2600 DECEMBER, 1986

VOLUME THREE, NUMBER TWELVE $2

A LOOK AT THE FUTURE PHREAKING WORLD

Cellular Telephones—How They Work

by Bruce Alston

This is a non-technical explanation of the newest in mobile telephone communications, the cellular telephone. For some background let's review the mobile telephone as we knew it prior to late 1983 when cellular systems began operating in Chicago and Washington/Baltimore. Improved Mobile Telephone Service (IMTS) allows calls to be made from a car to a land telephone or vice-versa. Car-to-car service is also available. Based on radio transmission characteristics any city or town can have a maximum of 12 radio channels in the 150 Mhz band for mobile telephone service. The transmitter power for the base station (telephone company) can go as high as 200 watts Effective Radiated Power (ERP). This may cover an area of 20 to 25 miles depending upon terrain. The mobile radio is limited to 15, 25, possibly 50 watts ERP, keeping in mind the power consumption from the automobile battery. To receive the signal from the mobile radio the telephone company encircles the transmitter with receivers, so wherever the mobile unit might be, it can be heard, as it also must hear the base station transmitter. With IMTS in New York City, Los Angeles, or Madison, Wisconsin, or any city, only 12 mobile telephone conversations can work at one time, assuming the FCC allocated these cities all 12 channels.

The FCC has allocated 666 channels in the 800 Mhz band for cellular telephone service. The maximum power for the base station is 100 watts ERP, for the mobile radio 7 watts ERP. (That is not a misprint—7 watts!) Based on transmission characteristics, a cellular radio system can have up to 333 channels in a given geographic area. Each area can have two cellular systems, each with its own 333 channels in a given geographic area. Each area can have two cellular systems, each with its own 333 channels for the total 666. Picture the IMTS system with its receivers encircling one powerful transmitter. Change the receivers to combined transmitter/receiver/control equipment located throughout the geographic area. These are called cell sites. Where the one powerful transmitter base station was located, cellular has an MTSO—Mobile Telephone Switching Office, that channels telephone calls from the land lines to the cell site nearest the mobile radio. The MTSO can also switch mobile-to-mobile calls. As the mobile unit travels from one cell site toward another, where a more powerful signal can be transmitted between mobile radio and cell site, the MTSO switches the connection to the best cell site. It now looks as if a maximum of 333 calls could go on in any one cellular system at any given time. This is not so. Based on topography and radio interference patterns, the same radio channel might be used in two or more cell sites in the same system. These cell sites are probably 10 to 15 miles apart, unless a mountain or hill is in the way. In the United States, various manufacturers are claiming that a properly engineered cellular system can handle up to 75,000 calls at a given time. (The telephone term is 75,000 BHCA—Busy Hour Call Attempts). No system has been installed that approaches this figure. Notice, though, that this beats the 12 BHCA of IMTS with a heavy stick if cellular is only capable of half its proposed capacity.

Let's suppose your cellular telephone (it can be in a car, on a boat, or carried with you) has the number (516) 555-2600. I'm in Red Lodge, Montana and want to call you. Using my friend's telephone, of course, I dial 5165552600 and wait while the call goes through the regular telephone system. It will end up at the (516) 555 MTSO where it is sent to *all* the (516) 555 cell sites and transmitted. If your mobile telephone is turned on it will recognize the call, inform the MTSO that it is in service, and the MTSO will assign its most powerful cell site a voice channel for the conversation. The MTSO will also transmit information to your radio advising of the channel number on which you will be talking to me. Your radio will ring, I'll hear ringing, when you answer we talk. You push no buttons, turn no knobs. When the call is over, we both hang up. Should you wish to call me, pick up your handset, dial my number, push the SEND button, and wait until you get a busy, I answer, or you have a "ring-don't-answer" condition.

Yes, you can use your modem...but cellular telephony is in its infancy; results may not always be all that you hoped for. Right now voice communication is the principal commitment of cellular systems.

In review, cellular telephones have opened a whole new area of usage availability. Having an older mobile telephone means that you might receive a call if one of twelve circuits were open, and you might be able to make a call under the same conditions. With cellular systems, when you are in the coverage area and your telephone is turned on, you will receive calls and you can make calls and expect to have the ability to talk until you are finished. The city of Sacramento, California has 7 cell sites. Anywhere you drive in that area you have cellular service. If you drive toward San Francisco, as soon as you get within range of cell sites, service is again available. The mobile radio has a "no service" light that is on when you are not in cellular range. If you have a "transportable" cellular radio, pack it with you into the dentist office, or bank, or whatever, and use *your* telephone, both to send and receive calls. Cellular telephones can be equipped with every type of regular telephone feature: speed dialing, last number redial, call forwarding, three-way calling, call waiting, and eventually cellular service will be available in every community and along the highway between towns.

