

2600

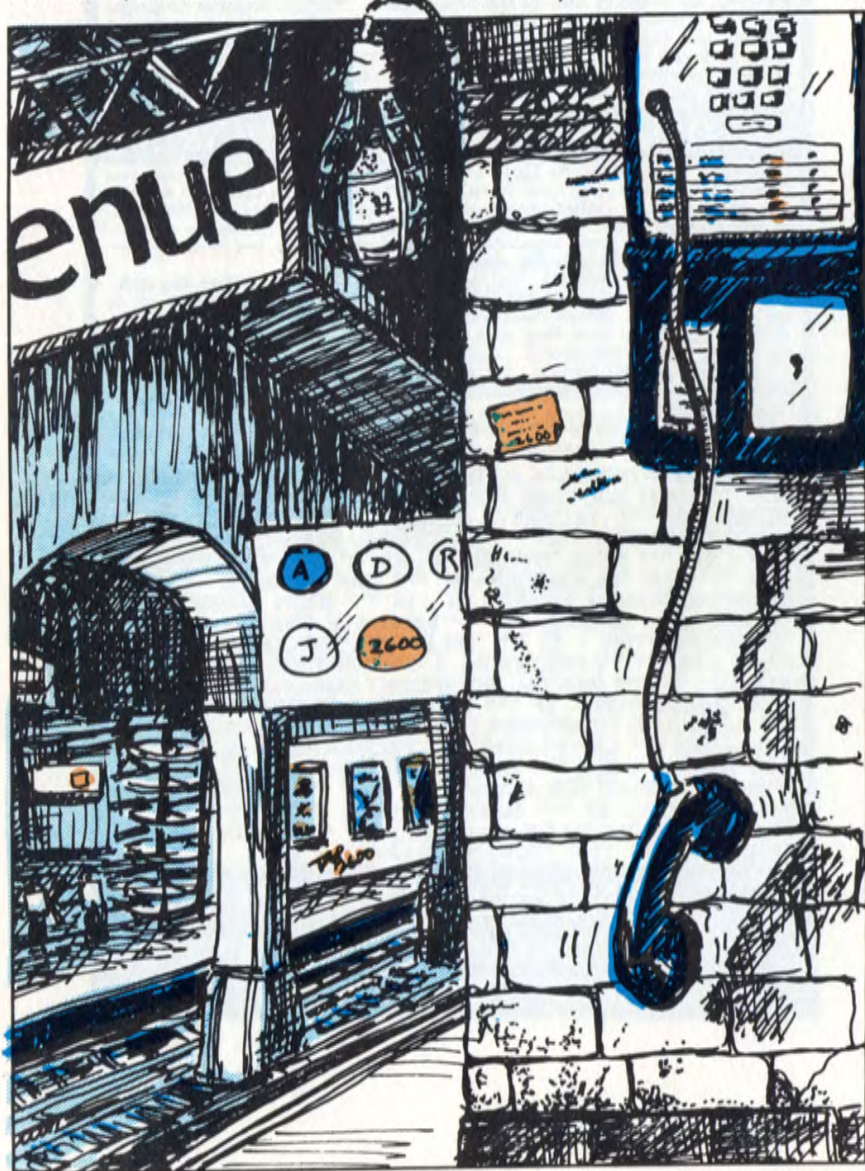
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Volume 4, Number 1

January, 1987

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CONSUMERTRONICS

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Changes

Well, we made it. As you can probably tell, our format has changed quite radically since our last issue. We are, to say the least, ecstatic that we've finally reached this stage. While the eight pages we had before were good for our original purposes, there were always things we couldn't do. Eight pages can be very constrictive.

Future articles in 2600 will be longer and more in depth. We have the ability to add on additional pages if we need them and we probably will.

We also are able to print photographs now, so we'd be happy to get some of those as well, preferably in black and white. Unusual or antique telephones, blue boxes, central offices, that kind of thing.

As we start our fourth year, we find we have indeed come a long way. Our first issue was mailed to less than a hundred people. We had no idea where it would wind up going but we just knew it had to be done. Today our subscribers

are in the thousands and include a large number of computer hackers and phone phreaks, an even larger number of people who are interested in developing their abilities, and a significant number of corporations and intelligence agencies that feel the need to keep up to date on technology and its abuses.

Our staff has multiplied as well, with people helping us out in most parts of the country and many other parts of the planet.

The world is changing too. We're becoming very dependant on computers for almost everything. This will backfire eventually and 2600 is here to explain how and maybe even when. It's no longer easy to make a telephone call. 2600 exists to show the world how it's done, present alternatives, and offer solutions.

Technological wizards no longer seem to be regarded as enemies of the people, at least not as much as when we first

STAFFBOX

(continued on page 21)

Editor and Publisher

Twenty Six Hundred

Associate Editors

Eric Corley David Ruderman

Office Manager

Helen Victory

PSOS Operations

Tom Blich

Writers: John Drake, Paul Estev, Dan Foley, Mr. French, Emmanuel Goldstein, Chester Holmes, The Kid & Company, Lex Luthor, Mike Salerno, The Shadow, Silent Switchman, and the usual anonymous bunch.

Artists: Dan Holder, Mike Marshall, Tish Valter Koch.

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TAP: THE LEGEND

by *Cheshire Catalyst*

There are lots of ways I can start this article. But mostly I'm sad that I have to write it like this—as an explanation as to why I let *TAP* die.

TAP was founded as *YIPL*, the Youth International Party Line. There were two facets of this name. The Youth International Party, or *YIPpies*, was a loose group of anarchists founded by Abbie Hoffman and Jerry Rubin, who later went on to become defendants in a trial in Chicago (called Czechago by those in the know at the time, just as the country was called Amerika). And there was the pun on the telephone term "Party Line".

As this is meant to be an historical account, I'll even define Party Line, since it is pretty rare, even today. It is where the Telephone Company (Telco) strings a line to the farthest party on the network, and everyone in between them and the central office is connected to it like extension phones. By using "selective ringing" you knew when a phone call was meant for you. It was common for people to listen to their neighbors' conversations, and thereby share the information. *YIPL* was to be such a sharing of information among members of the "party".

The Yippies realized that revolutions don't travel on their stomachs anymore, they don't even travel (if they can help it). After all, travelling costs money (dirty rotten capitalist money, of course). While there were methods for avoiding payment for travel (see Abbie's book "Steal This Book" for techniques), telecommunications was where it was at. With telephones, you could keep in touch with the revolution from the comfort of your Bleeker Street digs. And as the sixties ended, so did the monopoly of Pa Bell, The Phone Company.

In 1969, the Carterfone decision of the Federal Communications Commission (FCC) declared that people could hook up their own "devices" to the phone network. Yet before all this, there had been experimenters playing with The Bell System. These people called themselves Phone Phreaks, and had their own little underground deep in the heart of Bell's own network.

In 1971 (legend states on May Day no less), Abbie Hoffman got together with a phone phreak who called himself "Al Bell". They got the idea of a newsletter so that members of the technological underground could have their own "journal" to share information in, just as the Bell System publishes information for its own engineers.

The newsletter went along in a pretty random

manner for about two years, and contained some rather anarcho-techno stuff. Basically how to mess up The System, picking locks, making pipe bombs, and other radical stuff.

So one day in 1974, Al Bell said to himself, "What's all this political shit doing in what should have been a technical newsletter?" A good question, he thought, and promptly left the fold of the Yippies, changed the name of the newsletter to *TAP*, and set up shop in a cheap, rundown office building on Broadway.

