

# TANDY

## The CoCo Column

by Dan Robins

If you ever wondered how your CoCo stores data to a cassette recorder, you'll find out how in this month's article. Reviews of programs for the Color Computer, including Tandy's new desktop publisher and a bio-feedback program. Ever wonder about historical events of the CoCo? We'll reminisce and take a look at a book about the Color Computer.

### A Chip Off The Old Block

There you did it! You typed in the perfect CoCo basic program. Sure you can run it, but when the power goes off in the computer—there goes the program also. So, now we have to think about is how to store the program for later retrieval.

When I bought my first CoCo, disk drives and a controller were quite expensive, and certainly out of my reach as a hobbyist. The other alternative was a cassette recorder. Now that I look back on those days, I now realize how LONG it took to load some programs, but it fit my needs.

When you look at how your programs are saved and retrieved from cassette it is quite easy to understand. Although we won't delve into the electronics of a Digital-To-Analog converter, it is suffice to say that it works.

As you load your program from cassette to the computer's memory, in most cases (unless it was left off when recorded) you will see the name of the program. This information is contained in the cassette program's header information. When recording or retrieving your program to cassette, the first thing either recorded or read is the program's header.

The header contains the following information:

128 bytes of the value HEX \$55. This is called the leader, and is used so your computer can "get into sync" with the tape.

A Namefile block (explained next).

A blank area of about 1/2 a second. This is so the computer can process the Namefile block for validity.

An additional 128 bytes of the value HEX \$55.

At this time, your computer has received the header, and now receives the program's information. When all of the program has been saved, the computer then sends an End Of File block, then the transfer is complete.

The Namefile block consists of the first eight bytes containing the program's name. This is followed by the file type bit (Basic = &H00, Data = &H01, Machine Language = &H02). This is the byte, that when checked, will cause an error if reading the wrong type file. If you were to CLOADM (load a machine language program) and the file was BASIC, this byte will produce the FM? syntax error. Next is a byte that will tell whether it is a Binary (&H00) or ASCII (&HFF) file. Next is a gap byte, followed by two bytes which contain the start address for a machine language program and two bytes which contain the load address of a machine language program.

If you will look at Figure 1, you will see the different voltages and voltage types involved with loading and saving data to cassette. When saving to cassette, the PIA (Peripheral Interface Adapter, which will be discussed in an upcoming article) is responsible for turning the cassette recorder's motor on. When the signal is recorded to cassette, it will average a baud rate of about 1500. We say averages, because actually two different baud rates are used to denote the byte number (either a binary 1 or 0). When saving a value of 0, the cycle rate of output is at 1200 hertz, while 2400 hertz indicates a value of 1. Adding the series of 1 and 0 values you will receive byte values of 0 to 255 which will be stored to the cassette. Circuitry for a Digital-To-Analog (taking binary values and making them audible tones) converter is provided with the CoCo, which will then output that analog tone to tape.

When loading a program in from tape, the signal received is dropped across two diodes which will decipher the analog signal to digital data.

Contained within the Color Computer's ROM routines is a machine language program which will take care of placing programs in their proper

places, checking to make sure it is the correct type file, and checking for syntax errors. If you check out the assembly language routines in the back of your Basic Manuals (which came with the computer) you will see machine language calls you are allowed to make within your program.

We'll perk up a few eyebrows of telecommunicators, as we check out the RS-232 port and how it works.

### Reviews And News

It's probably one of the most unique programs available for the Color Computer, because your game playing skills are of no use with Mental Freedom. With the use of a Micronta Biofeedback Monitor (available at some Radio Shacks—Catalog No. 63-675), the object of this program is to relax. The more you relax, the better your score.

Interfacing the computer with the Biofeedback Monitor is done with the cable normally used with your cassette recorder.

You begin by loading the program, and upon execution you are prompted to calibrate the Biofeedback Monitor. This is done so that your current "nervousness level" is considered a normal level while using the monitor. Once this is accomplished, it's time to relax.