Prior to deregulation and divestiture, IMTS service was provided only by the local telephone company, called "wireline" companies. Now, each city or town with cellular service can have two companies, the "wireline" (local telephone company) and "non-wireline", a Radio Common Carrier (RCC). Each company has a total of 333 radio channels in the 800 Mhz range devoted to cellular telephones. Actually, 312 channels in each group are for the voice communications and 21 are used for control data transmission (the information that tells the mobile radio which voice channel to use, for example). Cellular service is already so popular that the FCC is allocating additional channels for the service. Since cellular radio in the rest of the world uses up to 1000 channels, most cellular telephones are designed to cover these channels. For detailed information on cellular radio, consult "EIA Interim Standards, Mobile Station to Land Station, CIS-3-A", available from the Electronic Industries Association.

How Cellular Phones Came About and What You Can Expect

Cellular communications derives its name from the radiotelephone signal being transmitted by a series of low-powered microwave antennas or cells.

History

First proposed by Bell Laboratories' creative thinkers in the late 1940s, the advanced computer technology to actually make cellular work was developed in the 1960s.

The FCC, after a 13-year discussion, formulated its "final" rules on implementing the technology in 1981. (Other countries, such as Japan, Saudi Arabia, and Scandinavia acted more quickly and began operating cellular systems in 1979-1981.) Chicago was chosen as the city for an experimental system in 1979, and a second experiment was built in Washington/Baltimore, going on air in late 1981. Both experiments proved that the cellular systems functioned perfectly and that cellular communications is a valuable service.

The FCC then issued an order licensing cellular systems for the country's 305 largest population centers; to date, the 100 largest markets are either on line or soon will be. Each market is served by two cellular companies: a "wireline company", a subsidiary of the local existing phone company after the historic breakup, and a "non-wireline company", one that is not associated with the phone company. Two providers of service, according to the FCC, would prevent a monopolistic marketplace and foster competition.

How a Cellular System Works

The FCC designated the 800 Mhz band for cellular communications. Of the total 999 thirty-Khz-wide channels in the band, 333 channels are reserved for the wireline cellular company, 333 are reserved for the non-wireline company, and the last 333 are held in reserve for future cellular (or other mobile) service.

When a cellular call is initiated, it is received by the closest low-power microwave antenna in the cellular area. From there, the call is routed completely over the microwave system if it is going to another cellular phone, or if it is going to a landline (regular phone), the call is then routed through a highly sophisticated computer switch and connected through to regular landline phones. As a vehicle moves throughout the cellular area (the geographic area in which the cellular company operates), the signal is automatically "handed off" from one cell to the next, so that the signal stays strong and clear. Just as an FM broadcast channel can be used in many cities across the country, a cellular channel can be used in different parts of the coverage area. This geographic sharing permits a cellular system to use radio channels more efficiently than existing mobile phone systems. A number of phone conversations can take place throughout a cellular area, at the same time, on the same channel without interfering with each other.

Cost

Cellular hardware varies according to the area of the country, and features of the model. Generally speaking, perhaps $995 to $1,800 or so for a vehicle-mounted unit, and $2,000 to $3,000 for portable and transportable units. Leasing and rentals are available in some areas. For the usage of the unit, the phone company charges a monthly fee, and a small charge per call.

things we're not supposed to know about

by Sir William

In addition to the Captain Midnight episode, there have been people recently throwing static at HBO's satellite from their backyard dishes/transmitters. While there's no real imagination in that, it's pretty impressive that all dishes can be made to work both ways.

Captain Midnight did more, though. He sent a signal with a message and actually bumped the HBO signal off of their own satellite. What's more, he apparently sent it with the same scrambling technique used by HBO so that it would come out on the viewers' sets normally. *Very* impressive.

All of this has been leading up to the more serious stuff: what is available for hunting someone like Captain Midnight down. I know of radio transmission direction finders that can find a source in less than 15 milliseconds. This, too, is impressive.

This equipment is only available to law enforcement agencies and the like so you or I can't get it (even if we could afford it). As a matter of fact, we can't even get a catalog from these people to see just what they make unless we happen to work for one of "those" agencies.

"Why is that?" you may well ask. It's probably because they don't want you to know what else they make and sell to "law enforcement agencies". Not wanting the general public to know about things like wallet transmitters makes sense. Any crook that watches TV knows that an undercover cop might be wired under his shirt like on TV. But how many would think to check the guy's wallet?

This is all interesting, but what gets me is all the equipment available for bugging people. Phone transmitters that draw their power from the line itself and use the wires for its antenna. Guaranteed to look identical to the microphone part in a regular telephone. It only puts out two milliwatts of power, but they have loads of re-transmitters available to boost the signal.

There are "parasitic" taps that work on the same principle but don't require access to the phone to be tapped, just to the lines going to it.

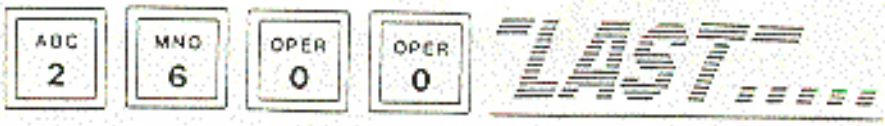
So just what are "they" doing with these things? If there's a good reason to tap a phone, then a court order is gotten and a recorder put on the line at the central office, all nice and legal. So just what do "they" do with all of this equipment that is actually illegal to use?

Perhaps you would like to ask them for yourselves. They can be contacted at: Audio Intelligence Devices, 1400 NW 62nd St., Fort Lauderdale, FL 33309. (305) 776-5000.

