A new vision of information and libraries is taking root in the minds of people in higher education. The image of the library as a building containing paper-based resources is giving way to a more flexible and dynamic view of information and libraries. "In the past, libraries held the keys to research and knowledge; in the future, networked desktops will allow much of the same access when and where the user desires it." This new vision of how one gets information sounds like a death-knell for the traditional library and, with it, the librarian. Desktop access to information resources is creating a networked environment vastly different from the libraries of the past. One significant problem with this distributed access is that it assumes that end users already know how to use the resources effectively and efficiently. Having dealt with numerous phone and e-mail requests for assistance, librarians know this is not necessarily the case. Libraries and librarians are far from obsolete; they must, however, reevaluate their own relation to the user and overcome the obstacles of place and time since information technology has made information available to users anywhere and anytime.

In response to this changing information environment libraries across the country are experimenting with new ways to provide support to users who have a growing preference for letting their keyboards do their research legwork. Libraries in the University of California system are using e-mail to deliver training courses. Loyola University of Chicago librarians are holding office hours in academic departments. At Stanford University, a test-program called Information Resources Specialists (IRS Agents) will provide support in informational and instructional technology for academic purposes to faculty and staff within academic departments or small clusters of departments. The University of Arkansas has instituted a "SuperService" program that provides initial training and follow-up to faculty and graduate students. All of these programs attempt to train or assist faculty in the process of doing research within the confines of their own offices or computer labs. Librarians are walking out of the library and showing up in offices and computer labs to provide research assistance vital to the work of faculty and students.

Creating a collegiate librarian and information officer

Another possible future is being examined at the Carol Newman Library of Virginia Polytechnic Institute and State University. The Collegiate Librarian and Information Officer (CLIO) program was created to respond to the effect of rapidly changing information technology on the teaching and research of the scholarly community. In effect, the program aims to create a "virtual branch" in the various colleges at Virginia Tech. CLIOs have been given permanent offices in several colleges on campus in order to facilitate contact with faculty, staff, and students. The program allows these librarians to interact with faculty more frequently and informally than when ensconced in their own separate library building. It encourages librarians to exploit a range of contact opportunities with users that did not previously exist. Librarians with offices alongside the teaching and research faculty are less likely to be out of mind since they are no longer out of sight.

The CLIO program began as part of the university's response to the state's demand for
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academic restructuring. The goals were to emphasize collaborative and cooperative strategies, extend the reach of faculty, and ensure that students are served well. It was intended to forge stronger and more effective ties between faculty members and the complex and intricate web of information resources needed by these individuals to teach and conduct research. The program was also designed specifically to support the inclusion of information literacy skills in the college curricula. Information literacy includes a range of skills—from knowing how to use computers and access information to reflecting critically on the nature of information itself, its technical infrastructure, and its social, cultural, and even philosophical context and impact. These skills are as essential to the mental framework of the educated information-age citizen as the trivium of basic liberal arts (grammar, logic, and rhetoric) was to the educated person in medieval society. The CLIOs recognize that to become a proficient researcher takes practice. Teaching a student or researcher to use appropriately and effectively all the relevant sources is not done in a day. It requires interactions over time and at different stages in the project, whether through classroom workshops, one-on-one coaching sessions, or short, to-the-point e-mail messages.

Cooperation and support required
Before the CLIO program was established, the library already had a vigorous outreach/liaison program. Regular contact was made between the library and other academic units on campus. The library even experimented with having a librarian hold office hours in one of the colleges. The CLIO project extended this experiment, intending to accomplish it on a much larger scale. In order to support this effort, and in conjunction with a restructuring of the library organization generally, the library’s existing resources were reallocated. Work assignments were altered as needed to maintain a high-quality reference service in the library. This included training additional support staff to help provide reference assistance.

The CLIO program also required cooperation from units outside the library. Support from the deans of the separate colleges was needed for success. Fortunately, this was readily given. Initially, four colleges—Human Resources, Education, Agriculture, and Arts and Sciences—agreed to participate in the project. They provided an office in a central location or near the dean’s office, and three even added the librarian to their staff. Equipping these offices has been a joint venture drawing on library and college resources. The effort has been well received on campus and the program has recently been expanded to the colleges of Business and Engineering.