The object of this game is to build pyramids and levitate yourself to avoid being bitten by a snake. Sounds simple? Wait till YOU try! As you relax, pyramids will begin to materialize, and you score points as they do. You may think that it is simple, but wait until the cobra snake starts to crawl across the screen. Now, with the snake coming, you have got to relax enough to allow the body image on the screen to levitate. It's not as simple as it seems!

If you care to invest in a Biofeedback Monitor, you will find this to be a fun and challenging game (and frame of mind). Mental Freedom is available from Dr. Prebles Programs, 6540 Outer

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# TEXAS INSTRUMENTS

## The TI Forum

by Ron Albright and Jonathan Zittrain

### PC Pursuit Problems

We have mentioned the Telenet PC Pursuit service several times in this column—as a cost-effective way for 99ers to keep in touch with one another from across the country. PC Pursuit allows the use of any Telenet node to connect to bulletin boards in several major metropolitan areas.

Lately there have been reports of system crackers who have been able to break into Telenet and possibly obtain PC Pursuit passwords from unsuspecting users. Users are warned to watch for an apparently uncaused "CONNECTION FROM xxxx xxxx" message, which could indicate a malicious eavesdropper.

One can call 1-800-TELENET to change a PC Pursuit password to ensure security.

### Autodialer From MDOS

The following tip is thanks to Walt Howe of the Boston Computer Society:

Here is an interesting way to create an autodialer from MDOS. First, create a set of one line files on disk with ATDT and phone numbers, such as:

ATDT1-617-331-4181. This is the number of the Boston Computer Society TI BBS #1, so give it a filename of BCS, for example. The easiest way to do this from MDOS is to type:

COPY CON BCS (this copies the following text to a file named BCS)

ATDT1-617-331-4181 (omit dashes, if you prefer; use ATDP, if need be)  
^ Z (control-Z, which writes the BCS file) Repeat this for each number you want included, each with its own filename.

— Next, type COPY CON CALL to create the following file, named CALL:

TYPE %1 > RS232 Save this file with a ^ Z, also. (NOTE: The above assumes you are doing everything from your

default drive. Adjust your default drive first, if necessary.)

Once these files are set up in your default drive, all you need to do to autodial is to turn on your modem and type, for example, CALL BCS. If it is a voice call, pick up your phone and you will be ready to talk (not to the BCS, however—it's not voice). If it is a data call, go ahead and load your terminal emulator. If it is Jim Schroeder's NOTMYTERM you are using, just add NOTMYTERM as a second line to the CALL file, and it will load after dialing. Put a PAUSE line or two in between, if you want to wait for an answer first before loading.

Why does this work? When you type CALL BCS, you are passing a parameter called BCS to the CALL file. The %1 picks up the parameter as the name of the file to be TYPED. The >RS232 passes the TYPED file to your modem.

