

FINAL REPORT ON INTERNET/FULBRIGHT PROJECT

Prepared for the
United States Information Agency
E Bureau, Office of Technology
Washington, D.C.

Purchase Order Number 304-0208

By

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September 8, 1993

EXECUTIVE SUMMARY

The Internet is a network through which computers, and their users, can communicate. The purpose of the Internet/Fulbright Project was to help selected Fulbright Commissions in Europe find sources of Internet access and begin using the Internet. The Project also served to determine interest in the Internet within Fulbright Commissions, and to collect data on the availability of Internet access in Europe, costs, startup difficulties, etc. Commissions in ten countries were contacted: Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Sweden, and Turkey. Two Fulbright Commission Directors were not interested in access to the Internet at the time of our visit (Germany and Austria), one already had it (Denmark), we were unable to contact directly two Directors, and the other five Directors were anxious to begin using the Internet. We found sources of Internet access in eight countries, and a ninth already had a source. Only Greece was problematical. We trained Fulbright Commission staff in three countries (France, Sweden, and Turkey) and USIS Library staff in two others (Belgium and Germany) where they would have the potential of training Fulbright Commission staff at a later time. Library staff members in France and Denmark were also trained.

The fact-finding component of the Project revealed the following: Fulbright Commission Directors and other staff members, particularly student advisors, are generally anxious to have access to the Internet. All Directors knew generally what the Internet was, and only two definitely were not interested in using it. Costs ranged from no charge for accounts plus minimal telephone charges (for local telephone calls to the host computer) to \$60 or so per month per computer account. The process of locating an Internet source and arranging for accounts was greatly simplified by the inclusion of the USIS Library Director and/or Regional Library Officer in the process, since their contacts often led to the final source of an account. The discussion with Computer Center staff at the host institution proved to be a barrier with which both USIS librarians and Fulbright Commission staff had difficulty because of the many technical questions arising at the beginning of the process. Training did not necessarily take long (one half to one full day), but the differences in communications equipment and software, operating systems, implementations of the same operating system, mail systems, etc. required that training be customized for the site. Group training of people from a number of different countries using different host computers to gain access to the Internet would be problematical because of the differences between systems. Some general training could be performed collectively.

The report concludes with some recommendations for activities which would promote the use of the Internet among Fulbright Commission staff.

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ACKNOWLEDGEMENTS

This project would not have been conceived or carried out if it were not for the arcane, convoluted, sometimes weird, and always entertaining mind of Richard Fitz, Director of the Office of Technology of E Bureau. We extend our thanks to him for his encouragement during this project.

We would also like to thank Margaret Marie (Maguy) LeRoy, Director of the USIS Library in Paris for her support during the first few months of the project. We made unfair, outrageous, and bizarre requests of her and she always responded with a lot more substance and style than we could ever muster.

Thanks Dick, thanks Maguy.

SECTION I

INTRODUCTION

The Fulbright program awards grants to support American scholars studying abroad and foreign scholars studying in the United States. Before and during the grant period, these scholars need to maintain contact with their host institution, their home institution, their colleagues, and both host and home Fulbright Commissions. Continued communication after the grant period insures that contacts made are not lost. In addition, the work of people in Fulbright Commission offices around the world and related offices in Washington can be enhanced by better communication facilities. The purpose of the Internet/Fulbright Project has been to promote the use of the Internet, including electronic mail communication, for these individuals and groups.

In order to test the feasibility of the concept, ten Western European countries were selected, and the Fulbright Commissions in each country were either contacted or personally visited. In each country, the goal was to see if the Commission was interested in adopting this technology, promoting it to its scholars, and using it in its own operations. If the Commission was interested, the next step was to locate a means whereby electronic communications services could be provided. Then, if the service could be found, and time and project funding permitted, training was provided to the staff at the Commission in the use of the system. At the same time information was provided to the Commissions about electronic communications, it was also provided to USIS libraries in the cities visited. This was done for two reasons. The USIS libraries are familiar with electronic communications and the use of computerized databases. USIS librarians are anxious to add to these skills by learning to use the latest electronic communication technology. Second, with the USIS libraries also using electronic communications, the Fulbright Commissions have a source of help should they need further training or assistance in solving a problem.

WHAT IS THE INTERNET?

The form of electronic communication chosen for use in this project was electronic mail provided via the Internet. The Internet is a network through which computers, and their users, can communicate with one another. It is based on the use of standardized communications protocols, one of which is called Transmission Control Protocol/Internet Protocol (TCP/IP). The Internet has become a tool that is international in scope. It is available to students, faculty, and staff of most North American four year educational institutions, as well as many other kinds of institutions including government and commercial organizations. It is widely available in the rest of the world as well.

The Internet provides three major functions: Electronic Mail, TELNET (Remote Login), and FTP (File Transfer).

Electronic Mail

Electronic mail allows scholars, librarians, commercial users, etc. to stay in contact with each other. Communication through the Internet is characterized by informality and speed.

In addition to messages, the electronic mail component of the Internet supports a very large number of electronic forums. These are discussion groups on a wide variety of subjects. Librarians use these discussion groups to follow such things as developments in online public access catalogs or discussions of user groups of various library automation vendors. Scholars discuss the latest developments in areas such as mathematics, physics, chemistry, history, computer science, and philosophy. Literally hundreds of these groups exist. Many electronic journals are also disseminated through the Internet.

TELNET (Remote Login)

The TELNET component of the Internet allows users to log into remote computer systems. Scholars away from their home institution can use TELNET to access their own computer systems and their own files, and researchers can log into remote computers to access library catalogs or the wealth of files that are available for public use through the Internet. Harvard University and the University of California are among the hundreds of library catalogs that are available to be searched through the Internet. Full text of Shakespeare's plays and Space Shuttle and satellite photographic images are among the wealth of specialized files that various Internet sites have made available.

FTP (File Transfer Protocol)

The FTP component of the Internet allows users to download files into their own computers. The researcher interested in acquiring an electronic copy of *The Tempest* could find it by TELNETing into the computer where it is housed and FTPing it to a file in his own computer.

INTERNET USES FOR FULBRIGHT SCHOLARS, FULBRIGHT COMMISSIONS, USIS WASHINGTON, OVERSEAS ADVISORS, AND USIS LIBRARIES

Continuing Contact Among Current and Former Fulbright Scholars

Use of Internet electronic mail is a convenient way for Fulbright scholars to stay in touch with their colleagues. This can help them with their research while they are in the program, and it is a way of extending the effect of the exchange: Fulbright scholars will have made contacts that they would like to continue after they return to their own countries. Internet electronic mail is an informal, inexpensive way of promoting the continuation of those contacts.

Fulbright Commissions and Other USIS Offices

Electronic mail can facilitate the work of the Commissions. A number of USIS offices in Washington expected to be using the Internet sometime in Spring 1993, and Internet access is now being sought for Commissions abroad through this project. Once all of these groups are able to send electronic mail through the Internet, certain kinds of informal communication should become easier and less expensive than telephone calls or faxed messages.

Overseas Advising services will be able to get information in a timely fashion, for instance, and International Visitors may be able to stay in contact with each other and the International Visitor coordinators in USIA through the Internet.

PROJECT ORGANIZATION

In consultation with the Staff Director of the J. William Fulbright Board of Foreign Scholars, the Chief of the European Branch of the Division of Academic Exchange Programs, and the Head of the Office of Technology of the E Bureau, USIA Washington, Fulbright Commissions in the following countries were chosen for inclusion in the project: Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Sweden, Turkey. A cable was sent to each selected Post and corresponding Fulbright Commission announcing the project. (See Appendix A). The cable informed the Post that the project team would visit the Post to discuss the project. During the period from January, 1993 through August 1993 site visits were made and discussions were held with USIS officers, Fulbright Commissioners and staff members. Often meetings with computer center staff at institutions offering Internet access took place. In addition, meetings were held with USIS library staff to update them on Internet technology and, if possible, provide them with training.

SECTION II

INTERNET AVAILABILITY IN EUROPE

INTRODUCTION

The Internet is used in almost all European countries, but until recently the users have mostly been from academic institutions. A demand is developing from users outside academia, including commercial users, for accounts. Informal arrangements between Internet suppliers and individuals have often led to the provision of these accounts, but the informal sources are becoming overloaded. For instance in Greece, where the USIS librarian has arranged for two Internet accounts, the provider used to supply accounts free of charge, but now is charging, limiting the available connect time for each user, and has clearly overloaded his computer capacity. In France, a source which used to provide accounts quickly and almost for free, the University at Rennes, is delaying issuing new accounts until several months of policy review is completed.

In the United States, the situation in academic, as well as many other kinds of institutions, is such that issuing several more computer accounts does not make a significant difference in the operational efficiency or costs of the computer facility. It is not that way in many of the smaller institutions in Europe yet. An additional account does make a difference to a computer center where policy issues and pricing questions have not been resolved, and an additional account can be enough to strain the sources.

INTERNET ACCOUNTS FOR FULBRIGHT SCHOLARS AND COMMISSIONS

The prestige of the Fulbright program, the fact that it is an educational program and is a cooperative arrangement between the United State and the host country made it possible, with modest effort, to find sources of Internet connections for many of the Fulbright Commissions. There were several strategies used to find the service: commission directors were asked if they were aware of any sources of Internet services and if they were, were asked to contact the source. In some cases, the Directors knew of former Fulbright Scholars who were working in academic computer centers and asked them to arrange accounts. In other cases, the USIS library director was asked to help in locating Internet service. The library directors have been using online services for some time and were knowledgeable about the problems and interested in using the Internet. They often had leads on organizations that could provide the services. We sometimes located sources of computer accounts through our own contacts in the countries we visited. In some cases, the help of a private provider of Internet services was used to locate accounts. In general, there was no one way in which the service was found, and this was one of the difficulties encountered in the project.

Once a source of computer account(s) was found, it was necessary to negotiate with the provider for the terms and conditions that would govern the account(s). In several cases the provider would only make available one account on a trial basis in order to assess how heavy the usage would be, and thus the impact on the computer center. Often it became clear that the computer center had never before provided accounts to outsiders and that it welcomed the chance to have a test site for new service. In some cases, the provider offered accounts with only electronic mail access but without TELNET and FTP. It was usually the case that the provider had these last two functions available but felt it was simpler for some users, or cheaper, to offer accounts with only e-mail availability. Since we consider TELNET and FTP to be functions that would be useful to at least some Fulbright users in each country, we always negotiated for full Internet functionality, and computer center staff generally agreed quite quickly to this full service.

After a source of accounts was located, we tried to hold a joint meeting between ourselves, the computer center staff, and the Fulbright Commission staff member or library staff member who would be working with the account. The purpose of the meeting was to find out the details of the procedures for using the accounts and to try out the accounts in the presence of the computer center staff. During this phase we often encountered problems that would have been difficult for the Commission/Library staff to recognize without technical knowledge of the Internet, communications software, and the operating system being used at the computer center (e.g. CMS or UNIX).

The next step in the process was to return to the office and try using the accounts with the equipment available in the Commission office. Our goal was to provide enough training in the use of the Internet that the staff member could perform basic tasks unaided, and could learn additional features as needed. The training covered the installation and connection of the modem to the personal computer, the installation of the communications software on the personal computer, customization of the software for use in connection to the computer center, and login procedures. It also comprised training in some of the basic commands used by the host computer's operating system (either CMS or UNIX), the commands used by the program that provided electronic mail services, and by the FTP and TELNET programs.

EUnet - AN INTERNET SUPPLIER

While the difficulties of finding an account and getting it working at each Commission's office are not insurmountable, they do present an obstacle to efficient implementation of the Internet in many offices. One possible solution is to rely on the more standardized service provided by a confederation of UNIX-based networks.

Early in our work we became aware of an organization called EUnet, which is a European-wide communications network headquartered in Amsterdam. EUnet developed out of an informal alliance of various European national networks that needed a central body to coordinate their communication with each other and with the rest of the world. EUnet has been in existence for about ten years and recently decided that its business had increased to the point that it should separate itself from its origins in a university computing center and become a private company. Its headquarters are still physically located on a university campus in Amsterdam. Likewise the national networks in the member countries--most of them outgrowths of Unix users groups--are in the process of becoming private corporations.

EUnet is beginning to open each national network to outside users. The Belgian EUnet provider, for instance, has been offering accounts to outside users only since January 1993 and do not yet have many users.

Since the central office of EUnet is interested in promoting this change to an open network, they are very interested in finding ways to offer services to Fulbright programs in the various countries where EUnet has national networks. They see this as an opportunity to develop a model of a service that is fairly uniform in both prices and specific services. They think that this would ultimately appeal to international businesses but see the Fulbright community as a good candidate for developing a service that is delivered through the component national networks but is relatively uniform--thus appealing to organizations that want to do 'one stop shopping'.

We met with Glenn Kowack, EUnet Chief Executive, at his headquarters. We were impressed with the EUnet operation, including its staff, physical facilities, computing equipment, and service. After the meeting, Mr. Kowack collected information from his national managers and developed a standardized proposal for services and prices to offer the Fulbright Commissions. That proposal is included as Appendix B of this report.

We think EUnet service is worth considering, at least in some of the countries in question. It has a number of advantages:

1. The EUnet proposal incorporates standard definition of the service needed, a general pricing structure, along with a comprehension of what the Fulbright program is and what sort of people would be using the service. This should mean that less effort would be needed at the beginning to set up the arrangements for Internet access.
2. EUnet has a centralized concept of the kind of quality service it wants to provide. It's centralization is an advantage in providing a focal point to discuss problems if the local supplier is not performing well.

SECTION III
REPORTS OF THE TEN PROJECT COUNTRIES

This section summarizes the results of the site visits to the ten selected countries. They are Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Italy, Sweden, and Turkey.

AUSTRIA

Background

On April 19, 1993 we met in Vienna with Dr. Gunter Fruhwirth, Executive Secretary of the Fulbright Commission, with Ronald Post, the CAO, and with Leo Hurley, the Regional Library Officer. We met separately with Roswitha Haller, USIS Library director. We paid a second visit to Vienna in July.

The Fulbright Commission

Dr. Fruhwirth was not enthusiastic about the Internet. The Fulbright program in Austria is a relatively small one and staff at the Fulbright Commission is hard pressed to accomplish the work they now have to do. Dr. Fruhwirth feels that taking on the job of incorporating the Internet into their routines at this time would be more than they could handle. He also has a suspicion that it would somehow prove to be expensive.

We briefly described the Internet to him and talked about how it might be used by the Fulbright Commission. We also talked about how his costs might be covered. We told him that if he changed his mind we would be willing to work with him on our return in July.

The Post

The post, on the other hand, is quite interested in the Internet. Both Ronald Post, CAO, and Roswitha Haller, Library Director, are interested in obtaining Internet access, and both think they know people at local universities who might provide free or cheap accounts. When we checked in with them in July, Roswitha Haller had managed to arrange a meeting with people at the computer center at the University of Vienna, but she had not yet been able to obtain a computer account.

