How Much Cost for How Much Time Saved?

A man was shaving one morning, and he felt an eagerness to get on with the day's work. "God, I hate all this maintenance," he said, as a cloud of steam rose from the lavatory.

A ghostly face appeared in the misty bathroom mirror and said this: "Greetings, mortal. I don't often answer prayers in person, but this one is so sensible that I had to meet you face to face. Just give me the life of your first-born child, and I'll get you from pillow to first gear in one minute flat every morning."

This seemed like a good deal to the impatient shaver, because he was taking an hour in bedroom, bathroom and kitchen before leaving for work. So he agreed.

Sure enough, he found he could get up at 7:59, clean up, dress, eat and exit the driveway at 8 sharp. He was saving 59 minutes every morning. It was miraculous.

A few years later the man said "God" during his one-minute morning, and the same face appeared. The face said that the man could now reduce his morning routine from a minute to fifteen seconds — "that's four times as fast" — for only the sacrifice of his second-born child.

"You've got to be kidding," the man said. "Last time you gave me 59 minutes, and now you're in a tizzy about 45 seconds. I'm keeping the kid, thanks. And speaking of kidding, what is the Devil doing answering God's prayers anyway? Aren't you just a little out of your territory?" The face vanished, never to be seen again.

Think of this little fable the next time you wonder if it's time to dump the 2000 for a fast 386 machine. And ask yourself if the Devil has infiltrated the PC magazines.

But aside from speed, there's a thing called IBM compatibility. Let's hear from a long-time contributing editor on this subject:

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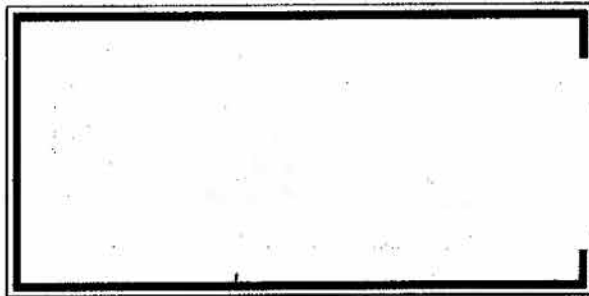
How Important Is Compatibility?
by Louis J. Schuetz

IBM is no longer IBM-compatible. They have abandoned the useful standard they created. IBM's PS2 line has joined our 2000 in a wilderness where "IBM is not spoken." But the compatibles are thriving. How important is this compatibility?

The continuing choice for a 2000 owner is between a 2000 that is already owned, and a 286 clone that must be purchased. The 2000 stands up well in speed, drives and video. The real problem is software, as every member knows.

We each have buried somewhere inside a compatibility threshold, determined as much by our personality as by our true computing need. I suspect that if the barrier is breached, a 2000 user awakes suddenly in the night, staggers to the window, throws open the sash, and screams "I'm mad as hell and

Schuetz Straight

I'm not going to take it any more!"

The next day, after convincing the wife that he doesn't need a doctor nor she a lawyer, assuring the kids that Daddy is OK now, and telling the neighbors it was a visiting brother-in-law, he pulls out the back issues of Computer Shopper.

The Incredible Clone Hunt has begun. The phone bill skyrockets. UPS delivers mysterious brown boxes of all sizes from Nguyen's Comp-n-Go. Daddy disappears into the back room each night after dinner for a month, saying things like "No

football now, Billy, I've got to config my sys," or "My dips need switching."

If a chapter of Hackers Anonymous is nearby to keep Daddy sane, the old 2000 in the den may be joined by the only slightly more capable, but oh so much more compatible, Ultra-TurboBoost Vader Mark II.

I fear I may be close to my personal compatibility threshold. As a born-again student, I would be freed by a home-based compatible from the campus computer center, a bizarre place at best, more so when one is twenty years older than everyone else.

Compatibility, like love, is as important as you think it is.

Huggable Luggable

There's no way to argue with prose like that. But we have a suggestion to those who move around: You can have your cake (the 2000) and eat it too, by making your second computer a companion to the 2000 that does everything it doesn't do, and talks to it.

A pluggable 286 portable with 3-inch drive would give you either portability or compatibility when you need it. Pluggable, because battery models give you an unacceptable choice: crashing after an hour, or squinting for three hours at an unreadable gray-on-gray screen. And think of all the nice people you'll meet while you're asking where to plug in.

You can sit at Old Faithful's gorgeous screen for the long work sessions at home. You will need a 3-inch drive above the 5-inch A: drive in the 2000, a trick the Whimper will reveal soon. A good reason for a 3-inch is the timely death or absence of a 5-inch B: drive. Headquarters has a 3-inch in one machine for that reason. Those little 720K coasters are awfully cute, especially in color. They're fun to use.

At headquarters, there is no need for a compatible pluggable portable. Computing on the go is a silly plan unless you go out specifically to use the computer, as a quicker-than-pen notebook substitute, or to get files from other computers.

What's New at HQ

Keeping the Whimper Coming

Renewals, once again, are your job. Those who renew with the wrong dollar amount will get their checks back or a partial year. If you find a strange new date on your Whimper, the latter happened. Don't send correction money; I have no time for that because it's always Whimper time around here. The yearly rates are $24 USA, $27 APO/FPO, $33 Canada and Mexico, $40 all other countries. Those who miss an issue by renewing late (you get no reminder but your label) may buy it in the Souvenir Shop.

Thanks for the cash gift, MMC2. And it appears from old notes that we forgot to thank KLK back in May for the large cash gift. Thanks a lot!

You might be curious how the Near-You buyers are scoring. So far, the lowest number of Orphans sent to a member was 7 (with LEO getting a $6.84 refund), and the largest group was 44 Orphans going to HGG.

AW, CC2 and HGG have kindly offered to review the RealWorld line and/or VE-ditPlus3.1. Their evaluations should appear in the next issue.

Are You Needy?

Departing member RMO has donated his system hardware and software to headquarters with the request that it be divided among members who have needs for the components and can't afford to buy them (even at Flee Market prices). I will distribute the parts for only our double UPS cost (to and from HQ). Anyone who wants to participate in this raffle, please send in your major need (hardware or software), your good reason for it, and pages 1 and 2 zeroxed from the copy you kept of your 1988 Federal tax return. This is a nervy request, but the only way I know to identify the deserving poor. Among students and retired people, this limits it to those who have been working to improve their lack of money.

Milk an Old Cow

PageMaker 1 in Windows 1 gives magnificent control over the quick creation of camera-ready printed material. The Whimper comes through Page-Maker.

But the system, as it runs on the 2000, can be improved quite a bit with a simple routine borrowed from the old days (that means last year). PageMaker shows only two pages at a time on the screen, both of them unreadable until you hit the zoom controls for part of a page. It's hard to figure out quickly what to put where, and with what emphasis. Column widths, type size and inter-line spacing, page position and white space should all be sculpted to give tone and emphasis control over every story.

The old-fashioned trick is a variant of "pasteup." First I lay out 12 or 16 blank sheets. Then, knowing that I stick to two-inch and three-inch widths, I roll out the entire Whimper from Microsoft Word through the 2106 laser, once in each style.

Bookman type in 10 point, with 2 points of extra spacing, is my choice for the wider column width. It's called "ten on twelve." I make the narrower column 9 on 10, as the textbooks in the art store demand. Word only has 8pt and 10pt, so I use 10pt 2.2" wide as an approximation.

Tabling the Issue

Then the big moment comes when I find out how big the Whimper will be, usually 12 or 16 pages. Starting with major stories and ending with the usual Flee Market, I loosely lay the clipped-out stories on the pages, often filling our 9-foot library table, the kids banished from its TV/Nintendo.

Seen all together, the 20 to 40 stories quickly fall into place. The position and column widths seem easy and obvious when the big picture is there. This valuable plan takes only about an hour to fall together, possibly quickened by my long experience and many previous errors.

The "pasteup" needs no neatness, and no paste. I staple the stories in place. Some gentle ripping lets me make late changes. Next I stack up all the pages, even numbers upside down, and staple the messy pile together along the left edge.

Using this handy guide at my left on an empty desk, I go back into Microsoft Word and do block moves until the Whimper is in the new sequence of stories I just picked. Some stories move many pages. Then I roll the saved Word file into PageMaker, in five or six chunks using CHOP from our shareware: PageMaker is slow with large files. Things go fast with the decisions already made. Page one is always a fight, but our PageMaker is super-speedy when you know what goes where.

I save and then print each page as I finish it in PageMaker, to be safe from crashes. When it's all over, I print two complete copies. One is for the print shop, and the other is for me to read (proudly but sadly as for errors) while the print shop is doing your copies.

Going for Gridlock

An invisible guide changed chaotic layout in the 5-3-89 Whimper, to organized chaos in the 6-11-89 Whimper.

It's all done on a "grid" that PageMaker lets me put on its blank screen pages. Stories "snap" to the lines as I stroke them in with the mouse. Our Whimper grid has seven "columns" about an inch wide, with real columns using two (like this one) or three of those strips.

