

# **Computer-Assisted Research in Religion Forum**

## **Nodes, MODEMS, Networks...?: E-Mail In Plain English**

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Last summer I received a letter from Cambridge University asking for my participation in an academic project. Being interested, I requested more information. By the time arrangements had been made for me to begin work on the project, six letters had crossed the Atlantic. Since all the correspondence was transmitted electronically, this initial exchange took less than three days. It is a typical example of the efficiency of electronic mail.

Electronic mail is known to its users as e-mail. With apologies to those who still prefer their English untruncated, I shall in the following account use such hacked up and hyphenated expression. After a brief discussion of the advantages of e-mail, there will be an explanation of what is needed to begin using it, followed by some information on various ways in which e-mail is now being used in academic circles.

One of the principal advantages of e-mail is its speed. My first experience with e-mail was in the summer of 1989, at which time I was collaborating on a long article with a colleague in Toronto. We each got e-mail accounts at our respective universities. Every morning I sent him several pages of writing, and every afternoon he sent me his comments and suggestions on what he had received that morning. As everyone who writes knows, it is most valuable to receive comments on a piece of writing while it is still fresh in one's mind. The speed with which my colleague and I could exchange criticism and information enabled our collaborative work to achieve an exciting momentum. Not only did we finish our article in a reasonable amount of time, but we both enjoyed the process of working in this way.

The speed with which written materials can be transmitted over long distances is by no means the sole advantage. An e-mail message can easily be sent to several—indeed to several thousand—recipients at once. This makes it possible for people with common interests to participate in group discussions (more about this potential for electronic colloquia later).

Electronic communication can also dramatically reduce one's consumption of paper. Some universities and businesses report that they have virtually eliminated the flow of internal paper memoranda by encouraging staff to communicate through e-mail. Anyone who routinely loses coffee mugs and other important research tools under mountains of paper will surely appreciate such a reduction in clutter! Moreover, when a large volume of correspondence is stored on a computer disk, the use of key words makes conducting a search a relatively easy task. In other words, the fact that one's letters and memos are stored away invisibly in electronic form rather than as a stack of papers does not necessarily make them less easy to retrieve when the occasion demands.

### *Understanding E-mail*

To understand how to make use of e-mail, it may be helpful to have at least an elementary, nontechnical understanding of how it works. E-mail has become possible because computers can be linked together in networks enabling information to flow quickly among them. Virtually all educational institutions in the world have central computers that are linked to a national or continental network. There are several such networks around the world, all interconnected to form what amounts to one large worldwide network encompassing thousands of large computers located on university campuses, museums, research centres, governmental offices and military bases.

Each one of these locations is called a node in the network. Each node has the capacity to be linked, usually by telephone lines, to personal computers used by individuals in their offices or at home. Thus several thousand personal computers, for example, in the McGill community, can be connected, a few hundred at a time, to the central computer on the McGill campus. By going through the McGill node, a personal computer can then be linked to any other large computer that is part of the worldwide network. By making a local telephone call to a special number at McGill, I can send a message from my desk to another computer, no matter where it is located, in a matter of two or three seconds. Learning how to make all these connections has been made very simple (or, as English-hostile computer people like to say, "user-friendly"); a person with no more facility with computers than is required to operate a simple word-processing program can easily begin communicating with computers around the world.

The only part of the process of connecting to a computer network that one needs to understand, then, is how to link one's personal computer to a node. Making this connection requires a device known as a MODEM, the name of which is yet another example of the kind of surgery that computer-literate, but English semi-literate engineers, have performed on our language. A MODEM is a device that MODulates (transforms) an electronic datum so that it can be transmitted from a computer across an ordinary telephone line to another MODEM; a MODEM on the receiving end DEModulates the transmitted datum and restores it to a form that the remote computer can handle.

There are two types of MODEM available on the market. A so-called internal MODEM is a circuit board that can be fitted into an expansion slot inside a personal computer. An external MODEM is a small box that must be plugged in to its own power source and connected to a serial port of the computer by means of a serial cable. Both types of MODEM are connected to the telephone line by an ordinary telephone cord. MODEMs vary considerably in price. The main determining factor is the rate at which it can transmit data. Transmission rates are measured in bits per second (bps), or "baud," which is not as lascivious as it may sound. While those in the know might point out that these two terms do not, technically speaking, measure the same thing, such distinctions can for now be overlooked. A MODEM that can transmit data at a rate of 2400 bps generally costs between \$75 and \$150. Because it usually takes 10 bits to send one letter of the alphabet, a transmission rate of 2400 bps amounts to 240 letters, or approximately three lines of prose, per second. At this rate a page takes about 15 seconds. Faster MODEMS—those rated at 9600 bps and 19,200 bps—can cost considerably more. Despite the fact that time is money, it turns out that one cannot hope to save the former without spending the latter.

In addition to a MODEM, one also requires a special type of software that enables the computer to send signals to the MODEM. The generic term for this type of program is communications software. There are numerous such software products available for a modest price. Some MODEM packages include the software necessary to operate them so that no further software need be purchased. Universities that have e-mail services often provide the necessary software at no cost.