Internet Sources

During our July visit we found some possible sources of Internet connection. Dr. Fruhwirth remained uninterested, so we have turned this information over to Leo Hurley, who can share it with the USIS Library and also with the Fulbright Commission should the Commission change its mind about Internet at a later date:

The University of Vienna seems to be the main source of Internet access in Vienna. Roswitha Haller has spoken with people there without being able to obtain a computer account, so we explored other possible sources. (Though we feel that there may have been misunderstandings on both sides during that meeting, and another meeting including both Leo Hurley and Roswitha Haller might produce better results.) We found the following additional possibility:

Douglas Kahn
Central European Environmental Data Request Facility
Vienna
phone: 715-5879
e-mail BITNET: khan@pan.cedar.univie.ac.at
e-mail INTERNET: y3111DAA@awiuni11.edvz.univie.ac.at

Mr. Kahn provides telecommunication facilities for environment-related organizations. His organization is in the process of becoming an Internet node. He provides free services except for the local telephone charges would be incurred dialing into his computer.

We spoke with Mr. Kahn about access for the Fulbright Commission, and he said that he did not think there would be any problem with providing an account for the Commission. He would need documentation describing the Commission and its functions, and requesting the account.

As far as the USIS library is concerned, the Central European Environmental Data Request Facility (CEDAR) might be a source of access also. A phone call from Leo Hurley or Roswitha Haller describing the program to him would be the next step to take.

BELGIUM

Background

We met with Maggie Nicholson, the Director of the Fulbright Commission for Belgium and Luxembourg, with Mary-Ann Ignacius, Cultural Affairs Officer, and with Eddy Olislaeger, USIS Library Director in February 1993. Mr. Olislaeger had already explored ways of getting access to the Internet in Belgium and had arranged for a guest account for himself by the time we arrived.

The Fulbright Commission

Maggie Nicholson was very enthusiastic about the possibilities offered by access to the Internet. She anticipated that staff at the Commission would be able to make use of the Internet in a variety of ways. She also surmised that at any given time there would be Fulbright scholars and former Fulbright scholars in Belgium and Luxembourg who would not otherwise have access to the Internet and who would benefit by the Fulbright Commission's being able to offer accounts. At the time of our visit, the Commission owned one or more personal computers but had not used, and did not own, a modem. Staff there seemed comfortable with the technology, however, and we did not anticipate any problem in their learning to use the Internet effectively.

The Post

Eddy Olislaeger, USIS library director, has always been a leader in technology within the USIS library program. He had explored the possibilities for Internet access by the time we arrived and had arranged for a guest account. We accompanied him to the computer center at the Catholic University of Leuven (Katholieke Universiteit Leuven), where the account was based, to talk about technical aspects of his connection to the Internet and to explore possibilities for the Fulbright Commission.¹ We were able to give Mr. Olislaeger a brief training session before we left Brussels. He and other USIS library staff are comfortable with communications and have become Internet users since our visit so they can serve as support for the Fulbright Commission as the Commission acquires the necessary equipment and accounts and begins using the Internet.

1

Our contact at the Catholic University of Leuven (and with B.U.U.G.) was:

Jean Huens
Katholieke Universiteit Leuven
Departement Computerwetenschappen
Celestijnenlaan 200A
B03001 Leuven, Belgium
tel: ++32(0)16-20 10 15
e-mail: jean@ub4b.buug.be

Internet Sources

As far as we can tell, there is really only one viable option for public Internet access in Belgium at the moment. That is through the Belgian Unix Users Group (B.U.U.G.) There are two other providers. One is a commercial service called Infonet, which is too expensive to be a realistic option. The other is through the Katholieke Universiteit Leuven (directly rather than through B.U.U.G. which happens also to use Leuven's computer), which is developing a national research network. The research network will be making Internet access available to outsiders Real Soon Now. We suspect that means it will be a few years, and conditions, including pricing, are unknown.

Fortunately, the B.U.U.G. option seems to be a good one. They had only been offering access to the outside world since the beginning of the year, but their operation seemed well organized and complete. They seemed responsive to user needs and problems. The service being offered is full Internet access. B.U.U.G. normally requires users to buy and install TCP/IP software, but we have convinced them that normal dial-up service using a personal-computer based communications package such as PROCOMM would make it much easier for the novice user.

Conditions of Internet Use

We found that we had two options for acquiring Internet access through B.U.U.G.: One was through membership in B.U.U.G. Benefits of membership include Internet access. The other option was through EUnet, since B.U.U.G. is the Belgian component of EUnet. The proposal made by EUnet for service to selected Fulbright programs in Europe (See Appendix B) included Belgium, with a slightly different pricing structure than direct membership in B.U.U.G. would have involved. The proposal also included the offer of a trial of three months of free Internet access for 5 separate accounts in the country of our choice. Since B.U.U.G., whether directly or as a component of EUnet, seemed like the best choice for Belgium, and since the staff at the Fulbright Commission seemed ready and enthusiastic, we suggested that the Belgian Commission should take advantage of this offer and begin using the Internet through EUnet. After the trial period, they could look at the patterns of their use and decide which pricing structure suited them.²

Details of pricing information for both alternatives are included in Appendix C. Briefly, they cost out as follows:

- 1) Internet Access through B.U.U.G. under the EUnet Agreement offers Internet service to 6 users for 200 ECU/month. (1 ECU=\$1.19 on the day of the proposal. Therefore the service would cost \$238, or \$39.66 per user).
- 2) Internet Access Directly through B.U.U.G. involves a more complex formula, but the costs would be something like \$26.19 per month plus an unknown connection time based charge for

²

At the time this report was being written (late August 1993), the Belgian Fulbright Commission was still in the process of ordering equipment needed for Internet access.

the hypothetical user described in Appendix C.

DENMARK

Background

We met with Mette Skakkebaek, Executive Director of the Danish Fulbright Commission and with CAO, Honora Rankine-Galloway in March 1993.

The Fulbright Commission

The Fulbright Commission in Denmark already has access to the Internet. They currently use only electronic mail, though we believe that their accounts provide full Internet functionality. They had received minimal instruction, in writing, from the organization that is providing their computer account, but they felt that they would benefit from some additional training which might allow them to use other Internet features besides e-mail. They also need an additional modem.

Ms. Skakkebaek says that all Fulbright scholars and alumni in Denmark who need Internet access already have it through their own institutions. The Fulbright Commission makes use of the Internet to do its own work, and they do not need additional computer accounts to provide Fulbright scholars in Denmark with access the Internet.

The Post

The Post does not currently have access to the Internet but is interested in getting it. USIS Library Director, Karen Sorensen and CAO, Honora Rankine-Galloway both expressed interest and planned to pursue possibilities of one or more computer accounts through the source currently being used by the Fulbright Commission. Karen Sorensen received some training at a session with other USIS Library Directors, and she should be able to learn how to use the Internet without too much difficulty when a source is found.

Internet Sources

The academic community in Denmark all seems to have access to the Internet, but organizations have developed policies that tightly define who is eligible for these academic computing services. Outside users seem able to subscribe to services from academic institutions, but fees are generally charged.

We were able to find out about one private source of Internet access, but it's fees were higher than the source used by the Fulbright Commission.

Conditions of Internet Use

The Fulbright Commission gets its computer account through an organization called UNIC. For two accounts they pay a basic fee of 240 DKR/year (\$38) plus connect time charges. The resulting cost is about 350 DKR/month (\$55).

FRANCE

Background

In France we worked with Pierre Collombert, Executive Director of the Fulbright Commission and Maguy LeRoy, Director of the USIS Library. We used the Paris library as a base for much of our work on behalf of the French Fulbright Commission and of several other Commissions. Ms. LeRoy was particularly supportive of the project and instrumental in its success.

Fulbright Commission

Pierre Collombert had already decided that he would like to have access to Internet electronic mail and had made some preliminary inquiries, all of which had led him to Montpellier, where France has concentrated much of its information technology research. He had not yet had any success, but we suspect that he would eventually have found some sort of Internet connection if we had not come along. The Fulbright Commission office had used computers but did not own, and had never used, a modem. At least two people at the Commission are very comfortable with technology: Veronique Bourgerolle and Mr. Collombert. The two of them should be able to learn to use the Internet and should be able to incorporate it into the work of the Commission. They could obtain additional support from Maguy LeRoy, the USIS Library Director and Eric Parmantier, the LAN system manager at USIS.

It appeared that the Internet will be useful within the Fulbright Commission office and also that there are current and former Fulbright scholars within France who would benefit by being offered accounts through the Fulbright Commission.

Post

The USIS offices in Paris served as a headquarters for this project during the first several months of its life. In the course of our work there, we met with DPAO, C. Miller Crouch, CAO, Mary Gawronski, DCAO, Ann Stenzil, and USIS Library Director, Maguy LeRoy. All were positive about the project.

Mr. Crouch generally supported our project, but had a number of serious questions both about security and about why the U.S. government should fund Internet access, possibly in perpetuity, for ever growing numbers of former Fulbright scholars in France (or any other country).

In the process of helping us look for a source of Internet access for the Fulbright Commission, the USIS librarian, Maguy LeRoy, was able to arrange for several guest accounts for the library. In mid-April 1993, when we left France, it was not yet known whether these

could be converted to permanent accounts. French educational institutions have the possibility of free access to computing services, and the Fulbright Commission qualifies as a French educational institution. The USIS Library may not qualify on a permanent basis but still was given a guest account (see below). These accounts gave us a chance to give Ms. LeRoy some training. At the time of this writing (late August 1993) the accounts were still in operation and Ms. LeRoy was actively using them. (Two of these accounts happen to be named Cooper and Baker, so there may be perpetual computer accounts in France serving as a memorial to our participation in this project.)

Internet Sources

We found that there are many sources of Internet access in France. People in educational and research organizations routinely have computer accounts that provide connection to the Internet. In addition, it is becoming common for people outside these organizations to use the Internet by arranging for accounts through educational institutions or through commercial services.

The French PTT has introduced a system called MINITEL and initially promoted this system by offering a free terminal to anyone in France with telephone service. As a result, MINITEL terminals are ubiquitous in France and much of the population is relatively comfortable with computers. Any MINITEL terminal can be used as a gateway to the Internet. Of course, an account with some Internet provider is still needed, but a MINITEL terminal serves as a terminal and a modem.

There is also an EUnet component in France which is a possible Internet source for the Fulbright Commission. There would be fees connected with this service, however, and since we found a source of computer accounts that carried no charge, we did not investigate details of service through EUnet. The EUnet proposal includes information about its services in France. (See Appendix B.)

The accounts arranged for the French Fulbright Commission are provided through The Centre de Calcul Recherche (CCR), physically located at the Universite Pierre et Marie Curie (Paris VI). CCR serves two parts of the University of Paris: Universite Pierre et Marie Curie (Paris VI) and Denis Diderot (Paris VII). It is funded by the French Ministry of Education, and part of its mission is to offer computer services to components of the French educational system. Our contact at CCR was its Director, M. Jean-Claude Girard. We met with him to describe the Fulbright program and work out details of the accounts. We had no trouble convincing M. Girard that the Fulbright program qualifies as part of the French educational system. Mr. Collombert is considered an employee of the French Ministry of Education, which made the case very strong.

Conditions of Internet Use

Computer accounts from CCR run on a computer with a UNIX-based operating

system. They offer complete Internet functionality--e-mail, FTP, and TELNET. There does not seem to be a limit on the number of accounts available to the Fulbright Program--within reason. There is no charge for these accounts, though there will be communications costs for anyone dialing in from outside Paris, since the computer is in Paris. The Commission will need some equipment--one or more modems and some communications software. We were able to provide a couple of hours of training for Mr. Collombert by using our own notebook computer.

We have learned recently that though Mr. Collombert maintains his accounts with the CCR computer and accesses the Internet through his MINITEL terminal at home, he has been unable to make full use of the Internet at the Fulbright Commission offices because of incompatibility problems involving the Wang equipment owned by the Commission.

GERMANY

Background

In Bonn, Aurelia Tigler, USIS Library Director, and Susan Aramayo, Country Librarian, had found a source of Internet access through The University of Bonn (Regionales Hochschulrechenzentrum der Universität Bonn (RHRZ)).

Fulbright Commission

Due to Tigler and Aramayo's work the Internet account was available, so our work of helping the Fulbright Commission explore the idea of providing Internet access for its own office and for Fulbright scholars within Germany should have been easy.

However, Dr. Ulrich Littmann, Director of the German Fulbright Commission, has a number of reservations about the Commission's possible use of Internet. His concerns mainly involve data security issues and problems of compliance with German laws relating to data transmission. In addition, Dr. Littmann will be retiring within the year, so he feels that these issues are best left to his successor to sort out.

The Post

We met with Bruce Armstrong, ACAO, who coordinates exchange programs in Germany, and Dr. Armstrong suggested that after Dr. Littmann retires, it would be appropriate to address this issue again with his successor. Other people within USIS in Bonn are very enthusiastic about potential uses of the Internet, so we agree that Internet should be brought up again with the Fulbright Commission there at a future time.

We were able to provide USIS Library staff from a number of branches within Germany with about a day of Internet training. If there is interest on the part of the new Fulbright Commission Director, USIS librarians should be able to help the Commission get started.

While we were in Bonn, we gave a short presentation for selected USIS personnel about our project, the Internet in general, and potential uses of the Internet for USIS. Present were:

Cynthia Miller, PAO
JoAnn Clifton, Executive Officer
John Lavelle, Deputy Executive Officer
Helmut Fischer, AIO
Jürgen Bodenstein, Editor, American Studies Newsletter

This group seemed especially focused and creative in thinking about opportunities the Internet might hold for USIS. Everyone agreed that potential in the eastern part of Germany might be higher than in the West, where people seem more set in their ways.

Internet Sources

In general, Germany's use of the Internet does not seem to be as advanced as one might expect. Its use seems mainly to be confined to people working in the sciences. The University of Bonn, where the USIS Library is getting its accounts, has a computer center which has been working with the Internet for three years. People there seem to be very service oriented and appear to be technically competent. But their implementation of the Internet seems less focused than others we have encountered in other countries at equivalent institutions. One of the people who worked with us there to set up the accounts commented that Internet was very chaotic in Germany at this time. When we asked why, he said it was because of "competency problems".

Conditions of Use

The USIS Library is using the Internet through accounts provided by The University of Bonn (Regionales Hochschulrechenzentrum der Universität Bonn (RHRZ)). By the time we arrived, Aurelia Tigler and Susan Aramayo had arranged for guest accounts and had borrowed the necessary equipment so that we could do some training. They are being given two guest accounts for three months on a trial basis. Costs for the period after the 'trial' ends were not discussed, so we do not know if there will be charges at the end of that period. We suspect that RHRZ has not provided guest accounts to outsiders before and still has not figured out what its costs are or whether and how it will charge.

We accompanied Ms. Aramayo and Ms. Tigler to the University of Bonn to work out technical details. The University of Bonn has implemented the Internet in such a way that some functions are available through a computer running UNIX and others through an IBM machine running VM/CMS. For this reason the library was given two accounts--one on each machine. They are in the unenviable position of having to learn two new operating systems and in the enviable position of getting to learn two operating systems. The University hopes to smooth out their Internet operation in the future, but they are honest in stating that it will not happen immediately. USIS library staff in Bonn will either acquire more expertise than their

colleagues in other countries or will be frustrated and give up altogether.