Pages look better if they follow invisible horizontal columns, the textbooks say, so we use them. The Whimper has three center stripes of ten lines each (if they are "10 point on 12" lines). It has a top and a bottom stripe of 15 lines each. I try to start or stop stories at the horizontal lines. PageMaker helps with its magnetic "snap."

The lady in charge of the Society of Publication Designers sipped Jamaica Blue coffee at our house today, and sneers at our amateur Whimper: won't even look at it. But I'm secretly trying to get it as good as the winners in her annual contest. They're all huge magazines and advertisers, but I pretend they have a newsletter division.

And that's another little drama from Whimperland. It might help you put out better publications yourself. Even a note to mom ought to be a masterpiece, and business publications today are only 10% as good as they could be.

Your Question and Everybody's Answer

It's time again to point out that YFL doesn't do consulting, even for big money, because the Whimper and the mail pile take more than full time already. PR asks for 1987-88 back issues, which he plans to use for hard drive buying and installing. Good move, PR. He also asks for "any help you can give to a total hardware incompetent ... diagrams, suggestions ... where to find ..." Sorry, PR, that's what the Whimper is for: it allows me to help hundreds in as little time as it would take me to help you. No individual consulting, but I do take all questions to heart, including PR's, to guide my Whimper work.

Hardware Help 3

People who want PageMaker 1 (our version), keep writing. If demand is high enough I'll work on some way of getting copies out. When I inquired, Aldus told me to take a walk.

"I was able to do all the MODS in about two hours. Although I don't think I rate as a guru, I am fairly handy with a digital meter and a soldering iron. The only problem was getting some of the non-standard parts from Tandy National Parts. I even found one MOD to have been done incorrectly. MOD #42 was my favorite." Thanks, TF. You have given us a valuable glimpse into a job we all need to face.

We've all had problems digging up the mouse battery, a three-volt (actually 3.2; 3.0 is out of gas) wafer of size 2320, that's 23mm wide and 20 tenths of a mm thick (2mm). It's about the size of a quarter. We have often made do with smaller wafers at $1.79 from Shack. Now Egghead has exactly the right size, but even thicker (lasts longer), a 2325 at $1.49. It's their part number 702233.

Doug Fogg of KLOK2K fame, who has joined the Orphans, sends his latest version (4.4) of KLOK2K. I don't know whether it solves the fights KLOK has been having with NOBURN, but I'll try to check it.

If you have a disk formatted with RLL, and stick it in your 2000, you are stuck with a 32 meg maximum from HFORMAT. When you plug in MLFORMAT to partition out extra logical drives, such as an extra 10 megs called D: from a 40 meg drive, MLFORMAT refuses the job. Thanks for the tip, KEM. But in the rare case of a second-hand RLL drive, why not run it (in the compatible you're cannibalizing) through Norton's Wipe-Disk, which obliterates even the formatting bytes? Give it a try. But bear in mind that a 65meg RLL, for instance, is the same drive as a 42meg MFM, using an RLL controller tray we can't use.

Don't overlook the help you can find in our extensive line of back issues, only four of which are out of print (zeroxes are sent instead).

Does your 2000 report "Bad Unit Drive C:"? Don't you believe it. Like a spouse, the 2000 likes to whine about a problem that doesn't exist, because it doesn't know how to tell you the real problem. The "bad unit" is really black copper oxide growing on the contacts where the hard drive board mates with the motherboard connector and drive ribbons. (It could be a bent pin, too: peek in there with a flashlight when the board is out. A tug with a screwdriver gets a pin straight.)

You don't have to clean all those hundreds of male and female contacts. All you do is pull the board out half an inch, then all the way in, once or twice. The black stain will get polished off and fall down below — where it will do no harm because it's a great insulator.

Alive at Five

Both hardware gurus (ex-guru in one case) advise against setting the "interleave" too low when you format hard drives. They say it will "degrade performance." Big deal, I thought, setting interleaves of 3 and even 1. Who cares if the data comes a bit slowly?

Wrong. That "performance" they talk about is often life itself. The hard-disk crashing we reported last issue was probably nothing but a too-low interleave factor. Now, every time I reformat a flaky hard drive, I adopt the Tandy/MFM preference, interleave 5. It seems to be working so far.

What is interleave? Every time you ask the 2000 to read a track, it has 17 pieces of it called sectors to read. The 2000 likes to pause for breath between sector-reads, but the drive keeps spinning. What to do? Set the interleave to let the 2000 get a millisecond of rest, more or less. An interleave of 1 means that after reading a sector, the 2000 reads the first sector after it. Result: no rest at all. The 5 I now use means that the 2000 reads the fifth following sector, after resting while the drive spins past four sectors.

Since it's reading only one sector out of five, it takes five times around the track to read the whole track — although often it quits early because it's found the sectors it needs. You'll never find the drive rereading a certain sector before it's read the other 16, because that 17 (sectors in a track) is prime — not divisible by any other number.

Fish or Fowl, Not Both

The Holy Grail — a dream disk that equips the 2000 to run IBM programs (or changes the programs to be runnable) — appeals to new members as much as us veterans. But you new guys must learn the horrible truth: there is no free lunch. In our case, there probably isn't lunch at any price.

"Atari markets an emulator that permits the Atari to run all IBM software," SLK reports. SLK is a non-member writing in, so he won't see this reply. He suggests that we buy or adapt the Atari disk to do the trick for the 2000. Not a chance, SLK. It would be easier to turn a bird into a fish. Sure, it's possible to design, manufacture and market such an emulator for the 2000, but Tandy (or someone) would only do it (with a million dollars of programmer salaries up front) to save a sinking billion-dollar corporation, such as Atari. Tandy is not sinking, thanks to its predatory and heartless ways. And Orphans would need to multiply its member-

ship by 100 to raise that kind of money.

We have some hope for an imperfect Grail, if RDB breaks through the problems he's having, but there's no easy way.

You guys may feel sorry for poor old YFL finishing a Whimper on July 4, but don't. There was time for a swim with the HQ spouse when the sun peeked through. Since she has kept her figure, the sun was bright and the water was wet.

Love's First Wink, on Disk

When I was buying my first 2000, I was warily impressed with a color "slide show" on the CM-1 screen. Now, years later, a member sends me both of them (they're two). One is to show a dozen colorful AutoCAD pictures, like an office floor plan and a space shuttle. The other just says "wonderful Tandy 2000" with some boxes and boasting about advanced dBASE II and other stone-age goodies.

I don't mean to offer them to you guys, because I find them shockingly boring, short, dimwitted, and unimpressive. I'm surprised they sold any 2000s at all with those things flashing on them. But if any of you is nostalgic or curious enough, I'll send you the set for $15. They're not in the Souvenir Shop, because they're not worth the price. Both the Tandy demos require color board and CM-1. When I tried them on a VM-1 (with color board) they bombed. AEK, many thanks for responding to my request. My faulty memory had improved those disks to better than they really were.

Quad Floppies, Half Price

Tandy 26-410 floppies too dear? Spotted in the July Computer Shopper, an ad on page 428 by McGiga for Dysan 96tpi DSDD (that means our quads), $1.04 each , probably a 5-box (50-disk) minimum. That beats the hell out of Tandy's $1.995-per-disk price in boxes of 10. But make sure the salesman knows what disks you mean; tell him you'll return regular 48tpi floppies if he sends them. No 800 number, 818-333-5521. In other months of CS, look up the company in the advertisers' index near the end.

Another: On page 191, BASF quads (see "DS 96 TPI") for $1.15 each for 10 (a box), $1.075 each for 100+. Computergear, 800-234-3434.

Back-Door Hard Drives

Remember Dopey kissing Snow White on his way out the front door, after she moved into Chez Dwarf? He was so thrilled out of his mind that he raced around through the back door and got in line for another kiss two seconds later. Our oddball hard drive boards act the same way. As Tandy explains it in the Service Manual, they consider the more usual "daisy chain" for hard drives confusing. Our dual floppies do use a daisy-chain cable.

The regular way to hook up two hard drives is to have the ribbon cables (2) from the hard-drive board go to the hard drive you would label C: (or C:D:E:F: if you partition it). A connector would plug into the first drive, but the ribbon cables would continue through the back of that connector to a second set of two connectors, in the back of a second (half-height) hard drive. That one would be identified as D: on your screen and keyboard (or maybe G:H:I: if you're using those smaller partitions).

Since all wires go to both drives, how can the computer tell them apart? On the first drive of the "daisy chain," a little clip called a jumper is on two pins which, if connected, say "I'm the first drive" to the controller board. The second drive has the jumper on a different pair saying "I'm last."

Tandy's idea, another good one that died with the 2000, has both drives set as "I'm last," the way they ship from the 800 store. Since there wasn't room for all those four connectors inside, they put one set of two connectors outside. A second drive in 1984 was likely to be outside — Tandy's original 10-meg was full-height and left no room inside — so the external (blue) connectors are identified as a second (normally D:) hard drive in the board's logic.

Slip Out the Back Way

But Tandy's store machines, many of them still in store back rooms, had a strange hard-drive tray with the output to the C: drive going out the back door to an external hard drive. This was because Tandy salesmen are always new to computing (they stay a week or two ahead of their dumb-bunny customers). These guys could not be trusted to pry open the box and diddle with an inside hard drive, as us Orphans mostly can do. So Tandy sold them external hard drives that only had to be plugged in.

