies when searches fail to retrieve articles.

Current Contents on the PennLIN System
January 31, 1–3 PM
Topics include limiting by subfile, limiting by latest entry month, and basic keyword searching.

RefMan/EndNote Macintosh Demonstration
By appointment. Call 898-9905.
Concepts covered include creating a database, entering references from the keyboard, importing references, editing, and retrieving information in the Macintosh environment.

Van Pelt Library

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.

Term Paper Research Tips
December 2, 1–2 PM
Strategies for searching electronic and print resources.

LEXIS/NEXIS Training
December 1, 1–2 PM; December 7, 1–2 PM; January 16, noon–1 PM; January 23, noon–1 PM; January 30, noon–1 PM; February 6, noon–1 PM; February 13, noon–1 PM
Available for Penn students and faculty. Learn how to access LEXIS/NEXIS and its full-text files, including national and international newspapers, transcripts from news programs such as McNeil-Lehrer and NPR, state and federal legislation, and opinion poll data.

Navigating the Internet
December 6, 1–2 PM; December 9, 1–2 PM; January 19, noon–1 PM; January 27, noon–1 PM; January 31, noon–1 PM; February 8, noon–1 PM; February 16, noon–1 PM
Focuses on Internet information resources such as library online catalogs, electronic bulletin boards, and journals accessible through the Library Gopher.

PennLIN Overview
December 8, 1–2 PM
A general introduction to the Penn Library Information Network (PennLIN) Gateway, its special navigation features and resources, and instructions for access.

Electronic Library I: Online Catalogs
January 17, 10:30 AM–noon; January 24, 7–8:30 PM; February 1, 2–3:30 PM; February 9, 1–2:30 PM; February 14, 6–7:30 PM
Using the PennLIN Gateway, we’ll look at Franklin, Penn’s online catalog; RLIN/Eureka, the bibliographic database of the Research Libraries Group; and other online catalogs available on the Internet via the Penn Library Gopher. Registration required.

Electronic Library II: Journal Article Databases
January 18, 10:30 AM–noon; January 25, 7–8:30 PM; February 2, 2–3:30 PM; February 10, 1–3:30 PM; February 15, 6–7:30 PM
Using the PennLIN gateway, we’ll examine WILS, PSYC, MLA, and other bibliographic databases; learn how to retrieve information from LEXIS/NEXIS; and look at other databases available on the Internet. Registration required.

Language and Literature Databases
January 26, noon–1 PM; February 17, 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.

**Latin American Online Resources**

*February 3, noon–1 PM*

A look at some of the electronic resources available for Latin American studies. Using the PennLIN Gateway, we’ll demonstrate the Hispanic American Periodical Index, the Handbook of Latin American Studies, LEXIS/NEXIS files, and resources on the Internet.

**RLIN/Eureka**

*February 7, noon–1 PM*

Using the PennLIN Gateway, this session will focus on searching the RLIN/Eureka bibliographic database, which lists over 22 million books, journals, and manuscripts in over 50 research libraries. We’ll also look at its collection of journal index databases, which cover subjects from anthropology to engineering.

**Van Pelt Online Training**

*Monday to Friday, 9–9:30 AM, Moelis Online Search Room*

For students, faculty, or staff who want individualized half-hour training on systems such as DIALOG, BRS, NEXIS/LEXIS, or CDs. Registration required.

**Lippincott Library**

**Lippincott Online Training**

*Tuesday, 9 AM, Computer Services Room, second Floor, Lippincott; one day advance registration required. Sign up at the Lippincott Reference Desk, call 898-5924, or send e-mail to lippincott@wharton. Fridays, 9AM, Room 502 Van Pelt Library; no registration required.*

Focuses on learning how to use Lippincott’s online databases for business research.

**Human Resources**

**Registration is required. Call 898-6176.**

**Overview of the Personnel/Payroll System**

*December 12, 3–5 PM; January 12, 3–5 PM; February 9, 3–5 PM. 5th Floor Conference Room, 3401 Walnut St.*

Provides an understanding of personnel/payroll terminology, processes, time frames, and contact offices.

**Online Personnel Processing**

*December 13, 9 AM–noon; January 13, 9 AM–noon; February 10, 9 AM–noon. UMIS, Suite 265C, 3401 Walnut St.*

Covers how to use the UMIS administrative computer to maintain employee records. **Prerequisite:** An understanding of employee types, job class codes, accounts, and subcodes.