### Careful With That Mini Memory Battery

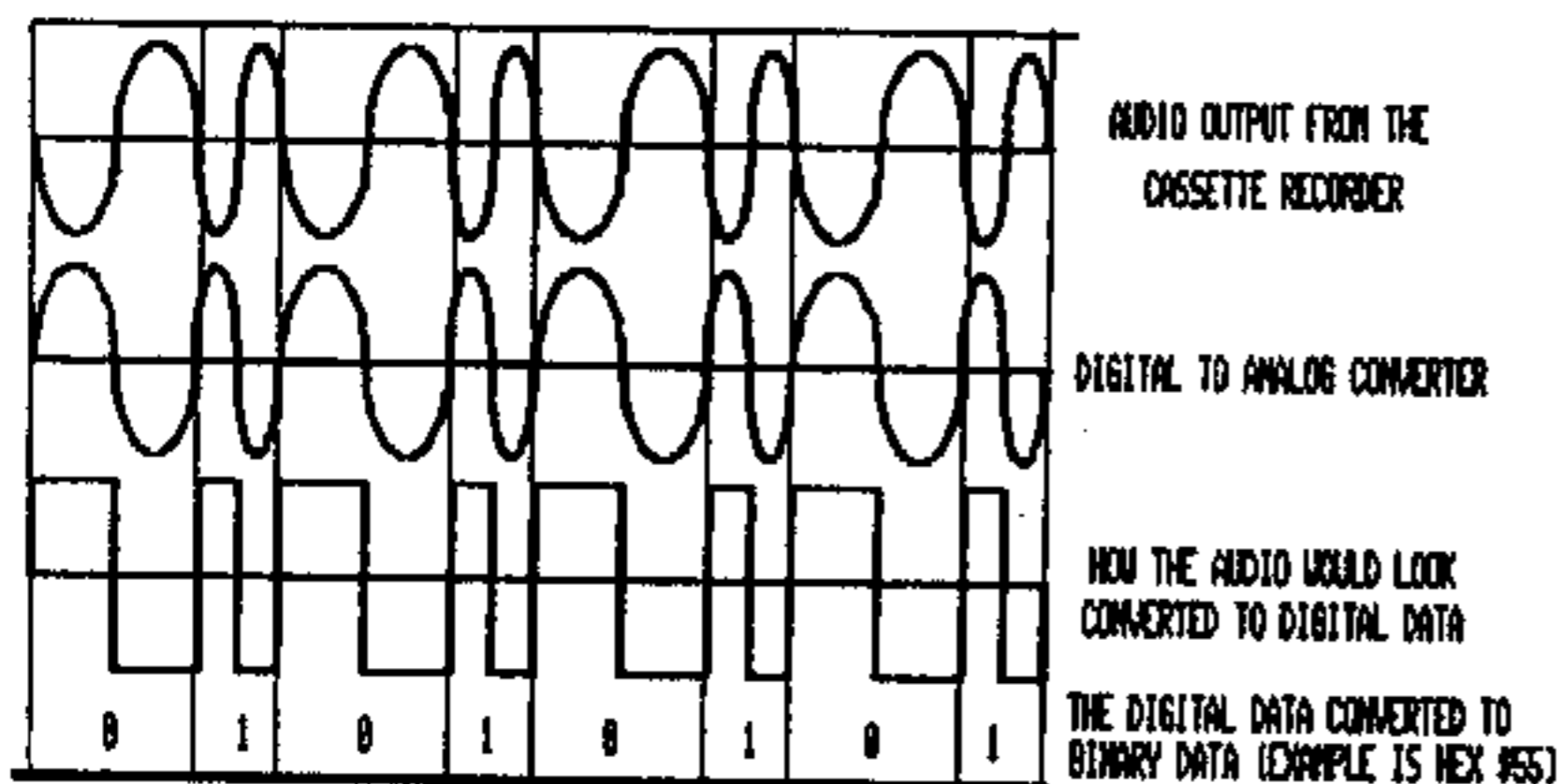
From Gerard P. Dombroski comes a warning about replacing the lithium battery in the Mini Memory module. "Remove the cell first by cutting it out," Dombroski said. "Clean the area around the remaining solder connections thoroughly...the deposits left by a leaking cell can and do explode." Wearing safety glasses while soldering anything is highly recommended.

### Charles Earl Releases Telco

From Ottawa, Canada, comes the TELCO terminal emulator for both the TI-99/4A and Myarc 9640. Although several bugs remain in the first release, users have expressed broad-based enthusiasm for the program and its quick-menu style.

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Figure No. 1 - Cassette Data





# TEXAS INSTRUMENTS

## TI Forum

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Features offered by TELCO include ANSI, Data General 410, and ADM3A terminal emulation, a macro facility for automating some online processes, a built-in dialer, and the ability for the user to tailor individual aspects of the program, either permanently or for the duration of one session.

According to its author, Charles Earl, TELCO's worst feature is its size. Its current version currently occupies over 200 sectors of disk space, and that is expected to grow as new features are added. Since the program itself uses a virtual memory environment, various pieces of code can be loaded in and out as necessary to avoid any RAM memory problems. This modularization also allows for quick patches of code to repair bugs, as the entire TELCO package need not be resent if only one part of one module requires modification. A "super cart" cartridge or Mini Memory module can increase the number of modules resident in memory at one time to four and five, respectively.

Earl got the idea to write TELCO, he said, just because "I bought a modem and didn't like what was out there." Earl is a free-lance programmer, and TELCO is his first project within the 99 environment. "I dove in over my head...and dug my way out." Earl said that the Ottawa Users Group had been invaluable to the development of the program, providing help on some specific points and raising suggestions.