JSBS wants instructions on rewiring the board of a store machine so the inside

connector is C: and the outside one is D: — the regular way. Sorry, JSBS, no help here. A member did once write us a fairly simple rewiring scheme to do it, I now forget who, but we can do it with a simple plug-in, no hassle.

Whenever you want the outside connector to run an inside drive — a Shack store machine or an ordinary 2000 you're putting a second half-height hard drive into — just buy a set of longer cables! Every hard drive is run by a wide ribbon and a wider ribbon, plus those four thick wires from the power supply.

Not Pretty But Practical

If you're installing a second drive, let's say, you buy a "Y power drive cable" to have two power cords. Then you buy an inch-wide "control cable" ribbon and an inch-and-a-half-wide "signal cable." Instead of the four inch-long pair that Tandy supplies, buy them eight to twelve inches long. Then plug them into the drive, install the drive, and snake the cables through slots out the back of the hard-drive slot in back.
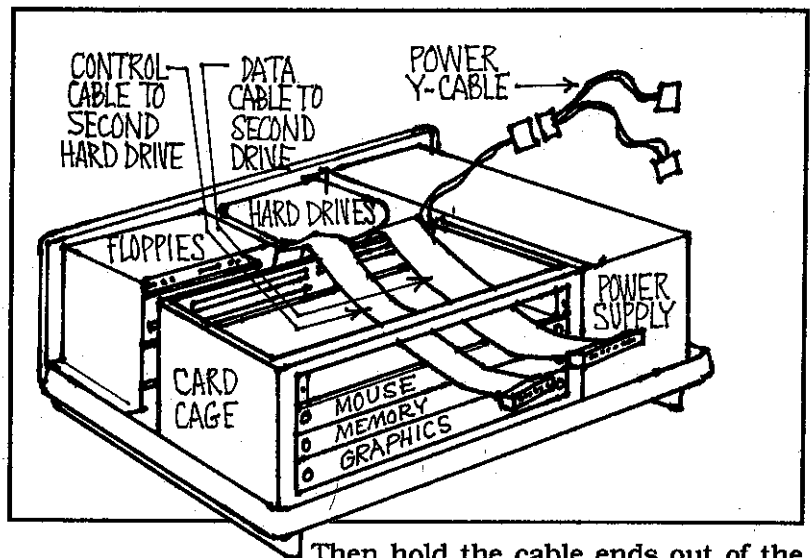
Then hold the cable ends out of the way while you slip the hard-drive control-board tray into its top slot. You might have to X them diagonally to match the connectors. Plug them into the outside connectors, and you're ready to run HFORMAT.

This may not make a pretty rear end, but those of us who make our 2000s as powerful as possible already have a godawful mess of wires hanging off the backs of our work stations. Mine is so bad that I keep a little screwdriver tucked into the tangle for those once-a-day revisions. And the floor-standing 2000s form a wing away from the wall, for easy access. If you like power, the mess looks good to your eyes.

The System Crash

"I thought software was not supposed to cause hardware failure; but it seems that that is exactly what has happened." FMD writes four pages of woe to headquarters. Well, FMD, some software is very close to being hardware. This is the software that your machine(s) read off your DOS disk (A: or C:) every time you turn it (them) on.

What's at fault when garbage comes to the screen in the middle of (Orphans' unprotected) Framework, at bootup, on several machines, on several hard drives wherever installed, and so on? You can call this room-filling disaster, which has dogged FMD for weeks, a "total system failure."

The doctor for this disease is not your sawbones GP, but the public-health epidemiologist. You probably don't have a virus intruder, FMD, although it's possible. I believe you have one bad disk file, maybe two.

Good Light, Bad Switch

My main nominee for blame is one of your three "system" files and HFormat, most likely the IO.SYS file. The other two are BIOS.SYS and COMMAND.COM, also a "system" file though it lacks the SYS suffix. The reason I nominate them is that only they have access to all your machines, all your drives, all your software. Software doesn't run by itself. It often asks command.com to do favors for it, which it's too clumsy or ignorant to do by itself. And the 2000 always carries parts of the system files in memory, the way typists carry that QWERTY feel in the left hand.

Each of these files is thousands of magnetic blips on a disk. When something strange (power from the wall is often blamed) happens while the 2000 is reading one of those four files, one or more of those blips gets reversed or weakened. Then the file gives faulty instructions and the 2000 breaks down — for the moment.

But it keeps happening! My suggestion is to take the original, virgin, sticky-tabbed DOS 2.11.03 that Tandy cheerfully gave you (chuckle) and copy it on a system that is temporarily behaving. Sticky-tab the new DOS disk also. Then take all boards out of the back of all your 2000s. (Half an inch out disconnects them.)

Caesar wrote about this method two thousand years ago. Boasting about whipping France, which he called Gaul, he said a good general should "divide et impera" because he didn't know any English.

Divide and Conquer

Boot up each bare-naked 2000 with the new DOS disk, and observe results. If you still get crud, you've got a hardware problem or a bad DOS disk. If the latter, a replacement .03 from Orphans will help a lot. If the former, isolate the bad computer(s) and tell Tandy to cough up that service you paid an annual fee for, FMD. If it's not on the contracted machine, switch parts around (be brave) so the proper serial number will be on. Tandy deserves this for stiffing you when you needed help they owed you. Bring the bad machine in with a monitor, set it on their store (not back room) counter, boot it, and leave the garbage visible while you argue in front of customers. Do it Saturday if you're really mad at them. That's when rich, ignorant first-time buyers wait in line to get hustled out of a month's pay.

If all your machines boot nicely when naked, my theory looks good. Add drives, entries in your config.sys and autoexec.bat, various back boards, 640 Envision (with its IO.SYS change), newly formatted drives (with your fresh DOS), Framework, and other things that have crashed, one by one. When trouble comes, subtract and add in different sequences.

You're the Doctor

It would take a $100-an-hour engineer a week to trace your difficulty with a complete physical. You can isolate it yourself in a few hours of patient (or impatient, if you prefer unhappiness) work with screwdrivers and a big tabletop.

One other thing: Don't expect one trouble. Expect two or three. Then you won't be blindsided by a bad chip when you're cornering a mangled command.com. Computers are like people. They'll treat you right as long as you're willing to put up a vigorous fight once in a while.

The basic rule for all unexplained computer illness: strip to naked and add chunks of software and hardware one by one in varying order. You may never know the sickness but you'll find out what's sick. And whatever is sick, get it repaired or replaced. A repairman, by the way, is somebody with a box full of small parts he can swap into that big part that costs too much to replace. Replacement, big or small, is the name of the game.

And by far the most common replacement is simply copying known-good files from an original disk.

It's nice to multitask with two or three 2000s at once. As long as you're keeping backup machines, you might as well get use out of them.

But headquarters was getting crowded, and YFL was getting backaches from leaning this way and that to read screens and slide and rattle keyboards.

Finally the day came to buy a box. First, a glance at the Black Box catalog told me what's out there. I got their catalog (and new issues) by calling them at 412-746-5530. Their prices are godawful, but the catalog call was cheap.

Then I went to the cheaper competitors' catalogs, Inmac (800-547-5444) and Global (800-227-1246). You should always keep copies of these problem-solving catalogs handy. Inmac and Global didn't have what I needed, so the next step was Computer Shopper.

A fifteen-minute sweep through the latest issue got three companies listing a switch to connect one keyboard, one monitor to multiple computers. All could connect two computers, and National (916-441-1568) sold a box for four. I bought the four-box, for $34 plus $8 for two-day shipping.

The Tandy keyboard plugs into the box nicely, but from there on it was solder city. The three keyboard extension cords from the computers at the HQ desk ended in female 5-pin-DIN, but the box was female too. It was alter the box, or alter the cables. I chose to alter the cables, and installed male 5-pin-DINs to plug into the box. They were right down at the neighborhood Shack, their #274-003. I love Shack; I just don't love Tandy.

Where the Wires End

7

2000 plugs are of three major types. DIN plugs are circular, with (in 2000-land) 5 or 8 pins. The pins cluster in the "top" of the plug, with just a ridge in the lower part of the circle to tell you to hold it downward when plugging in. DB plugs are two rows of horizontal pins or holes, with (in 2000-land) 9 or 25 or 37 pins. The top row (as installed in a machine) always has the extra pin, such as 5 over 4 for the DB-9. Having more "teeth" on top makes the connectors seem to grin. Parallel plugs have two even rows (we use a 36, two rows of 18). Parallel plugs don't have pins or holes. They have copper strips that wipe eachother. But the "grin" still applies, because the outer rim has it. BUT —

The 2000 parallel socket is a totally weird 34-pin rectangular, unknown in the PC mar-

ketplace. My advice is to buy one more than you need of the Tandy 26-4401 cable now, before they discontinue it.