A third requisite for making contact with an e-mail service is a business account that provides access to one of the large computers in the

international network. Opening such an account usually involves making a telephone call to the computer centre of the nearest university campus. Normally universities provide accounts at no cost to students, staff and faculty members. But many universities also have commercial accounts available to people who are not directly affiliated with the institution. Some offer special discounts to alumni and alumnae. And if no university campus is available near you, it is possible to connect to the academic computer networks through the e-mail services of some commercial networks, such as COMPUSERVE. Details on how to open an account on one of these commercial carriers is usually available in stores that carry computers and accessories. Most MODEM packages also contain a considerable amount of "information" (a euphemism in computer circles for what normal people call "advertising") on commercial networks. Although access to academic networks can be arranged through commercial services, these networks are regulated by federal law, limiting their use to non-commercial purposes. In other words, no advertising for commercial products can be transmitted through academic e-mail networks. As matters stand now, there is not yet such a thing as e-junk-mail, but there are probably marketing tacticians all around the globe feverishly working to find some way to bypass the regulations.

### *Using E-mail*

The preceding information should enable one to make contact with a node on the international academic computer network. Once such contact has been made, there are a number of different ways to utilize the potential that electronic networks provide. The most simple use of the network, of course, is to send a private message to another individual who also has an e-mail address. Learning another person's e-mail address used to involve a certain amount of sleuthing skill, requiring the use of such primitive modes of communication as the telephone or the postal service, or even the potentially unhygienic method of speaking to the person directly. Recent efforts have been made, however, to create publicly accessible electronic directories, which typically include the name, physical address, e-mail address, and academic specialty of each person listed.

Because it is possible to send the same message to several recipients at once by simply attaching several addresses to the message, it is possible for several people with a common interest to carry on a discussion. A

colleague and I have, for example, made contact with about a dozen people around the world who are interested in discussing technical aspects of the syntax of Sanskrit. Whenever one of us sends a message, it simultaneously goes to everyone else in the group. In this way a dozen of us at a time can pool our experiences with different genres of Sanskrit literature. The relatively informal medium of e-mail makes it easy to try out new hypotheses, supply each other with textual evidence to test these hypotheses, and discuss possible topics for future research. This small group of discussants includes several people whom I have never personally met and might never have encountered in any other way than through electronic networks. These e-discussions (why be shy about neologisms?) have not only expanded my understanding of some features of Sanskrit, but have also increased my e-acquaintance with colleagues working in the same specialty.

A quantum jump of organization over the informal e-symposium of a dozen or so colleagues can be achieved by joining, or initiating, a much larger discussion group through the services of a LISTSERV. A LISTSERV is a computer program that facilitates the dissemination of messages to large mailing lists by automating distribution. Some discussion groups have thousands of members, and some only a few dozen. The number of such discussion groups now numbers in the thousands (See "A LISTSERV Case Study: IOUDAIOS@YORKVVM1" for an example of an effective LISTSERV).

For people interested in the academic discussion of religion, there is a group moderated at Harvard University. Information on becoming a participant can be obtained from the moderator, Tim Bryson, whose e-mail address is TBRY@harvarda.harvard.edu. This is, in fact, a typical INTERNET e-mail address. Every address contains exactly one "@" symbol. To the left of the symbol is the addressee's personal name or account code; to the right is the codename of the node. Another large network in North America is called BITNET, which uses a somewhat different convention in its addresses. Since INTERNET and BITNET are on friendly terms, there is no need for the average user to be concerned with knowing to which network an addressee is connected; this information is embedded in the address itself and can be deciphered by all the computers on the international network.

A still greater degree of formality is provided by electronic journals. Some academic societies have sponsored the periodic publication of scholarly articles through the medium of e-mail. Such journals usually have editors

and are refereed in the same way as printed journals (See "Networked Resources for Religious Studies").

As mentioned above, I opened an e-mail account some years ago with the sole intention of communicating with one colleague as we collaborated on an article. Since then I have subscribed to a number of discussion groups distributed through LISTSERV programs, and have even founded a discussion group on Buddhist studies that now has over two hundred members. I use e-mail extensively in communicating with colleagues at other universities, and even with colleagues at McGill. It has been an effective way to communicate with graduate students and teaching assistants working under my supervision. So what began as a rather specialized tool has now become an important part of nearly every aspect of my life as a scholar and teacher. As more and more academics begin using e-mail around the world as part of their daily routines, it is likely, whether one fully approves of it or not, to become an almost indispensable item in a contemporary scholar's research kit.

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### A LISTSERV Case Study: IOUDAIOS@YORKVMI

IOUDAIOS (the hellenistic Greek word for "Jew") is a LISTSERV whose coordinating computer is at York University (Toronto). It has over 300 members from about a dozen countries including Australia, Asia and Middle East. IOUDAIOS began in April 1990 at the initiative of Steve Mason, a Josephus and New Testament scholar at York University who continues to oversee the list.

The focus of the group is first century Judaism, especially the writings of Flavius Josephus and Philo of Alexandria. In practice, discussion is much more wide-ranging with topics occasionally running from the Israelite Iron Age (c. 1000 BCE) to the Rabbinic writings of the Talmud (c. CE 500). In July 1991, the *IOUDAIOS Review*, a fully edited "publication" began under the auspices of IOUDAIOS.

The group's technical operations are taken care of by dedicated software (LISTSERV) which maintains a subscription list of electronic mail addresses. Messages addressed to the group come to LISTSERV for redistribution to subscribers. The turn-around time from the message leaving the contributor's screen until it arrives on a list member's