**Hot Dates**

**November**

30 **Computer Security Awareness Day**

*10:00 AM–1:00 PM, Locust Walk*

The focus of Security Awareness Day is on individual responsibility. Stop by the table on Locust Walk, which will have handouts and tips about how to secure your computer. Info: 898-2171.

**Interactive Technologies Group meeting**

*Noon–1:30 PM. Place to be announced*

Visual Sound presentation on Media 100 desktop video editing system. Info: Donna Milici, 898-0426 or donna@acs; James Gist, 898-9090 or gist@crc.

**December**

12 **Super User Group meeting**

*Noon–1:30 PM. 285-6 McNeil Building*

Info: Donna Milici, 898-0426 or donna@acs.

21 **Interactive Technologies Group meeting**

*Noon–1:30 PM. Place to be announced*

Apple Computer presentation on new products, including Quicktime VR, followed by holiday party. Info: Donna Milici, 898-0426 or donna@acs; James Gist, 898-9090 or gist@crc.

**January**

9 **Super User Group meeting**

*Noon–1:30 PM. 285-6 McNeil Building*

Info: Donna Milici, 898-0426 or donna@acs.

25 **Interactive Technologies Group meeting**

*Noon–1:30 PM. CRC, 3732 Locust Walk*

Demonstrations by presentation equipment vendors. Info: Donna Milici, 898-0426 or donna@acs; James Gist, 898-9090 or gist@crc.

**February**

13 **Super User Group meeting**

*Noon–1:30 PM. 285-6 McNeil Building*

Info: Donna Milici, 898-0426 or donna@acs.

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.

**DTP Special Interest Group meetings**

Acrobat 2.0 products will be demonstrated in December; Photoshop 3.0 will be demonstrated in January. Dates for the December, January, and February meetings have not yet been confirmed. Info: Randall Couch, 898-6243, or check PennInfo.
Eudora for the Macintosh automatically creates a “Eudora Folder” in your System Folder when you double-click on the Eudora application (if the folder doesn’t already exist). If you move the Eudora folder somewhere other than the System Folder, double-click on the Eudora Settings file rather than the Eudora application file to launch Eudora. The Settings file will open Eudora with the appropriate Eudora settings and mail files without creating a new Eudora folder in the System Folder.

Progress? Instead of the arpeggiated musical notes that older Macintoshes played when their RAM wasn’t working, Power Macintosh machines play the sound of a car crashing.

In the market for used computing equipment? Check a newsgroup, such as upenn.forsale, phil.forsale, or upenn.forsale.computers. Sellers also welcome!

The UDC completed phasing out its mainframe-based, VM interactive service in late October. Prior to the final shutdown, UDC staff surveyed all the files remaining on the system. The oldest file, dated March 8, 1979 was called AGAME MODULE. It’s purpose? The grandfather of all computer role-playing games—Adventure. The program still ran.

The Penn NetNews IP number has changed to 165.123.35.31. The change does not affect those who address the news server by name (i.e., netnews.upenn.edu). When possible, use the name rather than the IP number to reach the news service.

Having problems with your new PowerBook modem? You might want to try switching the modem setting in your PowerBook Setup control panel from compatible to normal.

Access PC won’t let you mount audio CDs in your CD-ROM drive? You need to upgrade to Apple’s CD-ROM Setup v. 5.0. After installing the new drivers, you will no longer be asked if you want to initialize the audio disk.

An unadvertised improvement in Macintosh System 7.5 is a vastly improved disk cache. In Systems 7.1 and earlier, the cache yielded vastly diminishing returns after being allotted between 512 and 768 Kbytes, depending on the machine model. Now, it’s a good idea to allot as much as 2 Mbytes if you have sufficient RAM.

Bezarre? A quote from an obscure listserv: “If you’ve never seen the fabulously bizarre 1991 film WAX or the discovery of television among the bees then you’re definitely not where it’s at. You can recover a little of your lost grace though, by checking out the MOO version of WAX....” URL: http://jefferson.village.virginia.edu/wax/wax.html.

Netscape, a new Web browser for Windows and Macintosh operating systems, is available via ftp from ftp.mcom.com/netscape. For those of you who’re just learning about URLs, you can also use your current Web browser to pick up Netscape—the address given above needs to be transformed to the URL ftp://ftp.mcom.com/netscape.