TELCO is offered as "fairware," meaning that it may be freely distributed with a payment when requested from those users who decide to keep the program. "I'm not out to make a million dollars," admitted Earl. "I hope to make something, but not what I've invested."

Earl asks that users groups and other organizations secure written permission from him before collecting the fairware payment on his behalf.

The emergence of a program as powerful as TELCO cannot help but conjure up comparisons to the current standard, Paul Charlton's FAST-TERM. In its current version, TELCO is comparable in capabilities to FAST-TERM, although much friendlier to the neophyte. TELCO's "review buffer," the ability to review past data that has scrolled off the screen, is more powerful than FAST-TERM's, and the auto-dialer/macro function contributes to its polished look. FAST-TERM, however, has so far proven more reliable. For example, TELCO offers three parity settings (even/7 data bits/one stop bit; odd/7 data bits/one stop bit; none/8 data bits/1 stop bit), and sticks to them once set. FAST-TERM, on the other hand, will switch parities often automatically, such as for proper Xmodem transfers. Earl's program, while not automatically shifting, will recognize and send TI files using Xmodem with the header that Charlton designed. FAST-TERM also supports third party hardware such as the Myarc hard disk controller.

FAST-TERM offers a line-at-a-time send ASCII file mode, which is helpful for those who want to send macros to picky BBS systems.

The ultimate impact of TELCO remains to be seen. Earl plans more enhancements, fixes, and updates, with version 1.1 expected shortly. "I'd like to add VT100 emulation," said Earl. "An offline editor with a 50-100 line buffer is also a few versions down the road."

The macros that TELCO currently support are fairly limited; one can send strings with pauses, but no if-then logic is available and no string recognition of the host system's output can be performed.

Earl also hopes to add support for Ymodem, Zmodem, and KERMIT file transfer protocols, as well as Compu-Serve's quick-B protocol.

The documentation for TELCO is already extremely extensive, but Earl intends to expand it, with the help of the newsletter editor of the Ottawa Users Group.

Earl said his support for TELCO will continue for about six months, after which he will release the source code and let others "have a field day." By the end of that period, he said, he wants a program as powerful as any terminal emulator in the IBM environment.

### Ron's Part...

A nice letter from one of the really active TI leaders is in this month's mail. Jack Sughrue, the editor of the fine newsletter from the M.U.N.C.H. group in Massachusetts and the author of the widely distributed and reproduced "Impact/99" flyer, wrote to tell us of his latest project. If you have not read any of Jack's material, you must not belong to a users group as his work has been widely reproduced. His "Impact/99" has taken up the slack from the loss of Jim Peterson's "Tips from the Tigercub" and is distributed free to users groups by Jack. Jack wrote to tell us about his companion/utility disk called "PLUS!" It is primarily a running-mate for the terrific "Funnelweb" utilities (from those Australian geniuses Tony and Will McGovern), but can be used as a stand-alone application as well. What is it? Well, MSDOS has its Windows environment, Commodore has its GEOS, and we have our "Plus!" The "Plus!" disk comes with updated versions of the "Funnelweb" loaders (which can be set up as a menu to load TI Writer and virtually all other assembly-based programs, like FAST-TERM, etc.). In addition, there are templates for TI Writer, tutorials and tips, a banner program, personalized disk and calendar programs, an on-screen workshop demonstration program (complete with music and fancy displays) and programs to create box patterns, and labels using printer graphics. An amazing collection for sure. Cost? Get this! Send Jack (Box 459, East Douglas, MA 01516) \$10 and the package is yours! Specify whether you have a single-sided disk drive or a double-sided (the total

package is 719 sectors). If you don't have the "Funnelweb" disk, send an additional \$3 and Jack will graciously send it along as well. If you have a memory-expanded system with at least one disk drive, you cannot afford to be without this system. It is the best operating system for the TI 99/4A available. Thanks Jack and keep up the much appreciated hard work! Jack is planning to debut the "Plus!" package at the Northeast Computer Fair in Lexington, MA on April 10. Be there!

