A person's work is never done...

There are 20 decks, running double speed, spewing out over 125 CLOAD clones an hour. There's a 4-drive Model III dumping a CLOAD disk every minute. Two printers are vying for the cassette label print record. Who's in control of all this? Obviously nobody. But Rose is in the back room valiantly trying to stem the tide. What!? Did I just hear a muffled scream? Looks like we'll have help her, after we dig her out from under the cassette pile...

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Side	Title	Filename	Turns Count CTR-41	Turns Count CTR-80
****	News Cover	A	22 & 276	12 & 160
** **	Menu (Model III TRSDOS only)	B	97 & 329	56 & 190
** **	Select (Model I TRSDOS only)	C	136 & 359	78 & 208
****	Loan Amortization	D	213 & 421	123 & 244
**	Reactor	A	14 & 268	8 & 155
***	Logic Trainer	B	78 & 316	45 & 183
**	Swarm (SYSTEM SWARM /)	SWARM	209 & 419	121 & 243
****	Shrink (SYSTEM S / - not disk)	SHRINK	257 & 458	149 & 265

Tape CLOADing Notes - This tape may load at an ODD RECORDER VOLUME. Set the volume LOWER than normal for your first attempt, then increase it slightly until the tape loads. If the first copy of a program won't load, try the second. That is why it is there. Model I only: Put an AM radio very close to the keyboard, tune it to a non-station, and you can listen to the tape loading in. Adjust the recorder volume so the hash from the computer sounds 'cleanest' during a load. Model III only: Load the tapes at the LOW speed (POKE 16915,0).

Subscribers - The month on the mail label is the last month of your subscription. If you have a cassette subscription, the number next to the month is the amount it would cost to convert the rest of your subscription to the disk version ($4.20 per issue for 6 or less months, $3.75 per issue if more than 6 months).

Extra, Extra! Actually, it's not extra, but **News Cover** does have a warped outlook on current events that appeals to us.

Dos, the spanish word for two. A cute way to lead into the two programs for DOS users - **Menu** (for the standard Model III TRSDOS) and **Select** (for the standard Model I TRSDOS). These programs read the directory of a disk in drive 0 and display it on the screen in menu format. All you have to do is hit the letter or number corresponding to a program and that program will run (BASIC will be automatically loaded if needed).

Menu notes: If you have PATCHed your system disk so that you are always prompted for 'CASS?' whenever you access BASIC, the cursor gets printed all over the screen when a BASIC program is run through **Menu**. So do not PATCH (or unPATCH already PATCHed) system disks that you want to use **Menu** on.

Select notes: The first time you run **Select**, you will be asked to DUMP a machine language routine (POKEd in by **Select**) to your disk. From then on, you type **SELECT**<enter> from DOS to run it.

Interest is dropping (talk about short attention spans...)! Time to do a **Loan Amortization**. Note: You can dump the info to a printer

after it has been displayed on the screen.

The Slimes have invaded the Reactor (is this a paid political announcement?). Your job is to get the fuel canisters out of the reactor while avoiding the Slimes. My job is to watch...

Straight from Spock - **Logic Trainer**. This program teaches you a little about logic circuits; those combinations of AND, OR, NOR, NAND, XOR, and XNOR gates that make up much of your TRS-80. Just to wet your appetite, logic circuits accept high or low voltages (1's or 0's) as input, and output a high or low voltage (1 or a 0) depending on the arrangement of the circuit. Bit bustin' (thanks to Jesse Bob of the Alternate Source) at the bit's birthplace...

You can't win, but it's fun to see how long you can avoid the swarmers in **Swarm**. To load Swarm, type **SYSTEM**<enter> and answer the ***?** with **SWARM**<enter>. When the program has loaded, just type /<enter> to play. Notes: **Swarm** has sound, so connect the large grey AUX recorder plug to an amplifier. The start, end, and execute addresses are 18128, 22549, and 22521. If you have a disk system, you'll have to run **Swarm** through a program like August 1981's Disk Exec to run it from disk.

Disk versioners: **Swarm** is on your disk twice. Once with the '/EXE' extension (that runs from the **AWAY** menu or from **Disk Exec**), and once with the '/CMD' extension (in case you have a program or DOS that will run it as it is).

Getting small... **Shrink** takes unnecessary spaces and REMs out of a BASIC program. The 'REM' itself is not touched and DATA statements are left alone. To load **Shrink**, type **SYSTEM**<enter> and answer the ***?** with **SHRINK**<enter>. When the ***?** appears again, type **/32669** and your BASIC program will be shrunk. If you wish to use **Shrink** a lot and don't want to load it every time, just set the Memory Size to 32668 to protect it.

Shrinking notes: This program will not work on a disk system. Also, after shrinking a program I have had the computer crash when I typed a direct command in incorrectly (ie: LITS instead of LIST). So I recommend saving the program to tape immediately after shrinking, just in case...