And I bet you thought "they" were there to protect you from the kind of people that would use this kind of stuff.

NEXT MONTH

2600 follows TAP



How Not to be Rejected

2600 News Service

Anton J. Campanella, president of New Jersey Bell, recently gave a speech to some New Jersey business leaders. In it, he said, "It won't be too long before you will have the ability to know who's calling before you answer the phone. It won't be too long before you can prevent unwanted callers from ever reaching you."

And the executives clapped, laughed, and cheered at the prospect, content in the knowledge that never again would they have to deal with unhappy customers, unwanted wives, and anything else that could get in the way of their pursuit of happiness.

If you suspect that someone you're trying to reach is using this nasty little feature to avoid you, there are many ways to get around it. Call from a payphone or a friend's house. Call using a long distance company, most of which are unable to provide details like your phone number to the person you're calling. There are others, but this should be enough to get your foot into his/her phone.

Phreaks Tie Up Lines

Combined Wire Sources

Mountain Bell announced in October that it had detected massive fraudulent use of interstate long distance calling that caused disruption of telephone service in the Alamogordo (New Mexico) area. Area Manager Gene Whitehead said the sporadic disruption in service had been caused by the use of the Alamogordo switching facilities by people on the east coast calling Puerto Rico.

He said the use of the switching facilities had become so intense that local subscribers were having to make many attempts to complete their long distance calls. He noted that long distance calls into the area also were being blocked by the east coast traffic that was being routed to Puerto Rico illegally through the Alamogordo switch.

The use of remote switching offices, he said, such as the one in Alamogordo to complete these types of long distance calls also causes disruption of local service. For example, he explained, local telephone numbers are dialed as part of the total dialing sequence to complete such calls and this causes local telephones to ring. But when the telephones are answered, there is no one on the line.

He said that this particular problem occurred in Alamogordo two years ago, and has appeared in other areas of the country. He said the perpetrators were using switching facilities in Montana, but were blocked there. They then tied into the Alamogordo exchange.

[For all you folks that are always asking where blue boxes work, this ought to give you an idea.]

North Carolina #1 in Hacking

New York Daily News

Five North Carolina computer hackers face felony charges in the nation's largest computer phone fraud investigation, federal agents have announced.

The indictment charges the five with using home computer systems to tap long distance phone companies' customer access codes to make "hundreds of thousands of dollars" in calls without paying for them.

[Maybe they were waiting for the bill....]

International Hacking

Combined News Sources

One of Britain's largest attempted frauds, involving the electronic transfer of securities, has been detected and blocked with the help of an injunction in Switzerland only hours before its completion.

The attempted fraud involved the transfer of Eurobonds worth $8.5 million (U.S.) to a Swiss bank account. The securities belonged to the London branch of Prudential-Bache Securities Inc. of New York. Its London offices have now tightened up their computer password security in response to a series of criticisms from their head office.

One official involved in the investigation said, "When I saw how easy it was to break into their system, I thought of retiring, buying a simple computer manual, and doing the same thing myself."

[What a ridiculous remark! You don't need a manual!]

Computers Threaten Privacy

The New York Times

A report by the Office of Technology Assessment warns that advances in Government computerized record systems have eroded some of the individual protections established by the Privacy Act of 1974.

According to the report, technological improvements in storing personal records have helped the Government attack fraud, waste, and abuse, have assisted law-enforcement agencies and have streamlined some Government operations. But the report goes on to say that those advantages have been offset by new opportunites for unauthorized and illegal use of personal files.

A result, according to the report, has been the creation of a "de facto national database containing personal information on most Americans."

Telco Says "Pay for Tones"

Long Island Newsday

When New York Telephone detects use of touch tone service without notification to the phone company, it contacts the customer and requests that monthly payments of $2.15 per phone line start. If the notice is ignored for two or three weeks, the company blocks any outgoing calls that are not made on a phone with a rotary-type transmission.

Forty-five percent of the company's Long Island customers can still get away with free touch tones. (It was 80 percent four years ago.) As electronic switching systems advance, the percentage will go down to zero. The company expects this by 1992.

[We all know that touch tone service doesn't cost the phone company anything—it *saves* them a tremendous amount of time and expense. The only equipment that is expensive is that which detects whether or not touch tones are being used! Write to your public service commission today and explain this to them. Better still, let's organize a nationwide touch tone strike. When the phone companies see everyone going *back* to rotary dials and clogging up the network, they will start begging for us to go back!]

Loophole in Wiretap Law

Hackensack Record

New Jersey's wiretap law was not violated when conversations over a cordless telephone were tape-recorded last year, according to the attorney-general's office.

"A lengthy investigation determined that the intereception of the conversations did not violate the state wiretap act. There was no 'bug' used to pick up the conversations. They were simply heard over another telephone," a spokesman said.

Conversations over cordless phones frequently can be heard by neighbors over their own phones or on radios. Accidental intereceptions are not illegal, according to the director of the criminal justice office.