When Al Bell first "wrenched" the newsletter away from the Yippies, he called it the Technological American Party. It was called that for a while, and then the name was changed to Technological Assistance Program (so as to keep the acronym). When I asked Tom why the name was changed, he said that they had had difficulty opening a bank account with "Party" in their name, without being a Bona Fide political party.

This rundown office is where I found the newsletter when I walked into the office in 1977. Where was I before 1977? Well, I grew up in Western New York State. I later moved to Boston, and after a year in Beantown, moved down to The Big Apple. I had been a subscriber while living Upstate. I filed my change of address to my new Boston PO Box when I moved to there. I resubscribed when I moved to New York City, but I never got around to "dropping by on a Wednesday evening" for about a year.

When I did, I found that Al Bell was no longer affiliated with the newsletter, and that "Tom Edison" had taken over the publication. What a rundown hovel. But what fun!

If you got the newsletter in those days, it gave you the address of "The Mail Drop", a place where no one lived, but where the disreputable could collect their mail. It also said that if you wanted to help fold issues, stuff and lick envelopes, and all the other assorted jobs associated with putting out a newsletter, just come by to the office any Wednesday. So, one Wednesday, I did.

What I found when I finally showed up was an ancient, smelly copier that made copies on expensive, flimsy paper (the kind that libraries always have for 25 cents a copy) that constantly broke down (just like the ones in libraries), a drafting table for laying out the issues, an old wooden desk full of "Distructory Assistance" information and unanswered mail, and a pile of articles waiting to be laid out.

There was also a motley assortment of people there, like Number 6 (named for the protagonist in Patrick McGoochan's 60's TV series *The Prisoner*), Computer

IS DEAD

Wizard, Dave Bowman (named for the computer defying astronaut in the movie *2001*), and Mr. Phelps (named for the leader in the TV show *Mission: Impossible*), and me, Cheshire Catalyst. Others dropped in from time to time, but these made up "The Regulars".

Then there were the authors who wrote articles for the newsletter. People like Alexander Mundy (named for the lead in the TV show *It Takes A Thief*) who wrote about locks, and Agent MDA who wrote about fabricating drugs in the privacy of your own home laboratory. Authors didn't come by the TAP offices much. After all, TAP just published the stuff. Heaven forbid anyone should actually do any of the despicable acts written about. Those acts were probably illegal, immoral, or at the very least, fattening.

TAP had a checklist of things to make sure were published in every issue. Things like the mailing address, the postage indicia, and those infamous words "Published for Informational Purposes Only".

TAP had a real "bad-boy" attitude, which was one reason it was such fun to read. It was mischievous. Tom said he once got a letter from some little old lady in the midwest renewing her subscription saying, "I'd never do any of the things you print, but it's so good to know that someone is out there getting back at the phone company."

Let's face it, Telco was "The Company You Love To Hate". In the classic motion picture *The President's Analyst* starring James Colburn, there was an organization out to control the world called TPC, which turned out to be The Phone Company. I still make out my check for phone service to The Phone Company.

They never bitch about it, and the computers at the bank don't care either.

So what did I do at TAP? I wrote a few articles, especially in the days when the TWX teletype network was "hackable" from the telephone network. I made my reputation on the fact that I could reach any Telex machine in the World from my home computer terminal. Not completely for free, mind you. I did pay Telco my one message unit for the phone call. But I mostly became TAP's press agent.

I like playing with "The Publicity Machine". It helps to have a computer to keep the mailing list on. That computer can also Word Process the press release, and the all-important cover letter. Tom Edison didn't like the press. TAP mostly got new subscribers by word of mouth. A subscriber showed it to his friends, and they'd maybe subscribe. Underground newspapers mentioned us occasionally. And of course, there was the annual race.

Every year, in January, phone companies around the country would send their customers their new Credit Card (now called "Calling Card") for the year. There were methods for devising your own credit card number that would be acceptable to the telephone operator, but would be unbillable. Since the billing cycle was much later in the month, this left the Telco holding the bag, and if the called party knew enough to "play dumb" when Telco's flacks called asking who made the call, everything would be all right. Of course, these calls were always made from pay phones, since the calling number was on the toll records.

The Yuppies were still around, and still understood that telecommunications was the key to the revolution,

(continued on page 11)

2600 Magazine

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STUMBLING INTO

by The Mole

Once a hacker has gained access to a VMS system, his goal should be to try to get ahold of the most powerful privileges he can. Here are some tips on taking over a VMS system.

There are two routes to take—either through programming or by modifying the User Authorization file. The first method generally requires the CMKRNL privilege. This privilege allows one to modify the data structures used by the operating system. By writing the correct code a hacker can change his, or anyone else's, privileges and quotas. This method requires very detailed knowledge of the operating system and should be left only to the very experienced. If you do not know what you are doing, it's very likely that you will crash the system and if you do there will be an accurate and detailed record of what you did. (You should never take down a system because doing so leaves a trail that the system manager can use to track you down.)

The easier way to gain control of a system is through the User Authorization File or UAF. If you modify the UAF you must log out and then log back on to get any privileges you added to your account. With programming you can make them take effect immediately. The cost you pay is complexity.

First, here are some tips for breaking onto a VAX:

Every VAX that is serviced by DEC has a Site Management Guide. This is a brown loose-leaf binder that the DEC field service personnel use to keep a maintenance log. Field service people like to write the FIELD password down in this book. If you can get a quick browse at it you may be able to come up with several passwords. If you find the FIELD password, you are all set to take control of the system.

The VT200 series terminals have an answerback feature that allows the terminal to save a character string that can be recalled by pressing CTRL/BREAK. Users often make this character string "username(CR)password(CR)". This allows them to log in by pressing two keys. It also allows you to do the same. The way you can get in is by bringing up the username prompt and by pressing CTRL/BREAK. You won't be able to see the password, though. To get the password, enter "\$CREATE PASSWORD.DAT CTRL/BREAK CTRL/Z" then "\$TYPE PASSWORD.DAT". This method is more likely to work with a terminal that is in someone's office as opposed to a terminal that is in a common area.

Of course, the simplest way to get in is through a terminal that is left logged on. If you have access to a user area, you probably can find a terminal that has not been logged off.

A list of usernames on a system is often helpful. In my experience, around 50% of all passwords are

usernames or slight variations on the username. This is especially true of such usernames as GAMES, DEMO, and USER.

Once you are logged on to a system, the very first thing you should do is enter the command "\$DELETE/SYMBOL/ALL/GLOBAL". Digital-related trade magazines are filled with articles on how to catch hackers and prevent them from doing things by defining global symbols. If you execute that command you have removed all of those silly little traps.

Now for taking over that VAX. First, the easy way. Once you are logged in use the "\$SHOW PROCESS/PRIV" command to see if you have any of the following privileges:

BYPASS
SYSPRV
SETPRV
CMKRNL

If you do have one of these, you already have the system in your hands. If you have BYPASS or SYSPRV you can modify the UAF directly. Just enter the command "\$SET DEFAULT SYSSYSTEM" and then the command "\$RUN AUTHORIZE". Then follow Lex Luthor's instructions in the VMS series, the last of which appeared in the March 1986 issue of 2600. If you have SETPRV you have all privileges available. Just enter the command "\$SET PROCESS/PRIV=ALL" and then follow the instruction above. If you have CMKRNL enter the command "\$SET UIC [1,4]" and then follow the instructions above.

Also, use the "\$SHOW PROCESS" command and see if the first number of your UIC code is 10 (octal) or less. UIC's look like [100,4]. If you do, you have SYSPRV automatically even if it is not listed when you SHOW PROCESS/PRIV.