GREECE

Background

Unfortunately, because of communications problems with both Washington and Greece, we were not able to set up the appointments we needed to pursue Internet connections with the Fulbright Commission in Athens.

Fulbright Commission

We know that the educational advising staff at the Fulbright Commission in Athens is very actively pursuing Internet access. Ironically, we faxed these people from Paris during the winter to find out what they were doing, and received e-mail responses from a number of other educational advisers in other countries as a result of our fax having been passed on, but the Athens advisers have never been able to contact us by e-mail, and we presume that so far they have no Internet source.

The Post

The USIS library has two computer accounts which allegedly give the librarians access to the Internet. For these two accounts, they pay about \$45 per month. The accounts are with Democritus Research Center in Athens. Unfortunately, Democritus Research Center is not able to support the level of use it has contracted to sell: there are not enough ports, so dialing in and getting anything but a busy signal can take hours, and once a connection has been achieved, the system is so overused/underpowered that it is useless--it can take hours to log into Legislate, for instance.

Internet Sources

Glenn Kowack, our contact with EUnet, reported that EUnet was unable to find a reliable Internet provider in Greece.

The main research network in Greece seems to be Ariadne, and we judge from the USIS library's e-mail address that they are hooked into Ariadne through Democritus Research Center.

If Washington wishes to pursue getting Internet access for the Fulbright Commission in Athens, the people who should be able to supply information are the manager of educational advising in the Fulbright office and Mary Tseroni who is the manager of the USIS library.

HUNGARY

Background

We were in Budapest toward the end of July 1993, and we attempted, in anticipation of this trip, to make appointments with the CAO and the Director of the Fulbright Commission through Leo Hurley, the RLO who is based in Vienna. The CAO was on leave, but the DCAO, Judith Greenspan worked with Leo Hurley to set up appointments. At the last minute, it turned out that the Director of the Fulbright Commission and all other Fulbright staff members would be away on vacation during the time of our visit, so we were not able to talk to the Fulbright people in Hungary. We were told through the DCAO that the Fulbright Commission had an e-mail system, and they were not sure what use the Internet would be to them.

The Post

We met with DCAO, Judith Greenspan and USIS Library Director, Agota Szilagy while we were in Budapest. The USIS Library in Budapest is almost unique in our experience in that it does not use any computer communications equipment to do database searching. Therefore, up to now they have had no need to purchase or learn to use a modem or communication software. Ms. Szilagy seemed quite interested in the possibilities offered by the Internet, however, and the DCAO seemed supportive of the idea of finding money for equipment and computer accounts. They thought they probably knew people at the Technical University of Budapest who might be able to supply such accounts. The library is in the middle of implementing the DataTrek library automation software: converting its card catalog to computerized form, and placing bar-codes in books in anticipation of automating their circulation system, so staff there has much to think about beyond Internet access. They would need equipment, some technical (and moral) support and training to negotiate for computer accounts and begin using the Internet.

Internet Sources

While in Vienna, we were able to find out about some possible Internet sources for Budapest. We sent a letter to the Director of the Fulbright Commission, Dr. Huba Bruckner, with details of these possible sources along with a description of our project and general information on the Internet. We also sent him the names of several other Fulbright Commission Directors who use the Internet so he could ask them about its usefulness.

There are several Internet possibilities for the Hungarian Fulbright Commission. The first is to use facilities located in Vienna. (See the section on Austria for further details). The contact person is Douglas Kahn. He operates the Central European Environmental Data Request Facility in Vienna (phone: 715-5879) and provides telecommunication facilities for environment-related organizations. He does not charge for these services.

Mr. Kahn supports data communication for an organization in Budapest called REC. The contact he suggested is:

Theo Negoita, Director
Regional Environmental Center for Central & Eastern Europe (REC)
Mikloster 1
103 Budapest
tel. (361) 269-7400 269-7259
INTERNET: y3112DAA@awiuni11.edvz.univie.ac.at

Mr. Kahn recommends talking to the Technical University of Budapest (TUB), rather than REC because the telecommunications line that REC uses is currently not of a very high quality. He thinks TUB would be willing to provide an account to the Hungarian Fulbright Commission if a letter was provided describing the program and requesting an account. TUB uses a 64KB line from Budapest to Vienna where it connects to the University of Vienna computer for forwarding onward. Mr. Kahn suggested the following contact at TUB:

Janos Milcsak
Center of Information Systems
Technical University of Budapest
Megyetem rkp 9
H-1111 Budapest
Hungary
phone: +36 1 1812172
fax: +36 1 1665711

Mr. Kahn gave us the names of contacts at three other universities in Budapest, in case the one at TUB does not work out:

Ferenc Telbisz
Director of Information Technologies
University of Budapest (ELTE)
Bogdanfy ut 10/B
H-1117 Budapest
Hungary
phone: +36 1 161 3801
fax: +36 1 181 1976
e-mail: telbisz@ludens.elte.hu

Janos Csepai
Director of Computer Center
University Economics
Kinizsi u. 1-7
H-1092 Budapest
Hungary
phone and fax: +36 1 1175224

Laszlo Csaba
EARN Director Hungary
SZTAKI (Akad. Wissenschaften)
Victor Hugo U. 18-22
H-1132 Budapest
Hungary
phone: +36 1 149 7532
fax: +36 1 129 0415
e-mail: h26csa@ella.hu

ITALY

Background

We visited Rome in February 1993, at the beginning of our work on this project, to talk with Dr. Carlo Chiarenza. Dr. Chiarenza is not only the Director of the Italian Fulbright Commission, but the current Chairman of the group of European Fulbright Commissioners, so we were anxious to tell him about this project and listen to his thoughts on it.

Fulbright Commission

Dr. Chiarenza was very enthusiastic and supportive of the project, and he was anxious to gain access to the Internet for his own office and for any scholars needing accounts in Italy. He felt that there would be some Fulbright Scholars in Italy who might not have access through their host institutions. His office has used computers but has not used and does not own communications equipment.

The Post

Dr. Chiarenza works closely with the CAO, Warren Obluck, who was supportive and helpful during our visit. Lela Crispolti, the USIS librarian, is very interested gaining access to the Internet. She could provide some support to the Fulbright Commission if she had Internet access herself, since she is probably more experienced than they are with such aspects of the process as data communications. Eno Iacoella, systems manager of the USIS computer center was also very helpful and, though he does not have direct experience with the Internet, he does have extensive computing experience and could provide some technical support for people to whom all this is new.

While we were in Rome, the USIS Library was offered a trial account by the Consiglio Nazionale delle Ricerche (see below), but, for a variety of reasons, this account did not come into existence during our visit. With Eno Iacoella in the USIS Computer Center, we managed to establish, for test purposes, an electronic mail account through AGORA (see below) and exchanged mail with Mr. Iacoella from Paris after our visit, but we do not believe that the Library has begun using this (almost free) facility.

Internet Sources

We found three possible sources of Internet access in Italy:

- 1) Consiglio Nazionale delle Ricerche
Piazzale Aldo Moro, 7
00185 Rome

Our contact with CNR was through Lela Crispolti at the USIS Library. The contact person at CNR was Simona Longo (phone: +39 6 49933448). Ms. Longo suggested that CNR might provide computer account(s) with access to the Internet at no charge on receipt of a letter stressing the scholarly, not-for-profit nature of the Fulbright Commission (and/or the USIS Library in Ms. Crispolti's case). We believe that these accounts would offer full Internet functionality. CNR can be accessed only through a Rome telephone number, so there would be communication costs for scholars dialing in from other parts of Italy.

CNR seemed like the best choice and, since we thought that a U.S. government letterhead was called for in this case, Warren Obluck, CAO, agreed to write a letter formally requesting computer account(s). Mr. Obluck's letter should have gone out sometime in late April 1993. Since we do not know what, if any, response was received from CNR, we include here information about the other two sources:

- 2) IUnet
DIST, Universita' di Genova
Via Opera Pia 11A
I-16145 Genova, Italy

IUnet is a commercial network which is part of the European-wide EUnet network discussed in Section II of this report. The manager in Genova is Joy Marino (Phone: +39 10 353 2747). It offers full Internet functionality. IUnet was one of the country-level networks included in the EUnet proposal to the Fulbright program. (See Appendix B.)

The EUnet proposal called for pricing for Italy of 300 ECU/mo for 6 accounts (about \$357 in March 1993, at the time of the quote, or about \$60/account/month). One plus is that IUnet has local telephone numbers in a number of Italian cities--Genova, Sophia Antipolis, Milan, Rome, and Turin--so communication charges (PTT costs) would probably be less in some cases than with CNR.

We found the EUnet price a little high and were therefore looking for other possibilities. But we think that IUnet would be a reasonable choice if other inexpensive, reliable sources are not found.

- 3) AGORA

AGORA is an Italian network offering bulletin board types of services. It offers access to Internet mail at a very minimal cost; about the cost of a telephone call for each message

sent or received; and about \$12 per month per account. Unfortunately, AGORA offers only e-mail and not the other two Internet functions (TELNET and FTP). Also, AGORA has only a Rome telephone number, so there would be communication costs for people dialing in from outside Rome.

On the positive side, we know it works. USIS Rome currently uses it to disseminate information. While we were in Rome in February 1993 we were able to use the USIS account to send electronic mail, and we have sent electronic mail to Rome through AGORA since then.

AGORA could serve as an interim way for the Fulbright program to begin using the Internet for e-mail. One only pays for the services used, and if a better source of full service Internet were found later, the Commission could switch. Eno Iacoella in the USIS computer center (tel. 4674-2379) would be the person in Rome who could help the Fulbright Commission begin to use AGORA.

SWEDEN

Background

Sweden was the last country we visited, in August 1993. Our work was made considerably easier by preliminary scouting and negotiations done by Jan Olaf Nyman, the USIS Library Director.

Fulbright Commission

Jeannette Lindström, Executive Director of the Fulbright Commission, was ready for our visit and had responded to the cable (Appendix A) from Washington announcing the project and had expressed her enthusiasm for it.

The Swedish Commission is unique in our experience in that it uses Macintosh equipment and operates an Apple local area network (LAN). Since we are not Mac-literate, we anticipated possible problems, but there were none. Ms. Lindström had used a modem before and was very comfortable with technology, so we were able to establish the connection to the Internet and accomplish a lot in a one day training session.

The Post

As mentioned before, Jan Olaf Nyman was of great help in arranging for the Fulbright connection to the Internet. He and USIS system manager, Runar E. Björn, participated in the arrangements and training.

Mr. Nyman is anxious to obtain access to the Internet for the USIS library but was not able to do so through the same source found for the Fulbright Commission. We have sent him information on commercial sources of Internet access.

Internet Sources

It seems that the Swedish government has chosen to concentrate its support of the Internet on the Royal Institute of Technology (Kungliga Tekniska Högskola, also known as KTH). We understand that the Institute is the only source of non-commercial Internet service in Sweden. There are reputedly two other commercial sources of Internet access.

Conditions of Use

The Fulbright account is with the Royal Institute of Technology. The account offers full Internet functionality, and it is on a machine that has a UNIX-based operating system. The Commission has been given one account, and it is understood that there will be no charge for it because the Fulbright Commission is an educational organization. The USIS library was not considered an educational institution by the Royal Institute and it was therefore not eligible for an account. Unfortunately, unlike in many other countries, there is no proliferation of institutions in Sweden supporting their own Internet nodes and possibly differing policies, so options are limited for institutions that do not meet the criteria of the Royal Institute.

The USIS library is currently losing its Director, so it has more to worry about than finding access to the Internet, but in the future, one or more accounts might be available through a commercial source.

TURKEY

Background

The main office of the Fulbright Commission is located in Ankara, and there is a branch office in Istanbul. We began by visiting the office in Ankara (in June/July 1993), and shortly afterward we met with the Istanbul Branch Director. We met with USIS library staff in both locations. Of all of the locations we visited, Turkey seemed the most anxious and most prepared to use the Internet. In addition, the Internet source we found in Ankara, Middle East Technical University (METU), was one of the most impressive computer operations we visited in spite of the newness of the Internet connection in Turkey.

Fulbright Commission - Ankara

By the time we arrived in Ankara, Dr. Ersin Onulduran, Executive Director of the Fulbright Commission, had arranged with Middle East Technical University (METU), for a guest account. It was helpful in expediting the process that the Director of the Computer Center at METU (Dr. Omer Anlagan) is a former Fulbright Scholar.

Dr. Onulduran is sophisticated about technology and enthusiastic about the Internet. Selim Aytac, the Financial Administrative Assistant, is the Commission's secret weapon. He had installed the software that was needed and had talked with the technical staff at METU before we came, and he had learned a great deal about using the system already. The woman who does educational advising in the Ankara Fulbright office, though not a technical person, is also very anxious to begin using the Internet.

We spent about an hour giving Dr. Onulduran a hands-on introduction to the Internet, but most of our training (about six hours) focused on Mr Aytac. He will be able to train others at the Fulbright office and also the people at the branch office in Istanbul after Istanbul acquires equipment and is able to find a source of Internet access.

Fulbright Commission - Istanbul

We met with Sureyya Ersoy, Director of the Fulbright Commission Istanbul Office, subsequent to our visit in Ankara. He is anxious to have access to the Internet but will need additional equipment to be able to use it. (Currently he has an very old PC with a small amount of memory on which he seems to perform minor miracles). Given phone costs in Turkey, the Istanbul Branch Office will not want to dial into the computer at METU in Ankara. There are currently two Internet nodes in Istanbul: Istanbul Technical University and a University called Yildez. Both of these have leased lines that connect to METU to gain access to the Internet. Other institutions in Istanbul will be bringing up Internet connections (through METU) in the near future.

We discussed the Internet in general with Mr. Ersoy and gave him suggestions for

finding a source of an account. When he has the equipment and the account, Selim Aytac, from the Ankara office, will be able to provide him with training.

The Post

Neither the USIS library in Ankara nor the one in Istanbul currently has access to the Internet. Both are interested, and there is at least one person on each staff with the technical sophistication to handle arranging for use of the Internet: Aysa Ozakinen in Istanbul and Fegen Sahin in Ankara. We met with staffs from both libraries after talking to the respective Fulbright offices. Both libraries have the equipment they need to use the Internet, and they both now know how to go about finding a source of accounts if they wish to pursue Internet access.

Internet Sources

Turkey has had an Internet node within the country for only about six months. (BITNET has been available for considerably longer through a node in Izmir which connects to Montpellier, France.) The Internet connection between Turkey and the rest of the world has been implemented in Ankara by the Middle East Technical University, and access is provided by a leased line directly to Washington, D.C. Other institutions in Turkey are quickly acquiring access to the Internet through METU.

Conditions of Use

We spent several hours with technical support staff at METU ironing out technical difficulties with the Fulbright office Internet account. We also talked to the Director of the Computer Center and the Vice-Chancellor for Academic Affairs. We were impressed with both the service orientation of the staff and the sophistication and smoothness of the operation, even though the application is relatively new.