Back at the box, I found that the 2000 video connectors for mono (I prefer mono) are circular DIN-8. So I had to install male DB-9s to match the box. The box is female all the way. Which wire to which pin was revealed by the VM-3 instructions from Souvenir Shop, plus the Tandy 2000 Service Manual. Shack again provided exactly the right plugs from hook stock, their 276-1537 with 276-1539 bodies. Some more soldering

And Behind This Curtain at the 2000 Keyboard, the Great and Wonderful

OZ

followed, during which I bought a shack "extra hands" clipset with a heavy iron base, cheap at 8 clams.

Making It Behave

Once plugged in, the setup was buggy. Its two bad habits were that turning one computer off locked up the other's keyboard, and switching back and forth generated random letters on the screen — even an occasional lockup crash. I was able to solve almost all such crashes by pulling out plugs, turning on machines, and hitting random keys including HOLD. But this box was supposed to bring convenience, not trouble. I unscrewed the box and pulled through the bird's nest of blue wires, looking for something that didn't make sense.

Oddly, the box only switches three of the five keyboard lines. If you hold up your spread-out hand, the box switches your thumb, middle

finger and pinkie. The other two pins are wired together, all the 4-pins on one wire and the same with the 5s, apparently the IBM standard.

No big deal. I knew from the 9-pin soldering that pins 3,4,5 of the 9-DIN mono plugs aren't used by our mono video. So I used the switch gangs for the 4 and 5 to add switching to the keyboard DINs. By this time the wife and kids were wondering if I would ever stop soldering.

With complete keyboard switching, most of the bugs remained. First I made some quiet remarks about body products and the reproductive cycle in and out of wedlock. Next I tried leaving the ground wire always connected, since a solid ground is often the simple, perfect fix in electronics. This experiment was quick, using a few of the eight-inch clip-wires I got from Shack when Charlie Tandy was still selling saddles. It was my final choice, though a miscellaneous keystroke occasionally slips in from outer space while I'm turning the knob. Ground is pin 1, either your thumb or pinkie depending on which way you look. It's uninsulated bare braid in the keyboard extension cable. I wired all five pin-1s together, and looped the spare switch wires in a corner.

Simplicity Is Felicity

Now all three of the HQ computers are working from a single keyboard and low, slanted monitor (see May 3 back page). It's a sweet way to compute, compared to the mess I did have. At near right is a BIG mouse court, a 12-by-18 art-store cutting mat. It lies on top of a Tandy button box, overlapping in back to cover the ugly wire tangle. At high right is a sawed-off clipboard foam-glued to the shelf, for paper being copied. Also up there is a red rubber band which suspends the middle of the mouse cord, thanks to HN and BES for the thinking. And at far right, a straight-arm reach with no leaning, is the switch box for changing computers.

I once did task-switching with Windows in one computer, but upgrading Word and dBIII (to Word 3.1 and dBXL) gave us programs too big to fit (with Windows) in the 2000. Now we multitask with a multiswitch, the old-fashioned way.

Firm Info on Floppies

Our theories given in recent Whimpers get more in-use confirmation, this time from JSBS. Our latest (and maybe clearest) information:

The 2000 uses two kinds of floppy drives and three kinds of floppies. The drives are the earlier 4853 and the later 4853-1. Mitsubishi made both. (Did you think Tandy was an American manufacturer? Tandy is an American packager.)

The three kinds of disks we use (with varying but now predictable success) are the ordinary DSDD disks of the PC-and-XT-compatible world, meant to hold 360K; the DSHD disks of the AT-compatible world, meant to hold 1200K; and the oddball, vanishing disks called DSQD, meant only for the Tandy 2000. DS means double side, DD double density, QD quad density, HD high density.

All the floppies are coated with iron oxide (rust) powder in a paintlike binder on both sides of the plastic, ready to spin inside a plastic protector lined with fuzzy laundry lint. Some have finely-ground powder particles (the DDs). Some have VERY finely-ground powder (the QDs and HDs). Some have a thin oxide coating (the DDs and QDs), and some have a thicker coating (the HDs). A floppy drive has two little fingers which reach to those oval slots in the floppy jacket and move back and forth to read all parts of the spinning disk.

The result of all this powder personality is that the coarser powder in DDs gets confused by circular tracks of magnetic blips that are closer together than 1/48th of an inch, unless the signals that "write" (magnetize) those spots are quite gentle so they don't spread the magnetism into a wide spot. That made the IBM PC and XT crowd stick to 360K on a disk, written into 40 tracks in a 5/6-inch-wide stripe. That would be 48 tracks in a full inch, so they call it a 48TPI diskette.

The Odd-Couple 4853

Tandy wanted 720K in their first major computer, to shame the PC and XT. Mitsubishi's 4853 qualified by using a disk with more-finely-ground powder — the QD. It cruised at 96 TPI, accepting 80 tracks of data accurately. It held twice what the PC disks held. Since the PC disks were already called DD (double), the new type had to be called QD (quad). You never hear of the quads, because only the 2000 uses them. The IBM crowd jumped up to the HDs for the AT-type computers.

Oddly, the modern HD's turned out to be readable by the old 2000, if equipped with the original 4853s. The HD had the same very fine powder. But the HD floppies had a thicker coating, that most PC drives couldn't magnetize. The 4853s had a powerful signal, so they liked the HDs (and still like them, in three of the four headquarters 2000s).

But those 4853s hated plain-vanilla IBM disks. The owners of the 2000 were savvy enough to buy generic DSDDs instead of the bandit-priced quads Tandy was pushing. And they screamed when the 2000 choked on them. Feeling a bit embarrassed, Tandy installed the Mitsubishi 4853-1 in later 2000s with high serial numbers — such as double-floppies over about 5310000 and HD's over 5405000.

The 4853s had the same precision heads, but they put out less electricity to magnetize a smaller spot. This let them write their full 80 tracks on the coarse-ground generics, without getting confused by magnetism on nearby tracks.

This second version of Tandy 2000 floppies could now read the cheapo generic disks with ease and accuracy. Trouble was, the drives were no longer flashing out enough power to magnetize the thick coating on the HD disks. This is not a serious problem, because HD disks generally cost lots more than regular DDs. One company has been selling HDs for 49¢ however, which caused a lot of 2000 owners (and their headquarters indirectly) some grief.

Know Thy Drive

The lesson of all this is that you must get down on your knees. Yea brethren, ye must kneel. And peek into the drive slits at a downward slant while you're kneeling. If you see a shiny cap straight ahead (it's the hub that fits into the diskette hole) with only one screw in front of it, you probably have a 4853. If you can barely see some miscellaneous drive guts under the platform, inside the drive slot you where you push floppies in, you've got the 4853 for sure. You can run the cheaper HDs and Tandy's more expensive 26-410 QDs, but stay away from plain-vanilla DSDD

floppy disks. They will crash. When you buy software on the generic disks, copy it over quickly, hitting Retry instead of Ignore to drag an accurate copy out. "Ignore" skips by the bad spot and leaves the error in your new copy.

If you see two screws between you and the shiny silver hub, one in front on a little shelf, you probably have the later 4853-1. If you can't see any little chunks of hardware down low in the drive, it's the 4853-1 for sure. Don't waste money on Tandy's 26-410s, and use generic DSDDs. Avoid the HDs, which will format and accept data nicely, but begin forgetting it later, JSBS reports.

All this assumes you want to write and read 720K on a disk. If you write or read 360K, any of the three should be safe to use on the early 4853. You can format 360K on only 40 tracks with the program PCMAKER (DOS 2.11.03) instead of your regular FORMAT.
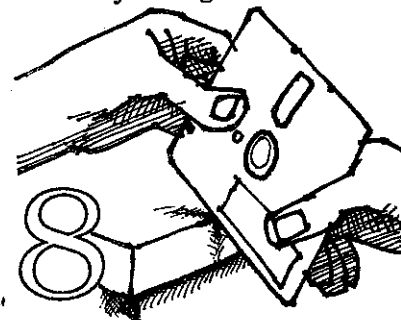
All this trouble-shooting is electronic. But don't forget the sneaky physical trick 5-inch floppies play: tight pants. If you get a refusal from the screen, pull the floppy out and rub its edges knifelike against a desk edge. This may open up a tight squeeze inside and let the floppy rotate more freely. Presto: no refusal!

Give help to headquarters. If your serial number is different from the prediction given above for your drives, please drop headquarters a note so we can find out the real cutoff serial numbers. Tandy sure won't tell us. It's possible, of course, that there was no cutoff and Tandy just installed whatever Mitsubishi was selling cheapest each month. Many vendors tell me Tandy double-crosses and insults them for a penny difference in cost.

Whatever ghastly adventures your A: and B: have put you through, you now have a guide to the floppy-drive jungle.

The No-Slot Clock

We have finally broken through to the no-slot clock, leaving an extra 2000 backslot for memory or other use. All it takes is a few clams, five minutes of ordering, five minutes of soldering, and ten minutes of putting it in.

When you get the clock, take a good look at the chip-holder, and its little "SMT" chip cradled inside. One end of the holder has a little groove in the edge; you might call it a notch. A slice out of the groove would show it as a half-circle. As with all chips and chip-holders in some similar way, the half-circle notch marks the pin-1 end. It is also the end we will modify.

When you look at the top of the chip (no pins in sight), pin 1 is the first pin on the president's right, his right-hand man. (The groove is the president at this conference table.) If you look carefully, you will see a 1 above that pin 1, with the letters AMP.