PennLIN’s new gateway service, previously published in both the Printout and the PennNet Passport as available via telnet to gateway.library.upenn.edu, has been made synonomous with the old mainframe service available at library.upenn.edu. Typing either gateway.library.upenn.edu or library.upenn.edu will get you to the new gateway service.

A clickable map of campus computing labs, which includes equipment details, is available on Penn’s Web. Navigate to the Printout’s October 1994 issue (http://www.upenn.edu/pennprintout) and select the article about the labs.

A shareware version of the Control Strip, which Apple included with newer PowerBooks, is available from most online services. Called Desktop Strip, the shareware works with most Control Strip modules and adds some of its own.

Want to use Apple’s Multiple Scan Monitors (15, 17, or 20 inch) with older Macintosh computers that have built-in video (e.g., LC IIIs)? Since older machines use a sensing pin to determine the scan rate for the monitor and the new ones do not, you may need to purchase an adapter from Enhance Cable Technology (800-343-2425).
My FileMaker Pro 2.0 database is getting slower and slower. Is there anything that I can do?

There are several possible solutions. One of the quickest (and least expensive) is to select Save A Copy As from the File menu and save a compressed copy of your file. This will make the database file both smaller and faster. Reducing the number of fonts, patterns, and colors may also help, since they tend to slow down FileMaker Pro. A more expensive solution was recently introduced by Claris—FileMaker Pro Server, which can double the speed of the database. —John Mulhern, III, CRC

Using FileMaker Pro database software, I formatted a field as radio buttons. This is great because only one value can be selected at a time. But is there a way to deselect a value if I mistakenly click on a radio button—so that no value is selected?

Yes. Holding down the shift key while you click a radio button will remove the selection and leave the field blank. —Kristin Nelson, CRC

Can I open multiple Telnet sessions to the same host using MicroPhone, the MicroPhone Telnet Tool, and an Ethernet connected Macintosh?

You can if you create two separate settings documents to the same host machine. To do so, first configure MicroPhone for the host you want to access in your Telnet sessions. Save these settings once using the Save Settings As option from the File menu, then save the settings a second time using a different name (e.g., to connect to pobox.upenn.edu, you could name the first settings document “POBOX” and second one as “POBOX2”). Now open both sessions by successively double-clicking on the icons you created for the two settings documents. Alternatively, you could open the second settings document using the Open Settings option from the File menu while you have the first session open.

—Kristin Nelson, CRC
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 eight 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, News, Whois, PennInfo, World-Wide Web, and Gopher. 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, develops and delivers learning programs for Schools and other University units, and monitors technology skills needs across campus.

• **University Data Center**—UDC (898-6449) provides workstation and mainframe services for academic and administrative clients.

• **University Management Information Services**—UMIS (898-4961) consults with administrative clients to identify information needs and acquires, implements, operates, and maintains administrative systems.

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**If you’re interested in:**

- Administrative data dictionary, data model .......... (215) 898-2171
- Administrative systems development ............................. 898-7581
- Administrative systems access ................................. 898-5045
- CRC help desk (crc@isc) .................................................. 898-9085
- Personal productivity software
- Purchase advice: Macs and PCs
- Hardware troubleshooting
- Antiviral software distribution
- Desktop Publishing Interest Group .............................. 898-6243
- Interactive Technologies Group ................................ 898-0426
- Information security (security@isc) ......................... 898-2172
- PennBack backup service ............................................. 898-6449
- PennNet help desk (help@dccs) ............................... 898-8171
- PennNet info, IDs, installation
- E-mail on dolphin, pobox, and relay
- Local area network consulting
- PennNet modem access (8 databits, no parity) ............... 898-0834
- Penn Printout (printout@isc) ........................................ 898-0007
- Academic video network ............................................ 898-4336
- Research and instructional site licenses (ssl@isc) .... 573-3587
- ResNet Help Desk (resnet@isc) ................................. 573-9473
- Super User Group (sug@isc) ......................................... 898-0426
- Training and learning services .................................... 573-3102
- UMIS billing ................................................................. 898-4961
- UMIS training facility .................................................. 898-4961
- UMIS operations hotline ............................................. 898-1099
- UNIX Users Group ......................................................... 898-5930

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