LETTERPILE

Dear *2600*:

I've recently discovered that equal access carriers who want to offer INWATS service can buy 800 numbers. The first company to do so, I believe, was MCI. These are MCI's 800 exchanges: 234, 288, 289, 333, 444, 456, 666, 777, 825, 888, 950, 955, and 999. There may be others which I haven't found yet. When you call any number in their exchanges, you receive the same intercept recording that you would get if you called Alliance Teleconferencing or a 900 number with MCI as your primary carrier.

John Freeman
Ann Arbor, MI

Dear *2600*:

I read *2600* faithfully, have all of the back issues, and enjoy many of the articles and letters. I have some observations on the October 1986 issue.

The "Sky Telephone" encountered on your reader's trip to San Juan is becoming common on American air carriers. Delta has equipped most of its L-1011 Tristars with the telephone; Transtar Airlines of Houston has it on many DC-9's. The telephone is not cellular; it operates on a sideband of other radio frequencies, and will only work when in radio "sight" of the land based radio equipment. This is why it ceases to function about 30 minutes off the United States coastline.

The Puerto Rican government owns that country's telephone system, which is actually two: PRTC—Puerto Rico Telephone Company, which serves most of the island, and PRCA—Puerto Rico Communications Authority, which serves a few towns and out islands. ITT is the only carrier for overseas service at this time, but that will soon change with companies like MCI, US Sprint, and AT&T petitioning to service Puerto Rico.

Until just a few years ago, ITT owned all of the telephone equipment on the island, when it sold the Central Offices and facilities to the Puerto Rico government. The equipment is old, step-by-step and Penta-Conta crossbar offices. PRTC is in a major upgrading program including very good equipment such as Northern Telecom DMS 100, 200 switches, NEC 61K and 61E for the smaller exchanges, and an SL-1 is used for the circuits between Cuba and Puerto Rico. Interestingly enough, Premier Castro allows one call from Cuba to Puerto Rico on a circuit, then one call from Puerto Rico to Cuba. This keeps the operators very busy and requires special programming of the SL-1 switchgear.

Regarding "Death of a Payphone", MAD! is obviously a committee, as that is the only way so many errors could be created. The article appears more to be a fantasy than an actual study of ways to defeat a paystation, either single-slot or electro-mechanical. This story is technically inaccurate in most areas. It seems a shame to devote so much space to that subject.

BA

Dear BA:

As we said when we printed that story, we can't vouch for its technical accuracy. We just found it to be a lot of fun, as quite a few readers did. But we received many similar complaints to yours.

Read on for more about the Puerto Rican phones.

Dear *2600*:

I have a question: I own a piece of software for the C-64 that enables me to produce the tones of the silver, red, and blue boxes. The question is for the red box: when I dial 5145551212, and play the 2600 Hertz tone to become the operator (which I have done with success), will the telephone company ever know that I'm doing this?

And, regarding the Long Distance Voyager's letter in the [illegible] his trip to Puerto Rico, I wondered how many Pina Coladas did he drink? The information on the island's phone system is completely distorted and false! Puerto Rico has one of the most modern computer operated regular and cellular phone systems in the United States. The only truth in his letter is that we still pay a dime for a call. But, as modern as it is, it has been phreaked many times!

P.S. Is your BBS still working?

TOTE
Rio Piedras, Puerto Rico

Dear TOTE:

Perhaps the answer to your first question lies in your second paragraph. If your phone system is modern and computer operated, then phone phreaks would be high on the priority list. We suggest keeping a low profile. We suspect that some parts of Puerto Rico have better phone service than others, thus accounting for the discrepancy.

Our BBS (Private Sector, 2013664431) is fine.

Dear *2600*:

My new part-time job is with a national TV network's public-opinion poll department, where I sit around dialing random phone numbers on MCI outgoing WATS lines. From time to time I run into interesting ones and jot them down for later study.

Once or twice a day I come across a modem carrier or some downright weird signal. One number, 5037749999, gives you a tone that sweeps across the whole audio spectrum and repeats indefinitely. Judging by the number, it's probably maintained by the phone company in Portland, OR. There's an identical sweep tone at a number here in Philadelphia which I'm told by a reliable source is used in checking lines for wiretaps.

Another weird number is 6053655201, which returns a strange tone for ten seconds, "hangs up" with a 2600 Hertz burst, and starts all over again. It almost sounds as if it's being handed off from trunk to trunk, but why? Any ideas as to what these numbers are for?

There's also a computer at 8005387002 which accepts a 10-digit DTMF sequence and speaks them back at you. The input must be ten digits with *, #, A, B, C, and D tones accepted but not pronounced. It's more forgiving than most C.O.'s as far as frequency tolerance goes. Tape-recorded DTMF inputs will decode fine if your tape speed and audio levels are up to par.

I would gladly write an article on cellular phone phreaking if there's any interest. The article will have to be a bit on the technical side however, and the techniques outlined will require knowledge of electronics and hexadecimal math and access to a PROM programmer.

Finally, I'd like to see a free classified section in *2600* for non-commercial ads from subscribers. If other readers are anything like me, they have lots of equipment they would like to sell off. How about it?

Thanks, and keep up the terrific work!

Bernie S.
Havertown, PA

Dear Bernie S.

The test number you found sounds like it's simply opening and closing a circuit. There are scores of such numbers around and they're all testing one thing or another. Keep on looking.