The guest account currently being used by the Ankara Fulbright Commission office is a dialup account. The account is on a computer running the CMS operating system, and full Internet functionality is supported. METU is willing to make this account permanent, and there will be no charge. There will be communications costs since users must pay for local calls in Turkey.

METU does not currently plan to support large amounts of dialup use. They plan ultimately to have 10 to 20 ports available. So it seems likely that if the Fulbright Commission wants to have more than one account, they will need to connect to METU's computer in a way other than through dialup. There are two choices (in either case, METU would not be likely to charge for the accounts themselves):

- 1) X25 connection through the Turkish PTT (TUPACK): This would require some additional software on the Fulbright Commission's computer, which would be provided by

METU. Communication costs would be paid to the PTT, and charges would be for packets of information sent. Costs are available from the Turkish PTT, but we do not have them.

2) Leased line: This would involve a permanent connection with METU. A line could be split (multiplexed) to allow multiple accounts at the Commission to use the line at the same time. Costs would include purchasing a workstation for the Fulbright Commission to use to support multiple users as well as the costs of the line. These costs would be as follows (\$1=11,000 Turkish Lira (TL) in early July 1993):

Installation:	3,000,000 TL for a one twisted pair line
	6,000,000 TL for a two twisted pair line

Ongoing:	1,000 TL per 100 meters per month, times either a factor of:
	1.20 for 2400 baud line, or
	1.5 for 9600 or 19200 baud line

At the current time, the Ankara Fulbright Commission will be using their single dialup account to become familiar with the Internet. They believe that there are no Fulbright scholars in Turkey who need Internet access but do not have it through their own institutions and that therefore accounts will be needed only for people in the Commission office. They will delay making a decision on the number of accounts they will ultimately want and the final method they will use to access METU until they are more familiar with the system and have a better idea of how they will use it.

SECTION IV

INTERNET USE IN OTHER EUROPEAN COUNTRIES

During this project we received information about the use of the Internet in Fulbright Commissions and Overseas Educational Advisors' offices in countries that we were not scheduled to visit.

FINLAND

The Fulbright Commission in Finland seems to have been using the Internet for some time. In April 1993 they had only two passwords, but were planning on applying for more accounts so all members of the office staff would have one, plus one general account. They currently use only e-mail since they are 'just getting acquainted with TELNET and FTP'.

Apparently electronic communication is widespread in Finland, and Fulbright grantees and alumni all have access through their own institutions.

We are attaching an article by Terhi Molsa of the Fulbright office in Helsinki describing their use of Internet electronic mail. (Appendix F) An additional article by John Hopkins of the University of Tampere, Finland describing use of e-mail for student advising and giving some basics about connection to the Internet is also included. (Appendix G) Both articles have generated some interest among other Fulbright Commissions and so have made our work easier.

The Post does not have access to the Internet.

GREAT BRITAIN

The Fulbright Commission office in London is using Internet electronic mail. We do not have details.

The Post does not have access to the Internet.

ISRAEL

The Fulbright Commission in Israel began using the Internet around August 1993.

NORWAY

As far as we know, the Norwegian Fulbright Commission does not have access to the Internet, but the USIS Library there has been using the Internet for some time. In addition, Petter Naess, the Library Director runs his own electronic bulletin board system on a personal computer and disseminates USIS-related and library-related information this way to his DRS members and to others in Norway. Were the Commission to want to begin using the Internet, Petter Naess would have the necessary expertise to get them started.

SPAIN

The Fulbright Commission in Madrid is using Internet electronic mail to do their own work and to keep in touch with Spanish Fulbright scholars in the U.S. They have access to the Internet through the Spanish component of EUnet. During the course of this project, we have received a communication from them asking for support to make the Internet available to the 50 or so Fulbright scholars working in Spain. We presume that this would mean funding for accounts. We have passed the request on to E Bureau, Office of Technology, in Washington.

TAIWAN

The Fulbright Commission in Taiwan sent out their first Internet e-mail message on March 31, 1993. We have no other details.

SECTION V

CONCLUSIONS

Our discussions with Fulbright Commission Directors during this project convinced us that, in general, the Directors are interested in the potential of the Internet and want to have it available for themselves and for Fulbright scholars. They see it as an evolutionary step--a way of communication that can complement existing methods, sidestepping some existing problems. Many Overseas Advisors have been using the Internet for some time and are not only enthusiastic about it, but have come to act almost as Internet missionaries. While few Fulbright Commission staff members (aside from Overseas Advisors) have expertise in the Internet itself, many have skills with using personal computers that are often directly transferrable when learning to use the Internet. The USIS Library staff members at each Post often work closely with the Commissions, and their considerable expertise in using online databases can often be used to help the Commissions get started and help solve problems as they occur.

This project has demonstrated that the barriers to initiating the Internet technology at Commissions are not trivial. It would seem that one should be able to issue a directive encouraging its use and providing funding and that would be sufficient. But this technology is complex. It is not as widely available in Europe as in the US, there are less individuals who are familiar with it, there is no simple way to gain access to it, there is no 'standard' way of using it as there is, for instance, with personal computer-based word processing software or spreadsheet programs. Worse, there is no Manual and no 800 number to call.

The first step in obtaining access to the Internet for the Commissions is to find an organization willing to give the Commissions accounts on a computer system that is already connected to the Internet.³ Educational institutions are generally willing to help the Fulbright Commissions by providing accounts, and commercial services are available as well. But this is not a simple process. First the source must be located. If it were not for the help of the USIS Library staff at each Post, we would have spent considerably more time trying to locate institutions providing access to the Internet and would probably not have had as much success. The library staff was central to the success of this project. Second, once the source has been located, the person asking for the account must be able to *speak the right language* (i.e. use the right set of key words and phrases) to the supplier to settle on the technical details required to get the account started.

We found that the most successful way of establishing an account and ironing out its technicalities was a face-to-face meeting between the provider and the person in the Commission who would be responsible for the account. A myriad of problems is always encountered in these meetings ranging from simple to awful. Account names must be agreed to; logon procedures must be reviewed; telephone numbers for various baud rates and

³

The alternative approach of becoming an Internet node is too expensive to begin with and requires a level of expertise that the Commissions do not now have.

communications protocols must be exchanged; the configuration of the computer account must be verified; and the names and phone numbers of technical support staff exchanged.⁴ It is not so much that this must be done, but that the Commissions may not yet know what questions to ask to make sure that they can use the Internet when they return to their offices. The level of expertise required is higher than is available in most Fulbright Commission offices at the moment.

Once the Internet account has been established, the user must learn how to log onto the system through his or her personal computer and modem. Some of the people we trained had experience using online databases or bulletin board systems and this expertise gave them an advantage. But the logon procedures for the accounts we established are much more complex than for most commercial databases because the user is often required to log onto a 'terminal server' computer, issue a command to the terminal server asking to be connected to the computer which will supply the Internet service, and then log onto this final machine. Our users learned this by rote, but it is not intuitive and ultimately leads to confusion when errors are encountered.

When the user has successfully logged into the account, a second hurdle must be cleared. The user must learn a new set of commands in order to communicate with the operating system that is running on this computer. We found two operating systems in use, the IBM CMS system, and UNIX. CMS is quite standardized and, with some instruction, simple functions can be performed. There are many different implementations of the UNIX system and while the standard commands are the same, many other things are not common. Textbooks can help the user (see the Bibliography), but difficulties will occur. Once the user starts sending or receiving electronic mail, she or he must use a subsystem of the operating system that handles mail, and again there are a wide variety of *mail systems* the user might have to cope with.

In summary, there are a number of technical details to be mastered in order for a Commission to use the Internet, but those whom we have trained seem to have become quite adept at it after a short period.

As a whole, the project was successful in that eight out of the ten Commissions were interested in using the Internet and seemed to feel the time was right to adopt the technology. Sources of accounts were found (or already existed in one case) in nine of the locations, and accounts were set up and training provided in three locations. In two additional sites we set up accounts and trained USIS library staff who would later be able to help the Fulbright Commissions begin to use the Internet. Work is underway to find connections for three other Commissions. The project was unsuccessful in several respects: We could not convince two Commissions of the value of the Internet to their operation; for those groups who wanted access we often had to settle for less-than-ideal forms of accounts with complex logon

4

We encountered cases where a CMS account was provided, but the disk space for the account was not formatted, nor the disk attached to the account. We also encountered UNIX accounts where the path to the TELNET and FTP commands was not specified, and CMS accounts where the disk having the TELNET and FTP software was not attached to the user's account. There were many accounts where the backspace key was not specified correctly for the Commission configuration, and so many different UNIX shells that no user would be able to figure out what commands or editors were in operation without a lot of experience. There were situations where the communications software that was supplied by the computer center was missing a critical configuration file; where the baud rate and parity settings did not work as specified by the center when the specified phone number was dialed; and where the communications software configuration had to be corrected to handle x-on and x-off flow control from the main computer when files were being downloaded. In one case the UNIX account was set up without a path to the manual (help) pages, and in another case there was no path to commands that would let the user download files (xmodem). In many of the UNIX systems, the command line prompt was so long as to be incomprehensible to the user (e.g. machine name, file system name, user name, current subdirectory).

procedures and complicated interfaces. Not enough time has elapsed to evaluate whether scholars would be interested in taking advantage of Internet access and whether they would use the Internet to stay in contact with their colleagues, so this was an aspect of the project for which we were unable to gather data.

SECTION VI

HOW CAN INTERNET USE BY FULBRIGHT COMMISSIONS BE SUPPORTED AND ENCOURAGED?

The Internet provides an effective communications method for those who use it, but it is only effective if there are others with whom to communicate. Numerous studies have shown that until there is a *critical mass* of users of an electronic communications technology there will be no incentive for a few users to employ the technology. To build this critical mass, we recommend that the current pilot program be continued to other Commissions that are interested. At the present, we do not think that the Commissions can be expected to undertake this endeavor without a small amount of outside assistance. The body of this report summarizes the reasons for this conclusion (see Section II and V). We also think that the Commissions should be made aware that the USIS Libraries in their countries are repositories of considerable knowledge about electronic communication, and possibly the Internet and that the Commissions should take advantage of this.

At the same time that the Commissions are beginning to use the Internet, offices in the US that communicate with them should begin (and/or continue) to use the Internet to transmit materials to the Commissions. One way to promote usage is to transmit materials electronically (arrival time - a few seconds) and also in paper or fax copy. Once the Commissions see the efficacy of the electronic transmissions, they will gradually move away from the other media. This recommendation requires that the Internet be used and promoted in USIA just as it is in the Commission offices. We feel that this will be a less difficult task because most USIA offices will be using the same interface to the Internet. Many documents that are prepared with standard word processors can be sent electronically without creating printed copies. The difficult part will be for the offices to change the pattern of their work so that material is disseminated and responses are received electronically.

A number of simple steps can be taken to promote Internet use. One is to maintain and disseminate a directory of Internet addresses of Commissions and other people with whom the Commissions would want to communicate. On August 26, 1993 the M/TM Bureau in USIA announced the availability of a list of Internet addresses for USIA (APM507). We think this is a significant step in promoting the use of the Internet. Another step is to encourage the Commissions to discuss the use of the Internet at meetings which bring them together. Once they see how each is using the system, it may encourage further use. John Hopkins, Lecturer, American Language and Culture, University of Tampere in Helsinki has written extensively about the benefits of the Internet for Student Advising. He seems like an ideal person to speak at a Directors meeting to promote the Internet. A copy of one of his papers is included in Appendix G of this report. A third step is to have copies of two items in the Bibliography sent to each Commission: *The Whole Internet*, and *Zen and the Art of the Internet*. The AMP file item AMP507 titled *Internet at USIA* is attached as Appendix H. This report describes how the Internet has been implemented at USIA and how it can be used. Again, we think this is another important step in encouraging Internet use.

The Internet itself is a valuable tool for promoting communication. We suggest that electronic forums be established on the Internet that are open to Directors and their designees which would provide a medium for discussion of issues of current interest to the Fulbright program. We also suggest that an electronic forum be established for former, current, and prospective Fulbright Scholars so that they can communicate with one-another about topics of interest.

We have concluded that it is difficult to develop a general course that will train a large group of individuals in the use of the Internet. This is because every Commission will be using a different computer system to access the Internet, and a user trained on one system may not be as successful using another. Until there is more expertise, the only solution to the Commissions getting started may be to provide a one day on-site training course.

Some training can be done centrally. Once the Commissions have become proficient in sending and receiving electronic mail and trying out the FTP and TELNET commands, it is possible to have a central training course which gives more hands-on experience in using FTP and TELNET and shows what resources are available over the Internet.

BIBLIOGRAPHY

- Birns, Peter M., Patrick B. Brown, and John C. C. Muster. *UNIX for People: a Modular Guide to the UNIX Operating system, Visual Editing, Document Preparation, & Other Resources*. Prentice-Hall, Englewood Cliffs, N.J., 1985. A very gentle introduction to the UNIX operating system.
- CMS User's Guide*. International Business Machines Corporation, Kingston, N.Y., 1988. A standard reference about CMS. Avoid reading it at night.
- Krol, Ed. *The Whole Internet: User's Guide & Catalog*. O'Reilly & Associates, Sebastapol, CA, 1992. This is the most useful guide we have found to the Internet. It is even mildly enjoyable.
- Lane, Elizabeth & Craig Summerhill. *An Internet Primer for Librarians and Educators: a Basic Guide to Internet Networking Technology*. Meckler Corporation, 1992. A very useful, if uninspired, reference guide to the Internet.
- Quarterman, John. *The Matrix: Computer Networks and Converencing Systems Worldwide*. Digital Press, Burlington, MA, 1990. A comprehensive summary of electronic data networks in the world.
- Stevens, W. Richard. *UNIX Network Programming*. Prentice Hall, Englewood Cliffs, N.J., Prentice Hall, 1990. If you dream about finding out how it all works, this is one source for you.
- Stoll, Clifford. *The Cuckoo's Egg: Tracking a Spy Through the Maze of Computer Espionage*. New York, Doubleday, 1989. An Internet suspense thriller.
- Tennant, Roy, John Ober, and Anne G. Lipow. *Crossing the Internet Threshold: an Instructional Handbook*. Library Solutions Press (1100 Industrial Road, Suite 9, San Carlos, CA 94070), 1993. An instructional and training manual about the Internet.

The following publications are available through the Internet itself:

Kehoe, Brendan P. *Zen and the Art of the Internet: a Beginner's Guide to the Internet*. 1992. Another very useful introductory guide to the Internet.

St. George, Art. *Internet-Accessible Library Catalogs & Databases*. A remarkable listing of library catalogs available over the Internet with instructions for logging on and searching each system.

SURAnet Guide to Selected Internet Resources. SURAnet Network Information Center. (Updated frequently) A comprehensive guide to the wide variety of databases and information available over the Internet.