An easy way for a system manager to help keep you off of his system is by not creating any privileged accounts. Fortunately for the hacker, system managers do not follow this rule (often not by personal choice). The only privileged accounts that are needed to run a VMS system are the FIELD and SYSTEM accounts (the FIELD account is not absolutely required). In spite of this, very often executives in computer departments (as well as system managers) keep privileged accounts for themselves (presumably for ego purposes) even though they have nothing to do with maintaining the system. Also, support people often have system privileges when they could get by with group privileges. At colleges, often many of the professors have privileged accounts. The excuse is that they need to read their students' files. The more there are the more targets there are for the hacker. It's harder to get in if five people know the SYSTEM password than if all five people have privileged accounts.

CONTROL ON A VMS

Here's a little story for you. When I was in college the "systems people" created a command called ORACLE so that users could send them mail messages. For some reason they also created an account called ORACLE to read the messages. Guess what the password for the account was? ORACLE, that's right. How did you know? Would you believe that this account had full privilege also? The whole school knew the password to the account.

A smart system manager is also going to use the SYSTEM account only to manage the system and use a personal, nonprivileged account to program with and to write memos. Luckily for you, most system managers are lazy. They use their CHKRNL privilege to change their UIC code so that the SYSTEM account temporarily becomes their personal account (but with privileges, of course). The more the SYSTEM account is in use, the more likely it is to be left logged on. In my experience, this is the absolute easiest way to get to take over a system. The SYSTEM account should only be used from a secure area.

When I was in college, I had a reputation for breaking into the computer. Now I am going to reveal The Mole's break-in secret to the world. Every time I got in it was because someone in the computer department had left a terminal logged on to a privileged account. That was the only method I ever used personally (although I did teach other people more sophisticated means). So I never broke in. I just walked right through the front door. As a direct result of my "hacking" (if you can really call it that), the school created all sorts of rules governing computer use when all they really needed was some common sense from their "systems people".

Once you're on a VMS system you should try to get a copy of the program SYSS\$SYSTEM:AUTHORIZE.EXE. Once you get a copy of this program, bring it back to

your microcomputer and save it. The AUTHORIZE program should be protected but often it is not. Once you get it from one system, it is good anywhere.

Now what do you do once you get your own AUTHORIZE program? Create a new UAF of course. Enter "\$RUN AUTHORIZE". That will generate an error saying that there is no UAF and a prompt asking if you want to create one. Of course you do, so you answer yes. Next, enter "(UAF) MODIFY SYS-TEM/PASS=MANAGER". Now in your own UAF MANAGER is the system password. So what good is having your own UAF when the system is not going to use it? Well, why not make the system use it? At this point you need a privilege called SYSNAM. Many programs, especially scientific ones, require that the user have it so it is not too difficult to find an account with this privilege. When you are logged onto the system, enter "\$SET PROCESS/PRIV=ALL" and then "\$SHO PROC/PRIV". If you see SYSNAM listed you are in luck. Enter "\$SHOW DEFAULT" to get your directory name. Then enter "\$DEFINE/SYSTEM/EXEC SYSUAF dev:[directory]SYSUAF.DAT", where dev and directory are the names you get from the SHOW DEFAULT command. Now log out and log back on to the SYSTEM account using the password you just created.

SYSNAM privilege is also nice if you want to just screw up a system. By redefining such logical names as SYSS\$SYROOT, SYSS\$SYSTEM, SYSS\$SYSDEVICE you can bring the system to a halt.

If you have not guessed by now, I am a VMS system manager. I am assuming that many of the people who are reading this are other system managers who, like myself, are trying to keep hackers off of their systems. I think the benefit from system managers reading this in a hacker publication is greater than the harm that could come from hackers reading it.



At left: The brand new MCI "hard plastic" calling card. And just like AT&T, these clowns printed the whole number on the card! Which means that if that hand doesn't belong to A.R. Smith, there's no need to remove the card. A simple glance at the numbers will be more than enough to fuel hours of fun! Any wonder why he went for the card before the money?

the telecom informer

by Dan Foley

Readers from the U.K. will be interested in the discovery of an easy hack on British Telecom pay phone debit cards making them infinitely reusable. These cards aren't like AT&T calling cards which bill a customer's account, but instead come with a set number of calling units—either 5, 10, 20, 40, or 100. The card is the size of a credit card, and is made of thin metal. A number is printed on front indicating the number of calling units purchased. Also on the front in a band, about where the magnetic strip on a credit card is, there are tiny squares protruding from the surface, one for each calling unit unused. This method appeared in the front-page lead story in *The Sunday Post* in Scotland on December 14, 1986, with the banner headline "Dial World Wide for Nothing—Telecom Hit by 'Phone Fraud' ". The trick was discovered by a British soldier "fed up with paying a fortune to call his Scottish girlfriend," and the method is supposed to be spreading quickly among British troops. The newspaper states that they know how it is done, and have proved that it works. The hack probably involves preventing the payphone from removing calling units, such as covering the squares with something that physically prevents this or inserting the card improperly.

Something more of interest to readers on the East Coast is Railphone, a telephone service presently available on

Amtrak Metroliners. They look like Bell Charge-a-Calls, and are located in the Amcafe and in the Coach sections of Metroliner trains. To use them, you insert a credit card and dial your call. You get a dial tone almost immediately, which seems too soon to check to see if the card is valid or if there is enough money to cover the cost of the call. Rates presently are \$5 for the first minute, and \$1 for each additional, which is less than the ship-to-shore rates or services like Airphone, which are \$7.50 for the first 3 minutes, and additional at \$1.50. Railphone does have periods where it is "black-out" such as in tunnels, but it re-connects with no additional charge if you do get disconnected.

A topic looming on the telecom horizon is ISDN (Integrated Service Data Network), so here's a brief overview. The service will appear, to the small user, as two 64 kilobit-per-second (kbps) full-duplex channels and one 16 kbps full-duplex channel on each ordinary telephone line. One of the 64 kbps channels would normally be used for voice, although it could be used for data. The 16 kbps channel would be used for both signaling (presumably replacing touch tone, etc.) and data while the other 64 kbps channel would be entirely for data. If this service were provided at a reasonable price, then current "audio-frequency" modems would soon be obsolete.

RUSSELL GRANT'S ZODIAC LINE



00 777 7 777

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RUSSELL GRANT'S ZODIAC LINE
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To hear Russell present your personal horoscope forecast today and every day just dial two zeros and seven sevens (available in the 01 area only).

Calls charged at the 'M' rate. Cheap rate at weekends and between 6 p.m. and 8 a.m.

Evolution of the Telephone



1890's. Most of our communicating is through the mail.



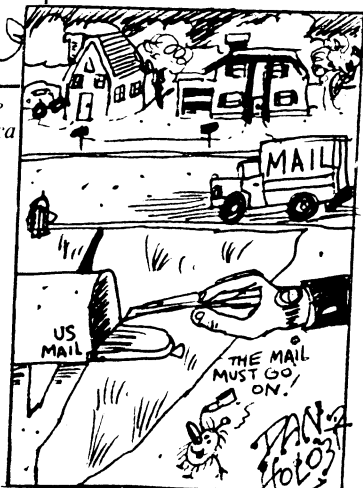
1920's. Gradually, the first primitive phone connections are established.



1970's. Almost everyone has a phone and America wonders how it ever got along without these marvelous little devices.



1980's. Deregulation catches America by surprise. Figuring out how to make a call becomes as hard as learning a foreign language.



1990's. Most of our communicating is through the mail.