Promoting use of technology
One of the initial assignments given to the CLIOs was to actively promote efficient use of the increasing numbers of electronically accessible networked information resources. This emphasis complemented a university program called the Faculty Development Institute (FDI), run by the university's Information Systems Unit. FDI provided many faculty with high-powered workstations for the first time, and a week-long training seminar helped faculty put these workstations to good use. Evaluations of this program indicated that some of the most relevant training in the program had been provided by librarians. However, since FDI will take four years to cover all the faculty, we currently face a continuing demand for additional workshops. These requests come from faculty who have not attended FDI, and occasionally from those who have. These faculty may request a refresher workshop or one designed to update their skills, such as easing the transition from using Gopher to using the Web with Netscape. All of the CLIOs participate in additional workshops promoting the use of networked resources. Typically, these workshops concentrate on using Netscape in order to access networked resources whether provided locally or on the Internet; however, they have also covered nontraditional library topics such as the use of the Eudora e-mail program and writing HTML documents.

The FDI training seminar showed faculty members that librarians are valuable resources for finding information on the Internet. Consequently, as the Internet has become an increas-
ingly important part of education, faculty have called upon the CLIOs to assist them and their students in using this resource. Greater interaction between faculty and librarians has encouraged faculty to reexamine their students' use of information sources. Now when they see a need for improvement, they request greater librarian involvement in the courses they teach, knowing that librarians understand their needs and are capable of tailoring workshops and assignments specifically to meet the course goals. They know they can rely on librarians to help enable their students to use information sources effectively whether they are in the library, accessed over the campus network, or on the Internet.

In addition, the CLIOs have been called upon by their assigned colleges to assist the faculty in creating Web pages. The CLIOs have contributed to these efforts in a variety of ways: in the actual writing of the HTML document, in its placement on a server, in finding information to add to departmental pages, or by providing training in developing Web pages. Generally, these have been class- or program-related pages, not personal Web pages, because faculty are being encouraged to develop and use Web pages in their courses. By capitalizing on our early experience in constructing HTML documents to promote our own resources and services, we have been able to provide support to faculty in these new efforts and expand our own roles in the departments.

Expanding faculty partnerships
The role of librarian as faculty liaison is another one that has been developed and expanded through the CLIO program. Being in close proximity to faculty makes them more aware of the assistance librarians can provide and has been beneficial in several ways. First, the interaction helps the free flow of information between the various units involved. This was especially useful since the library undertook a serials cancellation during the program's first year. Second, it allows the librarians to get to know the faculty's teaching and research interests and needs more completely. This, in turn, influences purchase decisions in the library. Faculty have discovered that they have an advocate conveniently available to assist with problems that arise with library services, from requesting new materials to handling mix-ups with the reserve desk. CLIOs strengthen and smooth out the connection between the faculty and the library organization. All of these interactions decrease the sense of otherness that teaching faculty often feel about the library. The library is more "their" library than ever before.

In addition to being accessible in the various colleges, each of the CLIOs continues to maintain a presence in Newman Library by providing regular reference hours at the reference desks and keeping an office in the library. While the library administration presented reference hours as optional, all of us believe that they are essential for us to maintain ties with our colleagues. Being open to all reference questions, not just to those from our colleges, is necessary in order to maintain our information skills, which, in turn, make us more effective librarians in this new position. Also, undergraduates, who are unlikely to seek out their college's CLIO without meeting him or her first, may make initial contact at the reference desk or follow-up contact after a workshop scheduled by the teacher. Thus, reference hours give undergraduates who are actively attempting research easy access to their librarian. It is an opportunity for librarians to work with undergraduates which can lead to a long working relationship as they move through their years of study.

Due to the vast differences in the colleges and the librarians in the program, each CLIO has structured his or her job somewhat differently. We are each free to emphasize our strengths and promote our own niche in the college in which we work. All of us have discovered that this new position is very technologically oriented. It requires close cooperation with local computer support in the individual colleges as well as strong support from the li-

By capitalizing on our early experience in constructing HTML documents . . . we have been able to provide support to faculty in these new efforts and expand our own roles in the departments.
library Automation Department and the university's Information Systems Unit. The education CLIO has been able to use this position to compile a demonstration library of important software, such as encyclopedias or other educational items. The arts & sciences CLIO has found himself participating in the college's Cyberschool efforts and acting as coordinator of a computer-integrated classroom. The agriculture, business, and human resources CLIOs have found themselves working closely to build library instruction programs for their colleges. Flexibility is a key to success. One must find and seize upon opportunities as they come. But, having seized these opportunities, CLIOs are finding that their librarianship skills and their professional projects are developing more deeply and in more interesting directions than they had imagined possible.

Notes
2. Ann Jensen and Julie Sih, "Using E-mail and the Internet to Teach Users at Their Desktops," ONLINE 19 (September/October 1995): 82–86.
4. E-mail from Lois Brooks, academic technology specialist, Stanford University (October 27, 1995) and Michael Keller, e-mail posting to Listserv (ARL-Directors. September 24, 1995).