APPENDIX A

CABLE FROM E BUREAU TO POSTS DESCRIBING PROJECT

APPENDIX B

PROPOSAL FROM EUnet TO PROVIDE INTERNET SERVICE TO FULBRIGHT COMMISSIONS

To: 74140.55@compuserve.com
Subject: EUnet service quotation as previously discussed
Cc: glenn@mcsun.EU.net
Date: Tue, 23 Mar 1993 21:37:50 +0100
Sender: glenn@mcsun.EU.net

Judy Baker and Michael Cooper,

As requested, the following are prices and terms of EUnet services in five European countries specifically packaged for the Fulbright Program. Each of the EUnet national service providers listed below will support a separate "single user login" for each of six (6) Fulbright participants. Each login will provide access to interEUnet (EUnet's brand of Internet) services, including Internet-style E-mail (RFC-822), file transfer (FTP), remote login (TELNET), and local disk space.

InterEUnet service effectively provides access to the entire Internet via EUnet's peer agreements with major European networks and our trans-Atlantic link to US nets including the NSFnet, the regionals, and the commercial IP providers as accessed by the Commercial Internet eXchange (CIX).

Although still looking, we are not yet able to provide EUnet services in Turkey or Greece.

Each Fulbright subscriber may:

- Send 100 msgs/mo,
- Send 100 kbytes/mo, 70% to US, 30% Intra-European,
- Connect 25hrs/mo,
- Transfer (FTP) 15 MB/mo, and
- Retain 5 MB standing disk space

In general, there will be no hard fixed limits on resource use. Rather, we will monitor use and, if significant exceptions are noted, we will discuss additional charges with you (we do not have a schedule of such charges at this time, but you may expect them to be consistent with the price schedule below). Similarly, if you should wish to obtain more connections, our price quotes will be in line with the prices above.

This offer includes moderate levels of telephone support. Although training is available, we do not yet have a quote. I recommend we discuss this at a later date. We also do not yet have a price for a pan-European "travelers" dial-up service.

We expect that you will take this offer to each of the EUnet National service providers listed below and sign local service agreements under the terms below, plus local payment. Our national service providers may wish to convert the quotations below into local currency at prevailing rates.

The previous offer of up to 5 test subscriptions for up to 3 months in one country (or at most a total of 5 connection in 2 countries) still stands.

EUnet National InterEUnet Dial-Up Prices for the Fulbright Program in 1993 are:

Germany

200 ECU/mo for 6 subscribers.

Italy

300 ECU/mo. for 6 subscribers.

France

300 ECU/mo. for 6 subscribers.

Belgium

200 ECU/mo. for 6 subscribers.

Hungary

300 ECU/mo. for 6 UUCP dial-up service subscriptions.

(Note: we are discussing a single-user interEUnet subscription, but are not yet able to make an offer.)

Please also note that we have discovered that EUnet-Spain has been providing services to the Fulbright program at least since 1992. Contact information for each of the above EUnet countries including Spain is provided below.

Please call me in Amsterdam if I can be of any further assistance.

regards,

Glenn Kowack
Eunet Chief Executive

National contact information follows

Country: Belgium
Domain: be
Network-Name: EUnet in Belgium

Contacts: Pierre Verbaeten Backbone Manager, pv@Belgium.EU.net

Address: Dept. Computer Science
Address: K.U.Leuven
Address: Celestijnenlaan 200A
Address: B-3001 Leuven

Phone: +32 16 201015
Fax: +32 16 205308

Leased Lines: 19.2K to mcsun

Basic Services: mail,news, interEUnet
Other Services: netdir mirror

Country: France
Domain: fr
Network-Name: Fnet

Contacts: Yves Devillers, Network manager, Yves.Devillers@inria.fr
Contacts: Chantal Girodon, secretary, Chantal.Girodon@inria.fr

Address: Association Fnet
Address: 11 rue Carnot
Address: F-94270 Le Kremlin-Bicetre, France

Phone: +33 1 39 63 55 34 (answering machine)
Phone: +33 1 39 63 55 96 (secretary)
Phone: +33 1 39 63 55 75 (operations)
Phone: +33 1 45 21 02 04 (Fnet Association phone support)
Fax: +33 1 46 58 94 20 (Fnet Association fax)

Leased Lines: 64k to mcsun

Leased Lines: share of the 128kbit/s Rocquencourt-Sophia Antipolis

Basic Services: mail,news,interEUnet,dip (dialup-ip access to Internet)
Other Services: hotline, tutorials, IP/ISDN, uucp/ISDN
Archive Serv.: infoserver, specialized anonymous ftp

Country: Germany
Domain: de
Network-Name: EUnet Germany

Contacts: Andreas Schachtner, ip,x25, afs@Germany.EU.net
Contacts: Axel Pawlik, management, ap@Germany.EU.net

Address: EUnet Deutschland GmbH
Address: Emil-Figge-Str. 80
Address: D-W-4600 Dortmund 50

Phone: +49 231 755 2444 (Hotline and answering machine)
Phone: +49 231 755 2483 (For urgent calls only !)
Phone: +49 231 755 5135 (Axel and Andreas)
Fax: +49 231 755 2386

Leased Lines: 64k to mcsun (128k ordered)
Leased Lines: 64k to POP Hamburg
Leased Lines: 64k to POP Munich
Leased Lines: 64k to POP Berlin
Leased Lines: 64k to POP Frankfurt

Basic Services: mail, news, interEUnet
Other Services: mirror, netdir, hotline, POP structure
Archive Serv.: mailserver, pd-tape-service, notifier, wais, gopher

Country: Hungary
Domain: hu

Contacts: Nandor Horvath BB manager, horvath@sztaki.hu
Address: Computer and Automation Institute
Address: Hungarian Academy of Science (SzTAKI)
Address: Victor Hugo u. 18-22
Address: H-1132 Budapest, Hungary

Phone: +36 1 1497986
Fax: +36 1 1297866

Leased Lines: Budapest-Linz

Basic Services: mail, news

Country: Italy
Domain: it

Network-Name: IUnet

Contacts: Joy Marino, Overall management, joy@iunet.it
Contacts: Alessandro Berni, IP,external relations, ab@iunet.it
Contacts: Alex Regoli, uucp, mail, alex@iunet.it
Contacts: Bruno Bigon, full time operator, bb@iunet.it

Address: IUnet
Address: DIST, Universita' di Genova
Address: Via Opera Pia 11A
Address: I-16145 Genova, Italy

Phone: +39 10 353 2747 (Hotline and answering machine)
Fax: +39 10 353 2948

Leased Lines: 64 kbit/s to Sophia Antipolis
Leased Lines: 64 kbit/s Genova-Milano
Leased Lines: 64 kbit/s Genova-Roma
Leased Lines: 64 kbit/s Genova-Torino

Basic Services: mail,news,interEUnet,POP structure
Other Services: hotline
Archive Serv.: pd-tape-service, ftp server

Country: Spain
Domain: es

Network-Name: EUnet-Spain

Contacts: Jose A. Manas, General management, pepe@dit.upm.es
Contacts: Inmaculada Pindado, News, inma@dit.upm.es
Contacts: Jose Maria Rivero, IP,X25,Sendmail, jose@dit.upm.es

Address: Depto. de Ingenieria Telematica (D.I.T.)
Address: Escuela Tecnica Superior de Ingenieros de
Address: Telecomunicacion
Address: Ciudad Universitaria s/n
Address: 28040 Madrid, Spain

Phone: +34 1 336 73 25
Fax: +34 1 543 20 77

Leased Lines: IXI

Basic Services: mail,news
Archive Serv.: locally developed

APPENDIX C

PRICES OF EUROPEAN INTERNET SERVICES

This appendix summarizes the prices we have been able to locate for Internet services in Europe. We have included information on fees for other services in addition to those arranged for Fulbright offices in order to give a general idea of what fees might be encountered. The data was gathered between January and August 1993.

In order to make some of the costs more understandable and comparable, usage levels were developed for a **Hypothetical User** and costs were calculated for this user. The characteristics of this usage are as follows:

1. The user will send 100 e-mail messages per month--half incoming, half outgoing.
2. There will be 100 Kilobytes of e-mail data transmitted per month, both sent and received. Of that volume, 70% will be sent and received between the host country and the U.S., and the remainder will be between the host country and other European countries.
3. The user will be connected to the host machine 25 hours per month.
4. FTP activity will result in 15 megabytes of data transferred per month.
5. The host computer will store 5 Megabytes of user e-mail files and data files before being downloaded to the user's personal computer.

BELGIUM

Two price figures are available for the use of the Internet in Belgium. Both assume services provided from the EUnet supplier in Belgium, the Belgian Unix Users Group (B.U.U.G.), but one is the price provided by EUnet headquarters as part of its proposal to the Fulbright Commissions, and the other is a price quoted directly from B.U.U.G.

1) Internet Access through B.U.U.G. under the EUnet Agreement

The EUnet agreement offers Internet service to 6 users for 200 ECU/month (1 ECU=\$1.19 on 23 March 1993 - the day of the proposal). Therefore the service would cost \$238, or \$39.66 per user per month. This price is for the level of service for the Hypothetical User described at the beginning of this Appendix. The exact terms and conditions are spelled out

in Glen Kowack's proposal which can be found in Appendix B.

2) Internet Access Directly through the Belgian Unix Users Group (B.U.U.G.). [Assume \$1 = 32 Belgian Francs (BF)].

B.U.U.G. Annual Membership for organization: 13500 BF
Monthly Mail subscription fee for organization: 1600 BF

Volume charges:

Each account would be charged for the volume of mail sent and received, as follows:

Mail within Belgium 1.5 BF/Kb
Mail within Europe: 2.5 BF/Kb
Mail out of Europe: 4.5 BF/Kb

There would also be a connection time based charge and B.U.U.G. cannot yet tell us exactly what that will be.

Price Information for the **Hypothetical User:**

B.U.U.G. Annual Membership for organization:	\$422
Yearly Mail subscription fee for organization: (50 x 12 months)	\$600
Total fixed cost per year:	<u>\$1022</u>
Total fixed cost per month:	\$86.16

Volume charges per account per month:

Mail within Europe:	\$2
Mail out of Europe:	<u>\$10</u>
Total volume cost per month per account:	\$12

For six accounts, this would amount to \$26.19 per account per month, plus some unknown connect time charges

DENMARK

The Danish Fulbright Commission gets two accounts from an organization called UNIC, for which they pay a 240DKR yearly fee and 11 DKR/hour connect time (1/2 that amount at night, beginning after 16:30) Their monthly fees, altogether come to about 350 DKR/month, or about \$56. (As of March 1993 the exchange rate was \$1 = 6.2 DKR).

FRANCE

1) The head of Reference Services (Jacques Foule) at the Bibliotheque Public du Centre George Pompedou (Pompedou Center Library) in Paris uses the Internet extensively. He gets access to it through an account at the University of Rennes. The cost is about 400 French Francs (FF) per year or \$64. (\$1 = 6 FF in August 1993). The service is fee-based and Foule uses it about two hours per day. There is also an additional fee for telecommunications services (packet switching) to connect from Paris to Rennes. This is paid to the French PTT and amounts to about 13 centimes per minute of connect time (about \$.02).

2) The Centre de Calcul Recherche at the University de Paris VI - Jussieu is currently offering accounts to the Fulbright Commission in Paris without charge.

GREECE

The Director of the USIS library in Athens, Mary Tseroni, reports that the library currently has two computer accounts which have access to the Internet. These accounts are from the Democritus Research Center in Athens. The fee for the accounts is about \$45 per month for both (\$22.50 per account). However, each account was limited in usage to two hours of connect time per day as of March 1993.

ITALY

1) The AGORA system provides only electronic mail Internet services and charges 100 Italian Lira/message for each message sent or received (US \$.08 as of March 1993). There is also a charge of 50 Lira per Kilobyte per month of data transmitted on the system (US \$.04). For our Hypothetical User, we project that the cost would be \$8/month for messages + \$4/month for volume, for a total of \$12/month.

2) Consiglio Nazionale delle Ricerche (CNR). We are lead to believe that the cost of an account at CNR may be free to the Fulbright Commission on receipt of a letter requesting the service.

3) The IUnet system (part of EUnet) quoted one price structure for its services in Italy when they were supplied directly and another as part of the EUnet proposal made to the Fulbright Commissions from EUnet Headquarters in Amsterdam.

Direct price:

\$16/month monthly charge plus \$0.20/connect minute. This comes to \$316/month for the Hypothetical User.

Price through EUnet offer:

300 ECU/month (1 ECU=\$1.19 as of March 1993) for 6 accounts. This comes to

\$357 for 6 subscribers, or \$59.50 for each account.

SWEDEN

One computer account with access to the Internet is being provided free of charge to the Swedish Fulbright Commission by the Royal Institute of Technology (Kungliga Tekniska Högskola, also known as KTH).

TURKEY

Internet access is being provided without cost to the Fulbright Commission office in Ankara through the Middle East Technical University in Ankara.

INTERNATIONAL INTERNET SERVICES

The prices presented above are specific to individual suppliers in individual countries. We know of two suppliers who offer accounts with full or partial access to the Internet which can be dialed into through local telephone numbers from a large number of geographical locations throughout the world. In certain circumstances this sort of service could be useful for the Commissions. The two providers are Compuserve Information Services in Columbus, Ohio, and The Well, located in Sausalito in the San Francisco Bay Area. Each supplier provides a large number of local telephone numbers into which a user can dial from various locations and be connected to the service in the US. The cost of the telephone connection is less than the cost of a direct dial phone call to a computer in the US. Once the user is connected to the service's machine, electronic mail over the Internet can be sent and received, and in the case of The Well, TELNET and FTP services are also available.

1). Compuserve Information Services. (Prices are quoted as of August 1993).

Compuserve provides a forum for discussion between users and between users and vendors of software and hardware issues for personal computers, and it is a repository of a large quantity of public domain software. But one of the services it offers is a gateway for Internet electronic mail.

Compuserve charges a monthly fee of \$8.95 for its basic service. In addition, there is an hourly connect charge which is dependent on the baud rate with which one is connected, and on which of two pricing plans one is using. In the US the hourly connect charge for 1200 or 2400 baud is \$8/hour under the standard plan. At 9600 baud the rates are \$16/hour with the standard plan. When Compuserve is used in European countries, there is an additional network connect charge which covers the communications charges to the US. The rate varies by country and by the time of day the connection is made. The following list summarizes the charges per hour for some of the countries covered in this report:

Communications Charges in \$ Per Hour

	Non-Prime Time	Prime Time
Austria	11.00	11.00
Belgium	0.00	7.70
Denmark	11.00	11.00
France	0.00	7.70
Germany	0.00	7.70
Hungary		
(300, 1200, 2400)	8.00	10.00
(9600 baud)	21.00	35.00
Italy	11.00	11.00
Netherlands	0.00	7.70
Sweden	0.00	7.70

The hours that constitute prime- and non-prime time in each country vary. The rates given above are for the use of the Compuserve Information Network (except Hungary and Italy) and are generally the lowest of all alternatives for communicating with Compuserve in a country.

The cost of sending mail in Compuserve is a function of the number of pages sent. Each user gets \$9.00 in credit to use for sending e-mail each month. This is about 60 3 page messages (assume 2,500 characters/page) free per month. Once this quota is exceeded, Compuserve charges the following rates: Send: 1st 7500 characters \$0.15 and each additional 2500 characters \$0.05. To download e-mail to your local personal computer the charges are \$0.15 for the first 7500 characters, and \$0.05 for each additional 2500 characters.