17 FREQUENCIES SHOWN ARE THE CELL SITE OUTPUT FREQUENCIES
 20 MOBILES TRANSMIT 45 MHz LOWER
 37 EACH CHANNEL HAS A 10 BIT BINARY CODE WHICH IS THE CHANNEL NUMBER EXPRESSED IN BINARY

1 870.000	56 871.650	110 873.360	167 875.310
2 870.050	57 871.700	113 873.390	168 875.340
3 870.090	58 871.740	114 873.420	169 875.370
4 870.120	59 871.770	116 873.450	170 875.400
5 870.150	60 871.800	118 873.480	171 875.430
6 870.180	61 871.830	117 873.510	172 875.460
7 870.210	62 871.860	118 873.540	173 875.490
8 870.240	63 871.890	119 873.570	174 875.520
9 870.270	64 871.920	120 873.600	175 875.550
10 870.300	65 871.950	121 873.630	176 875.580
11 870.330	66 871.980	122 873.660	177 875.610
12 870.360	67 872.010	123 873.690	178 875.640
13 870.390	68 872.040	124 873.720	179 875.670
14 870.420	69 872.070	125 873.750	180 875.700
15 870.450	70 872.100	126 873.780	181 875.730
16 870.480	71 872.130	127 873.810	182 875.760
17 870.510	72 872.160	128 873.840	183 875.790
18 870.540	73 872.190	129 873.870	184 875.820
19 870.570	74 872.220	130 873.900	185 875.850
20 870.600	75 872.250	131 873.930	186 875.880
21 870.630	76 872.280	132 873.960	187 875.910
22 870.660	77 872.310	133 873.990	188 875.940
23 870.690	78 872.340	134 874.020	189 875.970
24 870.720	79 872.370	135 874.050	190 875.700
25 870.750	80 872.400	136 874.080	191 875.730
26 870.780	81 872.430	137 874.110	192 875.760
27 870.810	82 872.460	138 874.140	193 875.790
28 870.840	83 872.490	139 874.170	194 875.820
29 870.870	84 872.520	140 874.200	195 875.850
30 870.900	85 872.550	141 874.230	196 875.880
31 870.930	86 872.580	142 874.260	197 875.910
32 870.960	87 872.610	143 874.290	198 875.940
33 870.990	88 872.640	144 874.320	199 875.970
34 871.020	89 872.670	145 874.350	200 876.000
35 871.050	90 872.700	146 874.380	201 876.030
36 871.080	91 872.730	147 874.410	202 876.060
37 871.110	92 872.760	148 874.440	203 876.090
38 871.140	93 872.790	149 874.470	204 876.120
39 871.170	94 872.820	150 874.500	205 876.150
40 871.200	95 872.850	151 874.530	206 876.180
41 871.230	96 872.880	152 874.560	207 876.210
42 871.260	97 872.910	153 874.590	208 876.240
43 871.290	98 872.940	154 874.620	209 876.270
44 871.320	99 872.970	155 874.650	210 876.300
45 871.350	100 873.000	156 874.680	211 876.330
46 871.380	101 873.030	157 874.710	212 876.360
47 871.410	102 873.060	158 874.740	213 876.390
48 871.440	103 873.090	159 874.770	214 876.420
49 871.470	104 873.120	160 874.800	215 876.450
50 871.500	105 873.150	161 874.830	216 876.480
51 871.530	106 873.180	162 874.860	217 876.510
52 871.560	107 873.210	163 874.890	218 876.540
53 871.590	108 873.240	164 874.920	219 876.570
54 871.620	109 873.270	165 874.950	220 876.600
55 871.650	110 873.300	166 874.980	221 876.630
	111 873.330		222 876.660

DONT EVEN THINK OF LISTENING!

TAP (continued from page 5)

but they'd realized that the only technology they needed to make their "Freedom Fonerealls" was this credit card information. So each year there would be a race to see who compiled the complete code first. It was a matter of honor to tell the other guy what the code was, because the first guy to get it would have to be credited in the other guy's publication. The Yuppies had always put out their irregularly published tabloid *Yipster Times*, which later changed its name to *Overthrow*. There were years when we got it to them first, but they'd get it in print first.

TAP was published bi-monthly, but it was mailed out with two issues in the envelope to save postage, one of the biggest expenses of the newsletter. This meant that three times a year, you'd get two newsletters, each printed on an 11 by 17 sheet of paper, folded into four 8½ by 11 pages. Bulk mail subscribers got one issue folded up inside the other one, and the back of the second issue had space at the bottom of the last page for the postage indicia, the return address, and a mailing label.

Al Bell used to run off the mailing labels at a college he used to go to that had an "open" computer center. For years after he dropped out, he'd drop back and do the label run. After he left TAP, getting labels from him was getting to be a progressively "iffy" situation. Tom Edison took out a loan, and bought a Sol-20 personal computer, and learned to use the Wordstar and Mailmerge programs for keeping TAP's mailing list. Since there were never more than 1200 names on the list at any one time, it was manageable on the Sol-20's 8-inch floppy disks.

TAP's mailing list was never loaned out to other movement groups. Ours was a paranoid bunch of people. We were writing articles about bugs and taps on telephones, and in people's lives. We knew better than anyone what "the wrong people" could do with a list of people who knew how to take technology into their own hands.

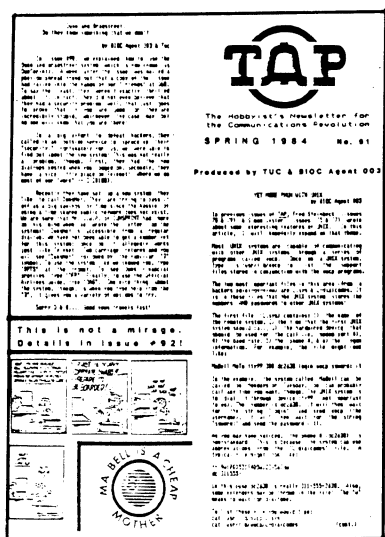
Occasionally there would be a letter from some local newsperson in Oshkosh or somewhere, asking to be put in touch with TAP subscribers in their area. Tom would get in touch with them (usually calling collect), and tell them to send 25 copies of the letter in 25 stamped, unsealed envelopes. He'd enclose his own note saying that he'd mailed the letter, and it was up to the individual subscriber to get in touch with the newshound, if they wanted to.

I got such a letter when I was living Upstate, so I was familiar with the routine. I actually got in touch with the guy from the local "underground" newspaper in my town, and showed him back copies of TAP, and explained some of the jargon to him. This was the start of my education in "playing the publicity machine". From this I learned to have short, quick quotes that are tight, concise, and get the point across. A good quote that has the right "ring" to it has a better chance of getting your point of view past the reporter's editor (the guy who finally decides whether your quote gets printed), than any long-winded "educational" rhetoric that you might spout off with.

In 1983 I was working for a "Large Manhattan Bank" in midtown, and I heard from an editor at *Technology Illustrated* magazine. They featured a largely unknown person in the scientific and/or technical community, and would I like to be interviewed for an article? "Sure, why not." Little did I know how well their marketing had been. Even though the photographer had photographed my face in shadows, or behind rays of light, or with my features blurred by motion, anyone who knew me well could have picked me off.

A number of people in the bank recognized me, since I was a technical troubleshooter for the data communications department. The word was getting around. There was a "Hacker" working for the bank. Since the movie *Wargames* had come out, the term had been given connotations of "evil intentions" by the press, and there was little I could do to stop the tide. No one would listen to my boss who was trying to explain to anyone who would listen of the various security holes that I had pointed out to him for fixing. Within a week I was fired.

