takes one more giant step backwards. Every time I dial, I get a weird disembodied voice which says with infinite disdain, "All our circuits are busy. Please try your call again later." Making a call in Cairo is easier.

As I fumed, I thought about an incident a few weeks earlier on the campus of one of America's most prestigious institutions of higher learning. It was **Telco** Trauma at the school built by Thomas Jefferson — vox *democratia*, mastermind of the dumb waiter, slave owner. It was late, 23.00 hr to be exact, and I was working — a Jeffersonian virtue to be sure. I was alone in my son's dormitory room. The meat, mind and muscle of America's future watched me work, listened to rap and rock, and waited until the 'bash' (as parties are now named) started.

My progeny had said the magic words hours after my arrival in Charlottesville, Virginia, many miles from anyplace: "My modem won't work. And I have a research paper due in two days. Will you fix it? Please."

Drawn like a moth to a flame, I laboured to achieve a connection among a **2400-baud MultiTech** modem, an Equity II computer, the telephone system, and the local Telenet node. Before my son left for school, the system performed like a Toyota Supra fueled with nitromethane. Had a component failed? I had software, but no parts, and Mr. Jefferson's town didn't have an Ace Hardware. Forget a JDR Microdevices electronics supermarket in rural Virginia.

The campus may be 'the grounds'; freshmen may be 'first years'; and the buildings hand-formed brick; but the place had telephone jacks and touch-tone dialling. Technology thrives amidst ivy. There were serious computers here too. I saw them in Mr. Jefferson's book store. Computerized cash registers, lashed into a mini, tallied the take from Mr. Jefferson memorial pencils and notebooks, puffy-letter Virginia jerseys and Cavalier post cards. Never mind that *books* were tucked discretely in two smaller annexes.

INFORMATION TERRITORIES

TELCOTRAUMA

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I am thinking about telephones because as I write this, AT&T, aka 'Ma Bell,' tripped over her garters. The world's most sophisticated telephone system with 800 toll-free service to more than 35 countries Furthermore, I knew that the local telephone company was *Chesapeake & Potomac Telephone of Virginia,* commonly known as C&P. C&P is no mom-and-pop telco; it is a Baby Bell with billions tucked in its diapers. C&P is the telco of the stars (the Pentagon variety) so clean lines and hot connections are the life blood of this outfit. UVA (pronounced "yew-vee-hay" by the locals) is a former president's university, a big-time national university according to US News *& World Report.* Such a university warrants noiseless lines and a high-speed Telenet node. Right? Wrong.

On this fateful Friday, after the obligatory tour and the dinner of Virginia ham, I retreated to my son's room and fired up the Equity, cranked into Procomm Plus 1.1b, **dialled** the Telenet number, and watched the progress messages on the monitor. **"Dialling,"** Procomm said. "Connecting," Procomm said. Then nothing. "Time out," Procomm said. I picked up the handset, **dialled** the number, and listened to the scream of the distant modem howling for an electronic fix. Had my trusty Procomm gone south?

Okay. Time to check the modem set up string. A simple set up string is ATZ^M. A more interesting one is ATZ^M B1 XI S7=45^M. And a baroque one: ATS0=1Q0V1X4&S1&CI &D2^M. A roached set-up string is easy to fix...assuming one has the manual for the modem. No manual? Well, hack time. That's what I did and that's why I was staring at the monitor, lost in thought, oblivious to the first years' yip-yap about my working on my son's PC instead of my beauty sleep.

I whipped a few set up strings from my memory and tried to connect with Telenet. Same result. I checked the parameters of the **comms** software: 2400, E, 7, 1, Corn 2. Correct. Tried to connect with Telenet. Goose egg.

I took out my tools. Now you know why he asked me to fix the PC; I am a father who is PC-prepped. What's that tell you about online, partner? Opened the Equity, a near-impossible task because of a design developed after the engineers assigned to the project spent two days slugging down hot sake in a Ginza sushi bar. Fiddled with switches (six) and the jumpers (four). Tried Telenet. Knew the number like my name. Dead as a mackerel.

Okay. I moved their bureau and quickly averted my eyes from the trash. I kicked the Twinkies and Coca-Cola cans aside and unplugged the wall telephone jack. It was a modular design and looked bubble-pack fresh. I undid the flesh-colored face plate to check the connections and discovered fat, cloth-covered wires. I hadn't seen wires like this since my first fire-safety lecture in kindergarten in 1950. Shocked that Mr. Jefferson's university retained wiring like that in Alexander Graham Bell's workshop. I cleaned the connections, reassembled the wall plate, and affixed the modular plug. Loaded the software. Dialled the number. Again nothing. Morte.

An idea struck me. I picked up the telephone and called the computer lab. It was long past midnight, but I knew like-minded folks would be hard at it. "Lab," a voice said, barely recognizable over the hissing and snarling of the line. I thought for a moment that C&P had loosed a cobra in the room.

"What do you know about the telephone lines in the dorms?" I asked. No preamble was necessary. Mr. Jefferson would not have understood the protocol of hackers.

"#\$%!@. Call Dr. Peck; he's okay." Click.

Okay. Another call and, "Peck here."

"Modem trouble," I said.

"Error correcting software seems to work. Call back if you need more. Hey, do I know you?"