For the Hypothetical User described in Appendix B, the costs would be:

\$8.95	membership per month
\$200	connect time (\$8 x 25 hours)
\$250	network charges (average of \$10/hr (\$10 x 25)--could be \$0 in most places in non-prime time)
\$0	mail charges (probably would be within the \$9 credit allowed by CompuServe)
<hr/>	
\$458.95	

Since only e-mail is offered by CompuServe, the costs would likely not actually be this high because relatively little time is used for e-mail compared to large amounts of time that can be eaten up with FTP and TELNET, both of which are not available on CompuServe.

2) The Well (Prices as of August 1993)

The Well offers the full range of Internet services including electronic mail, TELNET, and FTP. It also provides a bulletin board service, and news groups online.

The prices for the service are \$15 per month plus \$2 per hour. Users are allotted 512K bytes of storage space free and after that they pay a fee of \$20 per 1024K bytes per month for the excess. Users of The WELL can use the CompuServe communications network (described above) to connect into The Well. When this mode is used there is a supplementary charge in addition to the \$2 per hour. In the 48 United States the surcharge is \$4/hour and from Alaska, Hawaii, and Canada the surcharge is \$6/hour. The European surcharges when using CompuServe's packet network range from \$12 to \$15/hr.⁵ There are no extra charges for other activities such as sending electronic mail or performing FTP or TELNET operations.

⁵

Note that The Well's charges for communication through CompuServe's network are higher than those charged by CompuServe.

For the Hypothetical User, the charges per month would be:

\$15/mo	monthly charge
\$50/mo	basic connect-time charge
\$300/mo	connection through CompuServe Packet Network to Sausalito from Europe.
	Assume \$12/hour

\$365 per month per account

APPENDIX D

INTERNET ELECTRONIC MAIL ADDRESSES OF FULBRIGHT COMMISSIONS AND POSTS

The following is a list of the e-mail addresses we were able to discover for Fulbright Commissions offices around the world. There are undoubtedly others that we did not learn about, and the number of Internet users is growing continually.

Fulbright Commission Internet E-Mail Addresses:

Brazil:	Nilza Waldeck, Head of Office and Senior Educational Adviser, Fulbright Commission-Rio de Janeiro: FULB@BRLNCC Rita Monteiro, Educational Adviser, Rio de Janeiro: FULB@BRLNCC	
Denmark:	fulbms@uts.uni-c.dk	
Ecuador:	Lucila Perez, Educational Adviser lperez@espoledu.ec	
England:	Janice Finn, Head Adviser: MA_S423@titan.kingston.ac.uk	
Finland:	Fulbright office: fuseec@csc.fi Terhi Molsa: molsa@csc.fi Maarit Tarjanne, Acting Educational Adviser: fuseec@convex.csc.fi	
France:	collomb@ccr.jussieu.fr (guest acct.--address may change)	
Israel:	USIEF@zeus.datasrv.co.il	
Netherlands:	Siebelien Felix, Educational Adviser: iebelien.Felix@NACEE.NL Lynne Lerner: Lynne.Lerner@NACEE.NL	S
Spain:	claudia@comision.fulbright.es	
Sweden:	guest1@kth.se	

Taiwan: Julie Hu, Educational Information and Exchange Officer:
grfg146@twnmoe10.bitnet

Turkey: fulb-ank@vm.cc.metu.edu.tr

USIS Library Internet E-Mail Addresses:

Belgium: usinfo@ub4b.buug.be

France: leroy@ccr.jussieu.fr (guest acct.--address may change)

Germany: usislib@uni-bonn.de (NOTE: this is an alias for:
m00400@work2.rhrz.uni-bonn.de)

Greece: mtse@leon.nrcps.ariadne-t.gr
ekou@leon.nrcps.ariadne-t.gr

Italy: e-mail address of USIS computer center:
n.iacoella@agora.stm.it

Norway: z_naess_p@kari.uio.no

APPENDIX E

INDIVIDUALS CONTACTED DURING PROJECT

Austria

Dr. Gunter Fruhwirth, Executive Secretary of the Austrian-American Educational Commission

Rod Post, Cultural Affairs Officer
Roswitha Haller, USIS Library Director
Leo Hurley, Regional Library Officer

Douglas Kahn, Central European Environmental Data Request Facility, Vienna
Dr. Harriet Zais-Gabbert, Energy and Environmental Organization, United Nations Industrial Development Organization, Vienna

Belgium

Margaret Nicholson, Executive Director of the Commission for Educational Exchange Between the United States of America, and Belgium and Luxembourg

Mary Ignacius, Cultural Affairs Officer
Eddy Olislaeger, USIS Library Director

Jean Huens, Katholieke Universiteit Leuven, Departement
Computersetenschappen

Denmark

Mrs. Mette Skakkebaek, Executive Director, Commission for Educational Exchange Between Denmark and the United States of America

Honora Rankine-Galloway, Cultural Affairs Officer
Karen Sorensen, USIS Library Director

Finland

Terry Molsa, educational advisor, Fulbright Commission (by e-mail)
John Hopkins, University of Tampere, Finland (by e-mail)

France

Pierre Collombert, Executive Director, Franco-American Commission for
Educational Exchange
Veronique Bourgerolle, Fulbright Commission

C. Miller Crouch, Deputy Public Affairs Officer
Mary Gawronski, Cultural Affairs Officer
Ann Stenzil, Deputy Cultural Affairs Officer
Maguy LeRoy, USIS Library Director

Jean-Claude Girard, Directeur, Centre de Calcul Recherche, Universite Pierre et
Marie Curie - Paris VI
Jacques Faule, Librarian, Bibliotheque Public d'Information at Centre Pompidou
Jack Kessler, Visiting Scholar, Department of Library Science, University of Leon

Germany

Dr. Ulrich Littmann, Executive Director, Commission for Educational Exchange
between the United States of America and Germany

Dr. Bruce Armstrong, Assistant Cultural Affairs Officer
Cynthia Miller, Public Affairs Officer
JoAnn Clifton, Executive Officer
John Lavelle, Deputy Executive Officer
Helmut Fischer, Assistant Information Officer
Jürgen Bodenstein, Editor, American Studies Newsletter
Susan Aramayo, Country Librarian
Aurelia Tigler, Usis Library Director, Bonn
Dr. Cornelia Voss, Librarian, Amerika Haus, Berlin

R. Scheffel, Computer Center Technical Support, Regionales
Hochschulrechenzentrum der Universität Bonn (RHRZ)
F. Bopp, Computer Center Technical Support, Regionales
Hochschulrechenzentrum der Universität Bonn (RHRZ)

Greece

Mary Tseroni, USIS Library Director (by e-mail and telephone)
George Dariotis, OSEAS-European Coordinator (by fax)

Hungary

Dr. Huba Bruckner, Executive Director, The Hungarian-American Commission
for Educational Exchange (by letter)

Judith Greenspan, Deputy Cultural Affairs Officer
Agota Szilagy, USIS Library Director

Italy

Dr. Carlo Chiarenza, Executive Director, Commission for Educational and
Cultural Exchange Between Italy and the United States of America

Warren Obluck, Cultural Affairs Officer
Danieli Fiorentino, USIS
Eno Iacoella USIS Computer Center
Cynthia Borys, Regional Library Officer
Lela Crespoliti, USIS Library Director

Alessandro Berni, IUnet Network Operations Centre, Universita' di Genova (by e-
mail)

Simona Longo, Centro Elaborazione Dati, Consiglio Nazionale delle Ricerche,
Rome (by phone, through L. Crispolti, followup attempts by e-mail and
post)

Guido Carboni, Associate Professor of American Literature, Universita degli
Studi, Torino

Spain

Claudia Costanzo, Fulbright Commission (by e-mail)

Sweden

Jeannette Lindström, Executive Director of the Commission for Educational
Exchange between the United States of America and Sweden,

Jan Olaf Nyman, USIS Library Director
Runar E. Björn, USIS Computer System Manager

Turkey

Dr. Ersin Onulduran, Executive Secretary, Commission for Educational Exchange
Between the United States of America and Turkey
Selim Aytaç, Financial-Administrative Assistant, Fulbright Commission, Ankara
Süreyya Ersoy, Director, Educational Advisor, Fulbright Commission, Istanbul
Office

Benjamin Whitten, Cultural Affairs Officer
Mary Ann Whitten, Information Officer

Semra Akkaya, Librarian, Ankara
Gediz Berktin, Librarian Ankara
Selda Tirpanci, Librarian Ankara
Gulsan Bekem, Librarian Ankara
Gülдерin Dinc, USIS Library Director, Istanbul
Aysa Ozakinen, USIS Librarian, Istanbul
Yasemin Atuk, USIS Librarian, Istanbul

Prof. Dr. Aybar Ertepinar, Vice President for Academic Affairs, Middle East
Technical University (METU)
Prof. Dr. Omer Anlagan, Director, Computing Center, Middle East Technical
University (METU)
Dr. Yasar Tonta, Department of Library Science, Hacettepi University, Ankara
Murat Sakarye, Robotics Corporation, Istanbul

Other

Glenn Kowack, EUnet Chief Executive
Matisse Enzer, The Well (by e-mail)

APPENDIX F

USING E-MAIL IN ADVISING AND GRANTS ADMINISTRATION

This appendix contains the text of an article prepared by Terhi Molsa, Educational Adviser, Finland-United States Educational Exchange Commission, Helsinki, Finland. The article appeared in the Fall 1992 issue of *Advising Quarterly*, and is reproduced with permission of the author. It is included in this report because it presents an excellent overview of the use of the Internet by one of the groups this project is trying to reach.

USING E-MAIL IN ADVISING AND GRANTS ADMINISTRATION

by

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Reprinted from *Advising Quarterly*, Fall 1992

The Finland-U.S. Educational Exchange Commission (FUSEEC) in Helsinki sent its first e-mail message in March 1992. Three months later, the Commission's staff members were all true e-mail enthusiasts who would never again be willing to go back to the time before e-mail. In the following I will share with you why and how FUSEEC obtained e-mail, what it cost, what benefits we have received from it, and illustrate from our experience what e-mail benefits are also available to other international education and advising offices.

WHY E-MAIL?

FUSEEC has a three-person staff which both administers the Finnish Fulbright program and also operates the only national U.S. Advising Center in Finland. The FUSEEC Advising Center currently handles nearly 10,000 requests a year, with the number steadily growing.

However, similar to the recent experiences of other overseas advising and international education offices, budget cuts have reduced both our staff size and operational funding. With a reduced staff, which has dropped from five to three in the past two years, and new budget limits, it has become increasingly unrealistic for us to handle our growing workload and keep up the quality of service -- even with staff generously contributing a considerable amount of overtime.

It became clear that we had to explore new ways to respond to the greater demands on our services, and even try to improve these services. At the same time we had to make our staff workload manageable: less exhausting, yet within our budget limits.

One of our major problems had been communications. Both advising and the administration of grants require extensive contacts and correspondence. Messages move from one person to another, with the phones ringing constantly. For FUSEEC, communications using traditional means is expensive and time-consuming. By ordinary mail, in order to transfer even one short sentence of information to another person one has to type the message, print it out, put it in an envelope, write the address, attach a stamp, and finally take it to the post office. Even so, without express postage the message would not reach the client until late the next day, or even weeks later if the client was outside Finland. If all I needed to say was "Yes, the dates for the orientation are ok" or "The flight gets in at noon instead of 1 pm," this did not seem to be either time- or cost-effective.

Before e-mail, our only alternatives were to stand in line for the fax machine and hope that the fax went through without an error message, or to ring up by phone (if time differences allowed) which often resulted in either a busy signal, or waiting while an operator searched for the person you wanted to talk to. And you could just hear your phone bill rocketing.

Traditional alternatives were not saving either time or money. So FUSEEC asked itself three questions: (1) Could e-mail help us reduce our communications costs? (2) Could e-mail reduce the staff time consumed on basic communications? (3) Could e-mail also provide better access to the growing numbers of clients we were being asked to serve?

In asking these questions, FUSEEC faced many typical problems. Phone bills, fax charges, regular postage, express mail, copying and paper costs are a major administrative expenditure in many Fulbright commissions and advising centers. In Finland, prices start high and just keep increasing. With our reduced budget we seemed to have only two options -- to either find a "miracle solution" to reduce the costs, or start charging our clients.

At the same time that our office was struggling just to handle our regular chores there was growing demand to provide even more information to clients in the field, especially to university staff and students throughout Finland. The disproportionate percentage of routine chores in the work of our entire staff left very little (if any) time for new projects, let alone professional development. How could we do more if we were already working overtime just to try to keep up with our routine information demands?

The integration of traditional advising centers with university- based advising offices was one of the themes of the OSEAS-Europe 1991 Conference in France last December. Finnish universities have been linked electronically for years, and a major part of both intra- and inter-university communication already takes place via this network. We knew that many university advisers routinely communicate by e-mail. Could the integration of our office with university-based advising centers be effective if we were not using the same means of communications as they were?

So, inspired by several AQ articles during the past year, which suggested that e-mail just might be the "miracle solution" to many of our problems, we decided it was worth a try, and began to investigate whether it was possible for FUSEEC to obtain access -- and preferably free access -- to electronic mail.

WHAT MAKES YOU HESITATE?

When you work for a relatively big institution, such as most Finnish universities, and you would like to learn about e-mail or obtain access to it, all you do is call up the person designated to advise the staff in computer-related matters. My guess is that in most small advising offices the designated person is YOU. You must learn the technology by yourself, you must purchase the equipment by yourself, you must justify the expenditure for the equipment, you must teach yourself to use the equipment and the software, and you must also learn the computer terminology yourself. (And in my experience computer terminology has a tendency of being very intimidating.)

If the above is true for you I can see why you would hesitate. My question last year was how I was going to find the time to learn all these new things. It seemed impossible to do it during regular working hours. I also didn't know any other Fulbright commission adviser already using e-mail who could share experiences. But I decided to gamble on future gains in time and money and take the risk. During a few long winter nights last year and, to be truthful, after several semi-severe frustration attacks, I realized that learning how to use e-mail is not as complicated as you might think, and there is plenty of help available any time you have a problem.

HOW WE OBTAINED E-MAIL

We knew that universities in Finland used electronic mail. Thus, our first step was to call a university and inquire how they obtained e-mail. I was referred to the Finnish Ministry of Education. The Ministry owns and maintains a computer called CONVEX which is exclusively for universities, research centers and similar institutions in academic education or research in Finland. The Ministry provides free access to the computer, and thus to electronic mail, for these institutions. In our case, the Ministry had never before received a request from an institution such as FUSEEC, so they had to consider rather carefully whether we qualified as a "similar institution" in order to get a free account.

We felt we had a strong case. First, as a binational commission, FUSEEC is partially funded by the Finnish Ministry of Education. Thus, defraying costs would really save the Ministry's own money. Second, FUSEEC is a strong promoter of Finnish higher education abroad. Third, Finnish university staff and students are our primary clients and, therefore, we serve precisely the academic community for which the Ministry computer was meant. So, we applied for an account, and in due course the Ministry decided to approve it and granted us free access to the computer.