My landlord hassles had started up a few months before. Now I had an excuse for not paying the rent I didn't have the money to pay. I could even go into TV



Beepers

Dear 2600:

Do you have information on interception/decoding paging beepers (long range)?

da

No, but if we get it, we'll certainly print it.

GTE Telcos

Dear 2600:

I was wondering if GTE uses the same methods as Bell, I just moved to a part of the country that's GTE and it seems that there are quite a few phone numbers in the XXX-99XX range. Where do they keep their loops? What type of ESS system do they use, as I have access to all the custom calling features (how good of a security system)? Also, I'm having trouble using my LDX number through LDX's 800 number (the phone begins ringing after 3 digits). They said that we needed to dial a * before the code but this didn't work. Any help?

Arthur Dent

We're not all that familiar with GTE phone companies but hopefully some of our readers are. We do know that some phone companies hide loop numbers and other tests in the 00XX area instead of 99XX. Regarding residential lines that somehow managed to get 99XX numbers, it's very easy to get your local operator to believe those numbers belong to the phone company. We know of several instances where the caller claimed to be calling the telephone company and so was never charged!

LDX is going to have to help you with your problem, assuming you have a valid, legal code. If not, get one so you can at least ask them some questions.

Preacher Hams

Dear 2600:

I picked up a copy of the magazine

Free Inquiry at the bookstore today. The cover article was written by James Randi (the magician who debunks lots of ESP frauds). In fact, the magazine seems to be run by the same folks who do the *Skeptical Inquirer*, but is slanted more towards religious debunking.

Randi's article was titled "Peter Popoff Reaches Heaven via 39.17 Megahertz". Popoff is one of the most notorious TV faith healers. Randi's group went to the shows and noticed that Popoff wore a hearing aid. Then they got a scanner and quickly found the frequency his wife was using to tell him the names and ills of people whom she had pumped for information before the show.

Now ponder the fact that the Communications Privacy Act would have made this expose illegal. The conversation was meant to be private, and Popoff certainly would have objected to its interception.

Could there be a connection here? Hmm....

Phil

Student Restrictions

Dear 2600:

I'm a student living on campus in a university in which one must dial a 9 to obtain an outside line, thereby restricting our calls to local ones since the dormitory residents cannot be charged and are provided with free local service. The only methods we can use to make long distance calls are using a calling card, calling collect, or using some alternate long distance company. We can't even charge long distance calls to our home phone! Operator-assisted calls don't work either. I'd like to know if anyone out there knows any ways to defeat this little phone system at our school. Could we lead the operator to believe that we're not calling from the dorms (for operator-assisted calls and third number billing calls)? Is it possible for

us to obtain a normal line, such as the one that our home phone has? I'm certain there are other readers in similar predicaments. Please help us.

An "English Soccer Fan"

Why is it that dormitory residents can't be charged for calls? It's important to determine if the system you have is incapable of this function or if it's some kind of a policy at your school.

We assume you've tried the obvious tricks such as putting a 1 or a 0 in front of the number you're dialing. You might even try dialing your own area code in front of the exchange you're trying to reach (assuming it's inside your area code). The system might not be programmed to reject that.

It's possible that the operator has no way of verifying your phone number and that is the reason you're refused access. Make a credit card call to a number whose bill you have access to. See what number the call shows up as having been dialed from. If it's the main switchboard of the university, then that is indeed the case. If you have a way of getting an ANI (Automatic Number Identification) on your outside line, see what it comes up as and then try dialing that number. You might get a dial tone.

Finally, hack around inside your phone system. See what all other numbers besides 9 will get you. Usually, only certain numbers are reserved for actual phone numbers—the rest, particularly those beginning with 1, 7, or 8, can be for other outside lines, some with more access than others.

An Acronym Maker

Dear 2600:

After reading about your readers' interest in phone number acronyms, I thought I should send this in. This program originally appeared in the May 1985 issue of *The Transactor* magazine. This program was written

for the Commodore 64 but is easily modified to work with any other computer. The program goes through and tries every combination of letters for the phone number you enter. In a 7 digit phone number, there are 2,187 different combinations.

Note: In line 100, make sure not to include "Q" or "Z", as they do not appear on modern phones.

The Gladiator

```

100 L$="000111ABCDEFGHIJKLMNPOQRSTUVWXYZ"
110 INPUT "PHONE NUMBER";PN$
120 N=LEN(PN$)
130 DIM P(N),N$(N)
140 FOR I=1 TO N
150 N$(I)=MID$(L$,VAL(MID$(PN$,I,1))*3+1,3):P(I)=1
160 NEXT I
170 FOR I=1 TO 3*N
180 PRINT I,
190 FOR C=1 TO N:PRINT MID$(N$(C),P(C),1);NEXT C:PRINT
200 CARRY=1
210 FOR J=1 TO N
220 P(J)=(P(J)+CARRY):CARRY=0
230 IF P(J)3 THEN CARRY=1:P(J)=1
240 NEXT J,I

```

More TAP Woes

Dear 2600:

First let me say I enjoy your magazine very much and look forward to each issue.

I hate to bring this subject in front of you again—I know how sick of it you must be. I realize you are in no way associated with *TAP*, but do you have any ideas on obtaining back issues? The only outlet I have discovered is the Consumertronics company owned by John Williams in New Mexico. What this guy is charging is outrageous. If the issues were coming straight from *TAP*, the \$2 he is asking (as compared to *TAP*'s 75 cents back issue rate) would be more than reasonable and pose no problem. But all he is doing is placing someone else's work on a copy machine and reselling it at a highly inflated rate. Then after all this he insists, "Please pay with cash." I think Mr. Williams should join us back in the real world. So scratch that idea.

CELLULAR TELEPHONE CHANNEL AND FREQUENCY ASSIGNMENTS

(continued from page 10)

223 876.690	279 878.340	334 880.020	389 881.670
224 876.720	279 878.370	335 880.050	390 881.700
225 876.750	280 878.400	336 880.080	391 881.730
226 876.780	281 878.430	337 880.110	392 881.760
227 876.810	282 878.460	338 880.140	393 881.790
228 876.840	283 878.490	339 880.170	394 881.820
229 876.870	284 878.520	340 880.200	395 881.850
230 876.900	285 878.550	341 880.230	396 881.880
231 876.930	286 878.580	342 880.260	397 881.910
232 876.960	287 878.610	343 880.290	398 881.940
233 876.990	288 878.640	344 880.320	399 881.970
234 877.020	289 878.670	345 880.350	400 882.000
235 877.050	290 878.700	346 880.380	401 882.030
236 877.080	291 878.730	347 880.410	402 882.060
237 877.110	292 878.760	348 880.440	403 882.090
238 877.140	293 878.790	349 880.470	404 882.120
239 877.170	294 878.820	350 880.500	405 882.150
240 877.200	295 878.850	351 880.530	406 882.180
241 877.230	296 878.880	352 880.560	407 882.210
242 877.260	297 878.910	353 880.590	408 882.240
243 877.290	298 878.940	354 880.620	409 882.270
244 877.320	299 878.970	355 880.650	410 882.300
245 877.350	300 879.000	356 880.680	411 882.330
246 877.380	301 879.030	357 880.710	412 882.360
247 877.410	302 879.060	358 880.740	413 882.390
248 877.440	303 879.090	359 880.770	414 882.420
249 877.470	304 879.120	360 880.800	415 882.450
250 877.500	305 879.150	361 880.830	416 882.480
251 877.530	306 879.180	362 880.860	417 882.510
252 877.560	307 879.210	363 880.890	418 882.540
253 877.590	308 879.240	364 880.920	419 882.570
254 877.620	309 879.270	365 880.950	420 882.600
255 877.650	310 879.300	366 880.980	421 882.630
256 877.680	311 879.330	367 881.010	422 882.660
257 877.710	312 879.360	368 881.040	423 882.690
258 877.740	313 879.390	369 881.070	424 882.720
259 877.770	314 879.420	370 881.100	425 882.750
260 877.800	315 879.450	371 881.130	426 882.780
261 877.830	316 879.480	372 881.160	427 882.810
262 877.860	317 879.510	373 881.190	428 882.840
263 877.890	318 879.540	374 881.220	429 882.870
264 877.920	319 879.570	375 881.250	430 882.900
265 877.950	320 879.600	376 881.280	431 882.930
266 877.980	321 879.630	377 881.310	432 882.960
267 878.010	322 879.660	378 881.340	433 882.990
268 878.040	323 879.690	379 881.370	434 883.020
269 878.070	324 879.720	380 881.400	435 883.050
270 878.100	325 879.750	381 881.430	436 883.080
271 878.130	326 879.780	382 881.460	437 883.110
272 878.160	327 879.810	383 881.490	438 883.140
273 878.190	328 879.840	384 881.520	439 883.170
274 878.220	329 879.870	385 881.550	440 883.200
275 878.250	330 879.900	386 881.580	441 883.230
276 878.280	331 879.930	387 881.610	442 883.260
277 878.310	332 879.960	388 881.640	443 883.290
	333 879.990		444 883.320