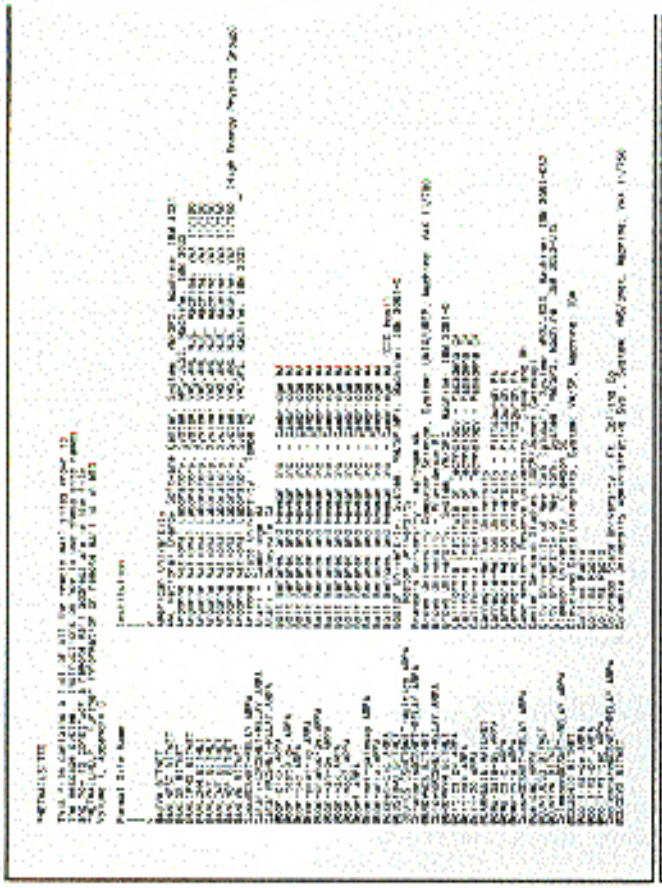
We're always interested in any articles on new technology, as long as they sound interesting. Let's see what you've got. Regarding the classified section—it's up to our readers. If we see an interest in it, we'll start one up. But we need to hear from you folks.

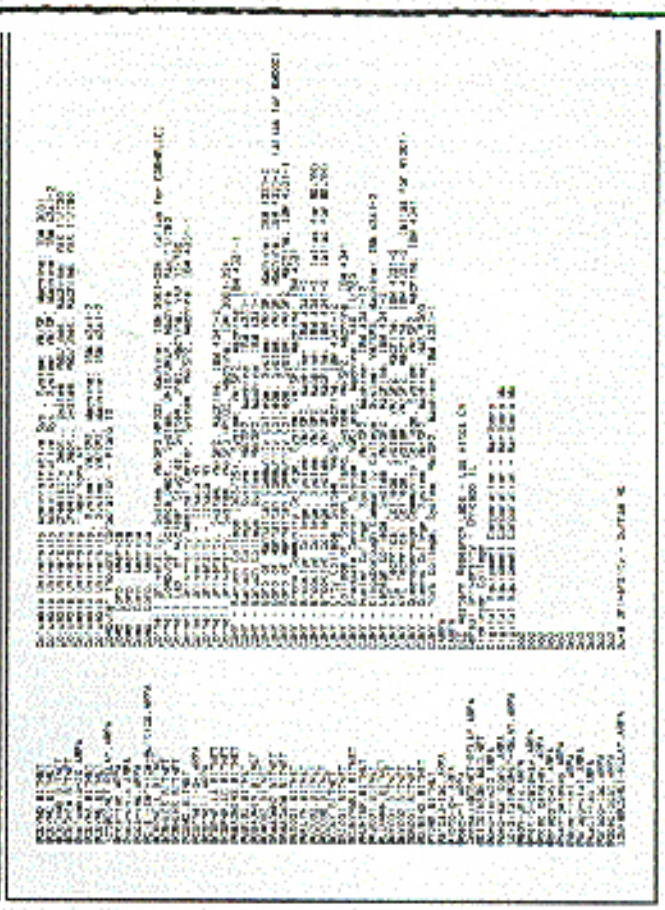
Dear *2600*:

College has started again and also a couple of bulletin boards have opened up in Ireland recently, so I'm going to look for new

(continued on page 3-96)