I then called the Center for Scientific Computing (CSC), the institution where the Ministry computer is located, and which handles technical matters involved in accessing the computer. CSC provided FUSEEC a user name and general instruction on how to access and use the e-mail system on the Ministry's computer.

FUSEEC was fortunate, since we already had both microcomputers and phone lines -- the most important equipment needed to access electronic mail. We only needed to purchase a modem and obtain the communications software to connect our computers and modem to the Ministry's computer. I then looked up John Hopkins' article in the Winter 1991 Advising Quarterly, "The Marvels of Telematics for Advisers", and literally followed its instructions. It gives excellent advice on how to get started.

Nonetheless, one is bound to have some initial problems in using electronic mail, especially if one has never used it before. What do you do then? In Finland, the CSC was an excellent resource for information on any technical questions related to the Ministry computer. But for questions specifically concerning the use of electronic mail in international education, NAFSA was by far our best source. NAFSA's MicroSIG members especially were generous in offering their help. (And once you learn to send your first e-mail message you have the channel to consult any e-mail expert anywhere in the world.)

MicroSIG offers a variety of sessions on e-mail in NAFSA's annual conferences. Recently MicroSIG has also undertaken the development of a "Layered-Training Program" to help the NAFSA membership better use electronic mail and electronic resources. And one of the nice things is that one does not have to be a computer wizard in order to ask questions in MicroSIG sessions or ask for help from their members.

HOW FUSEEC USES E-MAIL

The most important use of e-mail in the FUSEEC office is sending and receiving messages. This is particularly useful during the application and placement process of Finnish Fulbrighters, when fast contacts and daily consultation are needed. This year, about half of our outgoing grantees were active e-mail users at their universities, and the quickest way by far to reach them was by electronic mail. Grantees also often manage to obtain access to e-mail once they arrive at their U.S. university, which makes them independent of time zones and cost factors whenever they want to communicate with our office in Finland.

FUSEEC also has close contacts with university advisers in Finland, who handle a significant proportion of the primary advising work at their institutions. Since many of these advisers are also e-mail users, transmitting the information they need on the U.S. education system and FUSEEC grants is easiest by e-mail. Thus e-mail allows FUSEEC to cooperate much more closely with Finnish universities than was possible before, which has made our advising both more efficient and less time-consuming.

Reaching colleagues in other countries is equally easy with e-mail, as the barrier of different time-zones becomes irrelevant; you have 24-hour availability. For me to receive current cost figures for tuition, housing or insurance from U.S. university colleagues for our grantees is suddenly quick and easy. I send a query in the afternoon before leaving work, and the answer is in my e-mailbox the next morning -- cost-free. I don't even have to re-type the information to print it out.

A second use of e-mail is subscribing to e-mail discussion lists. One important list for advisers is the "Inter-L" electronic

forum run by MicroSIG for NAFSA. Inter-L gives you an opportunity to follow as well as participate in an ongoing discussion on the practical implementation of international educational affairs. This has helped us be more informed of new developments in the field, and has also provided a rich source of new contacts for FUSEEC programs in the U.S., as well as helping U.S. colleagues learn more about study and research opportunities in Finland.

The third important function of e-mail for us is the telematic retrieval of documents from remote computer archives. You may retrieve from Inter-L, for instance, the current electronic mail- address and fax-number directories of NAFSAns, which MicroSIG updates monthly, and a variety of reference documents.

As an additional example of e-mail usage, I might mention that one of our Finnish Fulbrighters currently in the United States has set up an electronic mail network which allows for all the grantees who attended with him the USIA pre-academic program in Seattle last summer to keep in touch during their academic year in the U.S. This network has flourished, preserving the close ties which the Fulbright group developed during their pre- academic program and allowing both information exchange and one- to-one as well as general discussions on a variety of topics.

WHAT ARE THE ADVANTAGES OF E-MAIL?

The first major benefit of e-mail for the FUSEEC office was savings in both time and money. E-mail is clearly reducing our costs for copying, postage and fax messages. The exact bottom line is difficult to count as yet, but after having used e-mail for a few more months we will be able to calculate and provide any interested office an estimation of how much money we have been saving -- money which can be then be invested in more grantees, or other program development.

Our savings in time, however, we noticed immediately. E-mail is freeing our entire staff from an enormous amount of routine work. Many messages are now transmitted by just a push of a button without the old printing, address writing and licking stamps routine. Put simply, more things are getting done. Along with this I would also like to emphasize the significance of greater job satisfaction through the reduction of routine work.

The second benefit of e-mail for FUSEEC has been improved contacts and networking. Professionals who are used to e-mail now have much more contact with our office than before. Some mailing lists that we are now on exist only via e-mail. E-mail also enables communication which otherwise would be difficult or almost impossible. For example, FUSEEC frequently consults with the new advising offices in Estonia. Despite the geographical closeness of Estonia with Finland, ordinary postal service and telephone connections between the two countries are not adequate. At present case e-mail is not only the fastest and most reliable means of communication -- it is also the only practical means.

The third benefit of e-mail is increased knowledge in the field of international education. Partially this is brought about by increased contacts, but also by more availability of information. For instance, the INTER-L electronic network that MicroSIG has been running for NAFSA since 1989 is a wonderful source of information and contacts in the U.S. It lets us participate directly in the discussions of international educators in the U.S. and abroad on a variety of themes ranging from foreign student advising, admissions and testing questions to credential evaluations and questions of ethics.

The fourth benefit of e-mail is its capacity and usability. In a small office it may be difficult to arrange for a business trip of one of the staff members, not only for budget reasons but simply because everyone is needed in the office. However, in May 1992 when I attended the NAFSA Conference in Chicago I was as equally reachable by many of my clients as if I had been in my own office in Helsinki.

Using the "NAFSACON" e-mail connection which MicroSIG operates during NAFSA conferences, I was able to check my electronic mailbox in Finland from Chicago just as easily as I do it in my office in Helsinki. I replied to the messages I had received, and also sent messages to 1992-93 Finnish Fulbrighters for whom I had promised to check a few details in Chicago. They received the information they had asked for instantly -- and at no cost -- when I was still 7000 miles away from Finland. No matter how familiar our grantees were with the wonders of electronic mail, this time even they were amazed.

Other benefits of e-mail are more psychological in nature. Commission advisers, especially in one-adviser-per-country situations, often feel isolated from other advisers. With electronic mail, colleagues from all parts of the world can communicate with each other just as easily, and "feel" as close to each other professionally, as colleagues in the same city. E-mail also brings you closer to other professionals in the field. Distances lose significance; there is much less feeling of isolation. A country such as Finland, while geographically peripheral, can move to the very center of events in the field.

HOW WE PAID FOR IT

As our office already had a computer and phone line the only purchase we needed to make was a modem. We received communications software along with the modem at no extra cost. However, we had no money budgeted for the modem. Our solution was the following. The FUSEEC Advising Office sends out undergraduate and graduate information packages to students interested in study in the U.S. This thick package of information is designed to answer all routine questions; everyone is required to read it before consulting the adviser personally.

These packages have proven very successful, but they are expensive to mail. FUSEEC has a policy of not charging for basic materials. However, beginning in January 1992 we required each student wishing to receive the package by mail to send us a self-addressed stamped envelope. For the student it is a minor cost. For FUSEEC, however, it saves about \$1500 a year. We decided to invest a small percentage of this money in the modem and any other incidental costs that may occur from using electronic mail.

One such incidental cost would be a telephone line installation if that needs to be made, or modified. Another cost might be phone charges. When we use electronic mail we call up the main computer at CSC, using our modem. While this is only a local Helsinki phone call, it does mean that for the entire time we remain on the line we pay a local phone call charge. During the first weeks, when we were experimenting with the system and learning how to use it, we incurred a telephone bill which was much higher than usual. Later, however, after we had learned how to use the system, and also learned that if we composed our texts on our FUSEEC computer, and then hooked up to CSC only when we wanted to upload and send our messages, the charges became insignificant and our phone bill is actually declining.

WHAT E-MAIL DOES NOT DO

E-mail has not solved all our problems, but it has clearly resolved many of them. In fact, it did more than we expected. However, there are some things that e-mail does not do even if some might fear it would.

First of all, e-mail does not add work. As with any mail you receive in your in-box, you have to be selective with electronic mail. If you choose to join all the discussion lists available for NAFSAns and expect to read every message you receive you can just as well make it your full-time job. After a month or two of experimenting with e-mail one learns to process the information (read: use the delete key!) properly.

Secondly, e-mail does not replace face-to-face meetings with colleagues. But it certainly makes the occasional face-to-face meetings much more fruitful and also offers the means for much more continuous electronic contact following personal meetings. This is especially important for those of us who do not have large budgets for conference trips.

Thirdly, e-mail will not make telefax obsolete. Nor does it make any other more traditional means of communication obsolete. Because of technical or other reasons, many advisers and administrators cannot yet connect to e-mail, nor might they be able to in the near future no matter what we may hope.

But those who can (and do) access e-mail will find a "miracle" changing their advising and exchange administration work. E-mail provides a new way to reach people which reduces the need for and costs of traditional means of communication, and frees advisers and administrators to work more efficiently with greater job satisfaction than was even thinkable before. This clearly has been FUSEEC's experience, after only three months of use.

PROSPECTS FOR THE FUTURE

Following FUSEEC's connection to e-mail, the Fulbright Commission in London has now also obtained e-mail access. The U.K. Commission presents another example of how to connect to e-mail, as they obtained their account through a nearby university, Kingston Polytechnic. The internet address of the Fulbright Commission in London is MA_S423@titan.kingston.ac.uk.

It is likely that an increasing number of commissions and advising centers soon will be using e-mail. By then it will be time to realize the recently emerged idea of an independent electronic network for overseas advisers. Such a network could provide an on-line, continuously up-to-date OSEAS resource directory as well as a specialized forum for advising discussion.

Nor would the benefits be limited to advisers. Fulbright Directors and other administrative staff could also share with each other their experience and practices in grant administration much more easily than before, and also liaise with funding agencies, colleagues, and counterparts in the U.S. who are using electronic mail.

CONCLUSION

Sound too good to be true? It did to me when I first heard about e-mail. We in the FUSEEC office decided to believe the benefits only when we saw them. Now we have seen them. It may not yet be possible, either for technical or other reasons, for everyone to obtain access to e-mail, and the process of obtaining it in other countries may be much different from ours. But the possibility of access is well worth exploring. Have you investigated if it is possible for your office to be connected? There's a whole new world waiting out there, which will make a difference in your advising career.

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APPENDIX G

THE MARVELS OF TELEMATICS FOR ADVISERS

The following article originally appeared in the 1990/1991 Winter Issue of the *Advising Quarterly*. It is reprinted with permission of the author and publisher.

The Marvels of Telematics for Advisers

By

John D. Hopkins
University of Tampere, Finland

Perhaps the most important requirement for effective advising is reliable communications. Consider your advising day. Educational advisers may receive inquiries in fields ranging from circus technology to deep-sea mineral farming. Information and communications problems emerge. Where can you find, quickly, the information you are asked to provide? How can advisers verify the accuracy of information for fields in which they have never before consulted? And with the increasing demand to provide more specialized information more quickly to the growing numbers wishing to study abroad, how might advisers more efficiently distribute their knowledge, once obtained, to their clients?

The answers to such questions are being found more frequently through "telematics," the convergence of telecommunications and computerized information technology. Put simply, "telematics" means using the personal microcomputers and ordinary telephone connections with which most advising offices are already equipped to obtain, verify, and distribute information more quickly and less expensively than through traditional, manual methods.

Telematics is a freely-available resource with immense potential for educational advisers. Electronic mail (Email) enables rapid and flexible communications networking with colleagues at home and abroad. Telematics is also a research tool, enabling one to search databases and electronic library catalogues around the world. Information can be retrieved from remote computer archives, integrated into your documents, and swiftly relayed to clients. Information technology and advising requirements are a perfect marriage of supply and demand.

Personalized telematics could be one of your most powerful and cost-effective resources. More importantly, telematics will be vital to the future information needs of advising work.

NAFSA AND OSEAS SUPPORT FOR EMAIL IN ADVISING

International advisers are among the exchange professionals most able to benefit from computer technology, and organizational support is increasingly becoming available to enable advisers to use telematic resources. Since 1988, the Overseas Educational Advisers' "Professional Educators' Group" (OSEAS) in NAFSA: Association of International Educators has appointed regional liaisons to assist with the computerization of advising offices. Local computer training workshops have been sponsored.

The theme of the 1989 OSEAS-Europe Conference in Dubrovnik, Yugoslavia was technology in advising work. Of primary interest already then was electronic mail. The telematics theme will be expanded in the 1991 OSEAS-Europe conference. Email was also featured in the 1990 conference of the European Association for International Education (EAIE) in Amsterdam, and an extensive schedule of Email and other computer training sessions is being planned for the May 1991 NAFSA Conference in Boston. Email is a technology of the present, not a dream for the future.

Many advisers are already enthusiastic users of electronic mail. In 1990-1991, NAFSA's MicroSIG group, which provides advice and training on the use of microcomputers in international offices, aims at increasing the Email capacity of a broader proportion of the NAFSA community, and assist those already on Email to use electronic resources more productively. A NAFSA electronic forum called "Inter-L" is entering its third year, and has established an increasing value as a rapid communications medium for the field of international education.

How can MicroSIG and Inter-L help advisers? How can advisers benefit from electronic mail? The following reviews how Email may be used for messages to individuals or groups, queries to electronic discussion forums, and requests for documents from remote computer archives. It describes the equipment needed to use Email, and shows how advisers may use individualized telematics to obtain, verify and distribute information.

WHAT IS ELECTRONIC MAIL, AND WHAT CAN I DO WITH IT?

Electronic mail (Email) is the core of telematics. Email is basically the sending of a message from one computer to another. It may be a brief memo typed directly on an Email system, or a lengthy document composed earlier with a word-processor and "uploaded" from a micro to an Email system for transmission.

Email is always in digital, or computerized, format. Email is sometimes confused with Telefax. Fax communication, where data on sheets of paper is transmitted by telefax machines through telephone lines, is not "Email," though the technology may seem similar. Electronic mail is more versatile. Email can often be sent to a fax machine or telex terminal, for offices who are not yet on Email but do have a fax or telex. A fax machine can only transmit to other fax machines.

Microcomputers can also be fitted with "fax boards" which enable the micro to both send digital faxes to, and receive them from, other fax boards and dedicated fax machines. Microcomputers can combine communications modes which would otherwise require separate, costly equipment. Micros are amazingly adaptable.

Email has two basic functions. An Email note may be information for a person using the computer at the receiving end, or it may be a command for the receiving computer itself to perform a task automatically. The latter might be an Email retrieval command sent to a remote computer on which documents have been archived. You might tell the computer to send you one (or all) of these documents. First, if you were not already familiar with the archives, you would probably tell it to send you a list of what documents are available for you to get.