Turn the holder over to set the pin side up for work. Make sure your eyes follow pin 1 through the roll. It might help you to bend it a little; it won't be plugging in.

Get some very thin copper wire, less than 1/2 mm or around 1/64 inch, and an inch or two long. You want it thin so you can later plug the chipholder in tightly. Bend it in an ell and gently rest or wrap it against pin 1, then across the short end to pin 28 opposite, turning at the corner and going to pins 27 and 26. Trim the ell so pins 2 and 25 will not be too close. Delicately touch a pencil-iron (no fat Weller guns here) and thin electrical solder to each crossing. Electrical solder has the needed flux paste in its middle; plumbers use a solid solder and have to wipe the flux on with a rag.

Make it a clean job, touch-sculpting with the pencil if you feel like it. Don't try to use the pins as part of your wire. The 26 pin has to plug in, and there's room enough for the others to hang out straight.

Basement Big Stuff

Go into the main logic board of your 2000. It swings from the bottom with its wires as hinges, after you take out eight screws of three types. The slight resistance you feel is your unplugging from the mother-board, the back of the tray-slide compartment. The motherboard is our "bus," an extension "cord" from the mainboard to the four 96-pin connectors for trays you can push in the back.

On the mainboard, find black chips U47 and U48 near the middle, and quickly forget that you found 47. Those numbers are printed in white on the green floor of the board. Pry 48, not 47, out of its socket by turning a miniature screwdriver under each end near the four corners. If you tease it out in less than a minute you're being careless.

Note that the chip coming out, and the socket you are exposing, both have little half-circle grooves like the notch on the clock-holder. Keep all three notches headed north, or you will ruin chips! Press the clock into the newly exposed socket, again very slowly, wiggling to get
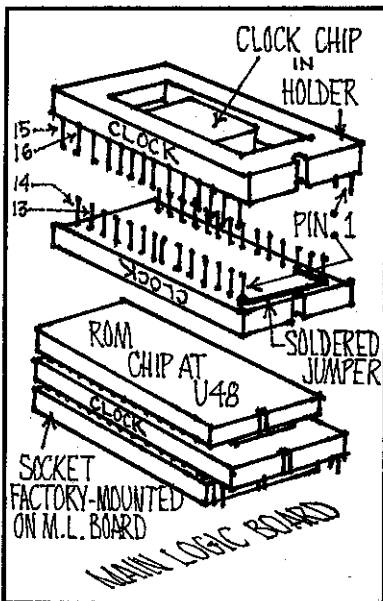
the little legs in the 24 holes.

24 holes? This is a 28-pin clock! And that's what we just fixed. That 1 and 28 and 27 you just connected to eachother, let them hang out off the end (the notch-end) of the table-like chip socket. 26 will go into the corner hole, upper-right corner if you've still got all notches heading north. The top two pins on each side of the clock hang out over space.

Then push that number 48 ROM chip back in, this time into the top of the clock holder, right opposite its old position. Again, the top four holes of the clock holder will be left out of the action.

Setting Up

Put the motherboard back on, flip the 2000, and light up. Copy the two disk files that came with the chip into your regular DOS disk. They are CLKINIT.COM for setting, and XTCLOCK.COM for reading. Set the date and time in the regular DOS way, and then type CLKINIT<enter>. The new clock then sets to the right time and day. Turn off the 2000, turn it back on, and then try typing XTCLOCK<enter>. Did the clock remember while the 2000 was off? If the silly thing works, put XTCLOCK in your autoexec.bat so your 2000 will always know what time and day it is. Reset it any time with CLKINIT.

Now you can live without a clockboard, avoid the mouse (or use it on a different 2000), and use that backslot for an extra memory or drive board.

I considered buying a pile of clocks and doing a hundred soldering jobs, but it wouldn't help you much. The challenging part is easing the chip out and in, plus dealing with all those diddly screws. The soldering is the easy part, and something you should learn if it isn't already easy for you. If you're a "should learn", solder some dummy joints before you play with the real thing.

A Friendly Factory

SMT in California makes these clocks. HGG helped us in negotiating, and particularly in digging the jumper-soldering trick off the modem wire. Tim Thompson, a salesman at SMT during their current management changeover, explained that they don't have credit cards plugged in yet, so he will accept checks for $28.40 per clockbox. That includes all shipping to contiguous USA. In California, add your sales tax. Mail to Tim Thompson, SMT, 1080 Linda Vista Drive, San Marcos, CA 92069. I would give you their 800 number to question them, but each 800 call costs two clams plus the toll, just about wiping out their profit on this negotiated sale.

If they don't deliver, write HQ and I will call and hassle them. BUT once you get the chip and solder it, you've bought it. So be careful of staticky fingers and sloppy work. If you destroy the chip, reorder and try again: $28.40 is not the biggest loss you ever took, and this is a great little device for people running out of backslots.

More Virus Vaccine

We have a nice little essay on computer viruses that has become separated from its cover letter, and I want to thank the author, although without his initials. Thanks. It covered some ground that we have already covered, and some things that just about everyone believes anyway, so I won't print it. It does add a good second trick to booting-time defenses. The Whimper has suggested an automatic file-comparison of the running command.com (which you should have marked "read-only" by now), with a hidden copy in a different directory with a different name.

The virus essayist adds another trick: run an automatic checksum on certain "critical" files (often used or DOS, or both). The maneuver should compare the resulting checksums with a list of checksums from the same files when they were fresh and good. A discrepancy would trigger a detailed warning message.

The program DX on the Orphan Directories disk has two forms of checksum, so it should serve the purpose well. YFL has written an extensive set of directions that go out on paper with that disk.

Headquarters would like to receive a type-in listing of such a program from the first member who has the ability and interest to make one up. The Whimper will publish it. Eventually, we may have such an extensive autoexec.bat for all purposes that we will disk up a compilation. The member getting that disk would make a copy of it and sift through the copy, erasing what didn't please him. Later, he could add and subtract as his interests change.

Machine Mysteries

We have a palsied member who is able to work his 2000 remotely, but presumably he reads the screen easily. Now CLR asks if anyone knows about any talking devices that will work off the 2000: his eyes are just about gone, and he wants to continue computing. Probably someone makes a braille "screen" that pushes up those bumps you see on elevator buttons. Maybe a talk-box that speaks the screen? Also probably, a disability insurance plan would foot the bill. How about it, guys?

Software

10

Your Word Filing Clerk

Headquarters has solved an enduring puzzle of Microsoft Word. This great program makes you type a drive letter before the name of a new article to save, unless you like the default drive location.

The default drive is wherever you have word.pgm and word.com if they are on a hard drive. If you work with Word in A:, the default drive for your written product is B:. Don't ask me where they put you if you have Word in B:.

This lovely system can be turned off for the day with the command-chain transfer/options/d:\direc where d:\direc is the drive and maybe directory you want to toss your saves into. But the next day you're back in dumb default, and have to do it all again.

But you can keep Word, the program, in a rapid hard drive and yet put your work automatically in another drive, such as a floppy if you don't trust hard drives. At headquarters we keep the Whimper in B:.

You need the item D:\WORD (if D: is where the Word program is) on the list of places to look called PATH. Also, you need a batch file for going into Word.

When I type W<enter>, the batch file W.BAT starts out by switching me into the B: drive, an odd move since I'm about to find Word in D:. Then the batch file yells "WORD" from the B: drive. The alert PATH guide hears the call and sends a shuttle bus that moves me into D: — but officially, the 2000 still thinks I'm in drive B:. Word swings into action, accepting the silly idea that the boss is over in B: Sure enough, when it comes time to save, or if you peek into transfer/options, all the new work is going into B:. Little tricks do big things in computing.

There was another every-month Whimper problem in FrameWork. Every time I loaded a Whimper (that's every day), I had to do all that clickety-clack to select the file and bring it to FrameWork's "desktop." The secret was in the manuals, but I didn't have time to search for it. However, experience with a bunch of programs gives you a feel for hidden features. Acting on that feel, I tried typing FW B:\IV-1.FW, and eureka! it worked. Churning busily like the early-bird secretary who knows how to start your day before you lock your car, Framework dumped me into the middle of the latest Whimper. Another time-waster bites the dust.

Support

Mouse on the Chessboard

CHESS from the toolbag disk is a little awkward for moving with the arrows, but installing our MOUSETRAP before you call Chess lets you move your men with the mouse, a great help. This still leaves the DELETE and INSERT keys, but I'm trying to find time to patch MouseTrap so those keys operate off the mouse buttons. Then this special version of trap could load with Chess to give you a nice one-handed game, leaning on the arm of your chair. I did have that once, but in swapping disks I somehow lost it and couldn't reconstruct it. I have a nice Fidelity autochess and a smaller one that my kids can beat, but it's still a thrill to snap chess on the screen between Orphan jobs.

