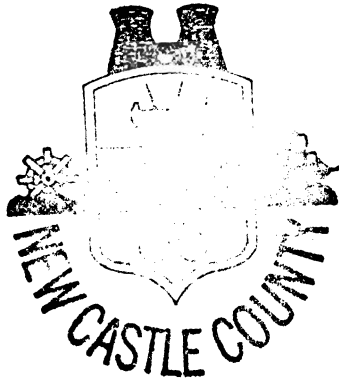

ESSENTIAL GUIDE

TO

BULLETIN BOARD

SYSTEMS



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This book is dedicated to:
System Operators Great and Small

*"...one day you walk into your room
and it's full of computers."*

-- Gene Plantz (*Chicago Magazine*, July 1986)

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PREFACE

Though involved with microcomputers since 1977, it was 1978 before I could afford to buy an Apple II. I now own three Apples as well as a Zenith 148. I also have a room full of disk drives, modems, monitors, printers, and circuit boards. Eventually (if this book sells enough copies), I will purchase a Macintosh. Despite this, I am *not* a "hacker," which is someone who lives inside a microcomputer. The first hackers were assembly language buffs, but later there came other kinds of hackers. I might call myself a "word hacker," since one of my three main interests in microcomputers is word processing for writing. My second interest, related to my career, library administration, includes internal library activities such as preparing monthly or annual reports, budgets, and making catalog cards.

The third is "public access microcomputers." Making microcomputers available to the general public has become a major activity for about 12 percent of all public libraries; kids to senior citizens have mastered the Apple, IBM PC, or Commodore 64 at a public library.

Part of my own public access effort included setting up the first library electronic bulletin board system at the Chicago Public Library which has had over 30,000 calls as of this writing.

It was this bulletin board that gave us our "window on the world" in Chicago; people called from the 50 states and Canada. Though I found it exciting, the rest of the library staff was always ready to point out that moderation is a virtue, and so I learned to keep such a project in perspective.

The number of callers went up steadily over the years, until it was nearly impossible to avoid a busy signal except at 3:00 A.M. I first thought that this was the result of our being in business for so long, but a library in New York eventually set up a similar operation and within

3 months had as many regular callers as ourselves. Modem ownership had increased dramatically in the years since we had set up shop. Since many modem owners did not have vast sums of money with which to call CompuServe or The Source or other online utilities, they went wild over bulletin boards.

This new medium brings people closer, to communicate in ways previously impossible. The local BBS community has come to resemble the world of mankind at large; it is made up of salespeople, clubs, libraries, and new friends, and, like the real world of people and stores and corporations, BBS operations come and go like the wind. People thinking of starting a BBS--for whatever reason--need to avoid the many mistakes and problems that beset all system operators, the details of which comprise the remainder of this book. The rewards for all involved are a rich combination of education, business, and a natural extension of the way we communicate with our fellow humans.

ACKNOWLEDGMENTS

I would like to thank Beth Mueller and Sally Webb of SLS Consulting Services for their help in preparing the grant proposal for Lincolnet and maneuvering through the many administrative details. I would also like to thank the sysops who filled out the questionnaire and answered questions over the modem and telephone.

AN OVERVIEW OF THE BBS WORLD

What's All the Fuss About?

It is generally after work--or school. It could be 5:00 P.M., but more likely it's 8:00 or 10:00 P.M., and sometimes midnight or later. The hobbyist will get his or her drives into gear, switch on his or her monitor, rev up some communications software and "plug in" to the neighborhood. In and around a typical large city such as Chicago, as many as 100 bulletin boards--most free, some private--operate continuously, or at strange or unknown hours. There is no trick to gain access to most of them.

But everywhere there is the air of fantasy, from "Dr. Who," "The Phantom's Lair," "The White House," "The Valley Girl," "War Games," and "Smokin' Silicon." A few have more down to earth names, which set them off with a certain amount of distinction, such as "The Chicago Public Library" or "Lincolnet."

A common observation when examining bulletin board software is the hodgepodge of alphabet soup which generally ends in "BBS": *ABBS*, *TBBS*, *CBBS*, etc. The list is seemingly endless. While some of these once stood for a specific brand of software, there is no absolute standard now, since different types of boards are referred to, for example, with the now generic labels "ABBS" and "CBBS." The only standard seems to be the suffix (or prefix), "BBS," which stands for an electronic "Bulletin Board System."

As to a definition, a BBS is an interactive, online, electronic database system, usually, though not always, operated on a microcomputer. Other types of bulletin boards exist, including those on mainframes, and while

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some of these will be discussed in a later chapter, the primary emphasis and concern of this book is the microcomputer-based bulletin board. Almost anyone can set up such a BBS.

A Brief Trip--Calling a BBS

Let us take an imaginary journey. Let us pretend that it is Friday night and that we have a new list of bulletin board numbers. We see several numbers which we have not called before. The first one is a new science fiction board dedicated to "Marvin," the morose robot in *The Hitchhiker's Guide to the Galaxy*. We dial the number; it answers (our terminal software has dialed for us). A couple of quick log-on items (we have our own password for this system) and we're in. The menu or list of choices of this BBS includes the telephone delivery of free software (downloading), a message base for communicating with other users, and several online articles left by other callers. We proceed into the download section and find a new program for keeping track of our diet. The program allows for several ways to download, including a special protocol method which eliminates transmission errors. In just a couple of minutes at 1200 baud the program is sent to our computer, saved to disk, and we then go into the message base. One message for us, from a friend with whom we have corresponded in the past replying to our inquiry about voice synthesizers for our computer. Several people have left useful information, including a list of features and a mini-review of a new model. A quick "thank you" is put in the reply section, and we log off by typing "G" (Goodbye).

We now dial up our favorite BBS, one which has a number of sub-boards. Each sub-board has a message base and articles, and articles which revolve around a particular topic. The section that we are interested in is "Online Communications" which generally has a listing of other bulletin boards in the area. Since we had put up a message asking about a new rumored BBS, called

"Atlantisland BBS," we check for a reply. None. Finished here, we move to the "Arts and Literature" section. Here we find a number of new poems, part two of a new science fiction novel put online by its author, and a list of book reviews supplied by callers. We read two of the poems, download the science fiction novel for future reading, and then log off.

Our next call is to a BBS that has six telephone lines, which lets up to six people be online simultaneously. As we log on, we are immediately asked several questions about the latest rumors of laws against the BBS, and are asked for our opinion on the subject. Once inside, we query to see who else is online; there are two other people here, one of whom we know. For approximately 5 minutes, we type messages back and forth to a person with whom we are acquainted, but have never seen. Finally, probably out of fatigue, we say good night and hang up.

It is now past bedtime. We turn our machine off and collapse into bed.

Cultural Significance

Scenes like this--of the late-night computer owner in a dimly lit room, hunkered over a glowing monitor and keyboard, typing in codes and passwords and commands--are repeated again and again all across America. The electronic bulletin board system--the BBS--has captured the imagination of the computer hobbyist. Even the most casual electronic trip reveals the extreme enthusiasm and exhilaration with which such grassroots networking is pursued.

Such bulletin boards form a very real community. Just because the people who use them rarely, if ever, see each other face to face, does not mean that their personalities don't come through or that their tempers don't flare, or that they can't discuss subjects great and small.

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The people that inhabit this special world obey a different set of rules than those whom we would confront face to face. Reports of both blind people and deaf people using them or even operating them have been made by sysops in the popular press. They, too, use the BBS to meet friends and conduct business without having to deal with the stigma that society often places on their handicap. On a BBS, being blind or deaf is no handicap, since no one cares about the appearance or physical abilities of the person behind the monitor; one need only know how to type, and voice recognition systems may soon make that skill unnecessary. But just as there are individuals, there are also stores, shops, manufacturers, dating services, and clubs.

A business can actually take orders from customers through a BBS. Even a "read-only" board can be used as an information center (newsletter) or catalog of new products for customers. Even if customers are not involved, the BBS is sometimes used as an electronic mail and information system between headquarters and the field staff or different salespeople.

Educational institutions such as libraries, library systems, and schools make use of the BBS as a public relations tool, for the dissemination of information to students, between faculty, and for professional networking or interlibrary loan. The Wall Street Micro Investor, as of 1986, had set up shop with a BBS called, "The Wall Street On-Line Products and Services System Demo." Published reports also reveal that one enterprising Canadian author sold some 7,000 copies of a novel by putting the first chapter online free on bulletin boards. For \$4.50 readers could get the rest of the volume. The list of possible uses is endless.

At least three software packages are sold for the specific purpose of matchmaking; people meet as a result of online answers to questionnaires.

Bulletin Board: A Definition

There are many types of electronic bulletin boards. Some are part of the major time-sharing services, such as The Source and CompuServe, or are part of a specialized service such as ALANET. If we look hard enough, we will also find computer monitors used as billboards for passersby, micros used as personal alarm clocks and message systems, and many others. The main concern of this book is the BBS which operates on a microcomputer--very nearly any type of microcomputer, great or small. This type of BBS began in the Chicago area in 1978. An account by Ward Christensen and Randy Sues details how the two of them first discussed this idea by Christensen on January 18, 1978. The hardware involved seems incredible at this late date: an "...8080 processor with 24k bytes of memory, a single floppy disk, modem interface..." Many of the later bulletin boards that were to be programmed, despite much original programming, still carry a hint, if not the overall appearance, of this first board. The *Byte* article carries the set of commands, and some of the log-on menus. Christensen and Sues were proficient programmers, and did much to pioneer the BBS, which those of us not interested in programming may, thankfully, skip.

Bulletin board activity can be categorized as follows:

- Electronic Mail
- Software Exchange
- Conferencing
- Bulletins or Features
- Games (including interactive)
- Networking
- CB Simulation (chatting)

There is much overlap and differentiation. A strictly electronic mail system may be used by a corporation, a church, a library, an individual, or a computer club. A game-oriented BBS may have a profit motive and charge callers a membership fee.

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Most boards are "single-user" BBS's, allowing only one person to connect at any given moment. This can cause congestion from time to time, but the expense of putting in multiple phone lines and other multiport hardware makes the practice prohibitive except for a minority of operators who usually charge a fee to offset costs. On such multiport boards, users may interact with one another to play games or "chat" (typing to one another). Some software and hardware combinations allow for as many as seven modems to be connected and operated from the same micro, creating, in effect, a "CB Simulator." Some such boards charge by the amount of time spent online, while others charge per month or per year.

Networking

More than one type of networking is possible. One system operator has linked together ten micros to form a local area network to which callers may have access. This requires special equipment and is quite expensive.

An even more recent twist has come to light, that of networking *between* bulletin boards. By using sophisticated routines for late-night dialing, "nodes" of a larger network are able to dial each other automatically at times when the telephone charges are low (*e.g.*, 4:00 A.M.) and exchange data and messages, adding a new dimension to the concept of "local" bulletin boards.

Cost and Problems

One thing which impresses anyone who has actually operated a BBS is the amount of time it can consume. Not always so much because there are so many technical and hardware problems--there often are--but because it is addicting and engaging, and, after all, when strangers or friends are invited into one's house--electronic or physical --it is necessary to be a good host.

Some boards are still open to all who call, but this practice is changing because of electronic graffiti artists. These graffiti artists are the unseen types who call a BBS to leave obscene messages, threats, and otherwise make attempts to "crash" or disrupt the system. Some sysops have abandoned their operation as a result. Many more, however, have simply made their board private by allowing only registered and verified callers to leave messages. There are a few "read-only" boards which allow callers to do nothing but read bulletins, articles, and other information left online by the system operator. In any case, such people are typically referred to in the general press as "hackers," though in this book we shall call them "crashers." The original hackers had a high level of technical expertise and achievement and they generally played pranks only as a challenge. They would cringe at the juvenile mischief now called "hacker activity."

A second type of problem that has arisen is that of the "pirate," who is not necessarily out to cause damage, but to swap software, and, in some extreme cases, credit card numbers or important phone numbers. They may have their own BBS, but sometimes BBS owners pose a threat to others. At least one apparently "innocent bystander" has had to defend himself because of other people doing illegal things on his board--more on this in later chapters.

Hardware problems must also be faced. Disk drives that run nearly continuously and diskettes constantly in use wear out faster than one might think.

Bulletin Boards Everywhere

The phrase, "over 1,000 bulletin boards," is often used when anyone asks how many of these systems now operate (at least one estimate says 1,500 to 2,000, which I suspect is closer to the truth). Some are available 24 hours a day, others for just an hour or two each day or week. (When a service is provided at a personal expense and effort, it can be sporadic indeed; what does a system operator do when

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vacation time comes?) Just how many boards are in operation may never be known, since they have a habit of coming and going like the wind.

The bulletin board phenomenon is not confined solely to the United States; at least 70 European numbers have been reported.

Getting Started

Where to begin? It is obvious that microcomputers have become a massive industry, rivaling the automobile factories in their influence in our lives. Micros, however, are infinitely more complicated and anyone out to set up shop is confronted with hundreds of makes and models, a bewildering jungle of jargon and fly-by-night firms and people. On top of that, there are literally thousands of add-on items, and tens of thousands (if not hundreds of thousands) of software programs which do everything from next to nothing to magic. Baud, modem, integrated, bits, bytes, peeks, and pokes, are only the barest beginnings of the techno-jungle. Some people have spent their entire lives trying to understand and succeed in the micro world, only to find it impossible to "keep up" with the technological change.

Yet it's not hopeless. Even a person who knows nothing about micros and does not wish to learn to program can learn the basics of setting up and operating a bulletin board, including how to find a list of bulletin board software and how to match the right software to meet a need. Many of the problems and issues associated with day-to-day operation such as organizing and managing the database, locating and arranging features, advertising or attracting callers, handling obscenities and pranksters, and taking precautions to avoid or minimize hardware problems, are carefully explained in the chapters that follow.

Setting up a BBS involves the following five steps:

1. Learning about bulletin board systems--call those that are already online, read books and articles, and contact or visit local user groups.
2. Defining requirements--*e.g.*, must it do? Will it be public or private, will downloads of software, etc., be necessary?
3. Evaluating and matching available BBS software to needs.
4. Selecting microcomputer and special hardware--disk drive size, modem speed, etc.
5. Set up, daily operation, and trouble-shooting.

There is one thing which a potential BBS operator cannot get from this or from any other book--experience. Nothing can ever substitute for doing.

The Future?

People always have different views as to the future of anything. One sysop, for instance, wrote in the survey I sent him that, "the BBS world is dying, and that's sad. There are some (sysops) literally making a living from the system. But a lot of the Midwest systems that were once busy enough for multiple phone lines are dying...the fad or novelty is wearing off. The class of user is changing, the techy, *real* user is going back to their closet." This seems to be a minority opinion. What has happened is that the BBS in recent years has been "discovered" by the mainstream home computer user. The BBS has come out of the "closet." The numbers and types of bulletin boards has done nothing but increase. The local Chicago area BBS listing maintained by Dick Sonka shows a never ending explosion. *The Computer Phone Book* listed about 400 systems, the second lists some 700. And these are full-time, 24 hours a day systems. But such change--from pioneer to second generation--inevitably follows any new endeavor, and is always lamented.

Finding a Bulletin Board

The local list of bulletin boards is easy to find--just look on any local BBS. If it is not on one, try another. It will soon pop up. Another place it is often seen is in local computer newspapers.

Failing that, there are several directories which have the listings for the entire country and even overseas. The most well-known is Mike Cane's *The Computer Phone Book* (Plume; 1986). Another is *The National Directory of Bulletin Board Systems*, (Meckler), and a third is *The Computer Shopper* (Titusville, Florida) which is updated monthly. Some bulletin boards carry a national listing, as do CompuServe and The Source.

Bibliography: Microcomputer Pioneers

Christensen, Ward, and Randy Suess. "Hobbyist Computerized Bulletin Board," *Byte* (November, 1978), p. 150.

Levy, Steven. *Hackers*. New York: Doubleday, 1984.

HARDWARE AND SOFTWARE

A bulletin board system is both hardware and software; the two must be chosen in combination (though people who already own hardware may set up a BBS as an afterthought). The hardware components are physical (*e.g.*, printer, cabinet, chips, etc.), while the software is the set of instructions which tells the computer what to do. Data, on the other hand, is something which the computer stores and organizes. A list of names and addresses would represent data, while a line of instructions which tells a computer to alphabetize the list of names is a program. The elementary component of hardware is the "chip," a small wafer made of silicon. It is at this level that hardware meets software. A computer will have chips of different types, the central processing unit being the most important. As the "brain," it regulates everything, including the free memory, timing, and arithmetic functions. Other chips, called RAM and ROM, store various kinds of data. RAM stands for Random Access Memory, which is transient and changes as the instructions or data are replaced at the whim of the computer user. ROM or Read Only Memory amounts to much the same thing as RAM but is permanent hence, the name "Read Only," as opposed to the Read and Write characteristic of RAM. What kind of hardware and software you end up with is largely a function of personal choice, need, and pocket book.

A typical shopping list for a bulletin board system looks something like this:

Hardware

- CPU (*e.g.*, Apple, IBM, Atari, etc.)
- disk drives (*e.g.*, hard, floppy, etc.)
- printer
- modem(s)
- clock card
- monitor

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- plus assorted interface cards, and cables
- dedicated telephone line(s)

Software

- BBS program
- word-processing program
- copy utility program
- terminal program

Supplies

- diskettes
- paper

Such expenditures, depending upon the type of system selected, may cost several thousand to ten thousand dollars or more. Of course, if a microcomputer is already available, the additional cost will be much less. If a micro is not owned, however, it will be necessary to go shopping.

The best advice that can be given in the selection of a microcomputer is to select the software first. By examining the features of different packages you can determine just which of them provide specific features and what hardware is required. With so many clones, models, and makes available today, making a specific microcomputer recommendation is hazardous, especially considering the daily changes that occur in the marketplace, but there are some objective factors which can help.

Expansion

The first of these factors is expansion, and it goes hand in hand with market support. If the micro has the capability to expand to include additional devices, then there are probably many companies supplying add-on boards, etc. RAM is also an important add-on. Many micros can now be expanded up 648K and others up to two megabytes or more for internal RAM through the use of special add-on boards.

All-in-One Packages

Some micros simply offer more to begin with, but this can sometimes be a trade-off with expansion and price. Consumers are more assured of full dollar value than when the industry began, since machines now have standard parts that 5 years ago had to be purchased separately. While some micros used to not provide lower case characters, others now come equipped with built-in serial and parallel ports. It is easiest to purchase most of the equipment in one place at one time, though if the money is not available, a bare bones system may be the only option. Hard disk drives, printers, and other parts can always be added later. One advantage of buying everything in one place is that when something breaks down, the vendors cannot point their fingers at one another, "It's the drive," "No, it's the micro," etc. Another is that it is often less expensive to buy everything at once (though most dealers can't sell you everything you need, especially if some components are exotic instead of off-the-shelf).

Compatibility

There are different types of compatibility. Some hardware manufacturers have gone to great lengths to nonstandardize equipment. While a diskette for one computer may look identical to one used for another computer it is usually impossible to transfer or use data stored on a disk by one machine with another, except in the case of "compatible" computers, also known as clones, which have been specifically manufactured because of the popularity of a major brand. The best known are IBM clones, many of which are less expensive while running most IBM programs. Rarely, however, are two computers "100 percent" compatible, despite what labels and ads may say.

A co-processor allows a computer to run programs which can normally only be run on some other incompatible computer. A good example of this is CP/M. Most computers will not run CP/M without some special board installed.

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The reason is that CP/M is based on the Z80 microprocessor. A co-processor or interface card which contains this second microprocessor, the Z80, allows CP/M programs to be run. It is also possible, to install a card which allows an IBM to run Apple software. To transfer data between two computers with incompatible disk formats, a modem or a null modem cable (which simulates a phone link) is required.

Service

Where will the machine be repaired when it breaks down? The purchase of a model that is being discontinued can leave a void where there used to be service centers. Clones, while inexpensive, can present a much similar problem. It used to be that some micros had to be mailed away for repair, but even a long car trip is now considered inconvenient. A major or long established dealership may offer the best clues as to how good and convenient the service for a micro is apt to be.

Summary

One cannot select a "microcomputer" in a vacuum; a complete package of many hardware components and software must be selected. A "bare bones" system might consist of a microcomputer, one floppy disk drive, and a modem. A more advanced system might contain clock card, printer, hard disk drive, two or more floppy disk drives, and two or more modems, and a host of other peripherals. The pocketbook will make the final determination of how much hardware can be piled on.

Local Area Networks

An option available to those who wish to expand their system is the local area network (LAN). This is less of an

advantage to bulletin board operators than it is to office organization. There are two main advantages of a LAN: multiple phone lines for the same BBS and the sharing of equipment such as a hard disk drive, printers, etc. Multiple phone lines are supported by many bulletin boards, including *RBBS*, but the price tag can be expensive, up to \$2,000 per port (including modem, and in some cases, expansion chassis). A BBS may have many micros hooked together but still employ only one modem. Callers would have access to all micros and peripherals. More typically, a BBS would have several or many lines. One BBS which does exactly this is the IBM PC Information Exchange of northwest Chicago. This is an IBBS which uses ten machines in a LAN, Davong's Multilink (now Tiara's Multilink). Eight of the PCs service phone lines, one is a central file-server, and the last is for system maintenance. Seven file-servers, each with a 20mb disk drive split the file access load. *RBBS* can also handle at least 31 ports using a PC Slave Board and other components.

One rule of thumb sometimes employed is to have one port for every 50 regular users (or employees) on the system.

Another popular network software package is *Omninet* (Corvus), which supports up to 64 microcomputers on the Corvus disk drive.

Disks, Diskettes, and Disk Drives

Data not in immediate use (RAM) is stored on either magnetic tape or disk. While tape drives may be a practical backup system for hard disks, they are not practical as the primary mass storage for bulletin boards. A flexible or removable disk is generally referred to as a diskette, while a hard, inflexible disk is usually given the shortened title of disk. A diskette is made up of a square outer shell or protective jacket, and an internal circular disk. The disk is of a mylar composition and is divided, magnetically, into a number of concentric tracks and sectors. Different computer operating systems handle the storage of data in

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different ways, but this general pattern is followed by all manufacturers.

Disks, diskettes, and disk drives come in a variety of types and sizes, from 3-inch and lightweight to hard disk drives which weigh many pounds. The size of a disk is no indication of its abilities. The new Apple 5-inch drives hold 800K, while the standard 5-inch drives only holds 137K. Three-inch drives will hold much more than the standard 5-inch floppy. A standard 5-inch floppy (the same identical floppy) will hold almost three times more data if used on an IBM or compatible than if used on the Apple II.

There are several types of hard disk drives, including fixed (*i.e.*, the disk or platter is not removable) and the newer removable cartridge style. The big advantage of a hard disk drive is that it holds vast amounts of data compared with the floppy, a usual size being 10- to 20mb. On the other hand, it is more difficult to backup information on a hard disk, requiring either special equipment or many floppies. A cartridge system may back up one cartridge with another.

Bernoulli Boxes (Iomega Corporation) are cartridge drives that come in various models, including single- and double-drive 20mb. Available for the IBM PC and compatibles and the Macintosh.

The Challenger (Space Coasts Systems, Inc.) is a 10- or 20mb internal hard disk for the Apple II. Supports CP/M, PASCAL, DOS, and PRODOS.

Hard Disk Systems (CMC) come in a variety of sizes for the Apple, including 10-, 20-, 30-, and 40mb. Some are available as twin drive systems or removable cartridge systems.

Siders (First Class Peripherals) are external drives for the Apple II series and the IBM PC.

Videotrax (Alpha Microsystems) is a videotape backup system for hard disk drives. Up to 80mb can be stored on a single cassette.

Printers, Clocks, and Monitors

There are good reasons for having a printer, though one is not required. They come in several types, including dot matrix, daisy wheel (letter quality), and laser. If a printer is purchased specifically for use with a BBS, the cheapest dot matrix will suffice to print out logfiles, comments, messages, (though no law yet requires that these be saved), and, occasionally, program code. If the printer is to be used for other work as well, such as word processing, a better quality should be purchased. Good printers no longer cost a lot of money.

A clock card keeps track of the time and date, lets users of the BBS know what time it is (a rather slight advantage in all likelihood), when a user's time has expired, log-on times, and length of each call.

The kind of monitor is not too important, since most will support 80 columns. However, if the computer will also be used for word processing, some type of CRT other than color should be considered, since color can be difficult to read. A green, amber, or even an old-fashioned black and white can be pleasing and clear.

Communication and Modems

Since the main theme of this book involves communicating over the telephone lines with a micro, it is necessary to know how such communication is accomplished. But first we need some background into the way a computer "thinks," so let's start at the beginning.

A computer's "mental processes" are *digital*, reduced, literally to "1's," and "0's." An 8-bit chip or central processing unit (CPU) handles eight of these binary digits (or "bits") at one time which is the "byte." Such units or bytes represent a character (to a computer, a byte is a "word"). One thousand of these bytes is called a "kilobyte" or "K" and a million bytes is a "megabyte." In the computer

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world, something does or does not have an electrical charge. These 1's and 0's are the basis for the binary code.

A set of eight of these bits or charges represents a "C." How do we know which set of bits? One scarce commodity in the microcomputer world is standardization, but, fortunately, there is a set of 128 words or codes upon which everyone has agreed. It is the American Standard Code for Information Interchange (ASCII), and we will bump into it again and again. Thus, "0" represents a blank or null; "13" represents a carriage return; and "70" equals F, and so on (it is much easier to deal with the numbers 0 to 127 than it is to make sense of a string of eight 1's and 0's). There are, of course, 16- and 32-bit micros, too, so things become increasingly more complicated. The speed of such larger bit machines also increases as they are able to handle more data more efficiently, but most of them still identify and use 8-bit words to communicate.

The language of this subelectronic world is called assembly, also known as machine language. It is to be differentiated from an "assembler" which is a program that allows someone to program in assembly language. Assembly language is very difficult for humans to deal with, being a low-level language, more nearly the true mental state of the micro, mostly a series of meaningless (for us) 1's and 0's. Another set of languages, specifically produced in order to allow humans to program effectively is the high-level languages. The most common is BASIC, but others include FORTRAN, PASCAL, COBOL, and hundreds more. Some, such as COBOL, are highly standardized and used for specific purposes, such as business programs or science. Others, such as BASIC, have many dialects and no standardization. One program in BASIC may not work from one machine to another.

Of great importance is the computer's disk operating system(s), commonly referred to as DOS. DOS is a nearly hidden program which is a go-between for the computer user and the computer disk drives, and which is usually built around the architecture of a particular chip; *e.g.*, the most popular operating system has been CP/M (control

program for microcomputers) which is used by millions of computer owners, and is based on the Microsoft Z-80 CPU.

Apple DOS 3.3 is the operating system that was available for the Apple computer for many years, but was replaced with PRODOS, a faster and more powerful Apple operating system with a tree directory structure similar to that of MS-DOS. These two demonstrate a major difference between the volume and the tree-structured operating system. With a tree structure, there is a root or core directory. Each name represents a subdirectory which in turn contains subdirectories and so on. One advantage is not having to deal with an unwieldy number of file names, especially considering that there are often 10 or 20 files that make up a single program, most of which are never directly accessed by the user, only by the program itself. A volume system divides a hard disk into a number of single, fixed volumes of a predetermined size. The user may enter one volume at a time, there being no direct or central root volume to go for an overview of the entire system (there are some special utilities which sometimes allow users to search all volumes, but it is usually difficult to access and use, especially when compared with a tree structure.

Moving Data

All of these signals, voltages, and programs must get from one place to another when still inside the computer or going to and from the peripherals. Parallel transmission is the normal way in which a computer sends data because of the built-in word length of 8 bits. Such parallel travel explains the fancy "ribbon" cables seen connecting the disk drives, printer, or other devices to the computer. Eight separate wires are sending signals simultaneously, or "parallel." Since telephone data is all sent 1 bit at a time, or serial, the 8-bit data must be converted to single-file data. To do this requires a special type of card or interface, sometimes built-in, sometimes not. Most serial interfaces that microcomputer users are likely to use are an RS-232C standard.

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But a serial arrangement brings with it new problems. For starters, it is slower than parallel. There must also be some way for the receiving computer to know when one word begins and another one ends. To do this there are special "stop" and "start" bits used. This is asynchronous communications that are used by microcomputers in this form, since the computer depends upon these stop and start bits instead of a timing mechanism to "synchronize" all data. The opposite of this is known as synchronous communications, used mostly with mainframe computers.

Another bit is also used to make sure that things add up correctly, and so "parity checking" is sometimes used to tell if each word is received properly. It comes in two states--odd and even. Parity odd means that the number of 1's in the character plus the parity bit add up to an odd number. Even parity bits add up to an even number. But the truth is that parity is rarely used in microcomputer communications (parity off). So, a special, microcomputer-based system was developed by Ward Christensen and bears his name, the "Christensen Protocol." It is also known as Xmodem Protocol and other names as well. Such a system ensures that the transmission of a program between two computers is error-free. Other protocols exist, but Xmodem is the most widely used.

The RS-232C Standard Interface

To handle the exchange of data between computers, a special interface standard, the RS-232C, has been developed (though it should contain "C" at the end, it is often dropped). This serial interface provides a predetermined set of connections or signals used for data communication. Data going to and from these serial interfaces is sent through cables. "Standard" here means a loose standard. That is, it has been agreed that an RS-232C serial interface operates with 25 pins or wires defined for use in a specified way. Unfortunately, not all of the pins are used, sometimes only as few as three, and this is especially true of the cable used to connect the serial interface to the modem. Getting the right cables and interface card to

make the computer and modem work properly can be a great maze of problems, so when in doubt, it is best to buy the modem and cable at the place where the computer was purchased.

Digital vs. Analog

Data transmitted over the telephone line is analog, continuous modulating frequencies. Since the phone company would not change the way it does business just for a bunch of micro users, someone had to invent a way in which the computer could send its digital information using the analog signals of the telephone company. The result was the *modem*, a device which takes the digital code and transforms or modulates it into analog and the modem at the other end transforms it back again (demodulate) into digital. "Modem," thus stands for **modulator-demodulator (Mod-dem)**. Even though two computers may have incompatible operating systems, it is still possible to exchange files over the phone lines from one system to another without difficulty, since the modems standardize everything that goes through them. In this way, two otherwise incompatible computers, such as the Apple and IBM, may exchange programs with impunity. A special interface cable may even be used to exchange data, known as a "null cable." This links up the serial ports of the two computers making a modem unnecessary. The computers must be very close in order for this to work. Of course, even if a program has been converted in this manner, it will not work if the programming languages are incompatible.