"No. Thanks."

Mrs. Peck, your son is a genius and a gentleman.

Saturday's dawn frothed over the campus. As the young scholars returned from their bash, I packed up my gear to sleep on the problem. After a few hours of bliss at the nearby Comfort Inn, which smelled like the stable at Monticello, I awoke refreshed. I had the hint I needed. In my kit were 80 megabytes of zipped software. In that 80 Mb was'a new software program which implemented stringent error correction algorithms, MNP Level 5. Doesn't every family go to Parent's Day with 80 Mb tucked between the toothpaste and dental floss? The only hurdle remaining was that I had 1.2 megabyte 5.25 floppies, and my son's Equity had a 360 kilobyte 5.25 floppy. I just love consistency and standards.

But this I could handle. I popped into the local Computerland, did some fast talking, shoved a \$20 at the teenager behind the counter, and grabbed the console of a Compaq 386-20e with a 1.2 and a 360 K drive. A few **PKUNZIPs** with PKZIP102, and I had a copy of the new MNP Level 5 error correction **comms** software from **MagicSoft** in Lombard, west of Chicago, past Villa Park, past Elmhurst, in the cornfields of Illinois.

I could scent victory. It smells like hot circuits. With the floppy clutched in my teeth, I could use both hands on the steering wheel to fight my way through Parent's Day Football Weekend traffic. At 20.00 hr, I took my seat at the Equity. The fledgling scholars were waking. Yes, tired brains need sleep.

I loaded the MagicSoft MTE software and used the set-up strings included in the program. Comms software designers should ponder MagicSoft's approach. The MTE set-up menu offers a plump list of popular modems. When the user selects a modem, MTE rams home the right set-up string. No muss, no fuss, no manual thumbing, no AT command set decoding. I set the parameters using the program's Lotus-style menu and dialled the local Telenet node. I wondered if the first cup of coffee is as stimulating as the first online hit of the night.

"What do you fellows think?" I asked.

Both grunted, "Gnat-f. Hunh?"

The art of discourse thrives at Mr. Jefferson's university. The beauty of English is safe.

The **MagicSoft** code supported MNP Level 5. 'MNP Level 5' is computer-speak for a compression methodology which (a) reduces errors and (b) increases the throughput of a modem by a factor of two under ideal conditions; that is, ones you will *never* encounter outside of the PC Magazine computer laboratory. Best of all, the Charlottesville Telenet node supported 2400 baud. My son would be downloading data from Knowledge Index like a special librarian with 50% adrenaline and 50% caffeine pumping through his veins.

There it was, a flashing message of "connect." I had done it. But... but the baud rate was 1200, not 2400. Impossible!

I disconnected and tried the 2400 baud Tymnet number. It was 1200 baud too. "What's going on?" I snarled. "Like a bash at midnight, for sure." my son's roomie said from beneath his blanket.

I retraced my steps of the previous night. So did the ardent scholars. On the stroke of 23.00 hr, they left for a bash. Only tonight I wondered how to find the home of a C&P vice president, douse it with gasoline, and set it afire with the sparks from a modem being struck against the Equity's motherboard. After several dozen dead-end jumper jerks and switch flicks, I gave up. 1200 baud thanks to Magicsoft and MTE. Without MTE I would not have been able to connect.

I greeted them and Sunday morning with my eyes the color of a Bloody Mary. "Get it to work?" my son asked as he prepared to retire for the day.

"No problem," I said as I gathered up my floppies, my tools, reassembled the telephone

lines, kicked the Twinkie back (someone had eaten one), and walked outside.

The birds twittered and students pulled their covers over their heads and frolicked in dreams of Socrates, Euclid and Xeno. Resting in the sun I reached the following conclusions:

- The Baby Bell wired the dormitories with copper wire pairs more suitable for penning pigs than downloading data.
- UVA either (a) did not care or (b) did not know that the telephone lines in the dorms were on a par with those in Campinas, Brazil, in 1960.
- MagicSoft had a spectacular chunk of code to be able to resist the clicks, clanks, bangs, and bonks on the dorm line.
- First years have the habits of bats.

Unwinding from my 16 hours **labour**, I wondered how Mr and Mrs Average Computer Owner coped with modems, **comms** software, set-up strings, and getting to a network, any network. Maybe, I thought, just maybe, the user-friendliness of the system could be improved.

No. How silly, I said to myself.

The average American knows about telephone wiring, AT command sets, dip switches, and jumpers. The reliability of the telephone system, the intuitive nature of getting online, and the sheer simplicity of the process ensure millions upon millions of *happy*, productive online consumers. In the US we have two million out of 250 million people. Now that's progress.

Mr. Jefferson, be proud that in your grounds in your democracy everybody has an equal chance to log on. Maybe not an equal shot at making it work, but the chance is what counts, right? In fact, I'll call one of the telcos and send along my congratulations on a job well done...when the long-distance system works again.

Companies mentioned in this article:

JDR Microdevices; 1256 South Bascom Avenue; San Jose, California 95124, USA.

Datastorm Technologies, Inc.; 1621 Towne Drive, Suite G; Columbia, Missouri 65202, USA.

MagicSoft, Inc.; PO Box 396; Lombard, Illinois 60146, USA