Softerm 3.0, an upgrade of the program Tandy sold for the 2000, "is the most powerful and complete of all the communications software packages I own or have been exposed to," says JDE. He provides a detailed 2-page review with discussion of the hardware implications, including networking the office. This might not interest a lot of Orphans, so instead of putting it in the Whimper (condensed), I'll send the two pages intact to those members who send $2 to HQ.
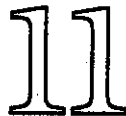
Program Problems

We've been getting lots of requests, the latest from AW, to strip the copy protection off members of the PFS series. Which of you smarter members can supply the fixes to headquarters? There are obviously ways; we just need to find people who know or have used them. JDE adds the same request for Tandy's Offix.

Anyone sending help, please include a full program disk with all the fixes mixed in. Then we can offer them to those who prove ownership, just as we do with Frame-Work, dBIII and 123. Where there is a simple four-line patch we can type in, the full disk is not needed.

I've been trying to run SNAPDAY from the Orphan toolbag disk on a newly clockless 2000 at HQ, and it won't work. It often comes up with random changes, but never keeps changes I arrow in. And yet it worked when I tested it many months ago. Is it working for anyone? Is it crashing for anyone else? Maybe the headquarters copy has a glitch.

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Text Grail Report

We have our first report on ATG, the Alleged Text Grail, a favorable one from LAM:

"Orphan RDB really has something for us! Using Electric Scroll which the 2000 never would load, I booted 2.11.03 with DEVICE=ANSI.SYS residing alone in the CONFIG.SYS file. I put PC_MDA in the A drive. When I typed PC_MDA, the A> prompt disappeared but came back in a second. I put SCROLL in the B drive and typed B>. Then I typed SCROLL and the menu appeared!

"The whole program operated normally, except for two things: the screen response was a little slow, as you might expect when it's run by ANSI.SYS. And I got some "sector error reading drive B:" messages which dropped away when I hit R(etry) two or three times.

"After about 15 minutes, the screen vanishes and you have to reboot. When I ran PC_MDA without ANSI.SYS, the A> prompt didn't reappear and SCROLL didn't seem to run. The cursor would move, but each typed character disappeared after a fraction of a second.

"I loaded Super Utility and looked at the PC_MDA code. It was pure assembly language "Greek," beyond a layman like me. Our friend RDB is on the right track. Now if his chip works, too, we've really got something to get excited about.

"I will be trying MultiPlan 4.0 and DBXL 1.3 in IBM mode. I'll let you know any positive results."

Software List Update

Power C — MIX Software, 1132 Commerce Dr., Richardson, TX 75081, 214-783-6001, $19.95

Split-Screen Editor — MIX, $19.95

C Trace debugger - MIX, $19.95 ZBasic 4.02 — Zedcor, 4500 E. Speedway Blvd. Suite22, Tucson, AZ 75022, 800-482-4567

Monopoly! I don't know how this one escaped the list, since we reviewed it favorably in May87. $30, color screen and graphics required. David Peterson, Everyday Software, P.O.Box 1962, Midlothian, VA 23113. If he's vanished, we'll have our other Midlothian member hunt for him, and if half a dozen people write HQ about it, we'll put Monopoly! in the Souvenir Shop.

Flags! 100 national flags that roll into the screen like paint, marvelous for idle watching. Comes with Monopoly! above, if you pay $38 instead of $30.

PC Tex, Mathematical Assn. of Amer.

Our Disk Optimizer

In recent years we have watched new types of software appear, which would not run on the 2000. Disk optimizers are one of these interesting categories.

If you can remember the last time you moved, you recall the pile of boxes in the living room. The clothes you wanted were torture to dig out, books and papers were so hard to find that you gave them up for a while, and some things got totally lost. A simple chore like hanging a picture would take all day, with the tools, parts and picture scattered and buried.

That's what your hard drive, if you have one, is like right now. The 2000 has had no disk optimizer available, and the job of putting every file "in its place" once a week is just too hard to be worth it.

You don't have to look at the mess, but your 2000 does — all the time your software is working. You change a word or find a fact, and the mess wastes your time. Instead of going blip and flashing a WORD on the screen, or bleep-FACT, your confused hard drive sounds like this: blippa-blip, bleep, blip-blip, bleeeeeeeep, blip WORD.

The great thing about hard drives, and about the 2000, is that they are lightning fast. But you throw away much of that speed when your hard drive is messy. You're typing like a fiend in WordPerfect and WP.EXE fell into six holes when you installed it to this hard drive. You find yourself waiting a lot. You need a "disk optimizer" to get WP.EXE into one solid block. Then the 2000 can get its instructions in one bite, blip-WORD. What you want is there by the time you finish asking for it.

An Intelligent Supervisor

We of the 2000 now have a disk optimizer, Fast Trax, and it's a honey. It runs on the 2000 with a simple trick from their very clear (but repetitive) manual. Type COPY CON FASTTRAX.PAR<enter> COMPUTER CLOSE<enter>. Then hold down CTRL while hitting Z and hit <enter>. This creates a file on the FastTrax floppy, which has the single "parameter" COMPUTER CLOSE as its text. A parameter says "do it this way," and this parameter tells FastTrax to be gentle with a COMPUTER that's only CLOSE to being IBM-compatible.

Every time it starts, FastTrax looks for any notes you left for it in a .PAR file. Reading yours, it avoids its usual practice of sending messages directly to the IBM screen, which

we don't got. FastTrax sends its remarks to the BIOS, a location in our memory chips which has forwarding instructions. The 2000 BIOS knows how to find boxes in memory where our screen gets its picture every 30th of a second. The numbers on those boxes are different from the IBM standard, and that annoying difference is basically why the Tandy 2000 Orphans exists. The BIOS sends anything you or a program types to the 2000-screen-memory locations every time that part of the picture changes. From there, our screen checks by every 30th of a second and picks up its mail.

Having flashed the thrilling picture onto our screen, I ran FastTrax on an expendable drive D:. I had copied its ten, megabytes to an empty 10-meg F: drive. Called into action, FastTrack said 5 megs of the 8 on D: needed to be relocated. Then it moved them all in 5 minutes. It showed me before and after pictures of the drive, rectangular instead of round but quite clear. The first shot looked like your after-moving living room, bits and pieces all around. The "after" picture was a solid mass of O's, O meaning optimized.

Just What You Want

FastTrax does more than just lay down every file in order, the "consecutive" layout you'd get from one-by-one copying (COPY *.*) to a new drive. It puts each file in the minimum number of cylinders. The headquarters Seagate 251 reads a cylinder by snapping six steel fingers of a steel hand to six tracks on the top and bottom of three spinning platters, and holding them there for about a hundredth of a second. During that

time the stack of disks turns around several times, and the 17 sectors of each track give magnetic signals to the nearby "fingertips."

The job at hand will go faster if the steel hand has to snap fewer times. So if a file takes 50 sectors on each platter side, FastTrax carefully starts the file on the first sector of a track. Then it will fit on three tracks (17+17+16). It will be read in three snaps of the head assembly. With only consecutive filing, it would be almost certain to take four snaps (such as 5+17+17+11).

Many of us have files that get used thousands of times a day (such as WP.EXE) and others that get used twice (such as CONFIG.SYS). The FastTrax manual gives us simple ways to fit its action to our special needs. The easiest and most beneficial strategy puts the heavy-use files up front as chapter 1, right after the table of contents. In disk terms that's outside sectors, right after the file allocation table.

Norton Advanced 4.0 has SpeedDisk which optimizes, but it's a weakling next to a dedicated one-job program. Norton does not try for minimum tracks, and as for laying out strategy commands like which parts you want closest at hand, Norton knows nothing.

If you have several hundred dollars tied up in a high-speed hard drive (high speed compared to floppies), it makes sense to tie up another $35 (street price) in keeping your hard drive twice as fast as it would be without a weekly straightening. Fast Trax is put out by Bridgeway Publishing, 415-485-0948 or 2165 East Francisco Blvd. Suite A1, San Rafael, CA 94901.

Cheap Master Mechanic

You can shift gears, steer and climb in and out of your car, but you know the time always comes when you gotta get your hands greasy and reach into the guts, if the car is going to keep on giving good service.

The same is true of the disks in your 2000. You can format, reformat, copy and recopy — but sometimes you just gotta go in there and play with the magnetism, reading all those 0D0A blips and changing them. (0D0A means <ENTER>, by the way.)

Norton Utilities has a few handy toys like FileInfo and ScreenAttributes, but 3/4 of its tools (and 9/10 of its code) is getting under the old car and tinkering.

Now comes a shareware package, Reginald Gage's Professional Master Key Utilities, that does it with more style and speed than Norton. I had this program six months ago, but had to call the author and tell him it crashed on the snobbish 2000. No problemo, he said when I told him of our strange screen that accepts only BIOS messages. Now he has adapted his brand-new version 3.0 to the 2000.

It runs on our machine after you type this command: INSTALL/BIOS ON<enter>. PMK works off the disk without storing itself in memory, so it doesn't cause conflict crashes.

PMK is shareware, which means that modem types can grab it off the wire with a promise to pay $35 if they like it. That means it's free (modem types never pay), if you overlook the half-hour and $10 in telephone time and BBS fees it costs to get a program. Of course they don't get the manual.