Modems

Many modems will work with a variety of computers, provided that a proper interface and cable are obtained. However, not all bulletin board software will support all modems, so if it is unclear as to compatibility, the software vendor should be consulted before purchase.

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Modems may be differentiated in their ability to transmit data at a specific speed. Speed is known in computer parlance as "baud," which can be understood by dividing the baud by ten with the resulting number equaling the number of characters per second (cps) being transmitted by the modem. Speeds range from 110 to more than 10,000 baud, though standard baud rates for a BBS are 300, 1200, and 2400 bits per second.

There are two basic kinds of modems--acoustic and direct connect. An acoustic modem is one that uses a set of rubber cups to cradle the telephone. It is rarely acceptable for the operation of a BBS. The direct-connect modem is one which accepts the modular jack of the telephone. A telephone may or may not be present, since the direct-connect modem does not require one.

Direct-connect modems may be divided into internal (plug-in), and stand-alone. A plug-in modem fits neatly within the computer (includes RS-232C), and while complete, it is machine-specific. The stand-alone modem, on the other hand, may usually be used on more than one machine if the proper interface and cable are available (*i.e.*, user supplies everything but the modem proper, including the RS-232C port).

Modem transmission is also duplex (two-way). Simplex is one-way transmission; television and radio being two good examples. A telephone conversation is an example of duplex transmission. Duplex, however, may be either full or half. Full-duplex is transmission in both directions at one time; half-duplex is transmission in only one direction at one time. Most modems will operate at either full- or half-duplex. To operate at full-duplex, a modem will transmit at one tone while listening for another.

Bell 103/212

Bell Telephone has developed two communications standards in wide use, Bell 103 and Bell 212. Bell 103 means that communication is possible at 300 baud, 212 means 1200 baud. Bell 103/212 means 300 and 1200 baud.

Selecting a Modem

Modems have changed a lot in the past few years, most dramatically in price. A 1200 baud modem can now be purchased for under \$100, whereas a 300 baud modem used to cost four times that much. The drop in the price of the higher speed modems has also changed attitudes about modems; 300 baud is no longer considered adequate for most uses. A survey taken by a popular Chicago BBS showed that its users (predominately IBM PC owners) owned the following percentages of modems: 300 baud, 4 percent; 1200 baud, 69 percent; 2400 baud, 27 percent. 1200 and 2400 are particularly good for downloads, where time online is a critical factor to users. If a 1200 or 2400 baud modem is selected, it is still a good idea to be able to accommodate 300 baud as well, since not all callers will have the higher speeds and it would therefore be impossible for them to call. At a minimum, a modem for BBS software must have an auto-answer feature, as well as full-duplex capability. Beyond that, it is strictly personal choice. Of course, some BBS software will dictate a specific modem or a list of modems from which to choose.

The "Smart" Modem

A "smart" modem, has several advantages. In fact, the Hayes Smartmodem has become a standard. It is easy to find many compatibles or clones on the market which try to emulate the Hayes. Hayes compatibles are substantially lower in price than the Hayes itself. If a clone is purchased, it should be 100-percent Hayes compatible. One popular modem, the Hayes Smartmodem, is close to being a standard, and will work with a Zenith (an IBM compatible) by simply connecting it to the proper port (a built-in interface) at the rear of the computer. With an Apple IIe, however, a card such as a superserial card (RS-232C) must be inserted into one of the eight internal slots and the modem connected to it. For openers, there is a built-in speaker for listening to the activity over the phone line. This can be handy when dialing out and a busy signal is encountered, or a no answer, or a human, none of which would be known by simply viewing the computer screen. In addition, with the aid of 4K of ROM instructions, smart

modems will automatically adjust to baud rates, accommodate a command buffer of up to 40 characters, dial pulse or tone, and count the number of rings. Light-emitting diodes (LEDs) on the front of the modem indicate when it is ready for use, terminal ready, sending or receiving data, off-hook, or speed. A set of eight dip switches are located inside the front-end cover of the modem and allow for changing defaults.

A Checklist of What Can Go Wrong

What if it does not work? One way or the other, it will be necessary to pinpoint the trouble. The simplest things should be checked first. Something familiar to home computer owners is the "dip switch." There are usually two sets of these on a serial card, and one on the modem as mentioned previously. By setting the dip switches properly, it is possible to make the modem and interface cards work in a variety of combinations with a variety of modems and computers (the reason for so many possible settings is the total lack of standardization of equipment in the computer electronics world. Manufacturers do not know in advance what equipment will be used with their equipment). If the modem does not work properly, it may be that one of the dip switches is set incorrectly. The manual should be consulted.

1. Is the modem switched on? Is everything plugged in?
2. Is the modem connected to the micro? Is the modem plugged into the telephone line?
3. Is the cable the proper one? (Check both the modem manual and the computer or interface card manual, and check with the vendor to make sure the cable is correct. It should not be too difficult to tell if the cable has all of the right pins.
4. Check the dip switches on the modem.
5. Check the communications program settings. Is it set for the right COM line? Right baud rate?
6. Is the telephone line working?
7. If all else fails, after rereading and rechecking, take the microcomputer and peripherals in for service.

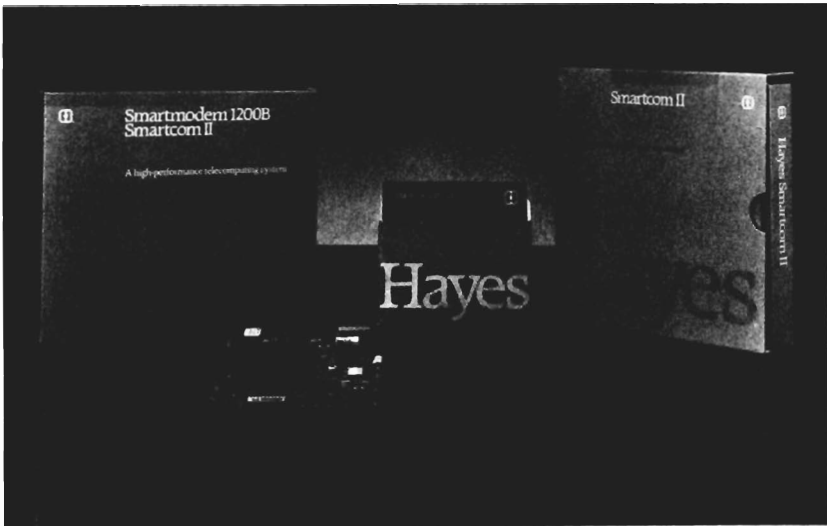
Some Popular Modems

D.C. Hayes

D.C. Hayes Micromodem IIe. Baud: 300. This is a self-contained, direct-connect modem which completely fits inside the Apple IIe. It is not RS-232C. It comes bundled with *Smartcom I* telecommunications software. \$329.

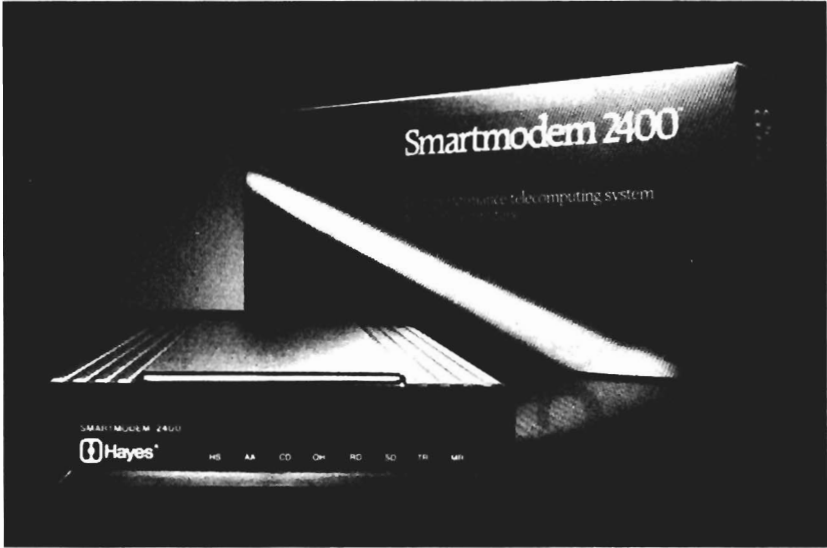
D.C. Hayes Smartmodem 1200. Baud: 300/1200. It is RS-232C, direct connect. The Smartmodem series comes with a set of option switches located inside the modem. Snap the front plastic cover off and a set of dip switches allows for a number of configurations. There is an on/off switch on the rear of the modem, and a row of red indicator lights on the front. \$599.

D.C. Hayes Smartmodem 1200b. Baud: 300/1200. This modem is almost identical to the Hayes 1200, but it is mounted on a board for the IBM PC, and is not RS-232C. *Smartcom II* is bundled with this system. \$489.



The D.C. Hayes Smartmodem 1200BTM is a full-featured modem for installation in half- or full-card slot.

A Hayes Smartmodem 2400 is available for \$899 and a Hayes Smartmodem 2400b (for the IBM PC) is available for \$799. Baud: 300/1200/2400.



The Hayes Smartmodem 2400.



The Hayes Smartmodem 2400b; interior view.

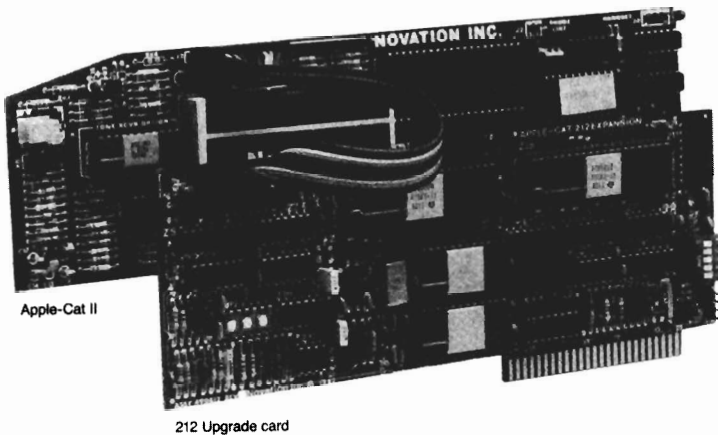
Hayes Smartmodem 300. 300 baud version of the Smartmodem 1200. *Smartcom I* terminal software is included. \$199.

Novation

CAT is an acoustically-coupled modem. Baud: 300. \$169.

J-CAT Modem is a very small external direct-connect modem. Baud: 300. \$149.

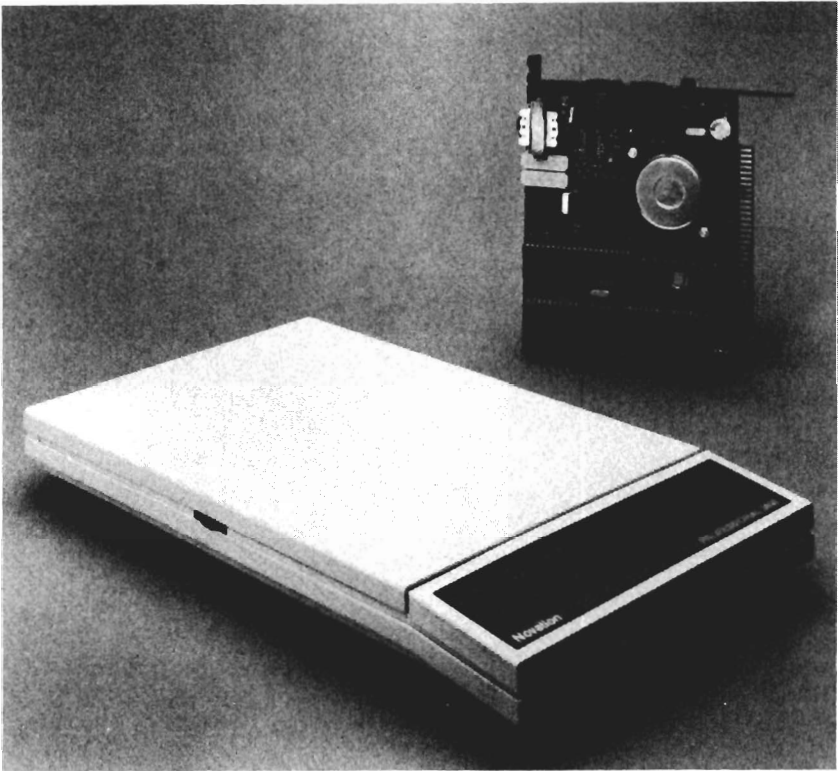
Novation Apple-Cat II is a direct-connect internal modem for the Apple computer. It also comes with a built-in RS-232C port for use with a printer. The Apple-Cat is so sophisticated that it comes complete with software that will run unattended for calling up networks and retrieving mail. A status line across the bottom of the screen keeps the user informed. In addition, there is a built-in BSR controller to connect directly to home wiring to control home appliances, lights, or other electrical gadgets. Baud: 1200. \$319 (most users will also wish to purchase the 212 upgrade which allows full-duplex at 1200 baud. \$349).



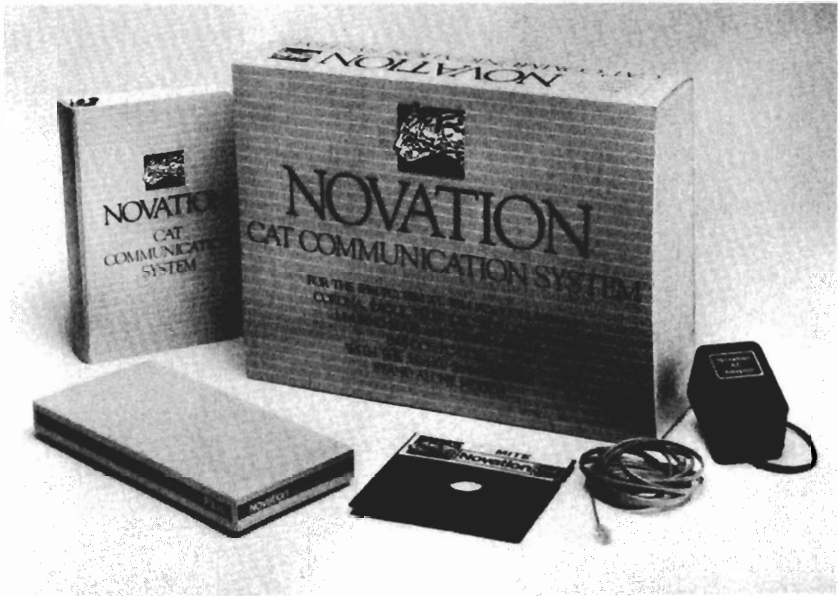
Novation Apple-Cat II, with 212 upgrade card, interior view.

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Novation 2400 Professional has built-in error checking (MNP protocol), is Hayes compatible, auto-answer, auto-dial, and is mounted on an internal half-card with an external control console. It comes "bundled" with or without *Mite* data communications software. There are models available for the IBM PC and compatibles, and the Macintosh. Baud: 300, 1200, 2400. \$895 (without software, \$795).



Novation 2400 Professional, exterior (foreground) and interior (background) views.



Novation CAT communication system software.

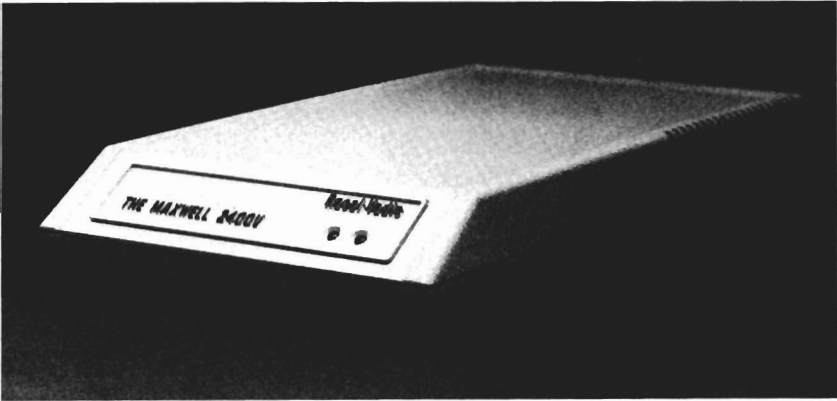
103 and 103/212 Smart-Cat Modems are direct, external, RS-232C compatible, and auto-answer. Baud: 300 (102 Smart-Cat), 300/1200 (103/212 Smart-Cat). \$249 (103 Smart-Cat), \$595 (103/212 Smart-Cat).

Novation also offers a special low-cost modem adapter (acoustic coupler) for connecting a telephone handset to the computer. It may be connected to the computer's internal modem or to an external modem using an RJ11C jack. The handset then attaches to the adapter. Baud: 300/1200. \$129.

Racal-Vadic

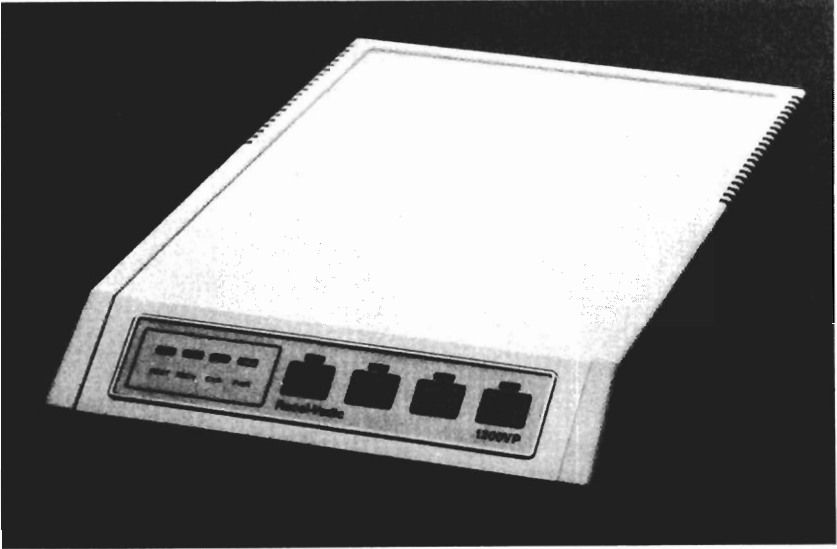
The 1200PA will dial automatically, the modem itself, if desired, a push button panel and liquid crystal display. It has auto-dial and auto-answer, stores 15 telephone numbers, auto log-on sequences and descriptions in non-volatile memory, asynchronous or synchronous data formats, and uses the new MNP error control system. Baud: 300/1200. \$495.

2400V (The Maxwell Modem) is a stand-alone modem for any microcomputer. Features include: Hayes AT compatible, automatic voice/data switching, asynchronous or synchronous operation, auto-dial and auto-answer, automatic adaptive equalization to assist in better transmission over noisy or poor quality phone lines, built-in speaker. Baud: 300/1200/2400. CommuniKit package (GEORGE terminal software, prewired interface cable) is available as an option. \$295.

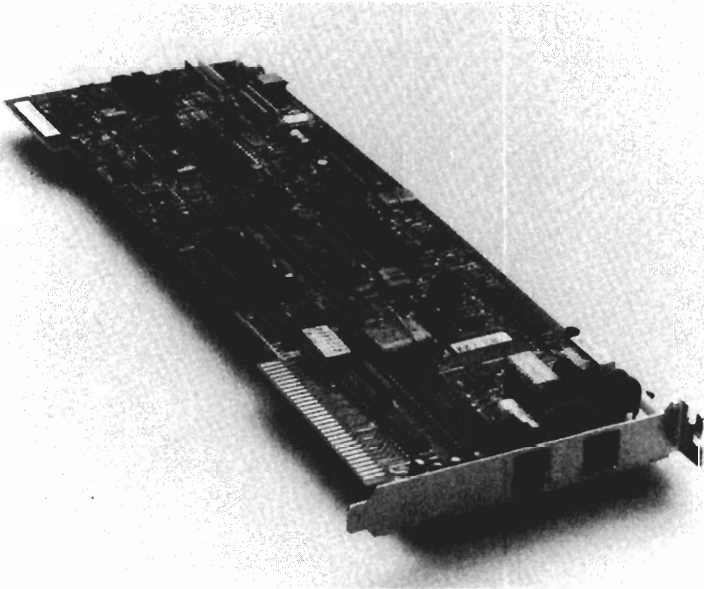


Racal Vadic's Maxwell ModemTM 2400V desktop model operates at 2400, 1200, and 0-300 bps full-duplex. Photo courtesy of Racal Vadic.

1200VP (the Maxwell Modem) is similar to the 2400V, but it only operates asynchronously at 300 or 1200 baud. GEORGE software optional. Light-emitting diodes (LEDs) on the front of the modem indicate current mode or operation. \$350.



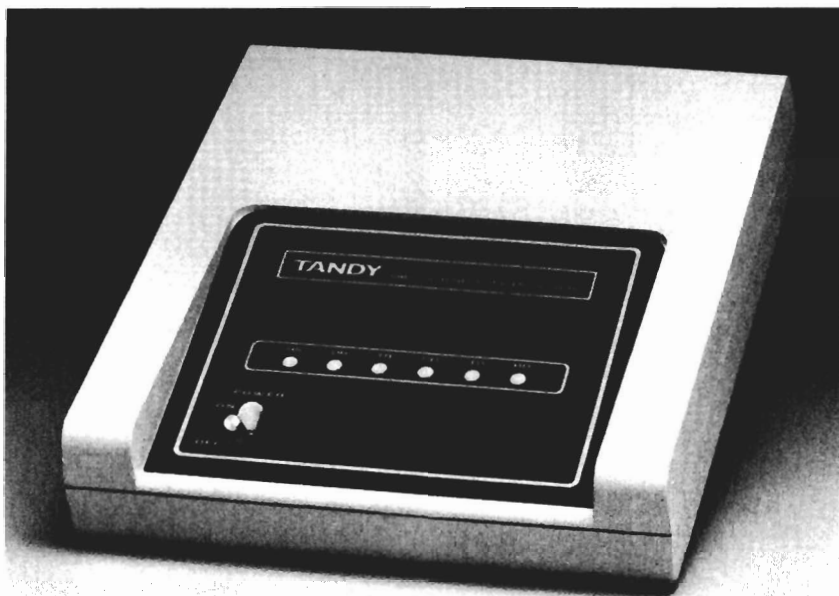
Racal Vadic's 1200VP, a 1200 bps asynchronous modem with enhanced AT dialog commands. Photo courtesy of Racal-Vadic.



The Maxwell ModemTM 1200PC IBM/Portable/XT Compatible.

TRS-80

TRS-80 DC 2212. A logical choice for anyone with a TRS-80; Radio Shack sells the cables and other accessories. This fully programmable modem is Bell 212A compatible and automatically selects for 300/1200 baud. Baud: 300/1200. \$399.95.



TRS-80 DC 2212 direct-connect modem.

U.S. Robotics

U.S. Robotics produces at least eight different modems, which serve any need imaginable.

The Courier 2400 is a fully Hayes Smartmodem compatible external modem. Included are LED indicators, auto-dial, auto-answer, asynchronous, automatic speed selection, and speaker. Will operate with most terminal

software, though it will also work with the Telpac from U.S. Robotics. Baud: 300/1200/2400. \$699.



The Courier 2400TM stand-alone auto-dial modem by U.S. Robotics, Inc., provides complete dial-up data communications capabilities at 2400, 1200, and 300 bps. It also is fully AT-command set compatible.

The Auto Dial 212A is an auto-answer, auto-dial external modem. It has LED displays. Baud: 300/1200. \$449.99.

The Password 1200 is an external modem with auto-answer, auto-dial, and RS-232C cable. Baud: 300/1200. \$449.

The Password 300 is an external modem with auto-answer, auto-dial, and RS-232C cable. Baud: 300. \$199.

Microlink 2400 is an internal modem for the IBM or compatibles. It has all of the features of the Courier 2400,

including auto-answer and auto-dial. Baud: 300/1200/2400. \$699.

Microlink 1200 is an internal modem which has auto-dial, auto-answer, and speed detection. Baud: 300/1200. \$449.

Additional Information

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Choosing Terminal Software

Terminal software is not essential to run a BBS, but it does greatly enhance one's ability to call other bulletin boards and to download free software or files. Some terminal software can be used as a simple form of bulletin board by answering the telephone. Friends may call and leave files which is all that some people may need.

The following is a list of functions that a telecommunications package should perform, especially if is to be used to access bulletin board systems or download software.

- *Line editor*--usually primitive, but is capable of simple text editing and printing material that has been copied to the buffer or files on the disk.
- *Macros*--in a sense routines that allow automatic typing. For instance, when calling CompuServe, communications software with macro capability can be set to automatically dial, log on, and even download files unaided. Macros excel in usefulness when a system is accessed frequently.
- *Xon/Xoff*--permits the stop and start of communication between computers. Both computers must support Xon and Xoff. If the computer being accessed does not support it, data may be lost during every halt mode. Xon/Xoff is also supported by some computers as part of a protocol file

transfer. It is not usually available on a mainframe service.

- *Protocol file transfer*--a high speed, error-checking routine. Some programs support several types, the most popular being Xmodem (Christensen Protocol) and ASCII.
- *Character filtering*--removes unwanted control characters that can interfere with screen output or the printing of files.
- *Auto-redial*--continues to dial a number until a contact has been established. Usually a program will alert the operator once a connection has been established.

Some Good Terminal Programs

ASCII Express (ASCII Pro) (United Software) is a longtime favorite with a large text buffer (64 sectors with an Apple II with 64K of memory), a good line editor, and many advanced features. It supports Xmodem protocol, and five screens of default parameters which may be changed. Since the program is not copy-protected, different versions of it may be configured and saved to disk separately to boot when needed. Macros may be created and stored for automatic log on to any system. Despite its sophistication, *ASCII Express* is easy to use; only a few of the more advanced features are complicated or difficult. An excellent, detailed manual is included. *ASCII Pro* easily adapts to the Micromodem II, IIe, Smartmodem, and Smartmodem 1200. It supports 110, 300, 1200, and 2400 baud. Several versions are available:

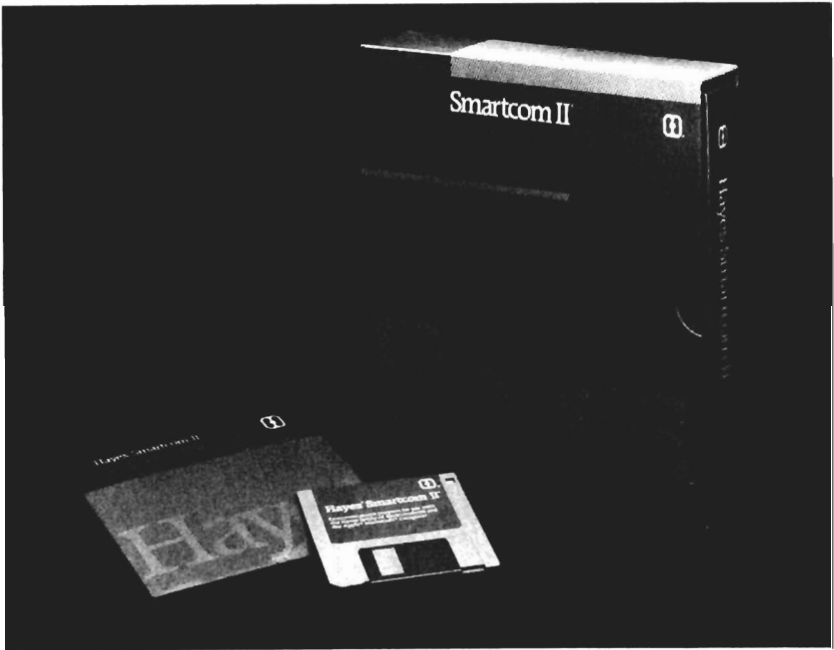
- Apple DOS 3.3 \$129.95
- Apple ProDOS \$129.95
- Apple with CP/M \$149.95
- Apple with PASCAL \$129.95
- IBM PC MS-DOS \$ 84.95

Crosstalk (Microstuf, Inc.) is a popular CP/M program which supports Xmodem for the IBM PC, but will work on

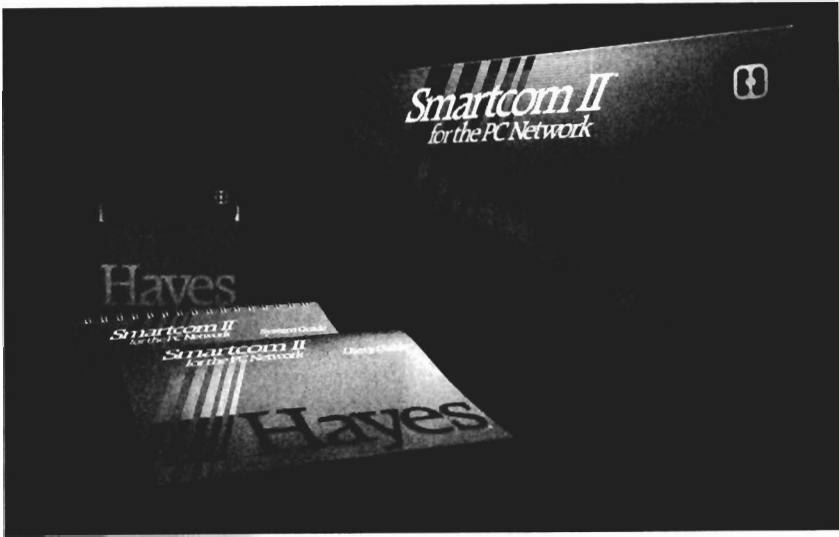
almost any CP/M computer, including a CP/M equipped Apple.

The Mite Data Communication Software (Novation) is a menu-driven package especially made for use with several of the Novation modems listed previously in this chapter. It handles Xmodem, Clink (to communicate with *Crosstalk*), Hayes (for communicating with *Smartcom*), Mite (its own protocol for multifile binary and text transfers), and Text (check sum-verified text transfers to mainframes) protocols. The system is bundled with the Novation CAT Communication System for the *Smart-CAT-Plus* modems.