The 2600 Information Bureau





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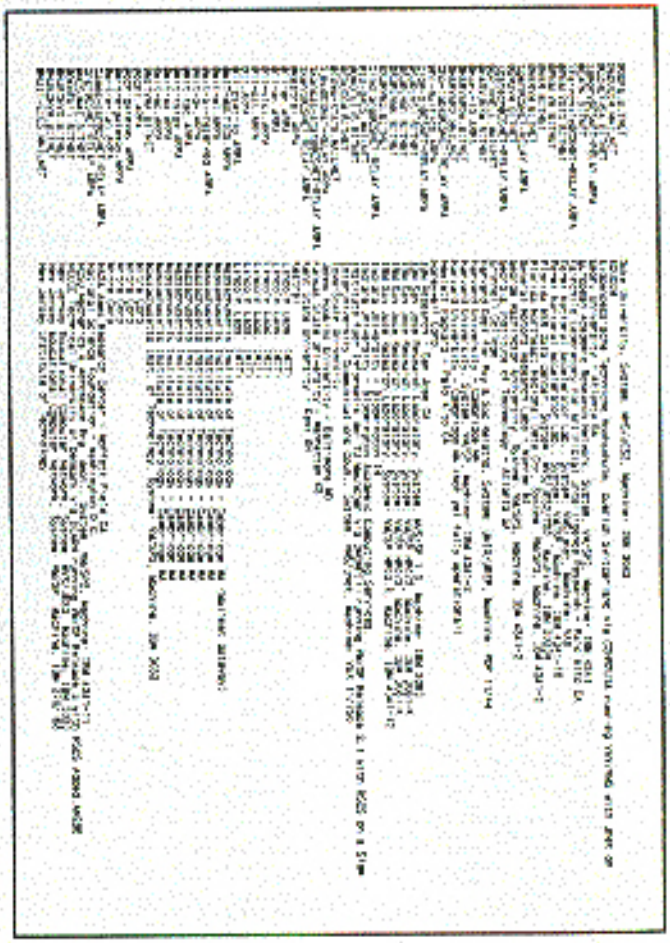

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%suny-sb@CSNET-RELAY.ARPA            State University of New York at Stony Brook - Stony Brook NY
@BINGVMA.BITNET                      State University of New York at Binghamton via SUNYBING running VM/SP Release 3 with RSCS on a IBM 4
@BINGTJW.BITNET                      State University of New York at Binghamton via BINGVMA running VM/SP Release 3 with RSCS on a IBM 43
@SUHEP.BITNET                        Syracuse University High Energy Physics, System: VMS/jnet, Machine: VAX 11/780
%syr@CSNET-RELAY.ARPA                Syracuse University - Syracuse NY
@SUVM.BITNET                         Syracuse University, System: VM/SP5, Machine: IBM 4341-M12
@SUDCASE.BITNET                      S.U. Center of Advanced Technology, System: VM/SP5, Machine: IBM 4341-P12
%tektronix@CSNET-RELAY.ARPA          Tektronix - Beaverton OR
@TAMVS1.BITNET                       Texas A & M University (global), System: MVS/JES2, Machine: Amdahl 470/V6
@TAMVM1.BITNET                       Texas A & M University, System: VM/SP, Machine: IBM 370/148
@TAMVM2.BITNET                       Texas A & M University, System: VM/SP, Machine: IBM 4341-P12
%tamu@CSNET-RELAY.ARPA               Texas A&M University - College Station TX
%ti@CSNET-RELAY.ARPA                 Texas Instruments Corporation - Dallas TX
@tektronix.ARPA                      Textronix - Beaverton OR
%arizona@CSNET-RELAY.ARPA            The University of Arizona - Tucson AZ
@TUCC.BITNET                         Triangle Universities Comp. Center, System: MVS/JES2/TSO, Machine: IBM 3081-D24
@UNION.MAILNET                       Union College - Schenectady, NY
@UCL-CS-MAILNET.MAILNET              University College - London
@AKRON.BITNET                        University of Akron, System: MVS,VSPC, Machine: IBM 3033
%uab@CSNET-RELAY.ARPA                University of Alabama at Birmingham - Birmingham AL
@UOM-MTS                             University of Alberta - Edmonton, Alberta, Canada
%ubc@CSNET-RELAY.ARPA                University of British Columbia - Vancouver British Columbia Canada
@UCBCMSA.BITNET                      University of California at Berkeley, System: VM/SP2, Machine: IBM 4341-2
@UCBCMSB.BITNET                      University of California at Berkeley, System: VM/SP2, Machine: IBM 4341-2
@UCLAMVS.BITNET                      University of California at Los Angeles, System: MVS/JES2, Machine: IBM 3033-U16
@UCLAVAX.BITNET                      University of California at Los Angeles, System: UNIX, Machine: VAX 11/750
@UCLAVM.BITNET                       University of California at Los Angeles, System: VM/SP5, Machine: IBM 4341-1
@SFDSYS.BITNET                       University of California at San Francisco, System: VM/SP3, Machine: IBM 4341-2
@SFASYS.BITNET                       University of California at San Francisco, System: VM/SP3, Machine: IBM 4341-2
@UCSFMC.BITNET                       UCSF Hospital & Clinics, System: VM/SP2, Machine: IBM 370/148
@berkeley.ARPA                       University of California Berkeley - Berkeley CA
@ucb-vax.ARPA                        University of California Berkeley - Berkeley CA  (UUCP/Usenet Gateway)
@ucb-arpa.ARPA                       University of California Berkeley - Berkely CA
%ucl@CSNET-RELAY.ARPA                University of California Irvine - Irvine CA
@ucla-sts.ARPA                       University of California Los Angeles - Los Angeles CA
@ucla-locus.ARPA                     University of California Los Angeles - Los Angeles CA
@ucl-con.ARPA                        University of California Los Angeles - Los Angeles CA
@ucla-cs.ARPA                        University of California Los Angeles - Los Angeles CA
%ucsb@CSNET-RELAY.ARPA               University of California Santa Barbara - Santa Barbara CA
%ucsc@CSNET-RELAY.ARPA               University of California Santa Cruz - Santa Cruz CA
@UCDKMA.BITNET                       University of California (System_wide Administration) via UCDCMS4 running VM/SP Release 3 with RSCS
@UCSBVM.BITNET                       University of California - Santa Barbara via UCCVMA running VM/SP Release 3 with RSCS on a IBM 4341
@UCSCVM.BITNET                       University of California - Santa Cruz via UCCVMA running VM/SP Release 3 with RSCS on a IBM 4341 Add
@SBHEP.BITNET                        University of California - Santa Barbara - High Energy Physics via SLACUCD running VAX/VMS with jnet
%ucf@CSNET-RELAY.ARPA                University of Central Florida - Orlando FL
@UCHICAGO.MAILNET                    University of Chicago - Chicago IL
%uchicago@CSNET-RELAY.ARPA           University of Chicago - Chicago IL
@UCHIEVS1.BITNET                     University of Chicago, System: MVS/JES2, Machine: guest @ UCHIEVM1
@UCHIEVM1.BITNET                     University of Chicago, System: VM/SP2, Machine: IBM 3081-D
@UCCCMVS.BITNET                      University of Cincinnati Computer Center, System: MVS/JES2, Machine:
%boulder@CSNET-RELAY.ARPA            University of Colorado at Boulder - Boulder CO
@UCONNVMS.BITNET                     University of Connecticut, System: MVS/SP, Machine: guest@UCONNVM
@UCONNCS1.BITNET                     University of Connecticut, System: UNIX 4.2, Machine: VAL 11/780
@UCONNVM.BITNET                      University of Connecticut, System: VM/SP2, Machine: IBM 3081-D
@udel.ARPA                           University of Delaware - Newark DE
@udel-ee.ARPA                        University of Delaware - Newark DE
@udel-relay.ARPA                     University of Delaware - Newark DE
@udel-top.ARPA                       University of Delaware - Newark DE
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SYSTEMATICALLY SPOKEN