Just a bit (the 7th)...

Last month's **Air Nav** gained a bit in **line 64**. If you look about 1/4 of the way through the line you'll see **BBGET**. Well, until our Model I got ahold of it for the 'final time', it used to be **BB$**. So fix it! The $ ASCII value is 36 (in binary 00100100), and the keyword **GET** has an ASCII value of 164 (10100100). So the copy we used to create the tapes had a bit turned on that shouldn't have been. Sorry...

Pokin' at the printer...

You can direct the next PRINT statement in a program to go to a printer by executing a **POKE 16540,1**. Remember, this will ONLY direct the output of the next PRINT statement encountered. Subsequent PRINT statements will go to the screen. If you do a **POKE 16540,0**, the PRINT goes to the screen as usual. Where would this be valuable? How about if you were writing instructions for a program, and you wanted to give the user the option of sending them to the screen or to a printer? You would have to have one set of instructions preceded by PRINT, and another almost identical set preceded by LPRINT. Or you could do something like the following:

```
10 PRINT"Instructions to a printer (Y/N)? ";
20 A$=INKEY$: IF A$="" THEN 20 ELSE PRINT A$: REM GET ANSWER
30 IF A$="Y" THEN PR=1 ELSE PR=0: REM PR DIRECTS OUTPUT
40 POKE 16540,PR: PRINT TAB(21);"Instructions for BLAT"
50 IF PR LPRINT ELSE PRINT: REM EASIER TO PRINT BLANK LINES
60 POKE 16540,PR: PRINT"  The object of BLAT is to avoid paying...
.
.
150 IF PR=0 GOSUB 1000: REM GET NEXT SCREENFUL IF NOT PRINTING
.
.
1000 INPUT"READY FOR NEXT PAGE";Q$: CLS: RETURN
```

Make it quick...

Many programs would be better if they ran faster, especially real-time BASIC games. There are many ways to speed up BASIC programs (declaring variables as integers, using variables instead of constants, etc.), but one way that is not used often but is VERY effective is to declare variables in the order that they are most often used.

Every time your TRS-80 encounters a new variable in a BASIC program, it makes a space for it at the END of the variable list. Then each time it encounters the variable in the program again, it searches linearly (starting from the top) down the list until it finds the space originally created for it. In a large program with lots of variables, it can take quite a while if an often-used variable is at the end of the list.

So you should declare variables (through a psuedo DIM statement) with the most used variable declared first. Step right over here and I'll show you what I mean. The following program shows what percentage of the time a random number from 1 to the loop limit equals the loop counter. As you can see, the variables A thru V are declared first (and they are used once each). The loop counter, Z, is used twice EACH TIME THROUGH THE LOOP (2000 times in our example). The loop limit, Y, is used once each time through the loop. W is used twice and X is used once each time the IF is true:

```
20 A=0:B=0:C=0:D=0:E=0:F=0:G=0:H=0:I=0:J=0:K=0:L=0:
   M=0:N=0:O=0:P=0:Q=0:R=0:S=0:T=0:U=0:V=0
30 X=1:Y=1000:W=0
40 FOR Z=X TO Y
50 IF RND(Y)=Z THEN W=W+X
60 NEXT
70 PRINT W/Y*100
```

This program took 17 seconds to run. However, let's add line 10:

```
10 DIM Z,Y,W,X      (Yes, it's a legal statement)
```

Now we have put the variables most accessed at the top of the variable list by forcing the BASIC interpreter to find room for them first. Rerunning the program takes 12 1/2 seconds, a time savings of about 25%! The tricky part (in using this technique in your own programs) is deciding which variables from your program are to be declared first (ie: which program sections need speeding up and which variables in those sections are used the most).

Off to the races, Dave

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TRS-80

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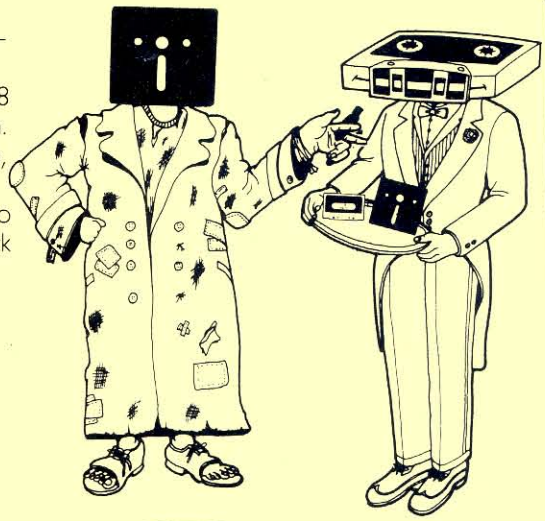

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