Smartcom II (D.C. Hayes) is bundled with the Hayes Smartmodem 1200b and Hayes Micromodem IIe. If purchased separately, *Smartcom* costs \$149. It is available for the IBM PC and the Apple Macintosh, and a special version will work as a PC network through which users share ports and modems. 512K minimum required on each computer in the network. \$599.



Smartcom II for PC Network. (Courtesy of Hayes Micro-computer Products, Inc.)



Smartcom II for the PC Network. Courtesy of Hayes Microcomputer Products, Inc.

Transcend (Transcend Corp.) has a version for the Apple II, and one for the IBM PC. Three different versions exist for the Apple. The first and second support protocol file transfer, but not Xmodem. *Transcend 3* also adds electronic mail capability; *i.e.*, the program will automatically transmit files to up to 128 other Apple computers. This is a menu-driven, copy-protected program. \$89 (*Transcend 1*), \$149 (*Transcend 2*), \$275 (*Transcend 3*). The higher levels may be purchased for the cost of the upgrade later. A separate version, *Transcend/PC*, is available for the IBM PC. It supports Xmodem transfer and most of the features of *Transcend 3*.

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SOFTWARE SELECTION

There is no such thing as perfect bulletin board software. Almost every software package does something well, other things not so well, and since no one has looked at all of them, comparisons are difficult. To select BBS software, it is necessary to do three things: define a need, examine software for features, and examine software for quality.

Defining a Need

First, the very fundamental question of purpose must be defined. The clearer this is done, the easier the task of selecting software. Here we are not talking about such things as error-handling, but rather features like viewing the membership list, or uploading or downloading files. It helps to ask:

- What is the focus of the BBS?
- Who is going to call it?
- What features are planned or desired?
- Are online surveys, conferencing, private messages, chatting, or CB simulation going to be available?

Examining the Program

Another part of the job is the same thing that we do when purchasing an automobile, a TV, or a pair of shoes--investigate. We may know that we want a 25-inch stereo, color television, but we also need to know which TVs have these and other features. This is usually objective data--either software has or does not have a certain feature--and it can generally be obtained from the vendor, reviews, and from the individual software profiles later in this chapter. Here are the most important questions for a BBS sleuth to ask:

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- How much can the program be customized; how much programming is required; and are the sysop functions menu-driven?
- Is backup protection provided?
- What hardware will the program support?
- How much backup support can be expected?
- What features are provided (chat, conference, downloading)?
- Is remote sysoping possible?
- Will it support more than one port?
- Does it support more than one port well?

But we're still not finished. The third part of the process is to determine if the software which fits the bill is up to the task, with respect to quality.

- How reliable is the software (does it crash often)?
- How friendly is the program to callers?
- Does the message system have all of the desirable editing features?
- Is there documentation (manual, notebook, or online)?

A Checklist

Customization

One vendor, when asked why a technical point was not spelled out in his manual product, responded, "I never expected that the general public would buy this; I always expected users to know that sort of thing." Well, programming is not a requirement to run a BBS, but it does help, and certain software packages may require that the user not be afraid to make an occasional foray into the source code. Most of the programming tasks merely entail changing something that the sysop does not like about the program. Other things are usually spelled out to some degree in the documentation. Much of this rudimentary programming can be learned on the fly, even though there are many examples of fine bulletin boards having been extensively revised by their operators. How

deeply one becomes involved in programming is purely a decision about how personal or custom a product is required.

Backup Protection

A good BBS program can be copied with simple copy software. If not, a package may not be a good investment, since it does not make sense to have the system crash when the disk "blows," and then wait for a new copy to be shipped from the publisher.

Hardware Support

Not all bulletin boards support all hardware, to say the least. To support a database of many megabytes, the program must be able to utilize a hard disk, or other equipment that will give the desired results. For example, a popular and very fine bulletin board, *A-c-c-e-s-s*, will support four floppy disk drives, but not a hard drive. Some bulletin board systems support only 300 baud. It may be possible to alter some software into doing things another way--maybe.

Error Handling

It pays to check with a local and practicing system operator to see if a software package is reliable. A major flaw with bulletin board software has been the tendency to get "hung-up" (stuck in the middle of a routine). For example, if a caller disconnects suddenly (carrier loss), will the program become disabled? If it does so, even occasionally, it will remain tied up until the system operator returns to correct it. A good program should have this problem no more than once every few months.

Documentation

Documentation is often poorly written, or nonexistent, or missing something. This sentiment is expressed by sysops who run all types of boards, even when documentation is voluminous. It is often written by the people who wrote the program; they may program well, but are unable to

communicate in plain English. Also, documentation for a complicated bulletin board is sometimes written as an afterthought. Good documentation has a point by point description of startup, maintenance, and provides help with programming or customization, even to the point of printing the program code with an accompanying explanation.

Backup Support

It can also be a good idea to telephone the vendor before making a purchase to ask some questions about the software and what kind of arrangements are available in the likely event that some technical question will need answering. Vendors that seem uninterested or difficult to reach may be a poor choice.

Boards Within Boards

Some bulletin boards have only one alternate board, while others, such as *ABBS*, *BBS-PC*, *GBBS*, and *TBBS*, have a number of "subboards," sometimes referred to as "conference areas," with messages grouped around a particular interest. A conferencing feature should permit a search through one or more message bases, as desired (see "Messages" entry, p. 45, for more details on message capabilities). *Conference Tree* will allow messages to be left in a "tree" structure with branches relating back to an original root message.

Help Files

Help files, sometimes searchable, are important to the caller. If a board is not a well-known type or the caller is a neophyte to the world of bulletin boards, then this file is vital. Some software allows more experienced users to abort lengthy menus. For instance, an "eXpert" mode may be enabled by hitting the "X" from the selection list. This will abbreviate the main menu, saving the experienced caller time. Help files should be easily accessible and detailed when needed, invisible when not needed.

Upload/Download

Free software on a BBS requires some way for callers to both upload to the system and to download from it. People will download files from a system, and reciprocate by uploading files as a gesture of gratitude. In an effort to be helpful, some overly enthusiastic callers may upload copyrighted software, either not realizing it is illegal, or not caring. All uploaded software should be examined first to ascertain that it is in the public domain. If it shows evidence of copyright, it should be deleted. An upload function requires some type of protocol such as Xmodem to ensure error-free transmission of a command file (software program). ASCII files require nothing special for sending or receiving, and this may nearly always be done by two computers, though some BBS software is not set up to support ASCII files except as long messages. Most will, but some systems are strictly message systems, or will not permit downloads or articles to be posted conveniently. For instance, some require that program lines be altered for each file that is included. Some provide for only a set number of files.

Messages

This is the most important feature of most bulletin boards. There are substantial differences between how programs handle a message base, ranging from security levels, and private mail, to the number of messages which are supported and auto-deletion of old messages.

A good system must be able to save messages both publicly and privately.

It is important to have a system which will allow the system operator to determine the maximum length of messages, especially if disk storage space is at a premium.

A primitive line editor which would be worthless in any other situation, will work well for simple editing of messages. Some editing capability is important, since correcting an error with some software requires rewriting

an entire message. Some systems allow the sysop to save messages to disk as a file before deletion.

A search or retrieve capability looks for a particular word or phrase in a message. Many systems keep track of the last message read by a caller and begins with the next on each subsequent visit.

An obscenity filter is the first line of defense for sysops worried about obscene messages or problem callers. It consists of a sysop-defined list of words which the program will search each time a message is left. When a forbidden word is found, the entire message is ignored by the system. A few systems hold messages in abeyance until read and approved by the sysop.

Menus

All boards have a menu from which callers make selections. Seven items on a menu is the maximum number that users should have to deal with at one time--this is something to keep in mind when constructing one. A main menu may be used to refer callers to submenus. A submenu may be available for downloading, for example, with another available for features, etc.

Full Text and Boolean Searching

Few bulletin boards support full text and Boolean search. Boolean search is highly sophisticated and makes use of operators such as "AND," "OR," or "NOT" to search a database. A system such as *Micro-Cairs* will do so, though it is not really a BBS. It can be operated as an online system and will support many BBS functions, and will be customized by the vendor to any degree desired. Such a system is more expensive than typical hobbyist developed and run bulletin board software.

Screen Parameters

While most software will accommodate most micros, not all will provide adjustable screen width. Notice if the program asks for screen width at sign-on. If so, the output to the

computer will precisely match that which the caller's screen can handle. Without this function, either all messages and articles must be entered at 40 columns, or, if not, 80-column-wide material will "wraparound" on the screens of user with only 40-column screens, making it difficult to read. Most systems also allow users to change other parameters, including clear screen character, nulls, etc.

Security

There is more than one type of security: computer or hardware security, password security, file security, etc. Software security is usually handled through "levels." Each caller will be assigned to a level which permits access to certain areas of the board and no other. The highest level is the system operator which permits access to everything. Depending upon the security clearance, two callers to the same BBS may see two very different boards.

Networking

A few software packages, such as *Fido*, *Usenet*, and *Diversi-Dial*, offer late-night dialing to other bulletin boards for the exchange of messages.

CB Simulator

Conversations (chatting) with four or five people at once can be exciting, though sometimes confusing. *Diversi-Dial* is one program which excels at such a multichat routine, something formerly available only on big systems such as CompuServe.

Games Online

Games, though rare, are sometimes played online. To be worthwhile, more than one port into the computer is needed for interactive play among several participants. Some solo games are possible, but are always text such as "Adventure" or "Hunt the Wumpus." *Great Bulletin Board System (GBBS)*, discussed on page 55, provides for an adventure text game which may be modified by the sysop.

Comments File

Callers must be able to leave feedback or comments online to the operator before leaving the system. This serves as a quality control device, allowing each caller to leave notes on erratic software behavior. They may also leave comments and complaints about the subject matter or content of the board. A few, unfortunately, will abuse this component.

Housekeeping and Remote Sysoping

Not all systems are equal in the amount of housekeeping chores which they will perform without operator intervention. These range from the automatic assigning of passwords, as was explained previously, to automatic deletion of aging messages. Some, but not all programs, allow operators to call from a distant location to delete old messages and check on activity. This is a good feature to have if equipment is located in a place not easily or frequently accessed, or if there is more than one sysop.

Notes on Major BBS Software Packages

Most of the major types of software are represented in this section. Vendor addresses are listed in Appendix B. I have attempted to give all of the basic data, including price, hardware requirements, as well as where to purchase it. Each is also annotated to give some feel for whom it is intended, features that are outstanding, features that are bad or nonexistent, baud rate at which it will operate, etc.

Name: *A-c-c-e-s-s*

Baud: 300/1200

Hardware: Apple II+/IIe, two disk drives, upper/lower case adapter, clock card, Hayes Micromodem II or Omnilink 1200 Communications Package. The system does not support a hard disk drive.

Cost: \$250
 \$ 25; custom-name module
 \$ 25; auto-delete module
 \$ 25; auxilliary file module
 \$ 50; all three modules above

Vendor: Information Intelligence, Inc.

Description: *A-c-c-e-s-s* boasts many features, including five levels of security passwords, autolog, subject searching, remote sysop operation, and variable message length. *A-c-c-e-s-s* has a built-in delay for use over time-delay satellite telephone systems. An interesting feature for business users is the online ordering forms. While the system supports two drives, a special Auxilliary File program (\$25) is required to support a third or fourth drive, and no hard disk drive support is available. For sysops to use their own name in the sign-on message, it is necessary to purchase another add-on module for \$25. An auto-delete module which does message housekeeping must also be purchased separately.

Name: *Apple Bulletin Board System (ABBS)*

Baud: 300

Hardware: Apple II, Hayes Micromodem II

Cost: \$69.96, main program; \$20, conferencing module; \$20, downloading module; \$20, uploading; \$20, private mail; \$20, news module (ASCII files).

Vendor: Software Sorcery

Description: This is not a system which I can wholeheartedly recommend, since my own experience with it was poor. On the market since early 1979, it was developed by Craig Vaughn and Bill Blue (the *PMS* programmer). The system is unreliable (at least the early versions were) with bad error handling, causing frequent crashing. One very difficult problem is the need to go in every so often and kill the old messages, since the system has no auto-delete mechanism. While

the program does boast a lot of features, they are only available with the purchase and installation of a number of add-on modules, making it considerably more expensive than the modest price tag for the basic module. Still, a lot of people use it, but probably because it was one of the first bulletin boards available commercially.

Name: *BBS-PC, Version 4*

Baud: 1200/2400

Hardware: IBM PC or compatible or Amiga

Cost: \$149, single-user

\$249, multi-user

\$ 99.95 (Amiga)

Vendor: Micro-Systems Software, Inc.

Description: This BBS has most of the advantages of better BBS programs coupled with the strength of an IBM or Amiga with advantages for both callers and operators. Callers may assign themselves a password, but assignment to any of the 256 levels of security for upload/download, read, write, or for use of any number of the 16 available sections (sub-boards) is by the operator. Downloading may be in four different protocols: Xmodem, ASCII, line, or block transmission modes. Messages may be either public or private, or, when necessary to make way for new messages, deleted by the system. Some of the parameters which may be set by the operator include maximum number of messages, and file uploads. Messages are held in abeyance until read or approved by the sysop, a safety factor which allows an open BBS without fear of objectionable messages being made public.

Name: *Conference Tree--1st Edition*

Baud: 300

Hardware: Apple II, II+, IIe, 48K, Micromodem II

Cost: \$145

Vendor: Synergetic Communications

Description: This package acts as its name implies; messages left by callers arrange themselves into a tree-like structure, with roots, branches, and sub-branches. People may read a series of related messages, going further out on a "limb" by the more they read. Since the system will only support a maximum of 321 messages, it is necessary for the operator to frequently "prune" away old messages. Other features include seven-level password protection and a private section.

Name: *Conference Tree--2nd Edition*

Baud: 300/1200

Hardware: IBM PC and compatibles with 96K, Hayes, or dumb modem (RS-232C), two disk drives or XT hard disk, and PBX/PABX system supported. MS-DOS 1.0 or higher.

Cost: \$295, plus \$5 shipping

Vendor: Synergetic Communications

Description: While similar to the *1st edition*, described above, this IBM version has some additional features, including upload/download of DOS files.

Name: *Dial-Your-Match*

Baud: 300/1200

Hardware: Apple II+, IIe with Hayes Micromodem; Commodore 64 with Commodore 1650 modem; VIC-20 with Commodore 1650 modem; one or two disk drives; clock card optional; IBM or compatible version; requires 256K, two disk drives

Cost: \$ 69; Apple or Commodore 64

\$299; IBM

\$ 99; C-128

\$ 39; VIC-20

Vendor: Matchmaker Enterprises

Description: Callers to *Dial-Your-Match* fill out an online survey about their interests, including sexual preferences, hobbies, likes, and dislikes. The software then does some fancy footwork, makes a batch of calculations, and finally

returns a "match." The callers may then leave a message for a person with whom they were matched. Accounts vary as to the success of this route as a means of meeting people, but it has had some popularity for the past few years. *Dial-Your-Match* is also unprotected software, written in BASIC, making changes and customization easy in fact, encouraged by Matchmaker Enterprise literature). Two disk drives will hold over 700 users, 140 public messages, and 200 private messages. One disk drive will hold approximately half of that amount.

Name: *Diversi-DIAL*

Baud: 300

Hardware: Apple IIe with one to seven modems. Any Hayes Micromodem II or compatible, Novation Applecat II, or the Transcend modem.

Cost: \$475

\$ 5; demo disk

Vendor: Diversified Software Research, Inc.

Description: This unusual package is a "CB simulator." Up to seven people may dial in at the same time and chat with each other or leave messages. The chat function on a micro is usually limited to the caller chatting with the system operator. *Diversi-DIAL*, however, offers callers to chat with up to six other callers. Messages are also handled in a special way. *Diversi-DIAL* stations link together so that they share information (batches of messages). Using a simple coding system, private messages may be exchanged between systems in different cities. At the time of this writing, there were 30 such links throughout the United States, tied through the GTE telenet service PC Pursuit for \$25 per month per member station to provide access to 12 cities. By charging subscribers a small monthly fee,

unlimited access to a national network of *Diversi-DIAL* stations can be provided.

Name: *The Dungeon*

Baud: 300

Hardware: TRS-80, III/IV

Cost: \$99

Vendor: Progressive Computer Services

Description: This hobbyist board supports up to seven separate message sections, and over 30,000 security codes. It is currently being converted to run on an IBM PC. The new system will sell for \$149 and will support multiple callers and an unlimited number of boards. Vendor support is included in the price. While the new board is not available as of this writing, the original TRS-80 BBS had a good track record. Contact the vendor for the latest information.

Name: *Fido*

Baud: 300/1200/2400

Hardware: IBM PC XT, AT, jr., and MS-DOS compatible machines, Victor 9000, Otrona Attache 8:16, Sanyo 555, DEC Rainbow 100 (MS-DOS 2.05 or later). Modems: Hayes Smartmodem 1200 and 2400, U.S. Robotics Courier 2400, Racal-Vadic VA212, DEC DF03, and Ventel MD-212 with WECO EPROM. (Specify hardware to be used when ordering).

Cost: \$100; with manual

\$ 35; manual only

\$ 20; updates

Vendor: Tom Jennings

Description: *Fido* software can be used as a stand-alone BBS or as a node of the Fido Network, Fidonet. It is in many ways similar to other bulletin boards, but the networking feature adds an important dimension. At about 4:00 A.M. each day, the nodes exchange message files. To control the junk mail that many bulletin boards generate, sysops have control over which messages are sent out. *Fido*

supports an unlimited number of users and has excellent security, eight different file transfer protocols, and multiple boards or message areas.

Name: *FoReM PC*

Baud: 300-9600

Hardware: IBM PC, 348K, supports hard disk drive.

Cost: \$99.95; (\$5 shipping)

Vendor: Commnet Systems

Description: *FoReM* supports 10,000 one- to twelve-character user passwords with individual restrictions possible for the time a user may be on the system, number of calls per day, downloads/uploads, files read, messages entered, and messages sent. The system also supports up to 64 individual message bases of 200 messages each and allows the system operator to restrict read or write access to any message base by any user. Message functions include: message editor, reading all new messages in all message bases simultaneously, forward, reverse, or selective retrieval, scanning and marking messages for later retrieval, searching message header and message text, and sending a single message to up to ten users at one time. Protocol file transfer includes Xmodem, Amodem, Kermit, Kermit Batch, Xon/Xoff, up to 20 definable download categories, and 255 access levels. The system has full remote system control and maintenance, an accounting system, password validator/editor, and chat.

Name: *FoReM ST*

Baud: 300-9600

Hardware: Atari 520ST or 1040ST with TOS in ROM, full support of hard disk drive.

Cost: \$99.95; (\$5 shipping)

Vendor: Commnet Systems

Description: Similar to *FoRem PC*, described above.

Name: *Great Bulletin Board System (GBBS) Pro*

Baud: 300/1200

Hardware: Apple II+, IIe, IIc with clock card. DOS or ProDOS versions available.

Cost: \$99.95

\$49.95; advanced file transfer system module

\$49.95; text adventure game system module

\$49.95; dating game module

Vendor: Micro Data Products

Description: *GBBS Pro* is a compiled program (machine language) which operates faster than a BASIC program. It is a professional system with easy editing of an unlimited number of sub-boards, each of which is assigned a level of security. Callers may access only those boards to which they have access. An auto-kill feature maintains each database at a precise number of messages. A survey section will poll users about any subject. Xmodem and ASCII protocols are supported. Passwords are assigned automatically to each user during sign-on, but a security level must later be assigned by the sysop. The entire system operates smoothly and easily; no programming is required. The advanced file transfer module gives the program some additional power, including online help files, upload/download counts, etc.

Name: *Great Bulletin Board System (GBBS) PC*

Baud: 300/1200/2400

Hardware: IBM PC (MS-DOS 2.0 or higher), 256K RAM, Hayes Smartmodem.

Cost: \$95

Vendor: Micro Data Products, Inc.

Description: Similar to *GBBS Pro*, described above.

Name: *IBBS*

Baud: 300/1200/2400

Hardware: IBM PC or compatible

Cost: \$495

Vendor: System Software Services

Description: This is a complete electronic mail and file transfer program. It is user-friendly and simple to get up and running, but despite all of its obvious virtues, the feature most boasted about by its adherents is the technical support provided by the manufacturer; a full year of assistance is available as needed, including any programming, customization, or debugging. *IBBS* also supports a local area network for connecting two or more IBM PCs to take advantage of the additional power.

Name: *Idea-Tree Message System*

Baud: 300/1200/2400

Hardware: IBM PC or compatible, DOS 2.0 up, two disk drives or fixed disk, and any modem with auto-answer.

Cost: \$89; an online demo is available at (206) 932-7125

Vendor: ProtoSoft

Description: *Idea-Tree* features include conferencing of messages, uploading and downloading of files with ASCII and Xmodem protocols and private or public messages. Message or database is limited only by the amount of memory available.

Name: *Let's Talk*

Baud: 300/1200/2400

Hardware: Apple IIe, IIc, 128K, two disk drives, 80-column card

Cost: \$175

\$500; Corvus version

Vendor: Russ Systems

Description: *Let's Talk* will support multiple boards and multiple ports using the Corvus Omninet system for up to 63 callers. Support is provided for both ASCII and Xmodem protocol file transfer. Vendor support appears to be quite high, promising 24-hour online technical assistance.

Name: *Micro-Cairs*

Baud: 300/1200

Hardware: Consult vendor

Cost: Consult vendor

Vendor: Information/Documentation

Description: This is less of a bulletin board than a highly flexible database management system which can be configured to perform online duty. It comes preconfigured from the vendor, including the hardware, if desired. Among its talents is a wide range of indexing techniques, including relational indexing. A built-in and expandable thesaurus helps in the search and indexing process. If an online database of information for special callers, with highly sophisticated retrieval capability is desired, this package is more likely to serve the need than most of the other systems listed in this chapter.

Name: *Micro Messenger*

Baud: N/A

Hardware: Apple II, one disk drive

Cost: \$39.95

Vendor: K-12 Micromedia

Description: This is a system intended exclusively as a local teaching device, since it is not an online system and requires no modem for operation. Students may leave or read messages left by other students.

Name: *Mouse Exchange--BBS*

Baud: 300/1200

Hardware: Macintosh, with Apple, Hayes, or Robotics modem.

Cost: \$39.95

Vendor: Dreams of the Phoenix, Inc.

Description: Uploads and downloads are supported with ASCII and Xmodem protocols. The message base includes automatic reply generation, sysop created categories for posting, and mail receipt acknowledgment. Messages may be scanned by headers and edited; there is

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no limit to message size. The system maintenance routines take advantage of the Macintosh mouse and windows, including validation or deletion of users, altering the message categories, and other configuration options.

Name: *Networks II*

Baud: 300

Hardware: Apple II+, IIe, 48K, Hayes Micromodem II

Cost: \$99

\$35; updates

Vendor: High Technology

Description: Users have access to eight different bulletin board topic areas, as customized by the operator. The program assigns passwords automatically, but full access is granted only after the operator has been verified and the request approved. Private mail, public bulletins, and download/upload of software are all supported programs. Callers may view the membership list.

Name: *PBBS--Personal Bulletin Board System*

Baud: 300/1200/2400

Hardware: Apple II+, IIe, IIc, 48K minimum, one disk drive, DOS 3.3, any internal or external modem, and superserial card.

Cost: \$55

Vendor: Dataware Corporation

Description: Individual passwords, security levels for each user and for each section, upload/download using ASCII text format only, and an unlimited number of message bases are supported.

Name: *PBBS--Professional Bulletin Board System*

Baud: 300/1200/2400

Hardware: Apple IIe, IIc, 128K minimum, two disk drives, ProDOS, any internal or external modem, and superserial card.

Cost: \$79.95

Vendor: Dataware Corporation

Description: This is a heavy-duty version of the *Personal Bulletin Board System* described on page 58. It supports individual passwords, security levels for each user and each section, upload/download using ASCII text format or Xmodem protocol, and an unlimited number of message bases (multiboards or conference areas). In addition, over 140 security "flags" per user, and 99 levels of access and individual system usage limits are definable. Passwords are ten characters each. The features of *PBBS* seem to be without limit, since they also support a multiport network configuration, allowing more than one caller to be logged on at a time. A "CB Simulator" is included, permitting callers to chat with each other. Other features include remote sysop capability for distant maintenance; a message editor with full cursor--control, left, right, and center fill justify modes; a built-in "trashcan" dictionary (obscenity filter); and the ability for the board operator to create online surveys for taking orders or for use as a questionnaire or membership application. Any number of files may be maintained in any of the sections. Individual passwords, security levels for each user and for each section, upload/download using ASCII text format only, and an unlimited number of message bases.

Name: *PC-Date*

Baud: 300

Hardware: IBM PC or compatible, DOS 2.0 up, two disk drives or hard drive, 128K minimum, any modem with auto-answer.

Cost: \$69; an online demo is available at (206) 932-7125

Vendor: ProtoSoft

Description: *PC-Date* provides for up to 999 user accounts, 450 private messages, and 20 public messages. It is flexible in its operation and features, but its main function is a dating

service which includes the availability of two questionnaires: heterosexual or user-specified sexual preference (state desired choice when ordering). It may be operated as an open board or as a restricted system by specifying one. No programming necessary; ProtoSoft will make updates or custom questionnaires available for an extra charge.

Name: *PMS (People's Message System)*

Baud: 300

Hardware: Apple II, 64K, two disk drives, CCS or Mountain Hardware clock card.

Cost: \$300

Vendor: Bill Blue, Marilla Corp.

Description: *PMS (People's Message System)* is a very good system, though the documentation is weak. Major features include a user-definable obscenity filter, message base, upload/download, and feature section. There are extensive online help files, and the system is very friendly to first time or inexperienced users. It also has a number of good housekeeping functions, including auto-deletion of old messages. There is a manual system for giving callers log-on IDs. The board is sent as an open BBS, but it is possible to make a code change which makes it impossible for anyone without a log-on ID to leave a message. While users have access to a list of user parameters to change for their particular hardware and needs, it is not possible for the system to send files at a specified line length, so if a file is formatted in 80 columns, a caller with a 40-column screen will suffer from "wraparound" on the screen.

Name: *RBBS (Remote Bulletin Board System)*

Baud: 300/450/1200

Hardware: IBM PC or compatible

Cost: \$8

Vendor: Capitol PC Users Group

Description: This "old-timer" is very popular and is the main source of free CP/M software in the world. The current version available through this prestigious user group is capable of allowing multiple-users, conferencing, messages, and system bulletins. The message base permits passworded messages and private mail, scan and quick scan, and auto-prompt of current mail for user. Most PC users will probably want to purchase a copy to experiment with even if they finally decide to go with something else. The file transfer system accommodates ASCII file and Xmodem transfer (8-bit). The sysop may define various "directories" for categories of downloads. *RBBS* will "remember" which, if any, files are new since the last time a caller was online. It is probably the best bargain available today. It is also considered easy to operate.

Name: *RCP/M (Remote CP/M)*

Baud: 300/1200

Hardware: CP/M-based microcomputers

Cost: Public Domain

Vendor: Sometimes in the literature, *RCP/M* and *RBBS* are used interchangeably. Check with any CP/M user group for details or with mail order user groups. For more details check *The Free Software Catalog and Directory* by Robert A. Froehlich (Crown, 1984). This book gives extensive information about public domain CP/M programs and how they may be obtained. It also contains a complete listing of the CPMUG and SIG/M libraries of software.

Description: Such CP/M software provides a lot or a few features, depending upon how much time the sysop wishes to spend. Typically, they offer only downloads with the aid of Xmodem protocol, and sometimes a message base,

though there is nothing to stop anyone from using such a system for many other things.

Name: *TBBS (The Bread Board System)*

Baud: 300 or 1200

Hardware: Any microcomputer with one disk drive

Cost: \$299

Vendor: eSoft

Description: *TBBS* supports up to 25 sub-boards and will support 255 levels of security. Callers access only those areas of the board which their level permits. The highest security level is the system operator, the lowest, the new user. Callers may be asked to fill out an application online, then assigned preliminary (new user) status until the sysop issues a higher or more appropriate level. Callers pick their own password. The software adjusts to a caller's requirements by asking for terminal width (up to 132 columns), upper or lower case, and specific computer model. According to published reports, it is difficult for a system crasher to break into or damage *TBBS*. Since it is written in assembly language, it is not easy for most people to do much in the way of customization, though menus and log-on messages may be changed or added to if desired.

Name: *Telemessage*

Baud: 300/1200

Hardware: Commodore 64 or 128 (in 64 mode), two disk drives (1541 or 1571), and a Commodore 1650/1670, Hayes, Westridge, Volks, Mitey Mo, or other brands of modems.

Cost: \$79.95

Vendor: Tailored Solutions

Description: Visitors may apply for membership online, and registered members have access to a message base, 50 information "areas," and upload/download with Xmodem. A built-in editor and other functions make this a self-

contained system, with a number of impressive error-trapping routines. The sysop may specify "No Visitors Allowed," the maximum time limit, and user passwords. Three invalid attempts at log on will terminate the connection, as well as 2 minutes of inactivity. Fifty pages of documentation, free system updates for 6 months, and an excellent security system.

Name: *T-Net Bulletin Board System*

Baud: 300/1200

Hardware: Apple II+, IIe with ProDOS, upper/lower case, two disk drives, Hayes Micromodem II, Novation Apple Cat II, or Super Serial card with Smartmodem, Thunderclock Plus, CPS Multifunction Card, and the Apple Clock are all supported (but not required). The system will support any hard disk drive compatible with ProDOS.

Cost: \$100

Vendor: Sentral Research and Development, Inc.

Description: Individual users may change their passwords, modify terminal parameters, and list the user file. Up to 30 separate bulletin boards may be defined by the system operator in an entirely menu-driven process. *T-Net* supports chat, electronic mail (with line editor), time limits, online bulletins (an unlimited number of text files), security access restrictions, and *ASCII Express Pro* Xmodem transfers. Multiple levels of sysop security provide for up to nine sysops. The system has the capability of changing news and other system files from within the program, even remotely. The program is written in BASIC, so customization is possible. The documentation states that users may write their own BASIC add-on modules for "online games," etc.