HOW TO RETRIEVE A DOCUMENT FROM A REMOTE COMPUTER

A remote computer archive is one of the services that has been provided by NAFSA's Inter-L since 1988. This service exists now, is free of charge, and is instantly available to any adviser with an EMail connection to the "Internet" -- the worldwide network of interconnected Email systems. How does it work?

The "home" of Inter-L is "VTVM2" -- a computer at Virginia Polytechnic Institute and State University in Blacksburg,

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Virginia, near Washington, D.C. VPI&SU has generously helped NAFSA develop its Email communications network. Anyone who sends the three-word Email message, "Get Inter-L Filelist," to VTVM2 will receive in return (normally within 2-3 minutes from Finland) a complete list of all document files which have been archived for automatic retrieval from Inter-L.

You would see that one of the files on this list is "NAFSANET Directry" (filenames may have only 8 characters!), the electronic mail addresses of NAFSA members, catalogued by institution and country. If you wished to have a copy of this directory, you would simply send the message "Get NAFSANET Directry" back to VTVM2, and in a few minutes you would have received in your electronic mailbox the entire directory file.

Messages can be sent at any time, independently of local working hours, holidays, or international time zones. VTVM2 operates 24 hours a day, 365 days a year. Whenever it receives a message, it will automatically respond. No human assistance is necessary. Whatever files you request will be sent to your own electronic "mailbox." The next time you check your mailbox (which may be minutes, hours or days later), you will see a note saying "You Have 'X' Mail Messages." You may then proceed to read your Email at a time convenient for your schedule.

ADVANTAGES OF ELECTRONIC MAIL

Several of the advantages of electronic mail might already be apparent. One is that it is extremely fast, particularly for communications with other countries. A second is that it is largely independent of different world time zones. One no longer has to worry about staying late to phone someone 11 time zones away, only to find the person you want still asleep or in the shower. With Email, you send the message when it is convenient for you, and the recipients read and respond when it is convenient for them.

>From my office in Finland, I often Email requests for information to the U.S. at the end of the day. Finland is 10 hours ahead of California. My request would arrive before the beginning of the working day in San Francisco. A reply might be sent from San Francisco during the day. This response would be waiting in my electronic mailbox when I arrive at my office the next morning.

But the advantages of Email are greater than simply speed and convenience. One of the most important benefits is that letters or documents received via Email are useable with one's own word-processor. Email files arrive in digital (computerized) form, just like the files we create with our word-processors. Unlike with faxed information, where we would need to re-type the data in order to use it in our own documents, an Email file can be retrieved into a word-processor, any necessary editing done, and a revised document printed minutes later.

The reverse applies for sending Email messages. To send a long word-processed document I have produced, I do not have to print it first, and then spend half an hour feeding pages into a fax machine. I can Email the digital file directly from my computer, with significant savings in both my time, and paper and printing costs. I also save the cost of the fax call.

Email is also ideal for quick and inexpensive mass distributions: it is as easy to send an Email file to 100 persons as it is to send it to one. The Email "address" I use may be that of a single user, or it may be a special "list" of an unlimited number of users which I have created and saved. By Emailing a file to either an individual address or an individual list of many addresses, I can distribute it to either one or many recipients, with no extra time or work.

EMAIL CAN PROVIDE REMARKABLE COST SAVINGS

Email is remarkably cost-effective. As one is actually only sending and receiving small units of electricity, there is an immediate savings of postal costs for paper, envelopes, and stamps. One saves on Fax costs by eliminating printing time and cost, and gaining in the "useability" of the electronic file. Moreover, the telephone connection for Email access is usually only a local call, compared to the cost of a direct long-distance or international call required for Fax access.

Email is also more precise and cost-efficient than telephone conversations. More (and more accurate) detail can be sent in written, machine-usable form, without the normal telephone time wastage of getting the right person to the phone on the other end, waiting while he searches for the information you need, and then listening to inquiries about the weather or your health while your phone bill is rocketing ever upward.

Sound too good to be true? What in fact does Email cost, and what equipment or other resources does one need to use it?

EQUIPMENT NEEDED FOR ELECTRONIC MAIL

Beginning an Email connection is often simple. If you now have a microcomputer and telephone in your office, you already have most of what you need for Email. Only two things are missing: a "modem" to connect the computer and telephone, and "communications software" to send and receive messages. Both modems and software are easily and inexpensively available.

A modem connects your computer to the telephone system. "Modem" is an acronym for "MODulate/DEModulate." The modem modulates ("changes") the digital signals from your computer into precise sound-signals which are transmitted over a telephone line. At the receiving end, another modem will "demodulate" these sounds back into digital form for the receiving computer.

One can purchase internal modems (which fit inside the computer) or external modems (which stand outside the computer). Both work the same. You connect your modem to the computer, and telephone to the modem. All telephone signals will then go through the modem. The phone will work normally except when you wish to use the modem. Your computer does not need to be turned on for the phone to work normally. You only need to turn on the modem when you wish to use it.

Most modems today have speeds of either 1200bps or 2400bps, with "bps" meaning how many "bits, or pieces of data, per second can be transmitted. A 2400bps modem is preferable for three reasons. At full speed, the transmission time is significantly faster and more cost-effective. Even at less than full speed, (2400 bps modems automatically switch to 1200 or 300bps if the "receiving" modem is slower), 2400bps modems have greater accuracy due to their more advanced technology. And the technology of 2400bps modems allows them to operate with both the U.S. "Bell" and international "CCITT" telephone standards, for which separate 1200bps modems might otherwise be necessary.

High-quality 2400bps modems are available in the U.S. for as low as \$150.00. Prices may be higher if purchased outside the U.S., or if special models are needed to match your computer or telephone system, though standard modems are usually readily available for all common computer models and telephones.

The communications software enables your computer to use the modem, and allows you to transfer Email files between computers. One of the most common communications programs, the "Kermit" software developed by Columbia University in New York, is free, and may usually be obtained from your nearby university computing center or local computer users' group. Commercial communications software includes such names as "ProComm," "SmartCom," and "BitCom." Communications software is often included in the purchase price of a modem.

CONNECTION TO AN ELECTRONIC MAIL SYSTEM

Once you have the necessary hardware and software, you will need to subscribe to an electronic mail service system. Such systems are the physical structures which connect all the different computers and individual users into a unified network, just as telephone company services connect individual phone users. Depending on your country and institutional affiliation, there may be a variety of systems and costs from which to choose.

The backbone of international electronic mail systems is the "Internet," a combination of thousands of different, individual Email systems which use the same technical standards and may all exchange messages with each other. Since the Internet is predominately a university-based network for the exchange of teaching and research data, university-based advisers will usually be able to establish an Email connection very easily. In principle, anyone in a university may obtain Internet access just by asking for it (if you already have a computer to connect), and the service is completely free. Email users do not have to pay for either incoming or outgoing messages.

One's electronic mailbox has a unique name on one of the systems connected to the Internet, such as Bitnet/EARN, NetNorth, GulfNet, Arpanet, or UUCP. Sometimes mailboxes have alternate "names." My mailbox address is "Hopkins@FINFUN (FINland; Finnish University Network)" on EARN (the European Academic & Research Network), or "Hopkins@CSC.FI" (CSC = SuperComputing Center, i.e. the Ministry of Education Computing Center; and FI = Finland) on the Internet. The "@" sign means "at" in Email addressing. "Hopkins@FINFUN" means (and is pronounced

Appendix G - The Marvels...Hopkins

as) the mailbox of "user" Hopkins "at" the FINFUN computer.

Most OSEAS advisers currently on Email are university-based, and have free access through an academic network. However, a number of Fulbright Advising Offices have established "guest" accounts through a nearby university, which provides the account to the Fulbright Commission either free of charge or at very low cost.

If your advising office works closely with local universities or the Ministry of Education (which often subsidize national university Email networks), it is worth checking whether a guest account can be established. This may be the simplest and least expensive way of connecting into an Email system.

COMMERCIAL ELECTRONIC MAIL SERVICES

There are also commercial Email services, available through private corporations or national Postal and Telecommunications Authorities. Regardless of who provides the service, as long as it has a "bridge" to the Internet, it should function perfectly for all Email functions. The only differences will be user cost and ease of operation.

The services of telecommunications corporations such as MCI Mail, Telenet, and CompuServe are also available outside the U.S. One might subscribe, for example, to CompuServe, which would provide you an individual electronic mailbox on its international network for a small subscription fee (currently \$10 monthly outside the U.S., free inside the U.S.). You could connect to this mailbox to send or receive Email, using your computer and modem, from almost any telephone in any country.

CompuServe and other such corporations may offer "on-line services" in addition to basic Email. One may access databases and special-interest bulletin boards, make airline reservations, purchase goods to be delivered by mail to your home from on-line catalogs, or check international news and weather or the latest currency exchange rates. Educational resources such as the Peterson's College Guides are also available on CompuServe; the Guides can be searched and the desired information retrieved.

Each such service would have an on-line fee, billed monthly to your account, based on the number of minutes you used it. On top of the user-time charges and basic subscription fee would be the cost of your phone connection to the service itself.

If one only uses electronic mail, and not the on-line services, the costs are low. One pays only for the outgoing messages that one sends, not for incoming messages others send to you (or documents which you request to be sent). Costs of outgoing messages are low, pennies per page.

Email messages may take many forms. Basic Email may be sent to persons at other electronic mailboxes to read, or to computers as requests to send you something. Some systems also allow Email messages to be sent to fax machines or telex terminals, for offices who are not yet on Email but do have a fax or a telex. Email communications are amazingly adaptable.

Your national Postal and Telecommunications Authority (PTL) can advise you what Email systems are available in your country. Nearby university computing centers and local banks, businesses, and computer users' clubs may also be of help.

MicroSIG, though a project with the International Office of the University of Michigan, is currently cataloging Email connection information for countries outside the U.S., and this catalog will be made available to NAFSA and OSEAS.

THE NAFSA "INTER-L" ELECTRONIC FORUM

Once you have established an Email connection, you may wish to subscribe to the "Inter-L" electronic forum run by MicroSIG for NAFSA. Inter-L is completely free of cost, and open to any international educator or adviser, whether or not a member of NAFSA or OSEAS. And what is "Inter-L," you might ask?

Inter-L is a "list-server" running on the Bitnet/EARN system on the "VTVM2" computer at VPI&SU. A list-server is a computer program that automatically manages the distribution of mail to a certain "list" of subscribers. The Email address of the "listserver" itself is "Listserv@VTVM2" (remember, 8 characters, thus no "e" on "Listserv"). The list-server software can manage dozens of different lists simultaneously. The Email address of the Inter-L list is "Inter-L@VTVM2".

To join the Inter-L list, just send a short Email message to "Listserv@VTVM2" saying "SUB Inter-L your name." The VTVM2 listserver software would then automatically add your name to the Inter-L list. From then on, any message sent to "Inter-L@VTVM2" would automatically be distributed to ALL subscribers on the Inter-L list (currently over 400 individuals).

Recipients of your message may choose to respond only and directly to you (your Email address is automatically provided by the system when you send a message) or else back to the list, in which case all 400 subscribers (including you) would get the response(s) as well as the original message.

The names and Email addresses of all persons subscribed to the list can be retrieved from the listserver at any time. By selecting from these individual addresses (or those of others who are on Email but not on this list) you are able either to mail separate messages to individual(s) on the list, or mail one message to the entire list.

Inter-L can be very useful for advisers' questions. A client may ask for advice on a field which is new to you. "Where can one study this? What are the requirements and costs?" The answers are not in your reference books. Your client needs the answers quickly. Where do you turn for help?

You could send these questions to Inter-L -- to be distributed to the entire subscription list. The chances are good that some of the 400+ Inter-L readers, who are experienced exchange advisers with different specialties, would know the answer and respond. The next day you may have 15 responses to your questions, from which you can compare and combine the results, and pass them on to your colleagues and clients. Should you wish to verify your synthesis of the different responses, one command could relay your interpretation back to the 15 "experts" for comment.

Such querying of a list of "electronic colleagues" may often be the only practical means of determining or verifying quickly information that is new or recently-revised, or details which are unavailable in standard educational exchange references. Further, the value of such rapid networking for planning regional workshops or publishing (electronic?) newsletters is obvious.

STANDARD SERVICES PROVIDED BY INTER-L

What standard services does Inter-L provide? Each week NAFSA prepares for Inter-L a "Weekly Update," a summary of governmental activity related to international exchange, pending legislation, proposed and actual changes in immigration and visa regulations, news from the USIA and State Department, and interpretations of and answers to often-asked government regulations questions. These Updates arrive in Inter-L subscriber mailboxes seconds after they leave Washington. Much of the information will not be published, for reasons of time and cost, in paper forms such as the NAFSA Newsletter.

U.S. State Department Travel Advisories are posted and updated regularly for countries where travel may be endangered. Inter-L is also a forum for job openings, announcements of forthcoming conferences, calls for grant proposals, and other information of general interest to NAFSAns.

But perhaps the main value is the rapid information "networking" enabled by Email and the Listserv. Advisers may ask about credentials equivalencies, check the status of "unknown" institutions, receive news of personnel or fax number changes the different universities or sponsoring agencies, or relay information quickly in emergency situations, such as with China in June 1989, or more recently with Kuwaiti and other students from the Persian Gulf area.

Inter-L also archives dozens of reference documents in a broad range of international education fields which can be retrieved at any time of the day or night. These include the NAFSAnet and NAFSAFax directories, taxation guidelines for foreign students and scholars, and contact information for some 500 overseas advisers in the OSEAS Advisory Database. Further documents of general interest are being added continuously.

An electronic archive such as Inter-L's also would be very useful for the specialized subject-field and other advising documents in demand by advising offices worldwide. It is possible that the near future will include an "OSEAS-L" list, or a series of lists specialized by advising fields or geographic regions.

EMAIL AND TELEMATICS IN FUTURE ADVISING

Electronic mail is the foundation of telematics. Email is a powerful resource, yet simple and inexpensive to use. By helping advisers obtain and distribute more information more efficiently, it enables the advising profession to serve more capably.

More importantly, telematics is vital to the future of advising. Resources such as the TRACE (Trans-Regional Academic Mobility and Credential Evaluation Information Network) database, which is already in operation, assume (and require) an Email capability for access. Powerful telematic resources of the future, such as the NAFSA "KnowledgeBase," may be available only by direct electronic connection. Email is already of significant value for advisers, but in future an increasing amount of the best and quickest information may not be available except by Email.

Electronic mail and telematics are tools on which much of our future advising work will be based. Our preparation for this future should begin in the present, by enabling Email to become one of your most effective advising resources.

FOR FURTHER INFORMATION:

Further information on Inter-L may be obtained from Mr. James Graham, 4301 Terry Lake Road, Fort Collins, Colorado 80524, USA: Internet "JGraham@Lamar.Colostate.Edu", FAX 303-491-5501.

Further information on how to connect your office to Email, or the many resources available via Email, can be obtained from regional OSEAS computer coordinators.

APPENDIX H
INTERNET AT USIA

This Appendix reproduces the AMP File AMP507 document dated August 26, 1993 which was distributed by USIA M/TM and discusses the use of Internet at USIA and at Posts.