NOTE: IT'S NOW ILLEGAL TO LISTEN TO THESE FREQUENCIES!

(continued on page 16)

TAP

(continued from page 11)

interviews without "shadow masking", since there was no more job to protect. I was getting by on unemployment checks, and not much else.

In August of '83 I got a phone call from Tom Edison. "My house just got broken into and firebombed. Get this *TAP* stuff out of here by Friday, or it all goes into the dumpster."

Tom had been spending a bright summer's day riding roller coasters, which are pretty numerous in the New York area (if you know where to look, and you have a car). He got home to find fire trucks and police cars. The cops said it was a real professional break-in. They took the Sol-20 computer, all the disks, the printer, the disk drives, and other assorted computer gear. The fire marshal said it was a real amateur arson.

The blackguards had poured some flammable liquid (gasoline most likely), lit it, and run. But they didn't open the windows to let it get air, so the fire upstairs died out quickly when the available air was used up. In the living room downstairs, however, the heat was intense enough to cause the picture window to shatter, feeding the fire in that part of the house. Neighbors called the fire department.

Tom's insurance was supposed to take care of the damage, but the insurance adjuster was coming that Friday, and Tom wanted to have the stuff out of his house by then. So my roommate, also an unemployed ex-hippy, helped me schlepp what was left of *TAP* from Tom's basement (untouched in all the brouhaha).

This included boxes full of back issues, the damn copier that still didn't work (we put it in the dumpster), the exhibits of the 1972 Phone Phreak Convention that included a working Red box that "sounds" to the central office like the electronic tones generated by modern pay phones when money is dropped in, and the Distructory Assistance files. DA was service that Tom ran. If you sent some neat information, and mentioned what kind of stuff you wanted in return, he'd run off copies on the ancient, decrepit copier, and pop it in the mail to you.

My roommate, J.P. McClimans, worked with me to get the next few issues of *TAP* out, and in the mail. It was a bitch. Everything took longer than expected, and there were few people we could call on to help when we finally got around to things.

Then came my own eviction. I rented a storage locker in Flatbush, and what I couldn't get into it, went (can't you guess?) into the dumpster. All those precious back issues. What a pain.

Since the eviction, I haven't had the resources, or the time, since I still have yet to find real "gainful" employment. I've been surviving lately by selling articles on data communications to a New York based magazine, and I teach every few months at a local

college (datacom of course). I also occasionally find a few microcomputer (read "IBM-PC", since that's the only market around) consulting clients.

Lately, though, there have been people who wanted to take over *TAP*. One group I'd even have liked to help, since they seemed to understand what *TAP* was about. Now I'm not so sure. The kids that are getting into *TAP* these days aren't realizing that unless they watch their step, they could get into very serious trouble. And of course, "it can't happen to me."

I recently attended a communications security conference in Washington, DC where a number of exhibitors were former subscribers to *TAP*, and in fact, had gotten into the business because they had so much fun as kids with tapping and bugging gear, that they had to get into the business to legitimize their interest.

In fact, this is why I don't feel there is as heavy a need to publish *TAP*, or *TAP*-like things anymore. The readers who *need* *TAP* and others like it are in the corporate arena, wondering what those kids are up to now. The kids have the electronic Bulletin Board Systems (BBS's). Today, any 12-year-old with a Commodore 64 thinks he's the best system cracker to hit the scene since *Wargames* came out.

I'll admit that computerized "publishing" of information may not yet have the First Amendment protection that print media seems to enjoy. And if these kids keep trying to get into the computers of government installations, they shouldn't be surprised that some Fed takes it into his head to "take out the threat". Remember, he's expecting Ivan and his cronies to be at the other end of the modem.

I realized a long time ago that if the Soviets ever came over Lake Erie, people like me who knew how to manipulate the communications network on behalf of otherwise unorganized freedom loving rabble would not be looked kindly upon. That government certainly isn't my friend. My own government seems to emulate them alot in its paranoia, but as the old 60's adage states, "Just because you're paranoid doesn't mean they're not out to get you." Even in grade school, when I recited the Pledge of Allegiance, when it got to "And to the republic for which it stands", I would think to myself, "not what it's become."

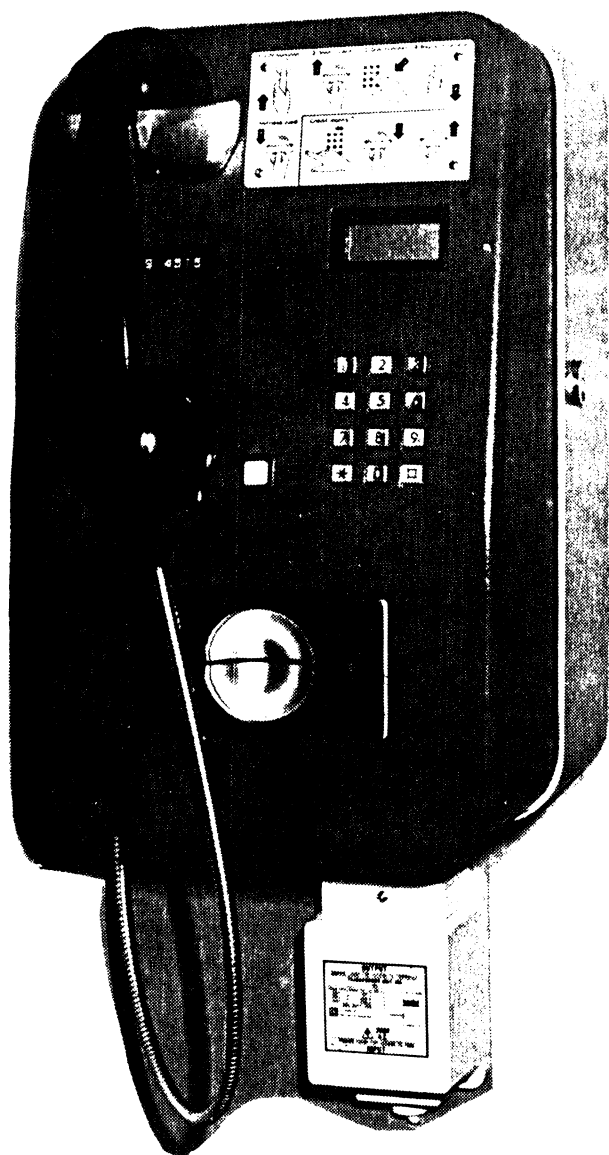
As a result, I looked at *TAP* as being the "Boy Scout Manual" for the days when a "Technological Underground" might be needed. For this reason, I'm sorry that *TAP* couldn't go on longer. But the kids don't realize how much power those C-64s and Apples represent, and therefore, how much responsibility they should carry.