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Name: *Towne Crier Electronic Information System*

Baud: 300 (Model I); 300/1200/2400 (Model III, IV)

Hardware: TRS-80, Model I, II, III, IV, 48K

Cost: \$69.95

Vendor: Saturday Software

Description: Up to eight separate bulletin boards of 127 messages and 200 files of any length (*i.e.*, 1,600 files and 1,016 messages) are supported. Upload and download feature handles Xmodem and ASCII files. Both users and system are protected by a 16-level password. Password protected messages are visible only to the sender, recipient, and sysop. Files may be nonpublic and password protected. *Towne Crier* will support thousands of members on a single BBS.

Name: *Trade 80*

Baud: 300/1200/2400

Hardware: Radio Shack Modems I, II, III, IV, 48K, Hayes Smartmodem but vendor states it will work with any auto-answer modem (state correct equipment when ordering since patches are installed).

Cost: \$59.99; plus \$5 shipping

Vendor: Joe Agrella

Description: The message system allows both personal and general messages, and supports advanced editing features. All uploads and downloads must be in ASCII. The system gives each new user a password, but final security assignment is by sysop. Multiple boards may be set up, but the system is single-user only. Programmed in BASIC so that users may modify if desired, though no programming required.

Name: *Usenet*

Baud: 300/1200

Hardware: Unix-based systems

Cost: N/A

Vendor: Other *Usenet* operators

Description: *Usenet* is a national network of news and information on the Unix operating system, though a host of other subjects are also discussed. The system lets any user who wishes to become a depot--a news group--for the receipt and storage of large amounts of articles and information about the Unix operating system. The network users are mostly university users, manufacturers, and other people involved in the Unix-related industry. The only way to get involved is to know a *Usenet* operator who will provide the programs as well as the first load of messages and news items. On a regular basis, *Usenet* systems call each other automatically to swap data at a specified time. It is sometimes necessary to sift through large amounts of trivia in order to reach the important news items, but Unix users are universal in their praise.

Free Software

In addition to some public domain software listed in Appendix B, occasionally there are free programs posted on online utilities. On CompuServe, in the Public File Area, two bulletin boards were recently offered. A description for a mini board bulletin for the VIC 20 C-64 color computer read: "This is a mini board. A bulletin board system. Lines 5000-9000 can be added to save info. It holds 50 messages. Starts with user 10001. Mini must stay up or routines to save must be developed or once break in program all data lost. Lines 33-40 can be developed for modem to modem contact..." Exactly how capable it is, is not known, but it is a source of BBS software that is free and may provide programming skills to novices and hobbyists.

A description of another is for, "a well-written mini BBS for the Commodore 64. New 8-bit Punter protocol for direct-to-disk up/downloading, fully supported by a single

disk drive. Hardcopy messages; two optional bulletins; user-friendly. See EXCH64.DOC for details. Written by David Tingler. Copyright 1984; licensed for free distribution only."

Programming a BBS

While a few software packages come with a license agreement which strictly forbids any changes in the program code except where specified in the documentation, other software is in assembly language which is not going to lend itself to easy customization for beginners or nontechnical people. Most bulletin board software can be modified. Programming one from scratch can be fun and challenging. Operators may spend many hours (in some cases, hundreds of hours) customizing their software. The reasons for this vary, ranging from the sheer enjoyment of programming to responding to callers requests and suggestions. Most, however, seemed to be working toward getting it "just right."

The most detailed source of such how-to information is Larry L. Myers', *How to Create Your Own Computer Bulletin Board* (Tab Books, 1983), which breaks the process down into a number of well-documented steps, and comes with a complete BBS program for people who are willing to key it all in. Each chapter covers a separate area, including special features (chat, downloading, online games, etc.), error handling, carrier detection, as well as the initial stage of planning. Special information about the Apple, TRS-80, Commodore 64, and the VIC 20 aids work. The program in the book is available on disk for the Apple or the TRS-80 (Model III) for \$29.95 and \$1 shipping and handling from Tab Books, Blue Ridge Summit, PA 17214.

BBS CONTENT--ATTRACTING CALLERS

A common barometer of BBS success is the number of calls (or lack thereof) which it generates. "I just wish that someone would call," is a complaint sometimes heard (one sysop told me that he only got about one call per week). Sometimes, the phone line may be continuously engaged as people queue up to dial a popular BBS. Of course, not every sysop wants to attract lots of callers, especially system operators who use their board for a specific private purpose or for a small circle of friends or business associates. But most BBS operators do want volume, and the key ingredients to attracting callers are consistency, user-friendliness, purpose, and advertising. Of these, the most important for achieving a popular or useful board is undoubtedly consistency. If a BBS is available only on alternate months or during the full moon, very few people will call it (very few people will be able to find it!). Likewise, if the hardware fails and it takes 6 months to get it repaired, friends may think that the operator has died. People respect a board that builds up its longevity.

Public Demand--Listening to Callers

As people call, many of them will offer suggestions for improvements. Listen to them; they are the ones using the system, so they have some stake in seeing that it works properly and provides what they need. They may point out bugs--this or that file does not operate properly or a word is misspelled--but they will also provide comment or new features that will add interest. Since they have an incredible wealth of technical information at their disposal, they can provide help with lots of technical details and problems.

Being Friendly to Callers--Help Files

Callers need to be informed of the most elementary things first. For example, if there are long distance repeat callers, inform them up front that they may avoid all log-on bulletins by simply hitting a certain key (usually K or Control-K). Log-on files or bulletins are critical since they inform the caller of the general characteristics of the BBS and how to find out more when online. While such files may not aid an advanced user, they are particularly important for the neophyte who may be totally mystified. Such basic information as parity, stop bits, and baud should be the very first line of information given to callers. A dataline usually looks like this:

No parity/1 stop bit/300/1200 baud

The following is a sample of an excellent "Welcome File," though the typical file may be shorter or longer:

WELCOME TO THE VOICE OF PEACE

<<<<< I M P O R T A N T >>>>>

The userlog crashed on Thursday...all users that have logged on in the last 2 weeks have been given back original access. Please, even if you could not get on between Thursday and Saturday night, use your ORIGINAL account numbers and passwords.

By the way, does the name Pavlov ring a bell???

We have your RS-232 set as follows:
8 Bits--1 Stop--No parity

Acct. Number--
(C/R if new user):
Enter Last Name--*DEWEY*

Enter First Name--*PATRICK*
Location (City, St.)--*CHICAGO, IL*
Telephone Number (Optional)--*343-1847*
Is this correct (Y/N)? *Y*
Welcome new user!

The Post serves three primary functions to the BBS community:

1. Message base: Anyone may read messages, but you must register in order to receive Post Mail or be able to leave messages to other users.
2. Uploads/Downloads: To avoid abuse, the download section works on a credit system. Every upload adds two credits, and every download subtracts one credit. Downloads primarily serve the TRS-80, IBM, and Commodore computers. We honor all TRS-80 protocols, Xmodem, and standard ASCII transfer.
3. Software Exchange: Users are able to exchange files between each other. You must register to be able to access this function.

Users are automatically deleted after 14 days. In order to be validated, users must leave their REAL name, address, and phone number. We will verify EVERY user in this fashion--NO EXCEPTIONS MADE!

If you have any questions, please don't hesitate to ask. Visit as often as you like. Thanx.

Dani Dudovitz/Mark Gutman/Jim Friedman
Sysops, Voice of Peace

***** IMPORTANT *****

System operators:

If you want access to the <S>ysop section, leave me your board number, etc., and after verification, I'll put you on it.

You are authorized 20 minutes this call.

(Please wait, *Patrick*)

A TRADING POST SYSTEM
Version 2.0

* C/R Expands menu *

01:21 Commands (S,Y,H,N,F,M,P,T,R,E):

Features

Anything that people discuss over the telephone, or face to face, or through the mail is appropriate for BBS posting. A list of the more prominent types of material that has been seen online is given in Table 1. Some of these materials are also discussed later in this chapter.

Graphics

No one expects BBS graphics to rival "Pac-man," but some boards are dressed up with elementary log-on graphics. One library board has a little microcomputer which scrolls on the screen at log on that is composed of various keyboard characters producing a pleasing and professional effect. A Bible-oriented BBS has a cross made up of parenthesis marks. No one need be an artist to accomplish this.

The Message Base

Messages are without a doubt the biggest draw of any BBS. Some boards, in fact, serve only as message systems,

Table 1: A Short Catalog of Features Found on Bulletin Boards

Features

Advice Columns
Articles on Many Subjects
Automobile Repair
Book Reserves
Book Reviews (Juvenile/Adult)
Book Sale Dates
Booklist Computer Reviews
Chat with Sysop (if available)
Continuing Education Listings
Electronic Mail
Game Tips
Genealogy
Interactive Games
Interlibrary Loan
Job Listings
Library Information (Programs, addresses, board members, etc.)
Local BBS Numbers Listing
Mailing Lists
Movie Reviews (Juvenile/Adult)
National BBS Listing
New Book Lists
Online Newsletters
Pet Health Column
Placement Service
Public Service Numbers
Puzzles (Word Find, etc.)
Reference Questions
Restaurant Column
Science Fiction Themes (*e.g.*, Dr. Who)
Soap Opera Digest
Technical Information and Advice on Computers
Telecommunications News
Tennis and Racket Ball Tips
Word-processing Information Exchange

without features, articles, or downloads. Some even insist that callers limit or restrict the content of their messages to reflect the theme of the BBS. A common example discussed elsewhere in this book is the Dr. Who BBS, "Logopolis," which specializes in Dr. Who paraphernalia, events, and is a place where Dr. Who fans get acquainted. Another is the Ward and Randy BBS in Chicago which is a BBS for serious technical hobbyists. Most, however, permit anything at all in their message base. For instance, the BBS of the Chicago Public Library has had over 8,000 messages in more than 4 years, and has evolved into a social comment/discussion BBS. On this particular BBS just about everything under the sun has been frequently discussed, sometimes with a great deal of passion and vociferousness.

Conferencing

Dick Sonka's BBS, "The Computer Guild," (Chicago) has a conferencing arrangement (a series of sub-boards). In fact, his may be the best board of its kind in existence. There are eight different sub-boards, as seen in Table 2. Each is tended by one or more assistant sysops. While browsing through the Writer's Guild and the Modem Users Guild, I found the content to be not only well-organized, but that it has produced a team of devoted, enthusiastic assistant sysops and callers.

Advertisements

A common form of communication is the advertisement, which has certainly been carried to the BBS. If sysops in general should allow advertisements depends upon the nature of their board. Certainly, only persons who have been verified through the normal BBS routine should be allowed to leave ads, since some callers will leave fictitious ads which may sound good to other callers, but do nothing but cause some poor soul to get a lot of harassing phone

Table 2. T.B.B.S. The Computer Guild's Central Hall

<T>.B.B.S	Public Message Center
<A>rtists	The Artists Guild
<D>OS Center	The MS-DOS Users Guild
<G>amers	The Gamers Guild
<M>odem	The Modem Users Guild
<O>rchestra Hall	The Musicians Guild
<P>rogrammer	The Programmers Guild
<W>riter	The Writers Guild
rowse	Read All Message Bases
<E>Mail	Electronic Mail Room
<X>:Exit to The Computer Guild Main Menu	

calls. Paid advertisements from vendors can be another source of income for any board.

Sponsors and Grants

An individual or a nonprofit organization, may wish to ask some store or business for support. This may be equipment rather than any kind of ongoing subsidy. To start our own board, Lincolnet, we actually got a grant from the federal government by working through the Illinois State Library (the grant proposal is reproduced in Appendix D). This allowed us to hire a part-time worker and to purchase the equipment. One way to get a sponsor is to agree to include the sponsor's name and address or phone number on the

welcome or log-on message for all callers to see. An established BBS with lots of callers should inform potential sponsors of this in letters or communications.

Articles and Columns

Articles on a BBS are a big draw and may range from the elementary nature of how computers work to winning at arcade games. Some of these may remain online without change for months, always providing new callers with interesting reading. If a BBS represents a corporate body or institution, then many people may wish to contribute their materials, announcements, and bulletins online. Be sure that adequate and ongoing news about the BBS is sent to those who should know about it through memos and newsletters.

A column is merely a series of articles, usually, but not always, written by the same person, or on the same theme. If a veterinarian agrees to write a "To Your Pet's Health" column, it may be very much like pulling teeth to get him or her to continue it on a regular basis for a long period of time. The Chicago Public Library BBS had a regular feature that was in reality, simply a series of messages on the same topic. It was called "Soap Opera Digest," and the caller would call several times each week and leave the latest plot condensation of *All My Children*. At one point, some other BBS caller complained that this was not an appropriate subject matter, but another caller rose in defense, saying, "Please don't stop the Digest, it is the only way I can get my wife to use our microcomputer!"

BBS Press Service

Some months back, we subscribed to *Info-Mat Magazine*, a publication of the BBS Press Service, that provided us with a disk of information each week which was simply copy to Lincolnet. *Info-Mat* contains news and information about the microcomputer field, video, and other related topics. As

of this writing, the disk version of the magazine has been discontinued, and subscribers must download the material to their own computer. According to a release, it is free to people currently subscribing, being underwritten by new sponsors. All current paying members of *Info-Mat* will also have exclusive territorial rights to their areas, depending upon population size. Subscribers are permitted to charge a fee to callers. The address for *Info-Mat* is: BBS Press Service, 8125 S.W. 21st Street, Topeka, KS. Phone: (913) 478-3157.

Online Surveys

Though some software can be configured to survey or ask questions of each caller at log on, it is not necessary to have special software. An alternative is to include questions as part of the log-on greeting which requests that users leave a message or comment in answer to the question(s). This is not as elegant as a built-in device, but it does work. Some of the survey questions may be used to try to improve the system, including what baud rate would you like us to operate at? Tell us something about yourself (age, interests, etc.). How did you find out about this bulletin board? Such information will help determine if the system should be upgraded. A survey can also be a source of interest. Different topics such as world affairs, politics, and other topics can all guarantee a source of controversy which will lead to discussion by callers.

Tools: Word Processors and Copy Utilities

Message systems contain their own built-in system for editing, even though a lot of callers will create a message offline using a word processor, then upload it using a terminal program. This saves the time and trouble negotiating the editor on the system, and it lets more people call.

Nearly all user help and feature files must be created

using a word-processing program. Most any kind is fine that creates a standard ASCII text file. The word-processing package will be useful for many things in addition to BBS upkeep once it has been mastered. Good ones include: *Applewriter II* (Apple Computer) and *Word Perfect* (Satellite Software) for the IBM, and *WordStar* (MicroPro International Corporation) for CP/M computers.

A good copy program, such as *Copy II+* (Central Point Software, Inc.; available for the Apple and IBM) will provide quick transfer, deletion, and renaming of files, as well as keeping track of disk space.

Downloading/Uploading and Protocol

As has been discussed, many people leave software programs online for other people to download. There are thousands of CP/M public domain softwares available that include utilities, word processors, spreadsheets, database managers, games, and more. Much of it is available as downloads over the telephone from RCP/M bulletin board systems which are also in the public domain in these software libraries. CP/M was one of the first operating systems available for microcomputers, and it has become the most widely used. To house so much free software, these systems typically have 10, 20, 30 or more megabytes of mass storage.

In the best of all possible worlds, in addition to giving away "freebies" with a computer, many people will call to leave a "freebie" as an exchange. It depends on how things are set up. If access is controlled through passwords or verification, then people may get "credit" for each upload they leave. Otherwise, they can be made to pay some price for download time.

To accomplish a software file transfer, a protocol system is required to ensure accuracy. Unfortunately, download and upload have come to have a less precise definition and no longer refer to a strictly protocol-based system for transferring command files (software programs);

however, they now include any type of file that is sent from one computer and captured by another. This is a satisfactory definition, since protocol, therefore, becomes a special type of download or upload. An occasional error in the transmission of a regular ASCII text file over the phone does not make much difference, since the document can still be read and errors spotted. An error in a complicated software program might only be discovered when the program is actually run. There are numerous types of protocols, and it is important for the two computers and terminal packages to use the same protocol in order to transfer files. The best known is the Christensen Protocol (Xmodem) which is supported by many terminal programs and is very popular among CP/M users.

Most, but not all, bulletin boards support uploading or downloading. Such procedures should be outlined in the bulletin board manual or documentation.

RCP/M systems have as their main function the transfer of software programs. In order to save disk space, some files are sometimes "squeezed" with the aid of a special file utility. This shrinks the program by removing unnecessary punctuation and spaces. Once downloaded, it must be "unsqueezed" in order to return it to normal.

Sources of CP/M Software

The best source for CP/M public domain software is the book by Robert A. Froehlich, *The Free Software Catalog and Directory* (Crown, 1984). This inexpensively-priced volume (\$9.95, paperback) is the size of a telephone directory, and it contains most of the elementary information for getting started with CP/M software as well as how to negotiate logging onto and downloading software from CP/M boards, user group listings, and printouts to facilitate log on. The bulk of the book is devoted to an annotated listing of the CP/M User Group (CPMUG) and Special Interest Group for Microcomputers catalogs of free software. Full instructions for downloading or mail order purchase are included.

Places to Advertise

Something often overlooked is to advertise for users. Most advertising is free and simple. The following is a list of the most effective and easiest ways to advertise.

- *The Computer Shopper* is a national newspaper which has several large pages of bulletin board numbers each issue, free. This is an excellent way to pick up occasional out-of-state callers. Remember that many people live in areas where there are few bulletin boards and they are eager to try out new places.
- Send a listing to books that specialize in bulletin boards. *The Computer Phone Book* by Mike Cane (Plume), is an annotated list of phone numbers for about 450 bulletin boards.
- Both *The Source* and CompuServe have national listings of bulletin board numbers. The pleasant consequence of being included is that these lists are used to make up the file in the back of many books which list bulletin boards.
- Local newspaper and computer papers also publish local listings of bulletin boards. In addition, a sysop may generate a press release describing the system, how it operates, and how to call it. A human interest or practical side is important. A BBS which gives information about repairing automobiles should say so. Lots of people need their cars fixed. Such press releases may be sent everywhere, even to the national press.
- BBS ads can be placed in many papers. In particular, there are a few systems which advertise in *Bulletin Board Systems*, a newsletter published eight times a year by Meckler Publishing Corp.
- The local BBS listing is perhaps the best, and least expensive way get attention. To be listed one need

only call up other boards in the area and leave a notice. The person who compiles the list (if one person happens to do so), will be happy to include a new listing.

- Leaving flyers at local computer stores is something which libraries have tried; it works. Many new modem owners will be looking for a place to call. Often, a computer store proprietor will give customers a flyer along with their new modem.

SETTING UP SHOP

Being a sysop is often more than meets the eye. It includes setting policies, maintaining hardware, altering software, and other details, as well as dealing with people. One sysop included a message on his BBS under the header, "What it's like...being a sysop," a several thousand word lament on system crashers that have plagued him through the years. A typical day will range from a few uneventful moments to several hours of problem solving, debugging, and hand ringing, and even times of fear and anguish from pranksters who harass, or otherwise destroy and debase a sysop's efforts. This chapter will explore how individual as well as groups of sysops (associations) have attempted to deal with censorship, piracy, and system crashers.

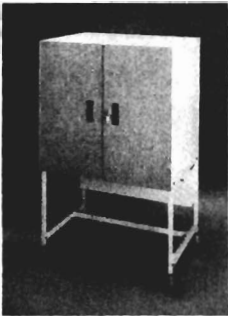
Physical Considerations

From a simple physical standpoint, a BBS operation presents a lot of problems--noise, space, and fear of theft are all nuisances or threats. The average BBS makes only a few whirling and clicking sounds as people dial in and access the disk drives, but a few drives do make lots of noise. The early models of the Sider, a hard disk drive for the Apple and IBM computers, could easily drown out a radio if given the chance. Most printers make a racket as well. If noise levels present a problem, the obvious answer is to move the equipment out of earshot. If not, the printer can be put inside of a noise reduction cabinet which will cut the sound level by about 80 percent. Special pads will also absorb some of the noise. If nothing else works, pass out earplugs.

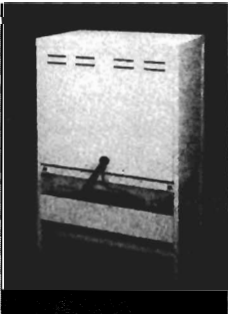
The placement of the system is an individual decision. A thriving BBS may require an entire room of its own, with disk drives, printers, modems, and other equipment spread out over a considerable expanse. A hobbyist may

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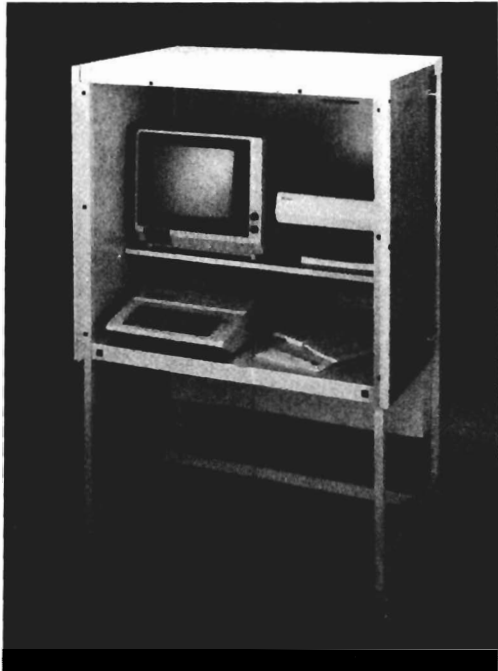
wish to keep a small BBS operation in a workroom or even the bedroom, to glance over to see who has called. A BBS operated by a business may require a special security cabinet, possibly custom-made. A Bretford cabinet, for instance, will keep wandering fingers and curiosity seekers at bay while the computer continues to do its work. It also helps prevent casual theft.



FRONT VIEW, DOORS CLOSED



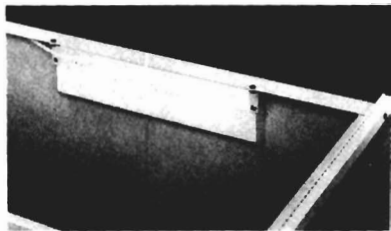
BACK VIEW



FRONT VIEW, DOORS OPEN



RETAINER CLIP HOLDING DOOR AGAINST CABINET



ACCESSORY INTERIOR LIGHT

Bretford EC20 microcomputer security center.

The determined thief is a problem that anyone with a micro must face. For a micro stored in the open, for example, in an office or a public area, a special steel cable or alarm system should be installed. The more barriers between the machine and the potential thief, the less likely it is that the computer will be stolen. Also, any special BBS telephone number should be unlisted to lessen the likelihood that the equipment may be located, especially in any area with a telephone name and address service. Any good thief knows that at the end of a BBS telephone number is a small mountain of valuable computer equipment.

Wherever the BBS is located physically, it must be reasonably free from disturbance and enough space must exist to store diskettes, disk drives, and other equipment, and possess all of the comforts of any computer workstation.

An important point that is sometimes overlooked is a dedicated phone line. A phone line used during the day for voice traffic should not be used for a BBS at night. The calls to the BBS will never stop, even during off-hours. A second phone line may cost a little more, but is worth the expense. Two friends who work on a BBS together over the phone, will find having the extra line available for voice contact while linking the computers can add an extra dimension to the work.

Hardware Care and Breakdown

Many of the reasons a BBS will fail are due to the hardware. Disk drive, CPU, or chip failure, may be caused by heat, liquids, or even electrical surges.

Food and liquids are best controlled by being eliminated from the workstation altogether. After all, computers don't need food or drink, and even though humans do, they should take time out to eat in a more appropriate room of the house or business. (If eating *must* take place near the computer, try draping a heavy tarp

over either the machine or person.)

Chip failure may result from a variety of reasons, and it is best dealt with by the vendor unless the computer owner happens to be skilled in such procedures as diagnosis and replacement. It can be done, but it is not easy.

A computer used for a BBS may be in operation 24 hours each day and may require something to cool it off. Peripherals, or more accurately the interface cards which control them, create heat. Heat is best controlled by either an internal fan or one that slips onto the side of the computer. They are generally inexpensive, even if purchased separately.

Static electricity is not only dangerous to chips, but to diskettes as well. A diskette should never be touched until all static has been satisfactorily discharged by the user. A bottle of antistatic spray will work to reduce static around a carpet or dry area and antistatic mats can be placed on the floor.

Bad phone lines should be reported to the telephone company. A datagrade line is supposed to be high quality (datagrade reception is, after all, the whole point of a datagrade line). Problems can be detected by using a regular telephone to listen for excess static. Frequent "garbage" on the computer screen or difficulty negotiating protocol file transfers indicate trouble.

A bad electrical supply can result in surges or brownouts. Both are dangerous, but surges can destroy or cripple equipment. For a relatively small fee, a surge protector can be purchased to knock the top off of any higher than normal jolt of electricity. These devices are sometimes included as part of a fan assembly and sometimes not. For more money, a whole system is available to ensure a totally conditioned supply of electricity to the computer, including a battery-powered backup.

Diskette failure is the most common and frequent problem. Some disks are flawed before they are even taken out of the box. Others may work for a week or

month, then fail abruptly. Some few will last for years. Most will fail somewhere in between. Even if the disks are operating properly, they should be taken out of service after 3 months (use them for mobiles, dog chews, or for some other work, but not for the BBS). Since a BBS often operates 12 or even 24 hours per day, the disk drives are in use most of the time to access data for callers. Both the disk drives and diskettes are therefore put under enormous strain.

Regular routine maintenance of the disk drives will help keep them aligned properly. Computers such as the IBM and its clones may require that they be taken in for such service. The original Apple II disk drives can all be aligned easily by the owner by using special programs such as *Copy II+* and a screwdriver.

Modem failure is the least likely problem to occur, but it does happen. Often, it may be the caller's problem. A man once got word to me that the BBS would not work at all. As it turned out, he was calling at 1200 baud and the *PMS* would only support 110 or 300 baud. Other more common problems include the caller making improper use of his or her telecommunications software, or having incorrectly set the stop bits, etc. Most boards let users change the parameters to adjust for a particular computer. Neophytes will have such problems more often than experienced users.

Software Crash

Good software will rarely crash on its own, but occasionally (on the order of one in every 2 to 4 months) "hangup." Why? No one knows. It just happens. Probably a bug in the program which will only cause trouble under very rare and unusual conditions. The bug may or may not be found, but it is usually not worth the trouble. Bad software will crash or hangup at the slightest whim. The only solution is to start over with new software, since programming out a bug is a real skill and art. Other owners of a software may have a solution. If not, it may

not be the software at fault. Start with a fresh copy of the program to eliminate the possibility of a bad disk copy. Verify each new disk and copy each time.

Checklist of Trouble-shooting

Start with easy solutions and work toward the more difficult. Never take anything for granted (*e.g.*, don't assume that the machine is plugged in, since the cat or a child may have unplugged it).

1. Is power getting to the machine? Is it plugged in? Is the telephone line working?
2. Are all of the cables connected properly? Is the modem connected to the telephone line?
3. Are the diskettes good? Check them for errors or flaws with a special program.
4. Was the program configured properly? This can be difficult to determine. The only answer may be to reconfigure the program several times until it is correct. If it is a program error which can't be fixed, the vendor must be called.
5. Is the microcomputer in need of service?

Routines: Daily Chores

Many people don't backup their software. If a database is expendable (*e.g.*, a general conversation system on which nothing is particularly important), there is no need to make daily backups. If, on the other hand, there are lots of important materials maintained or if the continuity is crucial (it can be a bit disconcerting to begin with zero messages again), then backups must be made each and every day. Regardless, the master program disks should be safely stored in case the floppies or the hard disk drive crash. It is not a difficult procedure. On the Apple, it takes just 5 minutes. This small investment is insurance which may save time and grief down the road.

The simplest daily task is reading and printing out (or simply deleting) the Logfile and Comments. It is not necessary to keep a hardcopy account of who has called, but many people find it fun to have a record of comments and callers. Such files should be cleared out regularly since they can interfere with the speed of the system and can disable the operation if the disk fills up.

Illegal Acts: Misbehavior Online

Illegal acts are the scourge of the BBS world, making headlines of all sorts. Nearly all sysops with whom I have talked have complained about their boards being sabotaged with dirty words and abuse. Sometimes, even theft is a problem. The most talked about problem is the alleged swapping of stolen credit card numbers on a BBS, though such activity is probably rare. More common is a request to trade or sell copies of copyrighted software. Discouraging such activities without sacrificing freedom of speech and communication in the process is difficult.

That these are issues which have come to the fore in BBS-land cannot be denied, since articles in the journals of user groups now address them. In particular, "The Emerging Legal Thicket for Electronic Bulletin Board Operators and Users," an article by John Weld printed in the January 1985 *Monitor*, (p. 8)--the newsorgan of the Capital PC User Group--discusses the well-publicized case of Thomas Tcimpidis and some of the issues surrounding the laws regarding libel and illegal publication of confidential materials. Mr. Tcimpidis' home was raided in May 1984 for allegedly allowing another person to post illegally obtained credit card numbers on his BBS which were then used by a third party. Mr. Tcimpidis denied any knowledge of this act. The district attorney's office decided that there was not enough evidence to implicate that Mr. Tcimpidis had known or had in any way allowed it to happen, and it was never brought to court. Nevertheless, his computer was seized and he was subjected to quite an ordeal.

Another article relating to this same issue was also in the January 1985 *Monitor* (p. 12), and was entitled, "RBBS-PC and The Law or How to Avoid a Board Bust," by Thomas D. Mack. Mr. Mack's essay discussed the various ways in which one can avoid getting into trouble running a public bulletin board. His ideas boil down to seven "Cardinal Rules," and are for both system operators and users:

1. Keep complete records
2. Give clear notice
3. Be careful
4. Use your real name
5. Use a subscription mechanism if you feel a need
6. Have God on your side (lacking that, sufficient legal resources)
7. Consider incorporating

Mr. Mack is opposed to "preregistration" on the grounds that it infringes upon First Amendment rights. ("What if preregistration were required of everyone using the telephone?") He also suggests looking at some sort of legal insurance to protect yourself against a negligence lawsuit.