Free Directories For Bigwigs

Newark Star Ledger

Those AT&T directories of toll-free 800 numbers ($9.95 consumer edition, $14.95 business edition) are being distributed free to one million selected households and more than 360,000 businesses. The consumer books will go to "randomly selected households with annual incomes over $35,000, whose members have attended college, make purchases via mail or telephone and are holders of major credit cards." Business editions are being sent to medium and large size companies and are targeted to people such as purchasing agents who have been identified by researchers as being the heaviest potential users.

[This is typical—the people who really could use free books are ineligible because they're not wealthy enough. And what about hackers? They use 800 numbers, don't they? In fact, they probably get more out of those numbers than anyone else! By the way, in 1985 more than 3 billion interstate calls were made to AT&T 800 numbers for goods and services, a tenfold increase since 1975. And guess when 800 numbers were started—1967.]

PC Pictures

Wall Street Journal

Widcom Inc. said it introduced a device that will allow personal computers to store, transmit and recall color television still pictures via telephone lines.

Called a video compression unit, the device, selling for $4,500, is being marketed to banks, real estate agencies, law enforcement agencies and other concerns interested in the quick transmission and storage of photographic data, Widcom said.

Under previous technology, storage of color television pictures in computer memories was possible but impractical because without compression of photographic signals, no more than three pictures could be stored on an ordinary floppy disk. The new device allows up to 100 color pictures to be stored on a floppy.

Fingerprint Identification System

InfoWorld

NEC Information Systems is probably the favorite computer maker of the nation's police forces. The Massachusetts company is winning praise from the country's law enforcement officials for a computerized fingerprint identification system.

California State Attorney general John Van de Kamp said the NEC system has turned criminals who "were beyond the reach of the law into involuntary guests of our state prisons." As of December 17, the California system, called Cal-I.D., had scored "hits" on 77 prints, tracking down suspects in several murder cases.

"This fingerprint identification system is the most significant development in American law enforcement since the introduction of the two-way radio in patrol cars many years ago," Van de Kamp said.

NEC won the $22.5 million California contract in 1983.

Buy My Wires

The New York Times

In one of the last steps toward giving consumers complete ownership of their telephones, local companies are now offering to sell them the wires in the homes.

In recent phone bills, New York Telephone, for example, informed customers they could buy their inside wiring for $30 for the first line, $20 for the second line, and $10 for each additional line. The company also levies a "record order charge" of $10.30 to complete the transaction.

Since 1980, customers have been allowed to install their own wiring in their homes. They have been permitted since 1978 to buy their own telephones and hook them up.

Navigate With A CD

InfoWorld

Compact-disk read-only memory (CD-ROM) technology may soon help keep truck drivers from getting lost.

Instead of trying to read a map or following unclear directions, truck drivers can look at an electronic map displayed on a small computer screen in their dashboards. The screen would show their current location as well as their final destination.

The system, called Navigator, is made by Etak, Inc. Although the company currently uses digital cassettes to hold detailed area maps in database form, it is considering compact disks for storing maps.

Users will never have to change cassettes within a region or a state if they used CDs. A map for San Francisco now takes up four cassettes.