Orphans would prefer to sell manual with disk for $20 and give the author a $10 royalty, but he hasn't called back in two weeks from the message on his machine, so we have put the disk in the Souvenir Shop for $10, no manual. MasterKey is self-explanatory, but you can get the 68-page manual with the disk by sending $35 to RPG Software, P.O. Box 9221, Columbus, MS 39705. If you do it that way, ask him why he doesn't return his Orphan call.

The things PMK does with more style than Norton go like this: You type PMK<enter> and a screenful of options flashes on. It's not slow like Norton, nor does it ask you to stumble through overlapping screens with ENTER and ESC. You pick your disk to study, and PMK dumps you right in at the first byte (letter).

From there you steer easily around the disk, always seeing both the magnetism

and the real words or symbols. You can just inspect, or you can tighten nuts and bolts here and there.

Here's a sample fix: Iomega sent me a disk for the Orphans to use in getting 20 megs (instead of 10) from cartridges. It works fine, but when you start up the 2000 it sours your morning by announcing on the screen that it is an UNSUPPORTED PRODUCT. I don't like negative vibes, so I went into MasterKey on my test drive and ran a search for those words. In a second they flashed on the screen. I hit F2 (I think) to get from hex digits into the English column. Then I changed the words to TANDY 2000 ORPHANS, a nicer way to start the day. And the result is the same: guys with problems won't often call Iomega.

It all looks pretty challenging at the start, but remember your first trip under the old car, or into casserole cooking if that's your game. After a short tour, those screens filled with digits get a friendly look, just like Joy of Cooking or Supercar Service Manual.

Two views I like, probably because I'm so new to it all, are the map of the disk and the disk profile. The map shows you where all the files are, in a rectangle of 600 pieces; the profile tells you how big the clusters are, how full the disk is, a dozen little facts like that.

MasterKey 3.0 offers the gentlest hand-holding for a new disk doctor, and big power tools for a veteran. You won't outgrow this one until you're writing your own program disks from scratch.

"There is an error in the 512K instructions," SDC reports, "which would cause the board never to be selected. The error would cause the boot ROM to report only 256K of RAM on board. On page 2 of the instructions, under number 2, CHANGE

Connect U46-5 and U61-14

TO

Connect U46-5 and U46-7

I discovered the problem by looking at page 4 and reading the schematic. It mislabels U-61-14 as ground. Instead, it is +5 volts, which gives the opposite of the signal needed for the board to be selected. Other than that single problem, the fix worked great!"

This analysis is similar to that of LJS (Feb89 p.13), which essentially changed the *U61-14* to *J1-3C*. Each of these intrepid explorers has sought and found "ground."

What's DOS 3 Got?

What are we missing in the DOS world? While we compute happily with DOS 2.11.03, a custom version for the 2000, buyers of mainstream compatibles are using DOS 3.2 and even an occasional 4.0.

But DOS is DOS — a disk operating system. If you are operating your disks, you're OK. What, then, is so mysteriously better about 3 (which members want) and 4?

Handling 4.0 first, this version of DOS is basically a pretty face. It shows the same information you're used to, but in pretty boxes and pastels. Windows, Gem, and some less muscular "shells" like PCBoss in the Orphan directories disk, already show a poster layout on the 2000. The best of the pretty-face shells is Gem 1, which the Whimper reviewed favorably in March 1987. DOS 4 allows you to turn on programs from a menu, but so do our other shells. And our last two issues have shown a menu you can create inside our own DOS. We already have DOS 4 under other names.

Long-Distance DOS

DOS 3 and 4 do have a minor advantage over DOS 2: they let you call an action that's based in a far-away subdirectory. This is something that you seldom need, and can do with several extra keystrokes when that rare need comes. For example: You are in drive D: with your word processors, and you want to use an Orphan shareware tool that you have in C:\SHARE, the SHARE subdirectory on drive C: You want to use this tool on a file you stored on the floppy in B:, in a subdirectory called PALS. You want to use three drives at once.

DOS 3.2 lets you call both the tool and the workpiece from distant subdirectories, like typing this: C:\SHARE\SPIN B:\PALS\PROPELLER. Our DOS 2 wants you to move over into the C: drive by typing C:<enter> and then down to SHARE by typing CD SHARE<enter>. Then it will pick up your tool with SPIN B:PALS\PROPELLER.

Also, if you leave C: with its SHARE directory turned on, you can score with C:SPIN B:PALS\PROPELLER. Notice that our DOS is quite happy to go find a workpiece in a distant directory, the facts in "propeller" that you manipulate with the tools in SPIN. Notice also an endearing trait of the 2000: it lets you skip the slash right after the colon. Compatibles (and a few of our bigger programs) insist that you use the form B:\PALS\PROPELLER.

And you can get the performance of DOS 3 exactly, too. You tell the 2000 (earlier in your computing day) that C:SHARE is likely to have things you need, so please always look there for programs. You do this by typing PATH C:SHARE <enter> from the keyboard (which cancels any previous path in use. You can also include Path in your autoexec.bat file, as with PATH=C:;C:DOS;C:SHARE;D: WORDS<enter>. Autoexec likes the equal sign. Out in DOS, typing PATH<enter> will tell you what it's currently searching.

The only trouble with carrying a great big PATH around is that the 2000 will grunt and snuffle all around your drives before confessing that it can't find something you just tried to use. This can waste several seconds. Another trouble with PATH is that it won't look for your workpiece. All the PATHs in the world won't let you SPIN PROPELLER <enter>. But check out SEARCH in the Orphan utilities disk: it will grab both a program file and a data file, and faster than PATH.

What else does DOS 3 have that we don't? Not a damn thing, if you have the orphan shareware disks. This is lucky, because most of the stuff on 3.2 refuses to run on the 2000. And you have a lot extra on the shareware disks that DOS 3 and 4 only dream about.

You Can Dash with Cache

But wait! There is one program in Tandy's DOS 3.2 that we don't have, not even on the shareware disks. It's called CACHE (sounds like cash) and it speeds up a computer. Typing CACHE B: will do this only with drive B:. By typing CACHE 100, you can tell the computer to set aside 100,000 bytes of its RAM memory, and to toss into it everything you read off a disk. When the 100K fills up, it overflows out the other end, so you always have things you recently used, just a millisecond away. This speedup is noticeable if you're working from a hard drive, and spectacular if you're working from floppies. Some programs (like FrameWork) load the entire article or budget into a huge chunk of black-chips memory, and of course cache doesn't help those.

Programs (your tools) mostly stay in RAM, so their presence in the CACHE area may not help. But when the program starts calling in data (your workpiece), that's when CACHE becomes a star.

CACHE is something Tandy wrote on its own, a great addition to standard DOS. Tandy did something right! I'm putting CACHE on its own disk in the souvenir shop for ten clams, and when Tandy (which never answers my letters) feels like sitting down with me, they'll probably score five of those dollars. They will make their usual lawsuit threats first, but we all know that you guys would have Cache by now if Tandy were giving the continued support to the 2000 they promised. I'm just helping them out.

This review doesn't cover the many controls Cache allows you to type in, but an instruction sheet packed with the disk tells the story.

Your order — Please order by the short title, like "03" for MS-DOS 2.11.03. All prices include postage, packing and handling to the 50 states. Foreign Orphans, add $5 per order of any size for postal, bank and customs hassles. Canadian banks are the worst offenders.

Money — No credit cards and no foreign checks. Only U.S.A. checks (preferably) or U.S. cash, or a foreign check if it it came to you with "dollars(U.S.)" and a U.S.A. branch bank address printed on it. Canadian postal money orders are OK. "Tandy 2000 Orphans" or "Orphans" is good on a check's pay-to line.

FOREIGN ORPHANS — Read what's above. You've been missing it, causing yourself to wait extra weeks, even months, for round-trip mail corrections.

DISKS

MASTERKEY: A fast, clear, strong set of Norton-like utilities that outplay Norton in its own ballpark. Shareware, reviewed July89. $10.00.

CACHE: The only program from DOS 3.2 that you haven't already got a better version of in the shareware disks. A Tandy special contribution that works fine; they intended to offer it to you but they just forgot so we remembered. Review July89. $10.00.

CART: An Orphan-owned-and-supported driver (version 4.7a) for Iomega cartridge drives with the 2000. It permits 20 megs on their 20-meg drives and (only) 32 on their new 44-meg drives. It's lots faster than our old Tandy version 4.11. No manual yet, but easy to use. $10.00.

DIAG: Tandy 2000 Diagnostic Disk. Fixes nothing, but tells you in amazing detail whether the 2000 needs a doctor. $10.00.

FLY: Flight Simulator 1, the golden oldie that runs on the 2000. $10.39 with an Orphan manual by YFL that's better and shorter than the original. Great in color, OK with VM-1, graphics board required. Can't be copied.

UTILS: Orphan shareware, 97 selected utilities to make the 2000 run more efficiently and give more pleasure. A listing of the files and some reviews are in the Feb89 issue. $10.00.

DIRS: Orphan shareware, 28 selected ways to list and manipulate the files in any drive or directory. Listed and partly reviewed in the Feb88 Whimper. $15.00 including a Whimper-sized manual by YFL for one humungous program.