The message in all this is to remove all questionable material from a BBS. In the operation of a public bulletin board, such issues raise the problem of censorship. Nevertheless, there are some types of material which are clearly illegal in nature and these should be removed in a timely manner: libel, theft, threats, obscenity. Such actions should be spelled out in advance with a policy statement about how and why materials are removed.

Sexual Underworld

"Molesters using computers," read the headline; the subtitle of the article was even worse: "They've set up networks to swap data on child victims." The perfect blend of two currently hot topics, computers and violence against children. Such a headline gives the impression that molesters sitting at their micros exchanging data is widespread. As in the general population, whatever such

activity exists is a small minority. Needless to say, sysops must take whatever steps necessary to protect the reputation of their BBS. They should notify the police in extreme cases.

Another situation, though less frightening than child abuse, was predicted in *InfoWorld* in April 1982. It was stated that the idealistic notion of a changed society and a better world as a result of bulletin boards was instead slowly (and, according to the author, inexorably) changing into an underworld of pornography instead. The evidence cited was that a few "sex boards" had popped up and were gaining wide notoriety. Four years later, these dire predictions of gutter computing have simply not come to pass.

Whether these problems are real or perceived, one response has been a bill by Senator Paul Tribble (R-Penn.) prohibiting various types of material to be used on a BBS. Opposed by many, including the Videotex Industry Association, it would require bulletin board operators (including those on mainframe systems such as CompuServe) to determine what falls within this context and what does not, something which few system operators are prepared to cope with, forcing them into the position of censor, not to mention the specter of government invading one more aspect of our lives.

Without doubt, the BBS community feels strongly that laws which would regulate the operation of a BBS too strictly could destroy this new form of media just as it is emerging. Since Mr. Weld is an attorney, readers are referred to this article for additional information. A campaign to represent the BBS operator's point of view has also been waged.

A more accurate picture of the past few years are such harmless services as Dial-A-Match and similar "dating boards." I have a friend who has frequently called such dating boards, and his reply to my question, "How interesting is it?" was, "It's boring." These are a far cry from the extreme problems already mentioned, and such activity is generally restricted to either very private

boards, or to certain boards which are set up for this type of matchmaking. In effect, these boards are electronic "singles bars," but they are still an extreme minority.

Presidential Problems

One BBS reported (and it has been verified as true) that a caller left a message interpreted as a threat against President Reagan. The Secret Service showed up promptly to confiscate the disk as evidence, but left the BBS to continue operation undisturbed.

However, most of these problems are never experienced by BBS operators. The most common problem is obscenity.

Discouraging Misbehavior: A Layered Defense

Practical methods to defend a bulletin board against problem callers can take many forms, and none are perfect. However, the more difficult or less rewarding such behavior is, the less often such misdeeds occur. Censorship, preregistration, security levels, frequent sysop monitoring, and obscenity filters can all be engaged.

Removing offensive material is the simplest thing to do. Someone writing obscene messages on the walls of a home or office building, are breaking the law and are subject to arrest. Most boards I have looked at have some kind of policy. Usually it is limited to a few kinds of extreme behavior. These nearly always include obscenity, illegal activities, etc. Of course, if a BBS is private, there may be fewer restrictions. Two sample statements follow:

Sample Statement #1

From the North-Pulaski (Chicago Public) Library:

Msg# 1669 on 10/15/83
Subj: Censorship
To: ALL
From: Sysop

What is our policy on censorship on this board?

We would like to say that we do not believe in censorship, and follow the American Library Association policy of resisting it whenever it is threatened. There are, however, certain laws and regulations governing use of the telephone lines. We do not, therefore, censor messages on this board except under what we hope are rare circumstances, such as in the case of outright obscenities, slander, or a gross breach of good taste. We believe you will agree, if you have read much of what has appeared here, that we have applied very liberal standards, and have used great restraint.

Sample Statement #2

--> 03/25/85: Logopolis CBBS online

Logopolis CBBS policy: * Any messages relating to Dr. Who of interest to others welcome--news, coming events, club info especially.

Please, NO "FOR SALE" messages EXCEPT of Dr. Who materials.

No one is calling here to look for computer gear! * Personal messages between callers relating to Dr. Who OK. * Excessive profanity in messages will result in their deletion. Messages are for conveying information. There is seldom any worthwhile information conveyed by profanity. * Please don't leave #'s/passwords for non-public systems, or offer to trade such

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passwords. * Please don't offer to sell/trade personal copies of licensed software you have purchased for a single user.

Whatever the reason or motivation of problem callers, it is important to respond in a professional manner--we must do nothing to reward such behavior. Most problem solving is passive, not active. Since it is impossible to know or prove who it is, any threats to take action are empty and these people know it.

The Obscenity Filter

One effective tool is the obscenity filter, a simple device which checks all messages against a list of sysop-defined words. A single match causes the message to be rejected outright. Seldom will the obscene caller leave a message with just one objectionable word, usually an entire message is littered, thus taking the caller some time to determine what has happened. If they do stick it out, they learn the filter is not foolproof. It is fairly simple to misspell the words just slightly or add an asterisk in the middle or use phonetic spellings to defeat it.

The End of the Open Board

There are ways to eliminate the serious problems entirely. Most drastically, a database may be made a "read-only" database. Some minor programming may be required, but once accomplished, it is nearly foolproof. Unfortunately, while an effective solution, it punishes the legitimate users as much as the pranksters by limiting access.

We are slowly seeing an end of the open board. The current trend is toward verification of all callers before they are able to leave a message which causes extra work for everyone (not unlike x-raying luggage at airports). It slows down communication, and puts a damper on spontaneity.

The policy used on Lincolnet was the same as with our previous BBS, but the system was made read-only to all but those callers who wished to read our file to obtain a log-on code and mail it back to us signed. The policy is reproduced here and may be adapted for anyone's use. We do not vouch for it as a legal, binding agreement, but it does put the user on notice about what is expected. This strategy makes it impossible to leave an anonymous message. Should someone misbehave, we simply deactivate the log-on ID.

Lincolnet Log-on ID File

How to Get a Log-on ID

Enter <K> anytime to stop reading.
Enter <S> to pause, space to continue.

"MI" will return to the Master Index
"F" will return to the Master Menu

You cannot leave personal messages on Lincolnet unless you have a log-on ID.

Exception

We may post important announcements (Like club meetings, etc.) if you leave them in a "comment" when you sign off. Limit: 16 lines, 40 characters each.

Because of security concerns, we can only allow people who make written application to have a code and thereby leave messages. Follow these simple steps:

1. Print out the application below
2. Fill in the application
3. Mail to: Maywood Public Library
121 S. Fifth Ave.
Maywood, IL 60153

4. Include a self-addressed, stamped envelope
5. We will return your log-on ID to you after proper verification.

Thank you. We wish that it was possible to let anyone calling leave messages, but unfortunately it is not. Thank you for your understanding.

Application for a Log-on ID for Lincolnet.....

Name _____
Address _____
City, State, Zip _____
Phone (day/night) _____
Do you have a library card? _____
If so, at what library? _____

The applicant agrees that Lincolnet will not be held accountable for any illegal or inappropriate behavior on the BBS by the applicant. This shall include the posting of illegal or slanderous material. The applicant will accept personal responsibility for any messages posted with his or her log-on ID. It is agreed that the System Operator will be the sole judge of messages to be left on the system. Log-on ID privileges may be suspended for failure to keep messages free of inappropriate or abusive language. Failure to use a log-on ID within any 14-day period, may result in the suspension of the log-on ID, making reapplication necessary.

Signed _____
Print or Type Name _____
Date _____

Thanks for calling Lincolnet!
Support your local library!

Standards

Some sysops have organized, and even adopted standards of practice. The Organization of Atlanta System Operators has adopted the following, reprinted here in part:

System operators shall operate on a regularly scheduled basis for a minimum period of 5 hours within every 24-hour period, or not less than 40 hours per week, including weekends.

System operators shall attempt, to the best of their abilities, to ensure that the use of their systems be for legal purposes and not contrary to any laws in violation of publishers rights to proprietary software. They shall state in their opening bulletin that they are an OAS member and subscribe to its standards of ethical practices. Sysops shall report violations of said standards by a user to the OAS Executive Committee, including any violations by users who have offered the exchange of proprietary or "pirated" software, or flagrant profanity, and a record shall be kept of such incidents by name or "handle" of user, time and date of said incident.

System operators shall require that each user log on with a real name or a registered "handle" which user shall use each time the user calls the system. Operators shall maintain a record of its users and any such "handles."

Sysops shall discourage use of passwords belonging to others. System software shall be capable of assigning or accepting specific passwords which shall be unique to each user, and disallowing use of identical passwords by separate users.

Sysops shall prominently display in the opening bulletin the main purpose for which the system is intended, such as software downloading, general or user group messages, meetings or other BBS information.

Boards that require paid subscriptions shall post notice of such requirement in the opening bulletin, along with an address for filing an application.

Sysops shall adhere to good business practices common to the business community at large and maintain a consistent level of professionalism in the operation of his or her system.

Corporate system members shall make known that their system is sponsored by such corporation, and shall designate a registered agent responsible for system operation.

A "CPCUG's BBS Minimum Code of Standards and Policy on Operations" and a "Minimum Code of Standards for Electronic Bulletin Board Systems," were adopted by the Capital PC User Group (CPCUG), and deal with freedom of speech and ideas, as well as disclosure, procedures, and implementation. The first code is intended for all systems sanctioned by the Capital PC User Group and "any CPCUG officer or member when they are expressly acting on behalf of or representing the Capital PC User Group." In part, this code is intended to "prohibit the use of electronic bulletin boards to transmit information that is intended to be used to copy, use, or distribute software illegally; for unauthorized publication or distribution of credit card numbers; or to gain unauthorized access to computer or communication systems."

The second code is available to anyone who wants to follow it and prescribes a conduct of behavior for both system operators and users of systems available to the general public. "Each user and sysop of such systems shall actively encourage and promote the free exchange and discussion of information, ideas, and opinions, except when the content would compromise the national security of the United States; violate proprietary; violate personal privacy; constitute a crime; constitute libel; or violate applicable state/federal/local laws and regulations affecting telecommunications."

Furthermore, all persons, user and sysop, must disclose their real name, and fully disclose any "personal, financial, or commercial interest when evaluating any specific product or service."

Sysops must review "in a timely manner" any information that is publicly available, deleting any which conflict with the given standards. Users, on the other hand, are held responsible for the accuracy of any information which they leave on a system, and to notify the sysop of any violations they observe of the standards. All systems that follow this standard need merely publish the minimum codes given here in addition to the following: "This system subscribes to the Capital PC User Group's Minimum Code of Standards for electronic bulletin board systems."

Despite codes of ethics, passwords, and elaborate security, a vandal can still get through. Recent reports in the literature complain that some caller was leaving a "Trojan Horse" online as an upload. A "Trojan Horse" program will look innocent, but when run may do something unexpected, such as erase the hard disk drive. If a BBS offers upload/download capability, there will always be this possibility.

There is a ray of hope. New laws which prohibit illegal activity have begun to emerge. According to one report, a new law in Virginia allowed Allen Knapp to have a 14-year old youth prosecuted for damaging files on his Washington Networks bulletin board. The youth had to pay the victim \$300 and was given 1 year probation.

Membership Fees

It is difficult to determine just how many bulletin boards are operated with a profit motive, though there are many which charge a membership fee. These fees usually only reimburse the system operator for expenses, and most boards operate at a loss. Some game networks which charge several dollars per month or even per minute may

actually produce a net profit. As with all free enterprise, the operator must determine just what the traffic will bear --but they should be aware that it won't bear much, especially if a lot of time and effort is not spent to make it worthwhile for callers.

Bibliography

Makower, Joel and Edward Murray. *Everybody's Computer Fix-It Book*. New York: Quantum Press/Doubleday, 1985.

Zaks, Rodney. *Don't (Or How to Care for Your Computer)*. Berkeley, CA: Sybex, Inc. 1981.

6 SAMPLES AND PRINTOUTS OF BULLETIN BOARD OPERATION

An Overview of Going Online

As examples of good and varied bulletin board operation, I selected and called several in actual operation while writing this book. Portions of these "conversations" that I had with some of these BBS's have been reprinted here. Different types of software, as well as computer hardware are represented. To be a good sysop, it is necessary to be a good observer. By learning the differences between a good BBS and a bad BBS, it is easier to operate one.

Once a connection has been made, hit the Carriage Return (Enter), sometimes referred to as "CR," either once or twice. The identification of the bulletin board will look something like this:

```
*****  
Welcome to Bulletin Board Heaven  
*****
```

The first or second line may be a data line which specifies baud rates available, bit word length, and technical data to assist in setting computer parameters. Occasionally, at sign on, something strange will happen, such as getting flashing characters. The problem is an improperly set parameter. If the caller's baud rate is set at 1200 but the BBS only supports 300, the connection will simply freeze.

The caller is usually asked for either a password or log-on ID. Lacking one, a manual entry must be performed, by typing name, and sometimes, phone number, city and state. The log-on ID is generally only good for convenience, and, more often than not, it is a temporary affair, lost if not used regularly. It is also not usually

good for leaving messages until the caller is verified by the bulletin board operator.

Once logged on, the greeting or welcome bulletins appear. These contain the latest happenings for the BBS, including hardware or software changes, club- or BBS-related news, meetings, etc.

The Main Menu

The main menu is usually summoned by entering a one- or two-letter code. Menus vary significantly in size and complexity, and may be long or short. A brief menu might include just the following:

B,E,F,G,H,I,K,M,N,Q,QP,R,S,SP,SR,

T,U,X,Z,?,*,TEST,NEWCALL

This is the menu of the *People's Message System (PMS)*. Here is an expanded view of the same menu, which is activated by typing "?" at the command prompt.

Command: \$?

---->> System Commands

B = Bulletins--repeat sign-on tips
E = Enter a message into system
F = Features, articles, excerpts
G = Goodbye. Leave system
H = Help with various functions
I = Info about our system hardware, etc.
K = Kill a message from the files
M = Message alert. Messages for you?
N = News--System news, rules, tips
Q = Quickscan--public message headers
QP= Quickscan of all message headers
R = Retrieve a message from the files
S = Scan of public message headers
SP = Scan of all message headers

SR = Selective message retrieval
T = Time, date, and connect time
U = User modifiable system functions
X = Expert user mode (on/off toggle)
Z = Continue message entry after abort
? = Repeats this list of commands
* = Retrieves messages flagged in scan
TEST = Modem continuous test loop
NEWCALL= Information for new callers

A few systems, such as RCP/M (Remote CP/M) systems, are command driven, having no menu at all, and must be manipulated by a knowledge of the command language of the operating system. It is similar to actually sitting at the keyboard of the remote computer just like the operator.

Ctrl-K (or sometimes just K) will usually get the program to stop doing whatever it is doing and return to the main menu. A "K" in the message system may be used to delete messages (unless the message has been protected).

Ctrl-S will nearly always stop a BBS dead in its tracks until another key is hit. This facilitates reading messages or other text which might otherwise scroll off the screen before it can be read.

Hobbyist Uses of Bulletin Boards

A hobbyist board is run by an individual for fun, and often serves as a way for people who share the same interests to meet.

Ward & Randy

Ward & Randy's CBBS is the original (first) bulletin board system, and began operation on February 8, 1978. As one of the best technical and most professionally operated it has a devoted following. Despite this, it has a limited range of activities, existing for the "more advanced, technical hobbyist." Users are invited to leave or ask for

information about "C," assembler, AI, programming techniques, communications, etc. This is stated up front. When I logged on, there was a specific statement that "Who-ites," who are legion in Chicago, should visit another, more appropriate board such as Logopolis. In 1983, there had been just about 17,000 messages left which had increased by the spring of 1986 to over 33,000. Over 150,000 people had called since its inception. Maintenance is shared by several people remotely who routinely call to check out the latest messages, deleting those which may contain unseemly content. The equipment used for this BBS is as follows:

-----Printout-----

CBBS(R) 3.6.5a
04/12/86 22:23:50
Welcome updated 03/03/83; CBBS(R)/Chicago
(312) 545-8086
Every ^N typed adds 5 nulls if you need
them.
YOU CAN SKIP TO LOGON by hitting ctrl-K--
view WELCOME later with W command!

** WELCOME TO WARD AND RANDY'S CBBS(R)
** (COMPUTERIZED BULLETIN BOARD SYSTEM
[R])
** (In operation since 2/16/78)

----> PRESS "S" TO STOP OUTPUT, "S" TO
START IT AGAIN <----
(NO DATA WILL BE LOST)

CONTROL CHARACTERS ACCEPTED BY CBBS:

ASCII CTL
CHARS CHARS

While CBBS OUTPUTS to
you:

DEL	^H	Character delete
C	^C	Cancel output

K	^K	Function abort
	^N	Send 5 more nulls
S	^S	Stop/start output

On INPUT:

	^I	Tab (Tabs set every 8)
	^R	Retype input line
ESC	^U	Line delete
	^W	Video word backspace
	^X	Video line delete

>> We do NOT use BREAK! Modem may disconnect if you use it.

Use ^C or ^K instead! <<

If you get stuck, try: Ctrl-K then C/R until you bail out back to the main menu.

Whenever we refer to "C/R", we mean your "return" key!!

"FRILLS": CTRL-L shows length of input field ("fill in the blanks"); CTRL-E types a C/R back to you, but doesn't end the line you are keying

Use ";" to separate multiple answers, i.e., n;firstname;lastname;x;p; would log you in, set video mode, expert mode, no prompt bells.

----END OF WELCOME----

--> BULLETINS: 44 lines, last update 01/12/86
YOU CAN SKIP TO LOGON by hitting ctrl-K--
view. BULLETIN later with B command!

Press "ctrl-C" to skip 1 bulletin. Repeat as desired.

--> PROBLEMS?

Hardware: Randy (Suess) => Sorry, Randy NO LONGER CALLS THIS SYSTEM!

Software: Ward (Christensen)

(Address any msgs to us BY NAME. No "SYSOP" here, PLEASE!)

-> 02/16/86: CBBS celebrates its 8th anniversary.

==> 04/10/85: Supporting 300, 1200, 2400 baud.
We plan on rotating between US Robotics and Ark (Paradyne) modems. The Hayes 2400 would not answer reliably without a lot of programming from CBBS which isn't included at this time.

--> 05/30/85: The move previously talked about has been indefinitely postponed.

==> Read msg 16 for a list of OTHER bulletin boards in the Chicago area.

END OF BULLETINS

Y/N: want CBBS "1st time user" info? Y
File last updated 06/20/85

When you are asked a question, answer with Y for yes, or N for no.

WHEN THE SYSTEM IS TYPING TO YOU, you can press S or control-S to stop the output to look at it, then again to continue. This will allow you to see what is sent before it scrolls off.

Want summary of system functions? Y

The system has only three major functions:

- > Entering messages
- > Retrieving message summaries
- > Retrieving messages

Want to know purpose of this system? Y

It was conceived, financed, and is run by Ward Christensen and Randy Sues for message communication between computer hobbyists. Typical message subjects include: 'something for sale,' 'need help with something,' 'club meeting notice,'

etc. Feel free to leave a message on any hobbyist computer-related subject. Commercial 'ads' ARE permitted, providing they are hobbyist-related.

Want to know what hardware makes up the system? Y

The hardware consists of: North Star Horizon S-100 mainframe w/4MHz Z-80, 64K RAM, 5M hard disk, HS4IO serial board 2400 baud modem (rotating ARK (Paradyne) and Courier (US Robotics) Scitronics clock board.

Want a quick summary of what to do your first time? Y

1. O--Use the O function to retrieve (O)ne-line message summaries (or Q for quick (subject only) summaries)
 - * When prompted for a starting message number, use -50 to start 50 back from the highest message on CBBS.
 - * Use control-S to stop/start output.
 - * Every time you see a message of interest, press return, and key in its message number (or numbers separated by ;)
 - * Let the summary complete, or Press control-K to return to menu
2. R--Use R function to retrieve messages of interest, if you missed them with the "hit return" flagging above.
3. G--Use the G (Good bye) function when you are done.
(You will be able to leave comments at this time.)

==> Use H command if you need help.

NOTE: When you receive the line:
FUNCTION: (A,B,C,D,E,G.....) (OR ? IF NOT

KNOWN)?

--> Please reply ? the first time so you learn of all the functions available.

-----End of Printout-----

Adventure-Line

Adventure-Line Chicago (*IBBS*) is a multiport system for adventurers who like to engage in the lively art of conversation, and is devoted to discussion of adventure games and other pursuits. It has one interactive adventure game called "Sceptre." To use this system it is necessary to subscribe (with money). A sysop is available most of the time.

-----Printout-----

8 bits, no parity.

Adventure-Line--Chicago-1 (4.5)

86 Apr 12, 9:45:50 pm Port: tty8

Copyright (c) 1984, GamBit Multi Systems, Inc.
Minneapolis, Minn.

Hello! Please sign on with "GUEST,GUEST".

Username: *PATRICK DEWEY*

Improper login, try again.

Username: *GUEST,GUEST*

Log in: guest, on account 001-0004, using tty8.

Welcome to the Adventure-Line Menu. v2.3

Hello, and welcome to Adventure Line!

You are currently logged in under the 'Guest' courtesy account. With this account you may:

- Get information on how to subscribe.
- Browse through all the on-line documentation.
- Visit the Talk Parlour and eavesdrop on conversations between our subscribers.
- Talk with some of the System Operators (SYSOPs) if they happen to be in the Talk

Parlour. (You can identify a SYSOP by his or her 055-xxxx, or 255-xxxx account number.) To find out if a SYSOP is on, type: where is sysop?

- We are offering a VIP trial account for you to see what our system is really like. Guest accounts are limited to what you can do. To get a trial account, a Sysop must be on. We need your real name and phone number. Sysops are usually on from 6:00 P.M. through about midnight. If a Sysop is not on, leave a message in comment as you log off.
- To log off the system, from the main menu, type: bye. If you log off this way without hanging up, you will be able to leave a comment or have a pamphlet sent to you, if you wish. Hope you have a nice visit.
- We are currently offering a \$35 unlimited time intro-subscription offer. This gives you a chance to learn the game with out having to spend a lot of money doing so!
- Unlimited Talk is here. For \$15 every 2 weeks you will have an unlimited time 'TALK' account. This price is very comparable to other talk only systems in the area, and we feel our "Talk Parlour" is the best talk system around!!
- We have a Trivia contest in 'TALK' on Tuesday and Friday nights at 8:00 P.M. (This is for our subscribers, but feel free to come and watch!)

-----End of Printout-----

Word Processing BBS (IBBS)

Henry Kisor runs his own bulletin board with a special twist--he is deaf. According to his own account in the *Chicago Sun-Times* (April 6, 1986, p. 21) he has been running an IBBS, and spends about 10 or 15 minutes each

morning reading or deleting messages, assigning passwords, and trying out "uploads" which have been received during the night. I signed on for an enjoyable half-hour session and found lots of fellow word-processing buffs who had been leaving questions and answers for each other about technical aspects of word processing and other types of software. A lot of free software was available using the Xmodem protocol. The system operates at 300 or 1200 baud on a Tandy 3000 AT-Compatible with 512K of RAM and a 20mb hard disk, a 1.2mb floppy disk, and a Hayes Smartmodem 1200. The BBS is open only to people with a password which is obtainable by applying in writing. There are no fees involved. From noon until 9:00 P.M. each day a 10-minute demo is allowed to unregistered callers.

The Computer Guild (TBBS)

The Computer Guild is run by Dick Sonka, who is also responsible for maintaining an excellent Chicago-area BBS list. Eight sub-boards, or "Guilds" as they are called, each with their own sysop, range from the "Modem Users Guild," to the "Writer's Guild." Poetry, adventure novels, songs, and short stories are left online by callers. Access is by password, and a code of conduct is spelled out for all to see in "Guidelines for System Use." This highly developed and carefully tended bulletin board has a loyal and sophisticated audience.

-----Printout-----

Type P to Pause, S to Stop listing

The Computer Guild: System Information

- <1> System Configuration
- <2> TBBS Hardware Information
- <3> TBBS Software Information
- <4> TBBS System Operation & Protocols

Type Selection or M for list, <CR> to exit:

T.B.B.S. The Computer Guild's Main Library

ulletins	TBBS System Bulletins
<I>nfo	TBBS System Information
<L>og	Computer Guild Userlog
<U>pload	Upload Program(s)
<X>:Exit	to Computer Guild Main Menu

Command: *x*

T.B.B.S. The Computer Guild Main Menu

<R>ules	Computer Guild Rules
<C>hat	Talk With The Sysop
<E>nter	Enter Main Guild Hall
<G>oodbye	Normal System Log-Off
<L>ibrary	The Guild Library
<N>ew User	New User Information
<Q>uick	Quick System Log-Off
<U>tilities	System Utilities

Command: *e*

T.B.B.S. The Computer Guild's Central Hall

<T>.B.B.S.	Public Message Center
<A>rtists	The Artists Guild
<D>OS Center	The MS-DOS Users Guild
<G>amers	The Gamers Guild
<M>odem	The Modem Users Guild
<O>rchestra Hall	The Musicians Guild
<P>rogrammer	The Programmers Guild
<W>riter	The Writers Guild
rowse	Read All Message Bases
<E>Mail	Electronic Mail Room
<X>:Exit	to The Computer Guild Main Menu

Command: *w*

The Writers Guild Hall
Sally Mott--Assistant Sysop 4

<Q>	uick-Scan	Scan Book Rack Messages
<R>	ead	Read Book Rack Messages
<P>	ost	Post Book Rack Messages
<E>	nter	Enter The Writer's Den
<A>	dventure	Read Adventure Novel
<S>	ci-Fie	

The Writers Guild Quill
Index of Featured Items

- <1> Wildflower--A poem by Joe Pluta
- <2> Dewey--A poem by Joe Pluta
- <3> Gallery--A poem by Joe Pluta
- <4> Introspective--A poem by Joe Pluta
- <5> Reunion--A short story by Ed Lee
- <6> December--A poem by Brian Bartz
- <7> Waters--A poem by Brian Bartz
- <8> Open Chord--A poem by Jeff Gitchel
- <9> Soldiers--A short story by Bruce Staehle
- <10> Untitled--A short story by Rob Myers
- <11> Shadows--A poem by Joe Pluta
- <12> Chances--A song/poem by Joe Pluta
- <13> Colors--A short story by Joe Pluta
- <14> Moth--A poem by Joe Pluta
- <15> Seeing--A poem by Brian Bartz
- <16> Taxman--A short story by Mike Pedersen
- <17> Underpass--A poem by Maryfran Romeo
- <18> Life--A poem by Joe Pluta
- <19> My Tower--A poem by Brian Bartz
- <20> Things--A poem by Joe Pluta

Type Selection or M for list, <CR> to exit: 2

Type P to Pause, S to Stop listing

Command: *m*

**The Modem Users Guild Hall
Barry Fulk and James Zachary
Assistant Sysops**

<Q>uick-Scan	Scan Center Messages
<R>ead	Read Center Messages
<P>ost	Post Center Messages
<D>ownloads	Modem Users Downloads
<M>etro	Metro B.B.S. Directory
<T>ime	Elapsed Time on System
<U>pload	Upload Program(s)
<0>:Return to Computer Guild Central Hall	
<X>:Exit to Computer Guild Main Menu	
<L>og-off and Terminate Connection	

Command: *r*

**Type P to pause, S to stop, N to skip to next
msg**

**<F>orward or <R>everse Multiple
<N>ew Messages
<M>arked Messages
<S>elective Retrieval
<I>ndividual Message(s)
<A>bort Retrieve**

Which One? *f*

Pause after each msg (Y/N)? *n*

For reply chains:

**<1> Ask on Each
<2> Always follow**

<3> Never follow
<?> for help

Which one? 3

The System has Msg's 26096 to 31017
Starting Number, <CR>=First: 30000

-----End of Printout-----

Business Boards

A number of bulletin boards exist around the country for business purposes. These either reinforce a store or company's business, provide support for clientele, act as a public relations or sales instrument, or provide a private service for the exchange of memos, electronic mail (e-mail), or documents by employees. The argument for such a private system is a purely local one. With online prime-time charges to such services as CompuServe, it is far more economical to send mail to a local phone number with no online connect charges. Almost anyone can operate such a system with little difficulty, and just about any of the software in this book will suffice.

Some systems even allow customers to leave orders online. Some boards can even be tailored to handle both customers and employees, in separate partitions. Since phone calls on such systems are all incoming, the monthly bill is the smallest possible. A rule of thumb typically states that there should be one incoming telephone line for each 50 employees who will be sending or receiving messages. A BBS may even be divided into different boards for different employees, each with different levels of access. Employees should change their passwords frequently.

Gamemaster

Gamemaster is a business. It is an electronic mansion based in Evanston, Illinois that subscribers may call to access

interactive games (that is, interact with other subscribers), e-mail, and other features. Gamemaster also operate a regular BBS on an Apple using *ABBS* software.

Wall Street On-Line

This BBS is a read-only public relations service to inform potential customers of Wall Street On-Line, an investment firm, of services which they provide. Included is their newsletter, *Wall Street Micro Investor*.

Rivco

Rivco is an online catalog for a small business. The software was created by the owners and operates at 300 baud. Once items have been selected, a salesperson may be paged and credit card number taken.

-----Printout-----

CONNECT

RIVCO ONLINE CATALOG
SOFTWARE COPYRIGHT (C) 1984
BY REX RIVERS

RIVCO MAIN MENU

0 NO MORE
1 WOODBURNING-RELATED ITEMS
2 PATIO & BACKYARD THINGS
3 CUSTOM BUTTONS & EQUIPMENT
4 COMPUTER SUPPLIES
5 MISCELLANEOUS THINGS
6 SALESMAN

YOU HAVE SEEN 0 FILES WITH A TOTAL OF 0
CHARACTERS.

YOUR CHOICE: 4

COMPUTER SUPPLIES

A = MAIN MENU B = ONLINE
C = DISKS D = PAPER

YOUR CHOICE: A

This is the Rivco Online Catalog, Wichita's first online general catalog for computer users.