When you stop to think about how much computers can do, and how people believe a computer printout, whether it displays facts or fiction, the power to
(continued on page 21)

VERY ILLEGAL FREQUENCIES

(continued from page 14)

445 883.350	501 885.030	556 886.680	612 888.360
446 883.380	502 885.060	557 886.710	613 888.390
447 883.410	503 885.090	558 886.740	614 888.420
448 883.440	504 885.120	559 886.770	615 888.450
449 883.470	505 885.150	560 886.800	616 888.480
450 883.500	506 885.180	561 886.830	617 888.510
451 883.530	507 885.210	562 886.860	618 888.540
452 883.560	508 885.240	563 886.890	619 888.570
453 883.590	509 885.270	564 886.920	620 888.600
454 883.620	510 885.300	565 886.950	621 888.630
455 883.650	511 885.330	566 886.980	622 888.660
456 883.680	512 885.360	567 887.010	623 888.690
457 883.710	513 885.390	568 887.040	624 888.720
458 883.740	514 885.420	569 887.070	625 888.750
459 883.770	515 885.450	570 887.100	626 888.780
460 883.800	516 885.480	571 887.130	627 888.810
461 883.830	517 885.510	572 887.160	628 888.840
462 883.860	518 885.540	573 887.190	629 888.870
463 883.890	519 885.570	574 887.220	630 888.900
464 883.920	520 885.600	575 887.250	631 888.930
465 883.950	521 885.630	576 887.280	632 888.960
466 883.980	522 885.660	577 887.310	633 888.990
467 884.010	523 885.690	578 887.340	634 889.020
468 884.040	524 885.720	579 887.370	635 889.050
469 884.070	525 885.750	580 887.400	636 889.080
	526 885.780	581 887.430	637 889.110
470 884.100	527 885.810	582 887.460	638 889.140
471 884.130	528 885.840	583 887.490	639 889.170
472 884.160	529 885.870	584 887.520	640 889.200
473 884.190	530 885.900	585 887.550	641 889.230
474 884.220	531 885.930	586 887.580	642 889.260
475 884.250	532 885.960	587 887.610	643 889.290
476 884.280	533 885.990	588 887.640	644 889.320
477 884.310	534 886.020	589 887.670	645 889.350
478 884.340	535 886.050	590 887.700	646 889.380
479 884.370	536 886.080	591 887.730	647 889.410
480 884.400	537 886.110	592 887.760	648 889.440
481 884.430	538 886.140	593 887.790	649 889.470
482 884.460	539 886.170	594 887.820	650 889.500
483 884.490	540 886.200	595 887.850	651 889.530
484 884.520	541 886.230	596 887.880	652 889.560
485 884.550	542 886.260	597 887.910	653 889.590
486 884.580	543 886.290	598 887.940	654 889.620
487 884.610	544 886.320	599 887.970	655 889.650
488 884.640	545 886.350	600 888.000	656 889.680
489 884.670	546 886.380	601 888.030	657 889.710
490 884.700	547 886.410	602 888.060	658 889.740
491 884.730	548 886.440	603 888.090	659 889.770
492 884.760	549 886.470	604 888.120	660 889.800
493 884.790	550 886.500	605 888.150	661 889.830
494 884.820	551 886.530	606 888.180	662 889.860
495 884.850	552 886.560	607 888.210	663 889.890
496 884.880	553 886.590	608 888.240	664 889.920
497 884.910	554 886.620	609 888.270	665 889.950
498 884.940	555 886.650	610 888.300	666 889.980
499 884.970		611 888.330	
500 885.000			



A British Telecom card-reader phone.

Photo by John Drake

letters

(continued from page 13)

Here are some numbers you may find interesting. At 800-538-7002 is a demo recording belonging to VYNet. A voice gives you information about their services and has you input your phone number and then repeats it to you. At 800-554-4477 is the "TeleTax" system belonging to the IRS. A variety of options may be entered from your touch tone phone.

Arab 149

Thanks for the info. Regarding TAP, \$2 isn't all that unreasonable considering the effort involved in getting ahold of those issues in the first place. The mere fact that no one is doing any better should tell you something. As far as selling something that really doesn't belong to you in the first place, that's something else. Then again, it's TAP, not The Wall Street Journal.

800 Directories

Dear 2600:

Is there such a thing as a WATS directory? If so, how do you get one? If not, would it be possible to generate one for experimental uses?

Cocopelli

If you call 800 information enough times, eventually one of those operators is going to ask you if you're interested in getting an AT&T 800 directory. They'll give you a phone number to call, but you can call 8002220300 to get more info.

AT&T offers two books, one for people and one for businesses. These are probably the most complete books around, but there are quite a lot of 800 numbers that aren't publically listed. That's where a phreak/hacker version comes in handy. We need people to help organize this.

You might also try wandering around some bookstores. There are several

toll-free guides out there that may have additional numbers.

Searching for ANI

Dear 2600:

I'm also trying to find out what my ANI is in the 215 area code. I tried all the numbers that were printed, and nothing worked. I even called the operator and asked for the Drop Line ID. She asked me what my code was. Eventually, I had to hang up. I ran out of codes.

P.S. Please devote more articles on phone numbers instead of computers. Not everyone has a computer, but everyone has a phone!

Also frustrated in PA

The trick to finding your ANI is to make a little sheet of all possible exchanges in your area code, even ones with 1's or 0's as the second and/or third number (211, 706, etc.). Then go through the front of your phone book where they list all active exchanges. (You may need other phone books to complete your area code.) Put a check next to all the exchanges that are in use. The ones that are left are the ones you have to check out. Sometimes you may have to put a 1 in front of the exchange, sometimes you may have to dial seven numbers after the "exchange". Even if you don't find your ANI in this fashion, you'll probably find something else.

We know that in some parts of 215, dialing 410 plus four digits gets you an ANI. But it could be completely different in your area.

In answer to your last point, everybody may not have a computer, but more than a few computers have you in their database. And that's why it's important.

2600 marketplace

HEY YOU! This is the chance you've been waiting for! A new service of 2600 Magazine. Got something to sell? Looking for something to buy? Or trade? This is the place! And it's free to subscribers! Just send us whatever you want to say (without making it too long) and we'll print it! And, if you send in the only ad we get, you'll get the entire page to yourself! Only people please, no businesses!

PHONES

So few of us really see the possibilities when we look at our telephones. But just think of what's really there. Especially today.

With a telephone, you can take a trip to anywhere. The average person sees it as an everyday tool, an annoyance, a necessity, nothing to play with, nothing to wonder about, nothing to get excited about. What a pity. But in a way, how much better for folks like us who recognize the beauty of it all.

We pick up the phone and we hear a dialtone. The game is afoot. Where are we going? Who are we going to speak to? What exchanges work near us? What area codes work throughout the country? Can we make international calls? How many different operators can we find and what can we make them do?