The key to the Navigator is a shoe-box-sized computer that sits in the trunk of a car. It receives information from sensors on the wheels to measure distance and from a compass.

Currently, electronic maps are available for major cities in California.

IBM Braille Compatible

Combined News Sources

A complete computer workstation brings the visually impaired into the hacking world.

Duxbury Systems (Littlejohn, Ma) has integrated an IBM compatible; a braille translator, which translates typewritten material to braille or from braille to print; a high quality voice device such as DECtalk; a braille printer; and an optical character reader.

Who Wants To Be Swept?

Security Letter

A Philadelphia-area surveillance equipment supplier, Sherwood Communications Assoc., recently analyzed clients for whom it had also performed sweeps for the detection of hidden devices.

According to Russ Vas Dias, president, the most frequent users of sweep services in order of frequency are: marital investigations, bid-sensitive contractors and manufacturers, labor relations cases, suspected industrial espionage, request from lawyers, and individuals and small businesses. Government is a regular user for such services. According to Vas Dias, one sensitive agency schedules a monthly sweep. Fees are paid by a special account, no purchase orders are created, and no receipt requested.

LETTERS

(continued from page 3-92)

subscribers for you.

I sometimes get an English magazine called *ISM* (Information Security Monitor). Do you know about it? I suppose it's the opposite of *2600*, with articles about improved computer security, new computer crime laws, and other nasty stuff. They even report the seizure and return of equipment belonging to two guys called D. Ruderman and E. Corley! Let me know if you are interested—I can run off a photocopy for you, the mag is only 16 pages per month. Meanwhile, please keep on sending *2600*, and let's have articles about European phone/computer systems too.

Michael Marr
Dublin, Ireland

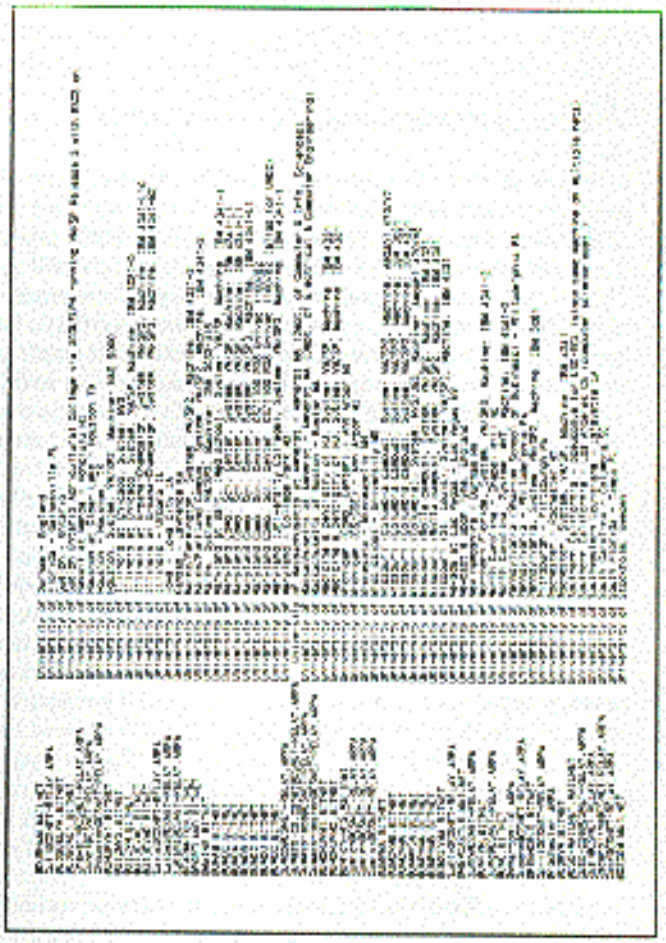
Dear MM:

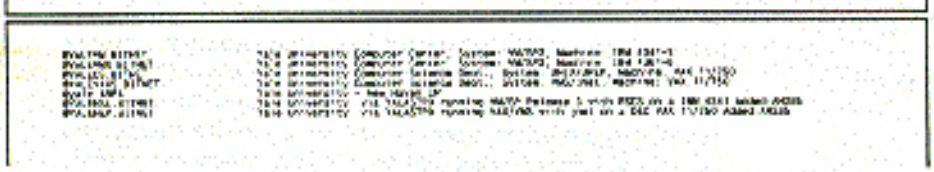
We're always interested in reading misconceptions, particularly from overseas. Send it on in.

Dear *2600*:

For those of you who don't have touch tones but want to use ESS functions such as call forwarding, the problem of how to dial the star seems insurmountable. Well, there appears to be a solution. The star can be simulated by dialing 11. (Not eleven, two ones, although I'm sure many people will end up calling the star the eleven key from now on.)

*What you say appears to hold true. This is very useful for those of us who want to disable call waiting, which can be a real pain sometimes. Dialing *70 usually works in most ESS offices. Now, 1170 will work as well. There are some ESS systems which don't allow this useful feature, and we have yet to find one that advertises it. (By the way, the disable function only lasts for one call—it doesn't have to be deprogrammed.)*





WHAT MORE CAN WE SAY?