TOOLS: Orphan shareware, 86 selected tools, gadgets and devices for special tasks

and fun with the 2000. Listed and partly reviewed in the Feb88 issue, see pp. 10-11 for all three shareware listings (UTILS, DIRS, TOOLS).

03: MS-DOS 2.11.03. If you picked up an older DOS with your 2000, you should have this latest and last 2000 version. It has a newer version of Basic. $10.00.

123 (123E if you have Envision memory): An unprotected Lotus123 version1, Tandy 26-5300. $10.00, send your original program or duplicate program disk and get it back with our copiable version.

FW (or FWE): Unprotected FrameWork 1, Tandy 26-5320. $10.00, see 123 above for the way to order.

DB (or DBE): Unprotected dBaseIII, Tandy 26-5353. $10.00, see 123 above for the way to order.

TWIN: Not Windows itself, but the Tandy-written Windows Driver disk which enables the 2000 to run Windows. Formerly their #7002611. This disk slyly erases drivers for non-Tandy printers, but we've added instructions for avoiding this trap. (198K) $20.07. See an extensive Windows explanation in Feb89 Souvenir Shop, and other Whimpers.

TRAP: MouseTrap, lets our digimouse run the arrow keys, the ENTER key and the F1 key, in your starting DOS or any software that lacks its own mouse driver, which means that now our mouse goes everywhere. $20.19.

BYTE: Creative Byting, a free-to-copy disk on how to write user-friendly software that sells, put out by an apparently out-of-business disk publisher. $10.00. (183K)

HAM-I: The Whimper Hamper, the first ten Whimpers on disk, March87 through October88; useful for word-searches, fast reference and one-subject printouts, but less relaxing for casual use than paper copies. $40.00.

HAM-IIa: The Second Whimper Hamper, Dec88 through the most recent issue. $40.00. People who buy this disk can upgrade later to the final HAM-II (late summer? fall?) by sending $10.00, or $5.00 and their original disk.

HARDWARE

BACK SCREWS: Mandatory mod #16, eight fat black screws (Tandy AHD-2974) for the four back panels of the 2000, in an envelope. See Hardware Help, Feb89. Eight dollars from Tandy, $2.00 from Orphans. $1.00 each for extra sets of 8 in same order. Eliminates many burps and blackouts of the 2000.

DOCUMENTS

NEAR: An Orphan Near You, list of all Orphans (and ex-Orphans) within 100 miles of you; mileage, address and phone(s) included. $13.00, we send a refund if you get fewer than 25 names. Refund is based on $1 for first name, 96¢ for second, 92¢ for third and so on down to 4¢ for the 25th. Extras are free. Your unique list is for your eyes and ears only!

BACK ISSUES: Mar87(zerox) $5, MayAugOct87(zerox) $8 each, Dec87FebAprJunAugOctDec88 and FebMarMayJunJul89 $5 each.

MOU-MAN: Tandy's clock-mouse installation manual, 16 pages compressed into eight zerox pages, $6.00. See just above.

MAST: Mastering the Tandy 2000, a compressed 28-page zerox of a 100-page out-of-print book mentioned in the February 1988 issue. Reprinted with paid permission. $16.50.

NEWBAS: List and description of extra BASIC commands in the Basic that came with DOS 2.11.03. 24pp. will be compressed to about 12. $6.

MODS: All the mod service bulletins for correcting bugs in those earlier 2000s that have no "M" at the beginning of the serial number. Usable by anyone who can read and solder. 48 pages will be compressed to about 24, $19.

512: Instructions for putting 512K (or more) on a Tandy 2000 memory board. 7 pages zeroxed, $3.00.

VID: List of Tandy 2000 video ports. 3 pp. zeroxed, $2.00.

VIDRAM: Info on video RAM and attributes by BJK, $1.00.

VM3: Modifying a Tandy VM-3 to work with the 2000, by MOR, has pictures, zeroxed. $2.00.

TP3: Making Turbo Pascal 3 run on the 2000, a one-page patch supplied by BJK. Correction in III-4 SoftSupp. $1.00.

TP3+: The same patch as above, but with more explanation, a two-pager supplied by JAD. $2.00.

TP4: Using TurboPascal 4 with 2000 by BJK, 4 pp., $2.00.

SAVBAS: Saving a Basic color screen by HEB, one page, $1.00.

SOURCE: a hard-to-get list of some or all of the source code for the 2000 BIOS, supplied by LJS. See his letter in What's New at HQ Feb89. 4 pages, $2.00.

IBMPORT: A book chapter listing and discussing IBM-style hardware ports, useful for assembly-language programmers among us trying to create a -Holy Grail compatibility disk to convert IBM software for the 2000. 29 pages compressed into 16, $12.00.

Souvenir Shop

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Sidewalk Sales

Cables for the 2000, $20 each for any length to 10 feet, an extra dollar per foot over that. Extensions for VM-1, CM-1, keyboard, mouse, etc.

Also, a mouse: A Tandy 25-1040 mouse ($49.95) wired to a DB9 female plug. Equivalent to the extinct $99 Digi-Mouse, $95. Orphan cablemaker Tim Bates, 313-227-7344, before 9 p.m. eastern.

Function-key flipchart, ten stiff 1.5" by 11" pages in a 19-ring plastic edge-binder (specify ivory/brown or white/blue). Slips into existing slots above the F-keys and displays written or taped-on key functions for your ten favorite programs. $5.00 (includes postage, packing and handling). Orphan chartmaker Jack Doerr, 22407 Bayview Drive, St. Clair Shores, MI 48081. Indispensable, and a major hassle to make.

MLFormat: lets you format and use up to 72 megabytes in "logical" (C:D:E:F:G: etc.) drives, on one or two actual hard drives. (DOS only allows 32 megs on a C: and the same on a physically separate D:). Orphan programmer Bob Spencer, MicroLink Technology, P.O.Box 2666, Sumter, SC 29151. 800-334-9612.

Hardware Day

"This isn't part of the plan," you say to yourself. You're standing, sweaty and dirty, in a cluster of scattered hardware with its guts exposed. You have already wasted a full working day, and two more problems have just caused you to wonder, for the tenth time today, if this computer system will ever work right again. Is this the legendary ease and convenience of computing? Yes, if we now change the legend.

Jackie the Jokeman Martling says, "My dreams will come true, as soon as I change them to fit this mediocre shit that's happening to me." Let's us do the same.

Every three months — more often if you're foolish and less often if you're lazy — you must face hardware crisis time in 2000-land. Computing grows and twists, your own needs and cash go up, down and sideways, and people just like a change, regardless. And computers like to make Hardware Day come a month early, by crashing and burning. So when Hardware Day comes, accept it for what it is, a standard day in computing. If you set your goals down a bit, that day could be two hours. If you try for major progress, that day might be a week.

Happy Hardware Day to you, and to those around you.

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Flee Market

PLEASE NOTE: All entries must be 2000-specific items (no printers, but CM-1 and VM-1 monitors are OK), all having all original parts and papers unless otherwise noted (mail-in cards may be missing). Prices include shipping to anywhere in 48-state continental USA. Prices may be negotiable; we don't print hints of that sort. And you guys with book-length catalogs, see the warning down below under Myron's second-hand shop.

ON PRICE LEVELS: I don't print offers with ridiculously high prices. But very low prices give you too many phone calls and frustrate the West and South guys who get their Whimpers two days later. Lowballing also gives you the troubling thought that you could have charged a higher price. So price down the middle, not low or high. What is middle? $150 for a double-floppy, $25 for dBaseIII. If an item is not sold, you can run it again with a price cut of 30% or more.

DigiMouse (new) $35, MultiMate (new) $30, 3-ring 2000 manuals DOS and BASIC $20 each. William, 803-632-3280.

Grafboard w/color 100, clock/mouseboard w/mouse 75, Envision640 board 150, 2000 10 meg hard drive 100, VM-1 50, keyboard 25, floppy drive (Retry needed in early morning) 20, Envision FazeIV disk 20. Software: MASM 25, MSWord 3.1 50, unprotected 123 50, Flt.Sim 20, Williams C Compiler 25. 717-656-0270, Barry.

Triple-drive 2000 with HD board, clock/mouse board with mouse, graphics board w/color chips, 256K extra RAMboard, 10meg hard drive, and pile of software headed by Windows1, MultiMate, PFSWrite and RMCobol. $525, down 30% from last time. 313-388-4986 home, 313-758-9482 office, ask for Ron.

He Can Program the 2000 Screen

This could be big news, but it's buried back here because it came in on press day.

Orphan RCF has been rewriting major programs that crash on the 2000, and is successfully getting them onto our screen. He has done Norton Editor, Norton Commander, PrintMaster and Directory Magic. It takes him something like several days of work to clean up a single such program. He and I agree that such a cleanup job could be worth about $10 or $20, of which the Orphans would pay him 50% royalty. To be fair to copyright owners, we would distribute these remodeled programs only to those proving ownership, as we do with Lotus123, Framework and dBIII.

His changes were in the video buffer addresses, but also in the code controlling attributes, color pixel arrangements, and "snow" — which we will have to accept momentarily during major screen changes.

He is ambitiously eyeing Microsoft Word 4 and Norton Utilities 4.5. More on his activities next issue, after he gets some disks to HQ.