On a phone, there is only one way to be judged. Your voice tells the whole story and if you can do things with your voice, there is no limit to what you can do over a telephone. This column, and in many ways this whole publication, is dedicated to those who have made telephone use into an art form.

Ask the average person what they think of the AT&T breakup and you'll hear what a bad idea it was. Ask the average telephone repairman and you'll probably get a 40 minute dissertation. (We should listen to these—they can be very revealing.) Ask an elderly person and you may even see some tears. What does this tell us? Did Judge Greene make a mistake? Will making a phone call ever be a simple process again?

All of a sudden phone calls are being treated differently—as a product instead of a natural right we're all kind of born into. We have to make decisions now where they were made for us before. It's all kind of like racial integration. Some preferred the status quo, but it's obvious the system had to change to even

approach being fair. And that means we all have to work a little harder, at least for a while to come. We may not even get it right the first or second time. But it's a change that had to happen. Those of us who understand it all a bit better than others should lend a hand and not assume the answers will show up in the front of the phone book.

While the mood here in the States is negative, over in England it's indifference. British Telecommunications PLC was denationalized in late 1984 and according to a recent survey, 72% of those polled think the quality of telephone service hasn't changed since. Another 12% thought service had improved, 10% thought it had declined, and 6% had no opinion whatsoever.

Meanwhile, British Telecom has launched a new service for the London area called Talkabout. It enables up to ten telephone callers from the same area to be linked together on the phone for a chat.

There are two lines to choose from. Both are available 24 hours a day. One is for adults who dial 0055 0055 to join the service. The other is the service for teenagers up to 18 years, who dial 0055 0033.

Callers to the service first hear a recorded message telling them the cost of the call, informing them that all calls are monitored, and—for the teenage line—advising them to tell their parents that they are calling the service. This message is followed by a tone and customers are then linked in with the other callers. The tone alerts other callers that they have a new member joining their group.

So that callers do not lose track of the time, a buzzer sounds every ten minutes on the adult line to remind people how long they have been connected, and

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TAP

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destroy people's lives is also available. The case of the *Newsweek* reporter harrassed by some TRW crackers who made his life miserable is a case in point.

In spite of what I said earlier, I look forward to reading publications like *2600*, and *Processed World* (which calls itself "the magazine with the bad attitude", 55 Sutter St, San Francisco, CA). They point out what has been done with computers, and point out that life should not be made miserable now that the technology no longer belongs only to the corporations, but that computers and communications can make better lives for those who apply the technology for themselves, and for others (sorry for getting the schmaltz all over your shirt, it will wash right out).

So that's the basic story. There's some stuff I've left out, and some things we'll never know. Tom Edison still had a job to protect, so we couldn't ask for a full investigation of those we'd liked to have had checked out. At least not without more coming out than would have been healthy for him and his job. I haven't seen him since the day I drove the U-Haul out of his driveway. I hope he's doing OK. J.P. moved to the west coast after the eviction, where he's doing fine. And if anyone needs a microcomputer support person with a datacomm background, just give me a call, and my resume will be sent to your nearest BBS.

Keep smiling.

There is no doubt that *TAP* is dead. This must be distinctly understood, or nothing wonderful can come of the story that has just been related.

Old *TAP* is as dead as a doornail.

In fact, since 1983 it's been pretty obvious that *TAP*'s future was in serious question. But it wasn't until July of 1986 that their maildrop was closed. Up until then, by his own admission, the cash that unwitting subscribers sent went right into Richard Cheshire's pocket. *TAP* has certainly left us all with a rather bad taste in our mouths.

There have been many claims and rumours with regards to starting a new *TAP*. Since we began publishing in 1984, we've heard at least two dozen such reports, not one of which has come anywhere close to fruition. And we think that's fortunate—*TAP* should be allowed to rest in peace without others attempting to cash in on their name. Actually, anyone who tried to do that would probably face more of a hassle from all of the outraged customers who were short-changed by *TAP*.

So consider this the end. We'll always remember *TAP*. We'll always be passing back issues back and forth among ourselves. And some of us will even go to the weekly meetings still known as *TAP* meetings held in New York City. But there'll never be, nor should there be, another *TAP* magazine.

Changes

(continued from page 3)

came on the scene. We've always looked at hackers and phreaks as being the possible salvation of our techno-crazy society. Somebody must know the way certain parts of the machine work and how to relate that to human needs. Give us the chance and we'll show you all kinds of little details that are right there in front of you.

Our format is not the only thing that is changing. Our prices will be changing as of February 15. Details are within this issue. And starting in March, our issues will be mailed without envelopes, just like most other magazines. There is no reason to be alarmed by this—2600 is not an underground or "illegal" publication. However, if you want your issues mailed in envelopes, contact us by March. At the moment, there's no additional charge for this service.

We hope to see more of you become involved with the production of 2600. Send us articles, pictures, clippings, or whatever else comes to mind. The address is 2600, PO Box 99, Middle Island, NY 11953-0099.

We also want your opinions on our new format. Do you like it, do you hate it, is the type too small, etc. This change was based on your previous comments so we do listen.

You may even see some copies of 2600 on newstands in the near future. If you know of a newstand or distributor that would be interested in carrying us, let us know. And if you're interested in selling advertising for 2600, we'd really like to hear from you.

PHONES

(continued from page 20)

monitors personally interrupt callers on all lines approximately every ten minutes to remind them of the cost of using the service.

In addition, callers to the teenage line are automatically cut off after ten minutes.

We've seen it before; many phone companies in the United States have already given this a try. But the phone phreaks have been doing it the longest, either through teleconferencing or loops.

People and companies try making money in the strangest ways. Conferencing is only one. Now there's even competition for what you listen to while on hold!

Businesses have begun to program customized advertisements—pitching everything from corporate securities to used trucks—for customers who get put on hold. But Robert D. Horner, president of The Hold Co. Inc. of Fort Washington, Pennsylvania says, "We don't like to call it advertising." Can anyone blame him?

Meanwhile, W. Evan Sloane of San Diego has started a telephone service that offers advice on how to beat drug testing at the workplace. The two-minute, tape-recorded message provides callers with information on the lengths of time that commonly used, illicit drugs stay in the body and suggests ways to doctor urine samples to mask evidence of drug use.

Sloane's a member of a group called Question Authority which he defines as "an attempt to focus some common sense on what's going on in our lives. The little guy is getting beaten down by this and doesn't know how to defend himself because he assumes these tests are accurate. We believe forcing people

to take a urine test to get or keep a job is unwarranted search and is unconstitutional."

Not to mention unpleasant. As is the latest move within the Soviet Union to eliminate unlimited local dialing. It's all part of Gorbachev's drive to reduce government subsidies.

Soviets currently pay the equivalent of a couple of dollars a month for as many local phone calls as they want. But the party is over. All calls will have to be paid for very soon.

The Soviet phone system has its problems. Every call to another city or out of the country must be booked through the operator and it can take hours to get through. Direct dialing was introduced briefly just before the 1980 Olympics, but was then abruptly terminated.

It's also next to impossible sometimes to get phone numbers since directories aren't available. You can call directory assistance, but the number is almost always busy. And if you need the number of someone with a common name, you'll be turned away.

But things may be looking up for the folks in Yugoslavia. The phone companies of the Slovenian Republic and Ljubljana have ordered the country's first System 12 digital telephone exchange. This will lead to local manufacture of nearly 700,000 lines of System 12 in Yugoslavia over a five-year period.

There's a lot going on down those little telephone wires. Telecommunications may indeed be a business for some, but for the entire human race it's becoming a vital link, a taste of freedom. We can never let control slip from our fingers.



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