Rivco is a small, family business owned by Larry and Mary Lou Rivers of Wichita. They would be glad to help you with questions you might have about their products.

You can call them at (316) 264-9193 or visit their showroom at: Rivco Distributors, Inc. 1205 North Mosley, Wichita, KS 67214

The showroom is at the corner of 11th and Mosley. This location can be found at coordinates "G-2" on the downtown locator map on the last page of the Wichita telephone directory.

RIVCO MAIN MENU

- 0 NO MORE
- 1 WOODBURNING-RELATED ITEMS
- 2 PATIO & BACKYARD THINGS
- 3 CUSTOM BUTTONS & EQUIPMENT
- 4 COMPUTER SUPPLIES
- 5 MISCELLANEOUS THINGS
- 6 SALESMAN

YOU HAVE SEEN 1 FILE WITH A TOTAL OF 1241 CHARACTERS.

TRY EQUIPMENT ON MENU NUMBER 3.

YOUR CHOICE: 2

PATIO & BACKYARD THINGS

A = MAIN MENU B = GRILLS
C = SPA D = BBQPARTS
E = SWING F = BBQACCS
G = HICKORY H = SPECIAL

YOUR CHOICE: *H*

PATIO FURNITURE SPECIAL

PRICES GOOD UNTIL STOCK IS GONE

We have a new line of patio furniture. An attractive set with four chairs, cushions, table, and umbrella costs only \$349. Why pay more at some department store?

We have a stock of folding canvas directors chairs in a variety of colors on sale for \$34.95 (\$10 off). They are festive, portable, and won't last long at this price.

PATIO FURNITURE SPECIAL

PRICES GOOD UNTIL STOCK IS GONE

PATIO & BACKYARD THINGS

A = MAIN MENU B = GRILLS
C = SPA D = BBQPARTS
E = SWING F = BBQACCS
G = HICKORY H = SPECIAL

YOUR CHOICE: *A*

RIVCO MAIN MENU

-
- 0 NO MORE
 - 1 WOODBURNING-RELATED ITEMS
 - 2 PATIO & BACKYARD THINGS
 - 3 CUSTOM BUTTONS & EQUIPMENT
 - 4 COMPUTER SUPPLIES
 - 5 MISCELLANEOUS THINGS
 - 6 SALESMAN

YOU HAVE SEEN 2 FILES WITH A TOTAL OF
1782 CHARACTERS.

YOUR CHOICE: 6

I WILL NOW PAGE A SALESMAN FOR YOU,
PLEASE WAIT A MOMENT...

SORRY, THERE ARE NO SALESMEN AVAILABLE
RIGHT NOW. YOU ARE WELCOME TO TRY
AGAIN LATER. A SALESMAN COULD BECOME
AVAILABLE AT ANY TIME.

YOU MAY LEAVE A MESSAGE FOR A SALES-
MAN IF YOU LIKE. DO YOU WISH TO DO
THIS?

YOUR CHOICE: 0

-----End of Printout-----

Government Agencies

In addition to libraries, NASA, and the Pentagon, other government agencies use a BBS. Often these are public relations tools which promote the general understanding of a particular governmental body or service.

Maricopa County Sheriff's Office

The following printout is from a BBS run by the Maricopa County Sheriff's Office for the education of interested citizens.

-----Printout-----

CONNECT

WELCOME TO THE M.C.S.O. RDBS
RBBS-PC VERSION CPC12.4B NODE 1
OPERATING AT 1200 BAUD,N,8,1.
INITIALIZING...

WHAT IS YOUR FIRST NAME? *patrick*
WHAT IS YOUR LAST NAME? *dewey*
CHECKING USER FILE
TYPE SYSTEM CALLING FROM (C/R IF IBMPC)?
Apple II
WHAT IS YOUR CITY AND STATE? *Chicago, IL*

WELCOME NEW USER TO THE
MARICOPA COUNTY SHERIFF'S OFFICE
PUBLIC ACCESS BULLETIN BOARD SYSTEM

THIS B.B.S. IS SUPPLIED AS A PUBLIC SERVICE
BY THE MARICOPA COUNTY SHERIFF'S OFFICE
AND HAS BEEN OPERATING CONTINUOUSLY
SINCE JULY 27, 1984.

THE EQUIPMENT, SOFTWARE, AND SUPPLIES
HAVE BEEN PROVIDED THROUGH THE
GENEROSITY AND COURTESY OF THE SHARED
USE NETWORK, 3033 N. CENTRAL AVENUE,
PHOENIX, ARIZONA. THE SHARED USE
NETWORK SERVICE IS A DIVISION OF PACIFIC
TELCOM, A PROVIDER OF LONG- DISTANCE
TELEPHONE SERVICES.

THE PURPOSE OF THIS B.B.S. IS TO PROVIDE
A FORUM FOR THE INTERACTION OF POLICE

AND THE PUBLIC.

THIS B.B.S. DOES NOT OPERATE FOR THE PURPOSE OF PROVIDING A PRIVATE ELECTRONIC MAIL SERVICE, NOR FOR THE PURPOSE OF BECOMING A PUBLIC DOMAIN SOFTWARE EXCHANGE.

MORE (Y),N,NS? y

WHILE THE B.B.S. DOES PROVIDE THE ABILITY OF SENDING MAIL TO INDIVIDUAL PERSONS, EACH MEMBER LAW ENFORCEMENT AGENCY HAS SYSOP PRIVILEGES AND BECAUSE OF THE NATURE OF THE SOFTWARE, MUST SKIM ALL MAIL TO FIND MESSAGES DIRECTED TO THEIR PARTICULAR AGENCY.

THEREFORE, THE MARICOPA COUNTY SHERIFF'S OFFICE WISHES TO MAKE IT CLEAR THAT THE ONLY WAY TO SEND A CONFIDENTIAL AND PRIVATE MESSAGE TO THE SYSOP OR ANY EMPLOYEE OF THE SHERIFF'S OFFICE IS TO USE THE (C)OMMENT FEATURE FROM THE MAIN MENU.

THE UPLOADING AND DOWNLOADING IS A SERVICE PROVIDED AT THE SOLE RISK OF THE USER. NO SUPPORT OF ANY KIND WILL BE PROVIDED AND QUESTIONS RELATED TO THE USE OF SOFTWARE CONTAINED IN THE DIRECTORIES WILL NOT BE ANSWERED.

THE BEST FORUM FOR QUESTIONS RELATED TO SOFTWARE IS THE PUBLIC MESSAGE BASE. THERE ARE MANY EXPERIENCED USERS WHO CAN PROBABLY ANSWER YOUR QUESTIONS.

MORE (Y),N,NS? y

IT IS SUGGESTED THAT BEFORE LOGGING INTO THE MESSAGE BASE FOR THE FIRST TIME THAT ALL NEW USERS BECOME

ACQUAINTED WITH THE RULES AND REGULATIONS OF THIS B.B.S. YOU CAN FIND THE RULES IN THE (B)ULLETINS MENU.

THIS IS YOUR SYSTEM. ENJOY IT!

PATRICK DEWEY FROM CHICAGO, IL
<R>EGISTER, <C>HANGE NAME/ADDRESS,
<D>ISCONNECT (DON'T REGISTER)? *r*
ENTER PASSWORD YOU'LL USE TO LOGON
AGAIN? ----
PASSWORD VERIFICATION (DOTS ECHO)?

REMEMBER YOUR PASSWORD
CAN YOUR TERMINAL DISPLAY LOWER CASE? *y*
UPPER CASE and lower
GRAPHICS wanted: <N>one, <A>scii, <C>olor,
<H>elp? *a*
GRAPHICS: Ascii
FILE transfer default type <A>scii, <X>modem,
<Q>uit? *a*
PROTOCOL: Ascii
Want nulls? *n*
Nulls Off

Logging PATRICK DEWEY

WELCOME TO THE
MARICOPA COUNTY SHERIFF'S OFFICE
PUBLIC ACCESS BULLETIN BOARD SYSTEM

Richard G. Godbehere, Sheriff
Corporal Ken McLeod, System Operator

7-9-86 The download directory was purged today.

FUNCTIONS SUPPORTED

- Allow the use of menus with graphics characters in them
- Send and receive messages with password protection
- Download and upload 7-bit ASCII files

- Download and upload 8-bit binary files using XMODEM protocol
- List files available for download with directory number select
- List new files available since last directory review
- Save caller's expert/novice, prompt, and page length preference
- Save caller's last message read mark and line feed preference
- List personal mail message numbers or says no personal mail
- Quick scan and scan of messages with stacked number option
- Read messages with stacked number or from last message read
- Read SYSOP bulletins from bulletin menu

Files Downloaded: 0 Uploaded: 0

Your PROFILE (utilities reset)

Novice

GRAPHICS: Ascii

PROTOCOL: Ascii

UPPER CASE and lower

Line Feeds On

Nulls Off

Prompting Bell Off

MCSO BULLETINS

1. How to obtain RBBS software
2. How to contact the SYSOP
3. Sheriff reports National Awards!!
4. Article: HACKER, Friend or Foe?
5. DIRECT WEATHER SERVICE COMPUTER LINK!!

Bulletin # 1 thru 5, L)ist, C/R continues? 1

* <Ctrl K> aborts <Ctrl S> suspends *

M.C.S.O. BULLETIN #1

The Maricopa County Sheriff's Office Remote Data Base System uses the RBBS-PC Software provided through the public domain and originally produced by the Capitol P.C. Users Group of Gaithersburg, Maryland.

While the M.C.S.O. does not support (from a programming standpoint) RBBS-PC, we are glad to make copies available to anyone, however, we can only make the program available as we are unable to provide any type of user support.

To obtain a copy of RBBS-PC, send two formatted diskettes (or blank diskettes if you want them formatted under PC-DOS 3.1) to:

More (Y),N,NS? y

Corporal Ken McLeod
Detective, Computer Crimes Unit
Maricopa County Sheriff's Office
102 W. Madison Street
Phoenix, AZ 85003

Be sure to include sufficient return postage for both diskettes and the mailer.

For further information concerning RBBS-PC, the program available from the M.C.S.O. contains a lengthy user manual.

/s/ Corporal Ken McLeod 10-30-85

37 min left

Bulletin # 1 thru 5, L)ist, C/R continues? 5

* <Ctrl K> aborts <Ctrl S> suspends *
j TO MID 90S.

ZION NATIONAL PARK....

FAIR TO PARTLY CLOUDY TONIGHT THROUGH SUNDAY WITH WIDELY SCATTERED AFTER-NOON AND EVENING THUNDERSTORMS ON SUNDAY. GUSTY WINDS NEAR THE THUNDERSHOWERS.

LOWS AT NIGHT NEAR 60. HIGHS DURING THE DAY ABOUT 100.

STRAWBERRY RESERVOIR...

More (Y),N,NS? y

FAIR TO PARTLY CLOUDY WITH ISOLATED THUNDERSHOWERS THROUGH SUNDAY.

THUNDERSHOW

36 min left

Bulletin # 1 thru 5, L)ist, C/R continues? 3

* <Ctrl K> aborts <Ctrl S> suspends *

MARICOPA COUNTY SHERIFF'S OFFICE

June 9, 1986

On June 9, 1986, Sheriff Dick Godbehere announced that the Maricopa County Sheriff's Office has received three national awards, from the National Association of Counties.

The sections and programs receiving the awards for excellence during 1985 were:

Civil Process Section--Captain John Armer

For the Civil Process Computerization Project, designed to streamline the filing and serving of civil processes.

Enhanced 9-1-1 Telephone Project--Jan
Freeman--Coordinator

More (Y),N,NS? y

For bringing on-line one of the largest 9-1-1
projects in the United States.

and

Maricopa County Sheriff's Office
Computer Crimes Unit
Corporal Ken McLeod
Corporal Bill Nibouar

For excellence in designing the first
full-time computer fraud unit; the first law
enforcement sponsored BBS in the U.S.; and
consistent high levels of prosecutions and
convictions of computer fraud suspects.

The above are not quotes from the award, which
will be awarded officially in Las Vegas on June
12, 1986.

More (Y),N,NS? y

Corporal Ken McLeod/Sysop/MCSO BBS and
Computer Crimes Section

36 min left

Bulletin # 1 thru 5, L)ist, C/R continues?

Checking messages...

Sorry, PATRICK, no mail for you today

RBBS-PC Ver CPC12.4B Node 1

Caller # 30600 # active msgs: 107 Next msg #
1711

36 min left

RBBS MAIN MENU

PERSONAL COMMUNICATIONS	UTILITIES	ELSEWHERE
B)ulletins and WX	H)elp	F)iles system
C)omment to Sysop	L)ines per page	G)oodbye
E)nter a message	X)pert toggle	U)tilities
I)ntial welcome	?)Functions	W)(not used)
K)ill a message		
O)perator page		
P)ersonal mail		
Q)uick scan		
R)ead messages		
S)can messages		

Main Func

<B,C,D,E,F,G,H,I,J,K,L,O,P,Q,R,S,U,V,W,X,?>? r

Msg # (0 to 1710, *, <H>elp)? 1699

Msg # 1699 Dated 07-19-86 21:35:52

From: SYSOP

To: DEKE BARKER

Re: (R)ARRESTS

SEGMENT TWO IN THE NEVER ENDING STORY OF COMPUTER HACKERS...

A FEW DAYS AGO I REPORTED THE ARREST OF A 17-YEAR-OLD MALE WHO PARTICIPATED IN THE TELEPHONIC HARASSMENT OF THE SHERIFF'S OFFICE BY HIMSELF AND A FEW HACKER FRIENDS.

ON FRIDAY, ONE OF HIS FRIENDS PERSISTED IN CALLING THE MCSO AND HARASSING ANYONE WHO WOULD LISTEN. SOME OF THE CALLS INVOLVED REPEATED DEATH AND BOMB THREATS.

I TOOK ONE CALL FROM THIS 'MISGUIDED YOUTH' AS SOME WOULD CALL HIM AND LISTENED TO HIS THREATS FOR ABOUT 30 MINUTES. I AM GLAD TO REPORT THAT

WITHIN FIVE MINUTES OF THE YOUTH
TELLING ME 'YOU WILL NEVER CATCH ME,'
THE WANAQUE (NEW JERSEY) POLICE DEPT.
KICKED IN HIS DOOR AND TOOK HIM TO JAIL.
NEEDLESS TO SAY THE YOUNG MAN IS
LOOKING AT A SIGNIFICANT NUMBER OF
STATE (NJ AND AZ)

More (Y),N,NS? y

AND FEDERAL CHARGES.

KEN MCLEOD

Main Func

<B,C,D,E,F,G,H,I,J,K,L,O,P,Q,R,S,U,V,W,X,?>? g

-----End of Printout-----

Medical Uses of Bulletin Boards

While I have not found any hospitals using an electronic bulletin board, I did find the MED-BBS and ANESTHESIA which offer "communication in medical research and developments," and one medical center library which offers a message base and BBS for the Loma Linda University Medical Center.

MED-BBS

-----Printout-----

2400/1200/300 Baud
[HI-RES jT Windy City Database
05/26/86, 10:41:34 Local
(Connection Number: 75.)

Welcome to the first Chicago area MEDICAL
ON-LINE DATABASE run by the Windy City
Epson HI-RES Database.

This electronic forum is intended to act as a basis for communication in medical research and developments. I myself am a biomedical engineer and executive of a local medical firm. My firm has developed unique electrodes and human interface systems for use in cardiac critical care.

I also have had extensive experience in virtually all major areas of biomedical instrumentation and disposables.

You are welcome to leave messages with this exchange of ideas in mind and I hope you enjoy this database.

Press any key to continue: *k*

If this is your first time calling MEDBBS please leave a detailed message on your background and interest in the medical field. This will enable me to offer you null access to this system.

If you mistakenly signed on to MEDBBS and you were looking for the Epson graphics HI-RES BBS you need to logoff and call back and select the proper menu listing to boot the HI-RES board...

This board is located northwest of the Windy City in Prospect Heights. This board is capable of baud rates of 300/1200/2400. Address all letters or inquiries to P.O. Box 378, Prospect Heights, IL 60070.

Roger Lee Heath
SYSOP MED-BBS

Press any key to continue: Login Procedure

Enter your FIRST Name: *patrick*
Enter your LAST Name: *dewey*
Checking User file...
Are you a New User? *y*

Enter at least six alphanumeric characters for
your PASSWORD:

Enter at least six alphanumeric characters
for your PASSWORD: 123456

Now enter it again: 123456

OK, now please remember it.

Enter YOUR City, State: *chicago, il*

Hello Patrick Dewey from CHICAGO, IL

Is anything misspelled? *n*

Logging name to disk...

Good morning Patrick. It's May 26, 1986 @
10:45:54.

You are caller number: 338

Number of Active Messages: 13

Last System Message Number: 25

Your access status is: Limited

<10:46:05> COMMAND: or ? : ?

>Use CTL-S to PAUSE, CTL-K to ABORT.<

MED-BBS Supported Function Menu:

S Survey Messages	W Retype Welcome	X Expert User
R Read Message(s)	B Retype Bulletins	Mode
E Enter Message	N Read Newsletter	T Toggle Bell
K Kill Message	J Jump to TPM	Prompt
C Chat with Sysop	O CPR/DEFIB New	P Change Pass-
L List Callers File	Data	word
	I Priviledged	? List this
	Info	menu

You must be a Priviledged user to use the E,K,I,
and L commands.

Commands may be strung together, separated by semicolons.

For example, R;123 retrieves message # 123. For forward sequential retrieval, use + after Msg #, for example R;1+ will retrieve all messages.

-----End of Printout-----

Loma Linda Medical Center Library (TBBS)

Loma Linda University Medical Library runs a private TBBS (The Bread Board System) for the university staff. It is considered part of the library staff by the head librarian, one that works 24 hours each day without taking a coffee break. Since users may be assigned different levels of passwords, callers access only to their area of interest, such as "Physicians Only." The system originally ran on an RBBS, but was changed since the sysop reports that he found it impossible to secure it against "hackers." The main areas of access on this system are: new user, community member, hospital staff, physician. Each may enter a certain area of the board, but not necessarily others. TBBS owners may create "hidden menus," menus that do not show areas to which the user does not have access. One of the major features is the conference areas which allow people to discuss topics on a particular subject or area of interest without having to plow through all of the others. During the Baby Fae surgery, the BBS was used to post information important for the P.R. staff around the clock. Operation is at 300/1200 baud.

Anesthesia BBS

-----Printout-----

AT D T 13193536528

CONNECT

WELCOME TO ANESTHESIA BBS

RBBS-PC VERSION CPC12.4A1--(COMPILED)
NODE 1

OPERATING AT 1200 BAUD,N,8,1. SYSTEM
INITIALIZING...

WHAT IS YOUR FIRST NAME? *Patrick*
WHAT IS YOUR LAST NAME? *Dewey*
CHECKING USER FILE

TYPE OF SYSTEM CALLING FROM (C/R IF
IBMPC)? *Apple*

WHAT IS YOUR CITY AND STATE? *Chicago, IL*
WELCOME TO THE WORLD OF ANESTHESIA
BULLETIN BOARD SYSTEM.

HOWEVER, BEFORE CONTINUING YOU SHOULD
UNDERSTAND YOUR RESPONSIBILITIES AS AN
ABBS USER.

SPECIFICALLY THEY ARE:

1. ACTIVELY ENCOURAGE AND PROMOTE THE FREE EXCHANGE AND DISCUSSION OF INFORMATION, IDEAS AND OPINIONS, EXCEPT WHEN THE CONTENT WOULD COMPROMISE THE NATIONAL SECURITY OF THE UNITED STATES; VIOLATE PROPRIETARY RIGHTS, PERSONAL PRIVACY, OR APPLICABLE STATE/FEDERAL/LOCAL LAWS AND REGULATIONS AFFECTING TELECOMMUNICATIONS; OR CONSTITUTE A CRIME OR LIBEL.
2. USE YOUR REAL NAME AND FULLY DISCLOSE ANY PERSONAL, FINANCIAL, OR COMMERCIAL INTEREST WHEN EVALUATING ANY SPECIFIC PRODUCT OR SERVICE.
3. ADHERE TO THESE RULES AND NOTIFY ME IMMEDIATELY WHEN YOU DISCOVER ANY VIOLATIONS OF THE RULES.

FURTHER EVERY USER EXPLICITLY ACKNOWLEDGES THAT ALL INFORMATION OBTAINED FROM ABBS IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND THAT THE ENTIRE RISK OF ACTING ON INFORMATION OBTAINED FROM ABBS INCLUDING THE ENTIRE COSTS OF ALL NECESSARY REMEDIES, IS WITH THOSE WHO CHOOSE TO ACT ON SUCH

MORE (Y),N,NS? *y*

INFORMATION AND NOT THE OPERATOR OF ABBS.

4. WELCOME!

PATRICK DEWEY FROM CHICAGO, IL
<R>EGISTER, <C>HANGE NAME/ADDRESS,
<D>ISCONNECT (DON'T REGISTER)? *r*
ENTER PASSWORD YOU'LL USE TO LOGON
AGAIN? *mari*
PASSWORD VERIFICATION (DOTS ECHO)?

PATRICK, REMEMBER YOUR PASSWORD TO
LOGON AGAIN
CAN YOUR TERMINAL DISPLAY LOWER CASE?*y*
UPPER CASE and lower
GRAPHICS wanted:<N>one,<A>scii,<C>olor,
<H>elp? *a*
GRAPHICS: Ascii
FILE transfer default type <A>scii, <M>NP,
<X>modem, <Q>uit? *a*
PROTOCOL: Ascii
Do you need nulls? *n*
Nulls Off

Logging PATRICK DEWEY

ANESTHESIA BULLETIN BOARD SYSTEM

Welcome to the Anesthesia Bulletin Board System at the University of Iowa. ABBS is operated by Franklin L. Scamman, MD. Normal operating hours are 5:00 P.M. to 7:00 A.M. weekdays and 24 hours on weekends. It is for the use of individuals in anesthesia or anesthesia-related fields for the exchange of ideas, data, and programs. If you wish to join ABBS, please leave, in the Comments section, your name, address, and telephone number. I will update your security level to allow you to upload messages and files. Until you register, you will not be able to leave any information except comments. All other features are available to new and old users alike. For problems, call me at 319-356-2633. See Bulletin 1 for recent announcements. Thank you for calling!

FUNCTIONS SUPPORTED

- Allow the use of menus with graphics characters in them
- Send and receive messages with password protection
- Download and upload 7-bit ASCII files
- Download and upload 8-bit binary files using XMODEM protocol
- List files available for download
- List new files available since last directory review
- Save caller's expert/novice, prompt, and page length preference
- Save caller's last message read mark and line feed preference
- List personal mail message numbers or says no personal mail
- Quick scan and scan of messages
- Read messages with stacked number or from last message read
- Read SYSOP bulletins from bulletin menu

Skip the 5 bulletins? n

Bulletin Menu

- 1 -- Latest News
- 2 -- Anesthesia Microcomputer Group Wanted
+ Survey
- 3 -- The History of this BBS
- 4 -- Computers in Anesthesia VII Meeting
News
- 5 -- Empty

Bulletin # 1 thru 5, L)ist, C/R continues? 3

* <Ctrl K> aborts <Ctrl S> suspends *

The Anesthesia Bulletin Board started in 1979 with an Apple II running ABBS. After a major software failure in 1983, ABBS was resurrected on an IBM-PC running RBBS-PC v 12.1. Currently (as of September 24, 1985), it is running RBBS-PC v 12.4A on an IBM-PC/XT.

Frank/Sysop

70 min left

Bulletin # 1 thru 5, L)ist, C/R continues?

Checking messages...

Sorry, PATRICK, no mail for you today

RBBS-PC Version CPC12.4A1--(compiled) Node 1
Caller # 2739 # active msgs: 25 Next msg #
136

69 min left

ABBS MESSAGE SYSTEM

COMMUNICATIONS UTILITIES ELSEWHERE

PERSONAL SYSTEM

E)nter Mag	B)ulletins	H)elp	F)iles system
K)ill Msg	C)omment	L)ines per pg	G)oodbye
P)ersonal	I)ntial	X)pert on/off	
Mail	Welcome		

Main Func

<B,C,D,E,F,G,H,I,J,K,L,O,P,Q,R,S,U,V,W,X,>? r
Msg # (20 to 135, *, <H>elp) to Retrieve (C/R
to end)? 20

SAVE"filename.ext",A

Before sending me a file be sure I have enough disk space to take the file. When you ask for U)pload at the File menu, the system will tell you how much disk space is free on the upload drive. If this system runs out of disk space during an upload function, it will issue a cancel request. This will be in the form of a

More (Y),N,NS? y

data stream of one or more ASCII CAN (Ctrl-X) characters. Your system will abort transmission if it supports XON/OFF file transfer speed-matching protocol. If your system does not support XON/OFF, the data overflow will be lost and the RBBS-PC will recycle, dropping you off-line.

UPLOAD GROUND RULES

You are encouraged to donate programs to the library on this system. Any type of program or document is welcome, however, a few ground rules are in order. The files donated must contain only information that is in the public

domain. No private or commercial information should be placed on this system. The SYSOP is not responsible for any of the data that is shared on this system.

66 min left

ABBS FILE SYSTEM

FILE TRANSFER		UTILITIES	ELSEWHERE
file transfer	file info		
D)ownload	L)ist files available	H)elp	G)oodbye
U)pload a file	N)ew files listed	X)pert on/off	Q)uit and return to main menu
	S)earch file directories		
	?)File transfer tutorial		

File Func <D,G,H,L,N,Q,S,U,X,?>? n
 Include files on/after (MMDDYY, C/R = last date on) ?

Enter Directory to scan or ALL? all
 Scanning PROGRAMS for

DDOSE	.BAS	14K	9/20/85	A N E S T H E S I A D R U G A N D F L U I D C A L - C U L A T O R
FENTANY	.BAS	12K	11/14/85	C A L C U L A T E S F E N T A N Y L L O A D I N G A N D

Samples and Printouts of Bulletin Board Operation 135

DDOSE1	.BAS	14K	11/17/85	SEE DDOSE 1 DOC BELOW
DDOSE1	.DOC	1K	11/17/85	CHANGES FROM DDOSE .BAS TO DDOSE1.BAS
HEMOCALC	.BAS	39K	5/7/86	HEMODYNAMICS CALCULATOR FOR APPLE BASIC
Scanning SD	.UTIL .COM	for 2K	10/2/85	SORT DIREC- TORY UTILITY FOR MS-DOS
KERMIT	.EXE	19K	10/2/85	COMM.PROTOCOL MICRO-MAIN- FRAME MS-DOS
KERMIT	.HLP	20K	10/2/85	DOCUMENTATION FOR KERMIT.EXE
WHEREIS	.COM	1K	10/2/85	SEARCH DIREC- TORY TREE FOR MS-DOS
UTIL	.COM	46K	10/8/85	DISK FILE SORTER F1 FOR HELP

65 min left

File Func <D,G,H,L,N,Q,S,U,X,?>? g

Now 4:40 PM Time on: 6 Min. and 27 Sec.
PATRICK, Thanks for calling!

-----End of Prinout-----

Religious Uses of Bulletin Boards

Quite a few bulletin boards with religious orientation have been reported. The printouts that follow specialize in bible-related material, including an online version of the bible, and Jewish thought and prayer.

Bible Online

-----Printout-----

(<.>)
(<.>)
(<.>)><.><(<.>)
 (<.>)
 (<.>)
 (<.>)
 (<.>)
 (<.>)

BIBLE - On/Line
:.....:
:Log/On Please..
:.....:
:Your--First Name..>PATRICK
:.....-Last Name..>DEWEY

Checking User File :.....:
Please--Stand By

Bible On/Line :: Currently has ::
:> 695 <.: :.....: Visitors :.....:

!.: I Don't Seem to Know You ..!

: Are You a First/Time Caller ? :

Y/N:....> Y

Great..! Praise The LORD..!!

First--several quick questions I need to know your Address, City, State. This information is kept confidential and is only required the first time you call...thank you for your time!

-----End of Printout-----

Golem

The Golem BBS serves the Institute for Computers in Jewish Life and contains prayers, passover news, and an exchange of views by callers.

-----Printout-----

WHAT IS YOUR FIRST NAME? *PATRICK*
WHAT IS YOUR LAST NAME? *DEWEY*
WHERE ARE YOU CALLING FROM (CITY,
STATE)? *CHICAGO, IL*

HELLO PATRICK DEWEY FROM CHICAGO, IL

HAVE I MISSPELLED ANYTHING (Y/N)? *N*
PLEASE ENTER A PASSWORD OF UP TO 10
CHARACTERS? *12345*
BE SURE TO REMEMBER THIS PASSWORD
FOR THE NEXT TIME YOU CALL US.

IS THIS YOUR FIRST TIME ON THIS SYSTEM
(Y/N)? *Y*

CAN YOUR COMPUTER DISPLAY LOWER CASE?
Y

You are caller #991
Logging PATRICK DEWEY to the disc....

APRIL 16-SEE NEWS SECTION FOR
'PASSOVER THOUGHTS,' A SPECIAL
SECTION ON PASSOVER IDEAS.

GOLEM POLL #4

Golem is interested in your opinions on Jewish
issues, both those related to computers and

those that are not. Here is our latest poll:

1. If the present unity govt. in Israel falls, who will win the election, Peres and Labor, or Shamir and Likud?

What would be the consequences for Israel in case of a U.S.-Libyan conflict?

Please leave your answers to this poll in the message section on this board.

WELCOME TO GOLEM, THE COMPUTER
BOARD NETWORK OF THE INSTITUTE FOR
COMPUTERS IN JEWISH LIFE
845 N. MICHIGAN AVE, CHICAGO, IL 60611
CHICAGO, IL 60611

Golem is a general purpose message storage and retrieval system for persons interested in Judaism, Jewish education, and the use of computers in Jewish life. Golem contains programs of Jewish interest that you can download, and has an uploading capacity as well.

Teachers, scholars, and students can use Golem to leave questions and answers to all interested users about different Jewish topics.

From time to time, Golem will provide information about new Jewish software. Need some info about software? Leave a message to users, and you're sure to get an answer.