### In The Mailbox

Newsletter of the month (and also an award for the "Best Idea for Newsletter Distribution") goes to Art Byers and the Central Westchester 99ers (1261 Williams Dr., Shrub Oak, NY 10588). Art has been doing the newsletter there for some time and, with distribution costs to all the groups he exchanges with rising, he came up with a terrific idea. Why not put the newsletter on a disk and distribute quarterly? The first obvious benefit is it keeps cost down. With disks going for a half-dollar a throw in bulk, that comes to \$1.50 plus a buck or so postage a year to keep exchanges active. Sure beats copying costs and 37 cents or so a month postage. Second, and even more obvious is it helps the recipient user group reproduce the articles in their newsletter. Rather than xeroxing from the pages of a printed newsletter, the exchange group can take the TI Writer files and format them to fit right into their newsletter in a fresh format. I like the idea. Sure, the time

delay is a factor, but since most of the newsletters have "timeless" information (tutorials, tips, "hacks," etc.), this format is fine. Other user groups who find their memberships dwindling and funds limited may want to consider this idea. It sure is cost-effective. Thanks, Art for the disk. The same thanks go out to Francois Gauthier (3130 Laviolette, Trois-Rivieres, Quebec, Canada G8Z 1E7) for forwarding the complete "TI-MOT" newsletter for 1987 on disk. You may recall, I cited this fine newsletter as being one of the best around even in French (which I cannot read). The program listings are still terrific. We still get new newsletters. Amazingly. The Charlotte TI 99 Users Group (P.O. Box 9353, Charlotte, NC 28299-9353), the "Ball and Chain" (from the "TI SLAVES"—"Salt Lake and Valley 99er User Group," (323 N. 750 East, Orem, UT 84057) and the newsletter of the Macon 99/4A Users' Group (c/o Don Alexander, 635 Villa Crest Ave., Macon, GA 31206) all checked in new this month. Thanks for putting us on your mailing lists!

### New Software

Timothy and Barb Berg sent along the latest product from their firm, TRIO + Software (Box 115, Lipscomb, IA 50148), called "Print Wizard." This fine piece of software is actually 4 packages in one, integrated as they may be. There is a greeting card program, a sign-maker, a banners program, and a letterhead designer. Simply great! For those hungering after a "Print Shop"—like package, this may be it. The card-maker is particularly well designed. After choosing a border (over 10 are

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# UNIX

## Unix And Jane continued from page 214

be featured in what is normally a purely business-oriented weekly magazine. *Business Week* has had several articles on AT&T and one in particular on Vittorio Cassoni, the head of the Data Systems Division. In the March 14 issue, *Business Week* has a lead article with the intriguing title of:

### Unix: The Soul Of A Lot Of New Machines

I can think of no greater accolade than for the worlds largest business weekly to give such coverage of AT&T computers and of Unix itself.

You have to remember that 70% of all federal agency and armed forces RFP (Requests for Proposal) bids specifically name Unix as the operating system of choice.

### Apple And The MAC II Embrace Unix

The big news at the recent UNIFORM conference held in February in Dallas is the official unveiling by CEO John Sculley of the Apple Mac II implementation of Unix, called A/UX (Apple/Unix). This requires a special Memory Management Unit (called a PMMU by Apple) to handle the multi-programming nature of Unix.

For the present, A/UX is being distributed only a pre-loaded 80 MB hard disk (which is twice the normal 40 MB disk on the Mac II). You also are advised to have a minimum of 2 MB of RAM with 4 MB recommended as a better environment.

I currently have a Mac II with 8 MB of RAM and the latest upgrades to the Systems Utilities, MultiFinder, and Hypercard. I also use the Apple color card and (Sony) Trinitron 13 inch analog monitor that give 640 x 480 resolution and 256 colors. In addition I have 1024 x 768 cards from PCPC, Supermac, and RasterOPS. They are best suited to the Sony 16 and 19 inch monitors in the Sony GDM series. Probably an equally good choice or perhaps an even better one for 19 inch analog for the Mac II is the brand new Taxan 980. This is the best engineered color monitor I have ever seen anywhere for any machine. I highly recommend the Taxan 980, which we may do a separate review of in an upcoming issue.