The Golem Bulletin Board will also provide information about the activities of the Institute.

For more information about Golem, contact Rabbi Alan Rosenbaum at the Institute, (312) 787-7856.

>>---Bulletins---<<<

**X-MODEM IS DISABLED. PLEASE DOWNLOAD
USING ASCII UNTIL IT IS CORRECTED.**

attention apple owners--now available from davka
corp 'jewish' graphics disk for the print shop--
over 60 graphics on israel, holidays, and jewish
life only \$24.95!! call 312-944-4070 to order

>>>---Bulletins---<<<

Next message will be #214

Functions Supported:

- A = Apple 40 Column
- B = Print Bulletins
- C = Case Switch
- D = Duplex Switch (Echo/No Echo)
- E = Enter Msg into System
- G = Good-Bye (Leave System)
- H = Help with Functions
- K = Kill (Erase) a Message
- L = Line Feed (On/Off)
- N = Nulls (Set as Req'd)
- Q = Quick Summary of Msg's
- R = Retrieve Msg
- S = Summary of Msg's
- T = Time of day
- V = Toggle Video/Printer Terminal mode
- W = Print Welcome Message
- X = Expert mode toggle
- = Prints Functions Supported

DOWNLOAD = Download software to your
computer

UPLOAD = Upload a file or program to the ABBS

NEWS = Info of interest to system users

PASSWORD = Change your logon password

FILES = Change DOWNLOAD directory

Function:

(A,B,C,D,E,G,H,K,L,N,Q,R,S,T,V,W,X,
DOWNLOAD,UPLOAD,NEWS,PASSWORD,
FILES,?)?DOWNLOAD

***** Program Guide *****

1. FLAG
2. LEAP YEARS
3. CANDLES
4. PRAYER FILE #1
5. PRAYER FILE #2
6. PRAYER FILE #3
7. PRAYER FILE #4
8. PRAYER FILE #5
9. PRAYER FILE #6
10. PRAYER FILE #7
11. PRAYER FILE #8
12. PRAYER FILE #9
13. JUDAISM AND PRAYER

Your Choice? 10

-----End of Printout-----

Library Bulletin Boards

Libraries of all sorts have also jumped on the BBS bandwagon. Some have used it as a public relations device, attracting thousands of callers from all over the country who read about their services and books. Others, usually a university or school library use it as a means of communications between librarians, faculty, and in some cases to send interlibrary loan requests for materials. The response has nearly always been the same; the users--whether library staff or the general public--are enthusiastic.

The first BBS installed in a U.S. library (perhaps in

any library) was at the North-Pulaski Branch of the Chicago Public Library in 1981. It and Lincolnet, a project of the Suburban Library System, are described in Chapter 7.

The Liverpool Public Library (Liverpool, New York) has been running a *PMS* since January of 1981. Its main function is an outlet for library information, and it has become very popular, with over 1,000 calls per month. It has had an interesting history, including several fictitious characters. One, the night sysop, "Binky Schmurtz," was the controversial sort, conceived as the "fall guy," one on whom the staff blamed everything that would ever go wrong. If a file was erased or the system crashed, it was Binky's fault! The staff finally tired of the charade and fired Binky. His loyal following, however, complained vociferously about his demise. "Aunt Libby" was conjured up as the online reference librarian who would answer questions within 24 hours. She, too, gained some contentious groupies, some who signed messages to her as "Your nephew." Aunt Libby, incidentally, is supposed to live in Maine with her cat, Walden, and her butler, Chives. My favorite anecdote from this library is that of Aunt Libby's recipe for "Possum Pie" (a chocolate cheesecake) which begins, "Take one cooperative possum...." Yet one of the most satisfying experiences of the *PMS* project was the community picnic for its users, sponsored by the library, which was attended by about 20 people.

The Montgomery County School System (Rockville, MD), Department of Instructional Resources (Ellen C. Pruitt, Teacher Specialist), began operation of an Apple Bulletin Board System (ABBS 4.2.1) for use by media specialists in May 1983. Hardware consists of an Apple II+ with two 5-inch drives, a 300 baud Hayes Micromodem II, RAM card, and Mountain Hardware Clock. This system makes a good case for surge protectors, since the clock was knocked out one summer by lightning. Conferencing, downloads, uploads, news modules, and autolog are all featured. A brochure contains general information and some of the more important commands. Policy of the BBS is communicated through a brochure that reads: "This CBBS was designed to serve as a medium of news and information exchange among schools. It shall not be the source of

policy formulation. Its users are reminded that they are expected to respect an individual's right to privacy and to avoid infringing on copyright laws regarding microcomputer software."

The Mountain-Valley Library System (Sacramento, CA) has been operating a private BBS for member libraries since September 1983 using a TRS-80 Model IV with floppy disk drives, and a 300 baud Hayes modem. Two of these systems back each other up. Part of the system's "Communications and Delivery Program," provides inter-library loan and is available during regular work hours (8:30 A.M. to 4:45 P.M., Monday through Friday). Its only function is communication, through messages.

Odessa College Learning Resources Center (Odessa, Texas) has operated a public access board, "Flatlander," since September 1, 1982 using an Apple IIe with a 10mb Apple Sider hard disk drive (originally only 5 1/4 inch drives were used), and a 300 baud Hayes Micromodem II. Software is *Networks II* to which Sysop David Carson has made many revisions. Though there have been some minor obscenity problems, regular monitoring has stopped much of the problem. Some 10,000 calls and 2,000 messages have been received. Its main purpose was to provide an alternative to expensive services such as CompuServe. E-mail, public domain software for nine different types of micros, lists of local BBS numbers, adventure tips, and more are included.

Online Database Information Network (ODIN) is operated by a group of eight libraries, including academic, public, school, and special in four counties near Harrisburg, Pennsylvania, and is LSCA-III funded. This decentralized system of eight computers gives each library dial-up access to information maintained at each site. One has a full-text, local history database and is drawn from local newspapers, church records, cemetery records, and court records. Another database is a "Speakers/Program File" which provides access to speakers in the four-county area. Software used is called *Small DB*, and is run on eight TRS-80s.

The Online Network of Continuing Education (ONCE) is run by the Illinois State Library and provides regional news and information on continuing education for librarians. Among its features is a retrospective continuing education file of resources and speakers. The database is searchable by geographical area, subject, and date, and contains times and places of workshops, contacts, fees, credits, accommodations, phone numbers, comments, and deadlines. Data about workshops may be entered by the callers themselves. As of mid-1985, 900 workshops had been entered in the database which has a capacity of 8,000 records on a Victor 9000 with a 10mb hard disk, and a U.S. Robotics 212A Modem. A professional programmer was needed to get the CP/M software up and running. Callers access the BBS via an 800 number, which was reported to cost upward of \$1,000 per month.

The San Bernardino Public Library (San Bernardino, CA) BBS has been in business since December 1983, with an Apple II+, Amdex Color monitor, (40 column), two Apple disk drives, one 10mb Corvus hard disk drive, and a Hayes Micromodem II (300 baud) using original software. Callers access online reference, a listing of free databases and an impressive list of public domain software. The user list, which may be examined by any caller, includes name, city/state, and type of hardware employed by each user. When I called, 183 users were listed.

The Wisconsin Reference and Loan Center maintains a BBS using *RBBS* software for use on an interlibrary loan system for member libraries. In operation since mid-1985, it runs on an IBM PC with two 5-inch disk drives, with a 1200 baud Smartmodem and is available during the work day. Plans call for adding a hard drive.



LINCOLNET: A CASE STUDY

Lincolnet is a publicly funded project run by a library staff whose main job is the organization and management of library services, not a bulletin board. For the purposes of this book, however, Lincolnet is used to illustrate how to set-up, operate, trouble-shoot, and do most of the other things that have been discussed in the preceding chapters. That Lincolnet is run by a library system is incidental; the principles and problems are the same for the hobbyist, corporation, store, or any other organization.

Lincolnet was conceived in the summer of 1985 as an LSCA grant proposal. LSCA is the Library Services Construction Act, a federal government project. With the assistance of the Consulting Services of the Suburban Library System, a grant proposal (see Appendix D) was prepared and submitted for \$10,461. Within a few months, the grant was approved and funds made available. By mid-1986, Lincolnet was up and running.

Some background is necessary. The Chicago Public Library's North-Pulaski Branch now has a 5-year old bulletin board that began with hardware and software funded by the Friends of the Chicago Public Library. In 1981, little BBS software existed. The software originally used in Chicago was the *ABBS* (Apple Bulletin Board System), but software problems eventually led to its abandonment. The *ABBS* was unreliable, bad at error-handling, and required too much maintenance, including frequent pruning or removal of messages. Few advanced features were built-in, requiring the purchase and installation of additional modules for upload and download, or conferencing. After some considerable searching, *People's Message System (PMS)* was purchased. *PMS* has excellent error-handling capability, password options, an obscenity filter, a built-in download/upload feature, and lots of other advantages over *ABBS*.

When Lincolnet was funded, the staff still opted for *PMS*, since it was the easiest program to install and had relatively few problems. However, the computer world had changed, and while it was feasible to operate a 300 baud system in 1981 or 1982, it was not such a good idea today, and so once again we searched for the perfect software. The one that we finally settled on was *GBBS* (*Great Bulletin Board System*), because it provided 300/1200 baud, a "trash can," and as many separate message systems (conferences) as we might require. Clearly, for our needs this would be an excellent choice. The software has arrived, but as of this writing has not yet been installed. The following report, as well as the printout, all reflect the *PMS* software. We intend, however, to retain most of the current files, with some changes, on the new *GBBS*.

Manpower Problems

We faced many problems as we went along, not the least of which was the keying in of articles and features. Lincolnet was to be a much larger database than the Chicago BBS, so a part-time library clerical position was included in the grant for the maintenance and keying. Beyond that, librarians cooperate to send in files, book reviews, and articles, and patrons participate. Some material is sent to us via ALANET and CompuServe. After 3 months, calls had reached over 300 per month, a 50 percent increase over the second month.

Location

The equipment was physically located at the Maywood Public Library, in a special locked cabinet, out of harm's way. The cabinet fit neatly into the public access computer room.

The database itself, which is never finished, was a tree structure. Even though the software does not allow a true tree structure or hierarchical directory, a Master Menu with submenus was created. By hitting "F" the

Feature menu is activated. This menu is merely a list of other menus which range from a number of words (such as Rosary for a file listing topics about Rosary College) to a list "F" menus (e.g., F1, F2, F3 ...). Each is a menu in itself. These labels later proved to be a problem, since some few callers took these to be the function keys on an IBM and other computers.

Getting started was no problem. One disadvantage with *PMS* is that some elementary BASIC programming is required. Where our programming fell short, we went without.

Feature articles now number about 50 and include: a listing of libraries with public access microcomputers, a list of telephone book locations in SLS for 49 states, health help availability, libraries with online services that may be reached by computer, booksale dates, and many other sources of information. Lincolnet is also a professional BBS for librarians. Librarians have access to the latest job listings, the class schedules for Rosary Graduate School of Library and Information Science, ALANET news, and Illinois Library Association news updates.

A Guided Tour of Lincolnet

MASTER MENU OF FEATURES

BELOW ARE SUBMENUS FOR LINCOLNET. TYPE THE CODE ON THE RIGHT SIDE FOR THE MENU RELATING TO THAT TOPIC.

"MI" WILL RETURN YOU TO THE MASTER INDEX

"F" WILL RETURN TO THE MASTER MENU (THIS IS THE MASTER MENU)

TYPE THIS	TO READ OR VIEW THIS
ALA	= ALANET NEWS
BOOKSALE	= BOOKSALE LOCATIONS AND DATES
ILA	= ILLINOIS LIBRARY ASSOCIATION
WLN	= WIRED LIBRARIAN'S NEWSLETTER
F	= MASTER MENU (THIS MENU)
LINCOLN	= ALL ABOUT LINCOLNET
PHONE	= PHONE BOOKS FROM 49 STATES
JOBHUNT	= JOB HUNTING HELP LIST
MI	= MASTER INDEX OF ALL FEATURES
ROSARY	= ROSARY SCHOOL OF LIBRARY & INFORMATION SCIENCE
F2	= INFO-MAT MAGAZINE (UPDATED WEEKLY)
F3	= GENERAL COLUMNS AND ARTICLES
F4	= LIBRARIES & LIBRARY SERVICES
F5	= BOOKS
F6	= DOWNLOADS (FREE PROGRAMS FOR YOUR APPLE)
F7	= HOW TO READ AND LEAVE MESSAGES
F8	= HOW TO GET A LOGON CODE
F9	= BBS- AND CLUB-RELATED TOPICS
F10	= EDUCATIONAL OPPORTUNITIES
F11	= SOURCES OF HEALTH TIPS
F12	= FROM THE REFERENCE CENTER

THANKS FOR CALLING LINCOLNET!
SUPPORT YOUR LOCAL LIBRARY!

COMMAND: \$F4

LIBRARIES AND LIBRARY SERVICES IN SLS

IT IS NOT POSSIBLE TO INCLUDE EVERY LIBRARY SERVICE IN THIS DIRECTORY, BUT ALL OF THE LIBRARIES IN THE SUBURBAN LIBRARY SYSTEM ARE INCLUDED, AS WELL AS A LISTING AND EXPLANATION OF MANY LIBRARY SERVICES. FOR ADDITIONAL INFORMATION, PLEASE CALL YOUR LOCAL LIBRARY.

"MI" WILL RETURN YOU TO THE MASTER INDEX

"F" WILL RETURN YOU TO THE MASTER MENU

TYPE

THIS TO READ OR VIEW THIS

PHONE = TELEPHONE DIRECTORIES FROM 49 STATES

FIND = A OVERVIEW OF HOW LIBRARIES ARE ORGANIZED

BOOKSALE = LOCATIONS AND DATES OF BOOKSALES

MICROS= LOCATIONS OF PUBLIC ACCESS MICROS

ONLINE = LIBRARIES WITH ONLINE SERVICES

REF = REFERENCE SERVICES

LEGIS = LIBRARY LEGISLATION UPDATE

KIDS = CHILDREN'S SERVICES

THANKS FOR CALLING LINCOLNET!
SUPPORT YOUR LOCAL LIBRARY!

COMMAND: \$ROSARY
FORMAT FOR PRINTER (Y/N) \$N

ROSARY COLLEGE
DEPARTMENT OF LIBRARY & INFORMATION SCIENCE
7900 W. DIVISION, RIVER FOREST, IL 60305
312-366-2490

CALL THE DEPARTMENT OF LIBRARY AND
INFORMATION SCIENCE IF YOU WISH TO
SHARE INFORMATION OR HAVE QUESTIONS.
THANK YOU.

"F" WILL RETURN YOU TO THE MASTER MENU
"MI" WILL RETURN YOU TO THE MASTER
INDEX

TYPE
THIS TO READ THIS

RCE = CONTINUING ED FOR LIBRARIANS
RJOB1 = ACADEMIC LIBRARY POSITIONS
RJOB2 = PUBLIC LIBRARY POSITIONS
RJOB3 = SCHOOL LIBRARY POSITIONS
RJOB4 = SPECIAL & PART TIME POSITIONS
RSCHED = ROSARY DEPT OF LIBRARY &
INFORMATION SCIENCE
SCHEDULE OF CLASSES

THANKS FOR CALLING LINCOLNET!
SUPPORT YOUR LOCAL LIBRARY!

COMMAND: \$RCE
FORMAT FOR PRINTER (Y/N) \$N

ROSARY COLLEGE DEPARTMENT OF LIBRARY
AND INFORMATION SCIENCE

"MI" WILL RETURN YOU TO THE MASTER
INDEX

"F" WILL RETURN YOU TO THE MASTER MENU

CONTINUING EDUCATION SCHEDULE

FRIDAY, APRIL 11, 1986

WORD PROCESSING WITH WORDSTAR
RAYMOND R. LIBNER, CONCORDIA COLLEGE

OBJECTIVES

1. TO EXPLAIN THE ADVANTAGES AND CAL SPECIFICATIONS OF THE MOST USED WORD-PROCESSING SYSTEM.
2. TO PROVIDE PRACTICAL, HANDS-ON INSTRUCTION IN THE USE OF THE WORDSTAR SYSTEM.
3. TO ILLUSTRATE METHODS TO OVERCOME SIMPLE PROBLEMS OF USING WORDSTAR AND WORD PROCESSING

CONTINUING EDUCATION SCHEDULE

FRIDAY, APRIL 11, 1986

WORD PROCESSING WITH WORDSTAR
RAYMOND R. LIBNER, AND ITALIAN PAPERS.
ARCHIVAL GLUE; TEMPBEGIN TO PREPARE CC
IN TIMES OF STRESS RICHARD A. DAVIS,
ROSARY COLLEGE

OBJECTIVES

1. TO PROVIDE THE ADMINISTRATOR WITH IDEAS AND DEVICES FOR COPING WITH MANAGEMENT DECISIONS UNDER STRESS.
2. TO PROVIDE INSIGHTS INTO DEALING WITH DECLINING BUDGETS AND TO PROVIDE GUIDELINES FOR RESTRUCTURING LIMITED RESOURCES.

3. TO PROVIDE SUGGESTIONS AND IDEAS FOR DEALING WITH DIFFICULT PERSONNEL SITUATIONS.

SCHEDULE

8:30-9:00 REGISTRATION AND COFFEE
9:00-10:15 INTRODUCTION; CONCEPTS;
MANAGEMENT THEORIES

10:15-10:30 BREAK
10:30-12:00 2D SESSION

(Hitting "Control-K" stops the file; typing "F4" returns the submenu about library files.)

COMMAND: \$F4

LIBRARIES AND LIBRARY SERVICES IN SLS

IT IS NOT POSSIBLE TO INCLUDE EVERY LIBRARY SERVICE IN THIS DIRECTORY, BUT ALL OF THE LIBRARIES IN THE SUBURBAN LIBRARY SYSTEM ARE INCLUDED, AS WELL AS A LISTING AND EXPLANATION OF MANY LIBRARY SERVICES. FOR ADDITIONAL INFORMATION, PLEASE CALL YOUR LOCAL LIBRARY.

"MI" WILL RETURN YOU TO THE MASTER INDEX

"F" WILL RETURN YOU TO THE MASTER MENU

TYPE
THIS TO READ OR VIEW THIS

PHONE = TELEPHONE DIRECTORIES FROM 49 STATES

FIND = AN OVERVIEW OF HOW LIBRARIES
ARE ORGANIZED

MICROS = LOCATIONS OF PUBLIC ACCESS
MICROS

ONLINE = LIBRARIES WITH ONLINE SERVICES

REF = REFERENCE SERVICES

LEGIS = LIBRARY LEGISLATION UPDATE

KIDS = CHILDREN'S SERVICES

THANKS FOR CALLING LINCOLNET!
SUPPORT YOUR LOCAL LIBRARY

(Typing "Online" returns the list of libraries with
online services)

COMMAND: \$ONLINE

FORMAT FOR PRINTER (Y/N) \$N

LIBRARIES WITH ONLINE SERVICES

"MI" WILL RETURN YOU TO THE MASTER
INDEX

"F" WILL RETURN YOU TO THE MASTER
MENU

TYPE
THIS TO READ OR VIEW THIS

SKOKIE = SKOKIE PUBLIC LIBRARY
CR = CHICAGO RIDGE PUBLIC
LIBRARY--SIMPLE ANSWER
MACHINE (SAM)

THANKS FOR CALLING LINCOLNET!
SUPPORT YOUR LOCAL LIBRARY!

(Since we now want to leave, we just type in "G" for Goodbye.)

COMMAND: \$G

COMMENTS/SUGGESTIONS:

PRESS <RETURN> KEY ALONE AT THE PROMPT TO END...

\$

(We may either type in our comment, or hit "Return" to end. Hitting a return on a blank line after typing a comment will end the session as well.)

GBBS

An important difference between *GBBS*'s software structure and *PMS*'s is *GBBS*'s multiple bulletin board system. Separate boards for children's services, reference services, programs, library professional services, sysops, and a general board for the public are all planned for Lincolnet. These will mostly be message bases with some special downloads available in certain areas of them. The General Files section will allow for a long list of ASCII text files to be posted. Lincolnet *GBBS* will also be operated at 300/1200 baud, and have a great many features which *PMS* lacked.

Publicity

Lincolnet flyers and bookmarks were sent to all SLS member libraries, posted on local bulletin boards, and published in professional newsletters and journals and the local papers. The response to date has been good. Within just the first 2 months, usage went from zero to approximately 15 calls per day. The growth rate is expected to continue until a saturation of between 1,500 and 2,000 calls per month is reached.

OTHER TYPES OF BULLETIN BOARDS

A number of activities termed "electronic bulletin boards," have little to do with microcomputers. These include networks, high-resolution computer slide shows, national network bulletin boards that are maintained on a mainframe or minicomputer such as those on CompuServe and The Source or ALANET; and teletext and videotext.

Networks

Local Broadcasting

One article I found while researching this book was entitled, "How to Set Up an Electronic Bulletin Board." Sounds promising, but it provided instructions on setting up a display using a computer screen or a closed circuit TV for attracting local passersby for business or, as in the article, for informing students in a school of class changes or other important announcements at a number of sites around the school simultaneously. The article contains the complete program listing for the Apple computer.

Computer Slide Shows

From time to time we all see computer slide shows for salespeople or exhibitors. With *The Video Message System* (Great Northern Computer Co., \$150) anyone can make a series of high resolution computer slides to display on a computer monitor or over closed circuit TV. And just like real slides, these can be continuous sales or educational displays. *The Video Message System* works on the Apple II computer.

CompuServe/The Source

The two largest public "information utilities," CompuServe and The Source, make national bulletin boards available. A

posted message or advertisement has a potential readership of tens of thousands. If communication with only one or a few people via computer is required, such an arrangement may be expeditious. Open to suggestion, these services will publish material. Newsletters, books, and articles are successfully provided for a general microcomputer audience. If publication of an online newsletter is the goal, NewsNet may provide the answer.

Table 1: Policy and Instructions for CompuServe Bulletin Board

Notice: CompuServe reserves the right to review all publicly posted information and to delete any which, in its sole judgment, is inappropriate or offensive. CompuServe will be indemnified against any loss or expense arising out of the publication of advertisements, including those resulting from claims or suits for libel, violation or right of privacy, or publicity, plagiarism or copyright infringement. CompuServe will not be responsible for any loss or expense arising from customer's use of posted information, without limitation. CompuServe makes no warranties, expressed or implied. Please enter HELP if you need instructions.

***HELP**

The CompuServe Information Service National Bulletin Board is an information exchange medium. The following commands are implemented:

SCAN	READ	INDEX	VIEW
COMPOSE	POST	EDIT	ERASE
CHECK	EXIT	AGE	OFF

Commands may be abbreviated to the first 3 letters. For additional information about a command, type:HELPcommand

For example: HELP SCAN

If requested, Newsnet will set up a special section for a particular user or group, though it will be public and available to all (face it, these outfits make money getting people to stay online). TISIG (formerly Texnet), a service of The Source, is a good example of such a situation. Through TISIG, far-flung users of Texas Instrument computers communicate. TISIG supplies news, a software directory, a listing of users groups, service centers, chatting, ideas, a logo exchange, and lots more. Callers to TISIG may also upload their own software to the system as part of an exchange program.

Mainframe Custom Networks

Networks may be set up through a reseller of Telenet or Tymnet services. COM, Confer II, Dialcom, eForum, and Participation Systems provide not only software, but an infrastructure for the telecommunications mainframe world. One system is ALANET, the network of the American Library Association. ALANET is a combination electronic mail, bulletin board, and feature material system. It operates through the same networks as information utilities (it is, in fact, an information utility in the same sense as are CompuServe and The Source), but its coverage and audience is select--the library world. The principal use is the electronic mail component which allows librarians from all types of libraries to conveniently and quickly communicate with one another. Some library publishers accept manuscripts that are transmitted from authors through the message system. (I have sent articles to Meckler Publishing via ALANET for the past year; this allows me to send them in on the day they are due and get an instant confirmation that they were received without worrying or guessing about how slow or fast the U.S. Mail might be.)

Systems which provide much the same service, but for different constituencies, are SpecialNet Telecommunications Systems and Ed-Line. SpecialNet, is maintained by the Kansas State Department of Education for users throughout the state of Kansas. Four separate bulletin boards are

maintained, each with its own operator. It provides statewide electronic mail and announcements for the delivery of special education services throughout the state.

Ed-Line is an electronic news service provided by the National School Public Relations Association, in cooperation with The Source. Its purpose is to provide news about education, "ready-reference information, statistics, Supreme Court decision summaries, reviews of research, tracking of major federal legislation, communication, education and public relations tips, and other critically time-sensitive material."

Addresses

COM and Portacom
Jacob Palme
QZ
Stockholm University Computer Center
Box 27322, S-102 54
Stockholm, Sweden

Confer II
Advertel Communication Systems, Inc.
2067 Ascot
Ann Arbor, MI 48103

Dialcom
1109 Spring St., Suite 410
Silver Spring, MD 20910

Ed-Line
NSPRA
1501 Lee Highway
Arlington, VA 22209

eForum and eForum PC
Network Technologies International, Inc.
Arbor Atrium Building
315 West Huron
Ann Arbor, MI 48103

Participation Systems, Inc.
43 Myrtle Terrace
Winchester, MA 01890

SpecialNet
120 East 10th St.
Topeka, KS 66612

Teletext and Videotext

Two developments have made it possible to use cable systems to send and receive messages. The easiest way to use such a service is to contact the local cable company which may provide it. They are usually eager to get material.

Teletext (or teletex) is sent via a regular television which has been equipped with an adapter. By using an adapter, any of several hundred pages of information may be randomly accessed, not unlike mainframe and local bulletin boards. It is a one-way system with no interaction required or possible by the user except page selection.

Videotext (or videotex) is another matter, and may or may not be a cable service, but it is generally defined as two-way communication that permits a search for specific information. With teletext, a user is limited to a page number and such systems generally only provide a few hundred pages. Videotext, on the other hand, may have many thousands of pages and is even accessible by microcomputers in some areas. The Fairfax County Public Library (Springfield, VA) has a 24-hour BBS on cable. They use a D-Cat Modem (Novation), 300 baud, and a Texscan MSI Compuvid Character computer, to input data, including graphics. Information is provided about branch libraries (locations, phone numbers, hours, programs, etc.).

Clock Bulletin Board

There is a very unusual BBS called the "Home Clock Family Bulletins" (King Software). This Timex-Sinclair ZX-81 software combination alarm clock/bulletin board costs \$20 and generates a digital clock on the top half of the screen which contains the time and date and provides an alarm feature. The bottom half of the screen displays up to ten different messages, each up to 32 characters long, that may be modified, etc.

Bibliography

Kenney, Brigitte. *Cable for Information Delivery: A Guide for Librarians, Educators and Cable Professionals*. White Plains, NY: Knowledge Industries Publications, Inc., 1984.

GLOSSARY

ABBS (Apple Bulletin Board System)--originally a trade name for a particular system, but is now used to refer to any BBS for the Apple computer.

Acoustic Coupler--a modem that accepts data through the regular handset of a telephone. The handset fits into two rubber cups designed for this purpose. Such a modem is less accurate than a direct connect modem which uses the modular telephone jack to connect.

ASCII (American Standard Code for Information Interchange)--an agreed upon code for the exchange of data which defines 128 characters in the binary code.

Asynchronous--untimed, character-at-a-time (word-at-a-time) transmission of data. It is the way most microcomputers, RS-232C ports, and 300/1200 baud modems operate. Stop and start bits to determine where each character begins and ends. Synchronous transmission, not used with microcomputers, involves timed transmission.

Baud--the measure at which information is transmitted, the number of bits per second. 300-bits-per-second is 300 baud or 30-characters-per-second (where 10 bits = 1 character). Though 300 baud modems were popular among hobbyists because of their low cost, 1200 baud is becoming the accepted standard. 2400 baud and up are becoming popular for downloading long program files.

Bell Compatible--comes in two types, 103 and 212A, and refers to Bell Telephone standards. Both were created by the phone company. 103 means that the modem will transmit at 300 baud, whereas a 212A modem will transmit at 1200 baud. The best modems (for purposes of a BBS) are 103/212A, or 300/1200 baud.

Bit--the smallest unit of computer information, basically a 1 or 0. These bits are combined into "words," or bytes.

Buffer--an area in memory where data is stored temporarily. Technically, all RAM is a buffer. However, buffer is meant to describe something other than program storage, usually something stored at the desire of the user. Some communications software systems contain a buffer that is a RAM location which copies whatever appears on the screen to memory, while others copy directly to the disk. Thus, material copied may be viewed or written to disk. Word processors usually have several buffers, one for the document and sometimes one for a part of the document. Buffer size depends upon the software in use and the available RAM space.

CBBS--originally the computer bulletin board system authored by Randy Suess and Ward Christensen in 1978. Most boards owe their existence to this original BBS.

CD-ROM (Compact Disc-Read Only Memory)--a mass storage, laser disc device.

Central Processing Unit (CPU)--the brain of the microcomputer. It regulates everything, *i.e.*, timing, arithmetic functions, etc.

Christensen Protocol--an error-free way to transmit binary code. It is less essential to check ASCII files for errors, since errors can be checked by simply examining the file. It is usually impossible to locate errors in computer code. Also called Xmodem.

CP/M (Control Program for Microcomputers)--an operating system widely used with micros.

Default--any setting or condition which will occur automatically, unless changed by the user.

Disk Operating System (DOS)--the file handling system which keeps track of disk files, storage, and other related work.

Dot Matrix Printers--create print from combinations of dots created from steel needles. Many dot matrix printers

have the dots overlap which creates an image that is called "near-letter quality" by manufacturers. *See also:* Letter-quality printer.

Downloading--sending data from one computer to another computer. This may be done both manually and automatically using terminal software or certain electronic bulletin board systems.

Duplex--can be both full and half. Half duplex is data being transmitted in only one direction at one time. Full duplex is both directions at once.

Electronic Mail (e-mail)--refers to mainframe services, simple bulletin board mail, or local area networks.

Integrated Software--software that performs more than one major function, typically word-processing, database management, and spreadsheet functions. Some packages also include telecommunications and graphics.

Local Area Network (LAN)--a connection of several or many microcomputers in order to share peripherals such as printers, hard disk drives, modems, etc.

Log On--required on a BBS before access is granted. It can involve a password, ID, or name, address, and phone number. Usually, it is not possible to have complete or full use of a system without being "validated" (authorized) by the system operator.

Modem--a peripheral device which allows two computers to talk over the telephone lines. Since computers are digital and telephone lines analog, a conversion process is necessary. The word itself comes from **modulator/demodulator**. Acoustic modems use rubber cup devices to connect to a telephone handset. A direct-connect modem operates by connecting directly to the modular telephone jacks, allowing for greater accuracy and convenience in transmission. A null cable modem is not a modem at all, but a special cable which allows two computers in close proximity to exchange data just as if connected by modems.

Network--a connection of two or more computers, but the concept can mean different types of connections. A local area network (LAN) has several computers connected (hard-wired) together within the same building or even office. All computers in the network may share all of the peripherals in the system. A network may also be a group of terminals or micros connected to a central computer or hard disk over the telephone. Other networks connect users to a mainframe such as with CompuServe, Tymnet, or Telenet.

Nulls--empty signals which halt transmission for a short time after each line has been transmitted. The more nulls, the longer the waiting period. Printers or other devices unable to keep up with incoming data, require nulls (and sometimes linefeeds), or lines of data to be truncated.

Parallel Transmission--sends data 8 bits at a time, simultaneously. It is one of the two ways in which data in micros is sent or received. It differs from serial transmission in which data is sent one bit at a time.

Peripheral--devices added on to the computer, as opposed to the microcomputer itself. Printers, modems, disk drives, graphics tablets, and similar devices are all peripherals.

Port--a data entrance into a computer. Ports may be either serial or parallel and may come with a microcomputer or may be added later by the addition of special cards. Printers, modems, and disk drives all require some type of port. A multi-port system usually means one with two or more incoming telephone lines.

RS-232C--serial ports that, for practical purposes, have become a standard for communications equipment such as modems.

Serial--a way in which data is transmitted; opposite of parallel. Serial transmission involves sending data 1 bit at a time, whereas parallel is the sending of data 8 bits at a time.

Squeeze--the way some operating systems (in particular CP/M) allow users to "squeeze" files. All of the excess space and punctuation is removed so that it will take up less disk space. Once the program has been downloaded, it is "unsqueezed" by the user.

Stop and Start Bits--asynchronous (untimed) communications bits determine where a byte begins and ends. If parity is used, an extra bit is inserted with an error checking device (making each byte 10 bits long). Parity is rarely used with micros. When used, it is either odd or even. Of the bits received do not add up to the expected number, an error message is sent.

Sysop--an abridgement of the title "System Operator." A person who operates and manages a BBS or, more broadly, any type of computer system, whether micro or mainframe.

Telecommunications Software--sometimes called terminal software, it assists with protocol transfer, saving files, baud rates, log on, etc. Some packages even contain a built-in line editor to create text.

Terminals--receive data from computers. A "smart" terminal is a microcomputer and is able to do more than just receive data. A "dumb" terminal does one thing, receive data.

Trojan Horse--programs that are uploaded to a bulletin board system, but when run can destroy the data on a disk drive. The only sure method for ensuring safety is to check any upload before running it on the computer.

Upload--see Download.

Xmodem--see Christensen Protocol.

APPENDIX A: BIBLIOGRAPHY

Books

General

All About Personal Computer Communications. Datapro, 170 pp. \$29.

Covers 148 software packages from 107 vendors and 261 modems from 68 vendors.

Barrett, Judy. *Joys of Computer Networking: The Personal Connection Handbook.* New York: McGraw-Hill. 188 pp. \$9.95 pbk.

Unlike most of the volumes listed here, this one jumps in with a narrative description of many online services, and what to do when online. Readers will develop an understanding of networks, since it is not an effort to document them. Some of the chapter titles are far out and give some feeling for the content; "Now You Can Live at the P.O.," "Stumping on the Phone Lines!" and, best of all, "Finding Friends and Maybe Lovers."

Bowen, Charles and David Peyton. *How to Get the Most Out of CompuServe.* New York: Bantam Books, 1984. 278pp.

Cane, Mike. *Computer Phone Book.* New York: New American Library, 1986. \$18.95. (Two volumes).

The first volume is called *Guide to Using Online Systems*, and is a book of help files and procedures. The second volume is entitled, *Directory of Online Systems*, and provides descriptions of hundreds of bulletin board systems. Included is a list of bulletin boards which offer free software downloads grouped by machine and help files for five major BBS systems.

Knight, Timothy Orr. *The World Connection*. Indianapolis: Sams, 1983. 142 pp. \$9.95 pbk.

Written by a 16-year-old, this book is fun to read and does not dwell on technicalities--even the BBS list is short. The writer recounts his personal experience with the CompuServe CB channel. Several important modems, terminals, and BBS software packages are discussed. A few tips will aid sysops. It is especially appealing to younger or inexperienced computer users, and is the most understandable of all the books listed here.

Myers, Larry. *How to Create Your Own Computer Bulletin Board*. Blue Ridge Summit, PA: Tab, 1983. 214pp. \$12.50.

This book will provide helpful guidance for anyone wishing to program their own bulletin board from scratch. Many of the routines and problems (carrier detection, error handling, etc.) are explained in detail. Two appendixes contain the listing for Sentry Apple Bulletin Board, and the program listing for LTERM, a telecommunications package for the TRS-80 Models I and II, both of which which readers can key in and operate.

Neustadt, Richard M. *The Birth of Electronic Publishing: Legal and Economic Issues in Telephone, Cable, and Over-the-Air Teletext and Videotext*. 146 pp. \$32.95.

The author is a communications lawyer and analyzes the U.S. communications laws and how these laws and regulations will affect the changing electronic landscape.

Nilles, Jack M. *Micros and Modems: Telecommunicating with Personal Computers*. Reston, VA: Reston, 1983. 170 pp. \$16.95.

Another design and implementation manual, the author explains the different types of networks (loop, ring, bus, star, etc.), and describes local networks such as Cluster/One, Omninet, C-Net, and CP/Net. A good first stop for people desiring a high-level introduction to telecommunications.

Shapiro, Neil L. *The Small Computer Connection: Telecommunications for the Home*. New York: McGraw-Hill, 1983. \$15.95 pbk.

The outstanding feature of this book is the reproduction of help files for nine popular BBS's. A second feature, not easily found elsewhere is an explanation of information utilities (e.g., "Files on the Information Utilities," "Uploading and Downloading to the Utilities," etc.), and good down-to-earth chapters on the basic modem information, notes for first-time callers, and other areas are discussed. Index.

Stone, M. David. *Getting On-Line: A Guide to Accessing Computer Information Services*. Englewood Cliffs, NJ: Prentice-Hall, 1984. 306 pp. \$21.95.

Stone discusses many areas covered in the Glossbrenner book (see "Hobbysist--General" section), but without the information utility help files. Stone also provides the best overall coverage of microcomputer telecommunications, certainly at this price. In addition to an excellent and authoritative catalog of services found on many utilities, terminal software and technical aspects of modem operation (baud rates and standards) are covered extensively--this is one of the best and simplest guides pertaining to individual modems. A chapter on "Search Strategy," suggests methods to reduce online charges. The final chapter, "On the Near Horizon," is an interesting discussion of "prestels," the use of color and graphics online.

Tucker, Tom and Tom Beeston. *Hooking In: The Underground Computer Bulletin Board Workbook and Guide*. Kampmann & Co., 1984. \$12.95.

As the name suggests, this book contains mostly surface material for bulletin board novices. The workbook portion lists over 400 boards by area code with space to record comments, several sample BBS menus, log-on procedures, download instructions, phone numbers and addresses of commercial online databases, users groups, public domain software locations, books, directories and newsletters, articles about bulletin boards and networks, trouble-

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shooting chart, telecommunications software comparison chart, and an extensive modem comparison chart. Glossary.

Electronic Mail

Connell, Stephen and Ian A. Galbraith. *Electronic Mail: A Revolution in Business Communications*. New York: Holt, Rinehart & Winston, 1983. \$15.95 pbk.

Mayer, Ira. *The Electronic Mailbox*. Hasbrouk Heights, NJ: Hayden, 1985.

Hobbyist--Advanced/Homebrew

Derfler, Frank J., Jr. *Microcomputer Data Communications Systems*. Spectrum, 1982. \$12.95 pbk.

The first part of this book is a detailed description of the nuts and bolts of microcomputer data transmission. Such words as synchronous and asynchronous, parallel data outputs, RS-232, and other concepts of modem operation are explained. An excellent chapter explains the whys and wherefores of terminals (*e.g.*, dumb, smart, intelligent, formatting, and portable terminals). Subsequent chapters deal specifically and extensively with "Using the Apple II Microcomputer as a Data Terminal," "Using the TRS-80 as a Terminal," "S-100 Bus Computer Systems and CP/M," "Atari, Heath, and Commodore Systems," and "Communications for the Deaf."

Hobbyist--General

Cambron, Jim. *The First Primer of Microcomputer Telecommunications*. Blue Ridge Summit, PA: Tab Books, 1984. \$14.95; \$10.95 pbk.

In most respects, this book is relatively ordinary, giving good--if ordinary--help to the telecommunications beginner. Some unique items are covered: a discussion of libel and slander with regard to networks and bulletin boards, "Legal Aspects of Telecommunications," and the author describes the pros and cons of a number of Specialized Common Carriers (alternate long-distance services).

Glossbrenner, Alfred. *Complete Handbook of Personal Computer Communications: Everything You Need to Go Online With the World*. New York: St. Martin's Press, 1985. 546 pp. \$14.95.

Glossbrenner has written the best overview of the micro-computer electronic online "universe" for hobbyists. Chapters cover The Source, CompuServe, Telecommuting, and bulletin boards. The work is illustrated with many screenshots to give the reader a better understanding of online services and menus. Useful "Online Tips" appear on nearly every page. Only Chapter 12, "Getting Technical," is somewhat jargon-laden, but even here, the determined lay-person should get by. Glossary.

Specific Hardware

Carroll, David W. *Telecommunications for the IBM PCjr*. Englewood Cliffs, NJ: Prentice-Hall, 1984. \$15.95.

Derfler, Frank J., Jr. *TRS-80 Data Communications Systems*. Englewood Cliffs, NJ: Prentice-Hall, 1982. \$22.95; \$12.95 pbk.

Terminals, technical aspects of modems (baud, duplex, etc.), utilities, bulletin board software (specifically, *CBBS*, *ABBS*, *Forum 80*), and other topics are covered. Three chapters discuss the TRS-80 specifically: "The TRS-80 Serial Port;" "Using the TRS-80 as a Terminal;" and "The TRS-80 Model II." A separate chapter covers, "Communications for the Deaf."

Erickson, Jonathan and William Cramer. *MacTelecommunications*. New York: McGraw-Hill, 1985. \$16.95.

For the Apple Macintosh, illustrated with many "Mac-Screens."

Kearsley, Gregory, Harold Hunter, and Beverly Hunter. *Telecommunications with your IBM Personal Computer*. Glenview, IL: Scott Foresman, 1984. \$39.95.

Shapiro, N.L. *The IBM PC Connection: Telecommunications for the Home and Office.* New York: McGraw-Hill, 1983. \$16.95.

Stahr, Lisa and the Editors of *PC World. Communications for the IBM PC and XT.* 224pp. \$16.95 pbk.

Includes information on how to select communications software, bulletin boards, and how to form a local network using several IBM PCs.

Articles

General

Alpert, D. and Bill Blue. "Call (312) 295-6926: The IAC's new People's Message System is here." *Apple Orchard* (November 1982), p. 88.

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Library-Related

Dewey, Patrick R. "Dear ABBS: Maintenance, management, and problems." *Small Computers In Libraries*. (April 1982), p. 1.

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Townley, Charles T. "ODIN: A multifunction, multitype library microcomputer network." *Information Technology and Libraries*. (June 1984), p. 175.

Magazines and Journals

Bulletin Board Systems, Meckler Publishing Corp., 11 Ferry Lane West, Westport, CT. \$26.50 per year; published 8 times a year.

Computer Shopper, Box F, Titusville, FL 32780.

Micro Communications, 500 Howard St., San Francisco, CA 94105. \$55 per year; published monthly. Covers most areas of telecommunications with a slant toward the popular hobbyist.

Modem Notes, a monthly, reports on online services. 2951 St. Brentwood Blvd., St. Louis, MO 63144. Attn. Robin L. Elias. \$36. Also available through NewsNet.

The On-Line Computer Telephone Directory is a quarterly journal devoted exclusively to electronic bulletin boards, and it lists about 600 of them. Write OLCTD, Box 10005, Kansas City, MO 64111. Also available through NewsNet. \$9.95.

Online is produced bi-monthly for librarians and information specialists. Online, Inc., 11 Tannery Lane, Weston, CT 06883. \$39.

RQ, produced for librarians, and contains a regular feature of special interest, "Databases." American Library Association, 50 E. Huron, Chicago, IL 60611.

Sourceworld is free to subscribers to *The Source*. It does not begin to approach the scope and interest of *Today* offered by CompuServe.

Today: The Videotext/Computer Magazine is a good bargain for the hobbyist. Offered free to subscribers to CompuServe, it covers many areas not directly related to communications, such as word processing spelling and grammar checkers.

APPENDIX B: VENDORS

Agrella, Joe, 1226 W. 4th Ave., Ft. Lauderdale, FL 33311.

Alpha Microsystems, 3501 Sunflower, Box 25059, Santa Ana, CA 92799.

Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014; (408) 996-1010.

BBS Press Service, 8125 S.W. 21st St., Topeka, KS

Blue, Bill, Marilla Corporation, 1274 Vista Del Monte Dr., El Cajon, CA 92020.

Bretford Manufacturing Co., 3951 25th Ave., Schiller Park, IL 60176; (312) 678-2545.

Capital PC Users Group, Inc., Box 3189, Gaithersburg, MD 20878.

Central Point Software, Inc., 9700 S.W. Capital Highway, Ste. 100, Portland, OR 97219.

Comnet Systems, 7348 Green Oak Terrace, Lanham, MD 20706; (301) 552-2517 (voice).

CompuServe, 5000 Arlington Centre Boulevard, Box 20212, Columbus, OH 43220.

Corvus Systems, 2100 Corvus Dr., San Jose, CA 95125.

Dataware Corporation, Box 17104, Minneapolis, MN 55417; (612) 724-2929 (voice); (612) 724-7066 (modem).

Diversified Software Research, Inc., 34880 Bunker Hill, Farmington, MI 48018. (313) 553-9460 (voice).

Dreams of the Phoenix, Box 10273, Jacksonville, FL 32247; (904) 396-6952 (voice).

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eSoft, 4122 S. Parker, Aurora, CA 95014.

Fido Software, 2269 Market St., #118, San Francisco, CA 94114.

First Class Peripherals, 3579 Highway 50 East, Carson City, NV 89701.

Hayes Microcomputer Products, Inc., 705 Westech Drive, Norcross, GA 30092; (404) 449-8791 (voice).

Information/Documentation, Inc. Box 17109, Dulles International Airport, Washington, DC 20041; (793) 979-5363.

Information Intelligence, Inc., Box 31098, Phoenix, AZ 85046; (800) 228-9982 (voice); (602) 996-2283, in Alaska or Arizona.

Iomega Corporation, 1821 West 4000 South, Roy, UT 84067.

K-12 MicroMedia, 6 Arrow Road, Ramsey, NJ 07446; (800) 922-0401 (voice).

Matchmaker Enterprises, Box 6055, Burbank, CA 91510; (818) 840-8066 (modem orders accepted).

Micro Data Products, Inc., 5739 S. Olathe Court, Aurora, CO 80015; (303) 699-1161 (voice).

MicroStuf, Inc., Box 33337, Decatur, GA 30033.

Micro-Systems Software, Inc., 4301-18 Oak Circle, Boca Raton, FL 33431; (800) 327-8724 (voice); (305) 391-5077, in Florida.

Newsnet, 945 Haverford Road, Bryn Mawr, PA 19010.

Progressive Computer Services, 3611 Gentilly Blvd., New Orleans, LA 70122; (504) 282-0634 (voice).

ProtoSoft, Box 16756, Seattle, WA 98116; (206) 932-5310 (voice).

Racal-Vadic, Inc., 1524 McCarthy Blvd., Milpitas, CA 95035; (408) 946-2227 (voice).

Radio Shack, One Tandy Center, Fort Worth, TX 76102; (817) 390-3011 (voice).

Russ Systems, 320 Dufour St., Santa Cruz, CA 95060; (408) 458-5080 (voice); (408) 427-0310 (computer).

Saturday Software, 2813 Louisa Street, Box 404, Catlettsburg, KY 41129; (606) 739-6088 (voice).

Sentral Research & Development, Inc., 14240 Melva Dr., Warren, MI 48093; (313) 775-5333 (voice); (313) 775-1649 (modem).

Software Sorcery, 7927 Jones Branch Dr., Suite 400, McLean, VA 22102; (703) 385-2944 (voice).

The Source, 1616 Anderson Road, McLean, VA 22102.

Space Coast Systems Inc., Drawer 2767, 301 S. Washington Ave., Titusville, FL 32781; (305) 268-0872.

System Software Services, Box 95638, Hoffman Estates, IL 60195.

Tailored Solutions, Box 183, Washington DC 20044; (703) 845-8576 (voice).

Transcend Corp., 2190 Paragon Drive, San Jose, CA 95131.

United Software Industries, 8399 Topanga Canyon Blvd., Suite 200, Canoga Park, CA 91304; (818) 887-5800 (voice).

U.S. Robotics, Inc., 1123 West Washington, Chicago, IL 60607.

APPENDIX C: QUESTIONNAIRE ON MICROCOMPUTER ELECTRONIC BULLETIN BOARDS

This survey is being circulated for use with a book project for Meckler Publishing Corporation. Your name and other information will be treated as confidential. Information will be abstracted for use in drawing conclusions about BBS operation. Certain anecdotes may be published anonymously (if we wish to use something that would be tied to a particular person or bulletin board, we would ask your permission first). Use additional paper if necessary. Make your answers as full as you would wish. The more information you can give us the more useful the survey will be. Your help is very much appreciated. Return completed form to Patrick R. Dewey, Maywood Public Library, 121 S. Fifth Ave., Maywood, IL 60153. If you have questions, please call voice at (312) 343-1847. I can also be reached at the Lincolnet BBS, (312) 343-0100 (24 hours). Feel free to photocopy and give this survey to your friends and colleagues.

Operator (Sysop) Information

Name _____
Address _____
City, State, Zip _____
Phone (voice) _____

BBS Information

When did the BBS first go online? _____
What are its hours of operation? How regular is this service. _____
How many callers have you had to date? _____
Messages? _____
How many people call on a regular basis? _____

How do people learn about your BBS? _____

What do you consider to be the main purpose of the BBS?

Which of the following services does the BBS provide?

- _____ Messages
- _____ Downloads of free software
- _____ Conferencing
- _____ Feature articles, news etc.
- _____ Info-Mat (BBS Press Service)
- _____ Game tips
- _____ Hobbyist technical information exchange
- _____ Business related
- _____ Publicity for business products
- _____ Public service (explain below)
- _____ Club provided BBS
- _____ Usenet
- _____ Other (explain)

Do you charge a fee? _____

How much? _____

Hardware

Microcomputer model and make _____

Modem and baud rate _____

Disk drives and storage capacity _____

Printer _____

Other _____

Software

What kind of software do you use (where can it be purchased, cost, etc.) _____

What operating system do you use? _____

Did you program your own software or make extensive alterations? If so, what kind of alterations?

What kind of features does your software have that you like? What does it not do that you would like?

Problems

Have you had any pirates, system crashers, obscenity, or other harassment on your BBS? If so, please provide some detail. In particular, I am interested in any anecdotes you might be able to provide. Have these problems caused you

to alter the way in which you operate? How? (*e.g.*, do you have a written policy, etc.?) _____

What kind of hardware problems have you experienced?

What can (or should) be done to stop such activity? What have you done to stop it? _____

Do you belong to any kind of BBS operator's guild or organization? _____

Do you feel that it serves useful function? Explain.

Do you feel that some type of code or standard of practice should be adopted? What kind? _____

How much time does maintenance take? _____

How is maintenance handled on your BBS? (What form does it take? Is it distributed among several people?)

Do you feel that the BBS has been worth the effort?
What have been the benefits as you see them? _____

Human Interest

What is the most interesting thing that ever happened as a
result of your operating a BBS? _____

Other comments on the operation of a BBS (attach
additional pages, if necessary) _____

Please return this form to Patrick R. Dewey, c/o The
Maywood Public Library, 121 S. Fifth Ave., Maywood, IL
60153.

APPENDIX D: LSCA GRANT PROPOSAL

"LINCOLNET:" A SYSTEM-WIDE PUBLIC ACCESS INFORMATION DATABASE

Abstract

The purpose of this grant is to provide the means for public access to a special system-wide database containing information for patrons on library hours, locations, activities, programs, and other related library issues such as book review and/or censorship.

Just as libraries use technologies such as cable TV and radio to reach the public (both new when compared with the book or printed page), for the past 3 years some libraries have been using the computer. This particular type of network, the electronic bulletin board system (BBS), has a big advantage over other electronic media: it is extremely interactive, much more so than the most sophisticated cable systems; patrons can receive and leave information. A BBS is a relatively inexpensive way to make a continuous source of library news and information available to the growing community of patrons with microcomputers and modems. The database will be publicized through member libraries with press releases, flyers, local member newsletters, and special methods for reaching patrons who have online access.

This project will differ from the other nine library bulletin boards currently in operation in the United States (such as that at North-Pulaski) in several important ways: it will consist of new and more powerful hardware; it will service an entire library system; and it will maintain a vastly larger database with the help of a part-time employee. It is the popularity and success of these other bulletin board systems that makes it so attractive as a project.

A single small- or medium-sized library would find such a service prohibitive. By the System doing this, the libraries benefit from having a very effective public relations tool, and an enhanced image of keeping up with the times. Even the smallest library in the Suburban Library System would be seen through this electronic "window" to home computer users.

The Project Director, Patrick Dewey, Administrative Librarian of the Maywood Public Library, has just completed work on a national survey on such library-based systems.

Needs Assessment

It is imperative that libraries keep up with the times, which means that they must go where people go in order to reach them with information and news about libraries and their services. With thousands of people now owning computer equipment suitable to communicate over telephone lines with other computers, many are turning more and more to electronic means to obtain data. One of these sources is the electronic BBS. Of the more than 1,000 such systems in operation in the United States, only about nine (according to a survey completed in December 1984) are operated by libraries. The total range of experience by libraries is, alas, small, even though this type of service has proven itself effective. A 3-year project in the Chicago area (the North-Pulaski Library BBS, Chicago Public Library) is now receiving approximately 1,000 calls per month, or over 20,000 total to date, and is receiving widespread positive public relations in places as diverse as *Esquire*, *Computer Shopper*, *Time*, and *InfoWorld*, operating just part-time, and with limited storage capacity. It also means that despite the tremendous potential, libraries are still receiving very little exposure by this type of marketing and community outreach.

Objectives

Objectives shall include the following basic areas:

1. Increase public awareness of library services.
2. Enhance library's image.
3. Provide another approach to publicity (as encouraged in *Avenues to Excellence*).
4. Enable the library to reach a fast-growing segment of society.
5. Enable the library to be considered a part of the growing trend of microcomputers and modern methods of communication in society.
6. Educate the public by providing:
 - a. special system services such as BPH, ILL, and reciprocal borrowing and special state programs e.g., Summer Reading Program and Read Illinois;
 - b. special programs by individual libraries on a rotating basis;
 - c. basic data and information about each library;
 - d. special services offered by member libraries to groups (e.g., senior citizens and summer reading program);
 - e. announcements about income tax forms and various other handouts at SLS member libraries;
 - f. special interest bibliographies;
 - g. information about various state library programs of interest to patrons of SLS libraries, such as Illinoid Heritage
 - h. special features and materials of interest to the general public, which are of an informational nature. Columns--by different types of librarians--which can include book and movie reviews, puzzles, games, contests for kids, original book reviews by librarians or others, or the republication of book reviews for the general public (by permission) from such publications as *Booklist*, (North-Pulaski recently requested and was granted permission to reprint computer book reviews on that board), and special articles of interest to the general public about libraries and library issues

- (censorship, funding, etc.), also (by permission) from such publications as *American Libraries*.
7. Cooperation with other libraries to gather data and information for the database.
 8. Collecting patron input and comment about such services and suggestions for additional service. The software provides a convenient "Comments" function for caller use. Callers may also leave electronic mail comments or suggestions.
 9. Achieving 1,000 callers per month by the end of 1 year.
 10. Reaching 120 messages per month by the end of 1 year.
 11. Test experience for a system level BBS. To date, there has not been a test of the new Sider hard disk drives, hardware, software, or procedures or policies, for a system beyond the one library local level. Reports regarding findings shall be made through professional literature and reports.
 12. a "small town" atmosphere to callers by providing a forum for discussion about library or other issues, and a way for people to make contact with others who have similar interests, whether this be in computers, education, or hobbies.

Methods

The project shall be under the direction of the Project Director, who is the Administrative Librarian at the Maywood Public Library, with the assistance of his staff, with contributions possible from other librarians in SLS (for the production of columns, articles, book reviews, etc.), and one typist/assistant as outlined in the budget below for the entry of material into the database.

The database shall be maintained on a 24-hour basis.

The number for the system shall be widely publicized through all member libraries and the press and to anyone who has the capacity to call such a system.

Project Plan

The following outline shall be followed in managing the project:

1. Physical arrangement of equipment, and installation of software (first month).
2. Map of the database (partitioning, etc.), including specific amounts of memory allocation for departments, etc., and construction of a preliminary database, including gathering and input (beginning Week 5).
3. Distribution of publicity (flyers, etc.) to libraries, computer stores, computer clubs, press releases to appropriate agencies, announcements in places where people with modems will notice, calling other bulletin board systems on a systematic basis to place announcements, and the sending of notices to directories of bulletin board systems (e.g., *The Computer Phone Book*, *The Free Software Directory*, *Computer Shopper*, etc.) beginning March 30th.
4. Solicitation of additional features, articles, program materials on a "phased basis" to not overtax the input process, beginning at Month 3. As the database matures and becomes more organized and the input process refined, more material will be included and solicited. The final goal being a stable and well-tended database of community and library information for patrons of libraries in the Suburban Library System, to which patrons may add their own comments, announcements, and information, beginning April 30th.

Method of Evaluation

Various sorts of statistics shall be maintained, additional statistics shall be added depending upon the extent to which the software can be customized. These shall

include: number of callers on a daily basis; the length that each person stayed online; percentage of callers from SLS areas and from outside of the SLS areas and outside the state; and, if possible, how many times each feature article or item in the database is accessed.

One method shall be to determine the amount of increase in use of the service during the first year, beginning with zero callers. This shall give us an indication as to how well our marketing techniques have worked.

Other methods shall include reporting of how successful the software/hardware performed, how smoothly the data gathering and entering went, and how many new and innovative ideas and feature articles were produced or obtained from participating librarians and from the general public.

Participating Agencies

All libraries in the Suburban Library System will be contacted regarding a contribution to the database. In any case, all libraries in SLS will be represented in the database by data provided in the SLS Directory (latest edition). Various SLS agencies such as the Suburban Audio Visual System, Interlibrary Loan, etc., will be involved for information input. The system will be housed at the Maywood Public Library in their new Computer Center, and under the direction of Patrick R. Dewey, who started the first library-based electronic bulletin board in the United States at the North-Pulaski Library in 1981. The Suburban Library System will act as the fiscal agent for this project. All bills and financial matters will be handled by the accounting department of the system.

Budget

Equipment

One Apple Iie Computer with extended memory and 80-column card with Monitor II with two disk drives \$1220.00

Two Sider 10mb disk drives for large scale mass storage (\$695 each) \$1390.00

One D.C. Hayes Micromodem (this device allows the computer to link up with the telephone system) \$ 279.00

System Saver \$ 90.00

Software

People's Message System \$ 300.00

Electrical extension cords \$ 50.00

Monthly telephone fee (4 months) \$ 240.00

Mountain Hardware Clock Card \$ 200.00

Imagewriter Printer with superserial card \$ 486.50

Desk work station \$ 595.00

Publicity \$ 750.00

Personnel (typist/assistant) \$2850.00

Travel (to and from site by remote sysop) \$ 200.00

Contractual

Telephone line installation \$ 125.00

Electrical outlet installation, wiring \$ 200.00

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Supplies: diskettes (three boxes), paper (for printer),
ribbons, postage (for printer), etc. \$ 675.00

Other (telephone expenses for remote maintenance of data-
base) \$ 500.00

TOTAL \$10,450.50

APPENDIX E: BULLETIN BOARDS MENTIONED IN THIS BOOK

Name	Number	Baud
Adventure-Line	(312) 782-1900	300/1200
Anesthesia	(319) 353-6528	300/1200
Bible On/Line	(312) 422-3326	300
Chicago Public Library	(312) 235-3200	300
Computer Guild	(312) 640-7980	300/1200
Gamemaster BBS	(312) 475-4884	300
Golem	(312) 787-7865	300/1200
IBM PC Information		
Exchange of Chicago	(312) 882-4227	300/1200/2400
Lincolnet	(312) 343-0100	300/1200
Liverpool Public		
Library	(315) 457-3144	300
Logopolis	(312) 484-7782	300/1200
Maricopa Sheriff's		
Office	(602) 256-1609	300/1200
Montgomery County		
School System	unpublished	
Mountain Valley		
Library System	unpublished	
Odessa	(915) 335-6660	300
Online Database		
Information Network	unpublished	
Online Network of		
Continuing Education	(800) 637-8855	300/1200
Rivco	(316) 264-9193	300
San Bernardino		
Public Library	(714) 884-4922	300/1200
Spokane Public Library	(509) 838-4726	300/1200
Voice of Peace	(312) 267-7665	300/1200
Ward and Randy	(312) 545-8086	300/1200/2400
Wisconsin Reference		
and Loan Center	unpublished	
Word Processing BBS	(312) 491-6995	300/1200

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