Nevertheless, be on the watch for further announcements from Apple about A/UX. It should be available by the time you read this column, it co-exists with all the Mac II icon-driven utilities and software. We will write more about it as we have time to fully explore its inner workings. ●



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## TI Forum continued from page 216

provided), a font (a half-dozen or so are included), and inside and outside messages, the printing just takes care of itself. Further, you can convert TI-Artist art and fonts to be used with "Print Wizard." Or you can use the art clips provided with the package. They cover most all occasions. The sign program prints full-sheet flyers in a snap. The banner program can do long (side-ways) banners up to 55 characters in length. Besides the obvious quality of the software, "Print Wizard" comes with one of the most visually-attractive and well-written manuals I have seen. This is "must-have" software. Cost? \$25 for the 3-disk set. Requirements? Extended Basic, 32K expansion disk and a compatible printer. Besides the terrific software and reasonable pricing, Trio + provides support ranking among the best in our industry. Highly recom-

mended. Send for their catalog of other products as well. How about enclosing a self-addressed, stamped envelope for the return trip?

Bill Harms is at it again! The author of Fas-Trans, and a superb collection of tutorials on using SYLK files with TI Multiplan has come out with another Fairware winner. "Class" is one of the first packages I have seen produced that makes use of the power of the new "Super Extended Basic" cartridge developed by MG (and available from Triton, PO Box 8123, San Francisco, CA 94128; 1-800-227-6900, or Tex-Comp, PO Box 33064, Granada Hills, CA 91344, and elsewhere). "Class" allows you to create letters and special shapes for signs, posters, and for draftings. You can even produce a slide show for on-monitor presentations. It's all done through some snappy programming from Bill as well as the marvelous capabilities of the Super Extended Basic. As you may recall from a

previous column, this software incorporates the "Draw 'n Plot" graphics program from Quality 99 Software (1884 Columbia Rd. #1021, Washington, DC 20009). With these pixel-by-pixel drawing routines burned right into the cartridge ROM, speed is no longer a factor. The routines just fly. For details, write to Bill (6527 Hayes Ct., Chino, CA 91710) and include a SASE. Or just spring for the \$10 cost right now. System requirements: the Triton Super Extended Basic cartridge, 32K memory, disk drive, and compatible printer. I am confident you will not be disappointed. Harms also hints of a second package using the Super Extended Basic cartridge coming soon. Codename: "Class-Mate." Stay tuned!

### Coming Attractions

The Lima Ohio User Group is sponsoring the "Lima TI Multi-User Group Conference" on Saturday, May 21. This user group conference (and of course, individuals are welcome as well) will be a day-long gathering of users groups and dealers. The events already scheduled include a demonstration of the Geneve 9640 from Myarc, a demonstration by Jim Peterson (Tiger Cub Software, 156 Collingwood Ave., Columbus, OH 43213) of his "Nuts & Bolts" software packages, and Irwin Holt (president of the C.O.N.N.I. User Group) demonstrating how a blind user handles the 99/4A. Should be great. There is no admission charge. The location is the Student Activity Bldg. of the Lima Campus of Ohio State University. For more meeting details, contact Dave Szippel, 4 Poulston Place, Lima, OH 45805; (419) 228-7109.

### Winding Down

The giveaway winner this month is Fred Wiglusz of North Scituate, RI. He rakes in the Trio + "Print Wizard," the newsletter disks described earlier, a copy of Jack Sughrue's "PLUS!", a music disk from Tiger Cub Software, and a set of sub-routines from Charles Good of the Lima UG. The giveaway will continue next month—newsletters and/or software. Send a postcard to enter. Till next month.


### How To Download continued from page 415

activity is NOT covered by the First Amendment, and these people are a blight on the BBS world that must be removed. Of all the negative publicity that BBSing has garnered, these people have by far caused the most damage. You can help protect our modeming rights by reporting any of this type activity you may accidentally stumble upon.

There are usually two types of message areas on a computer bulletin board, the public areas and the private area.


In the public areas, you can read all the messages "posted," and any message you post can be read by everyone else who calls the BBS.

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