

The world of low finance...

Isn't it funny how someone will spend \$10,000 on a car, then spend 3 days at 7 stores in order to save \$5.00 on the speakers for the car stereo? Moving into this shop was no different. We had tables built, shelves put up, walls moved, cabinets installed, etc. Then we got excited when we saved \$3.00 by buying 100 file folders at a department store. Grady brought that kind of thinking to a new high, however: His car needed a battery so he bought a truck...



PO. Box 1448,
Santa Barbara,
CA 93102

March 1983

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*	Side	Title	Filename	Turns Count			*
*				CTR-41	CTR-80		*
*							*
*	****	Kaleidoscope Cover	A	11 & 268	6 & 155		*
*	** **	Auto Instructions	B	51 & 298	30 & 173		*
*	** **	Auto	C	129 & 357	75 & 207		*
*	****	Robbery	D	224 & 433	130 & 251		*
*							*
*	**	Adventure Dungeon Instructions	A	15 & 272	9 & 158		*
*	***	Adventure Dungeon	B	78 & 319	45 & 185		*
*	**	Stack Four	C	160 & 383	93 & 222		*
*	****	Crusher (SYSTEM CRUSH /)	CRUSH	243 & 442	136 & 256		*
*							*
*	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 10913,0).						*
*							*
*	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, \$5.75 per issue if more than 6 months).						*
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Make your eyes a bit cross-eyed. Try watching Kaleidoscope Cover for a while...

Have you hugged your car lately? Auto can help you keep track of just how much that 4-wheeled baby cost you over the last year. The data can be saved and/or loaded from tape or disk, just to keep your vehicle on its toes. Run Auto Instructions to get an overview of the program. Note: If you get an error or hit the <break> key accidentally, you can get back into the Auto program without losing your current data by typing GOTO 3<enter>.

Since it is Income Tax time, we have a game called Robbery for you. The object is to run over and grab a bag of money before one of three bank tellers can get to the alarm. The game has sound, so connect the large grey AUX plug to an amplifier.

Sounds like our new shop... Adventure Dungeon is a graphic adventure set on a 5-tiered grid. You, the aspiring council seat holder, must walk around the grid finding treasures and killing monsters in order to become part of the ruling council. Run

Adventure Dungeon Instructions for an olde English description of the program.

If I stacked 'em, they would all fall down - Stack Four is a sadist's version of Tic-Tac-Toe. Instead of a 3 by 3 playing field, you have a 4 by 4 playing field of posts that can hold four markers per post. The object is get four in a row before the computer does. Good luck!! Note: The program has sound, so connect the AUX plug to an amplifier.

Puttin' the squeeze on... In Crusher, you must shoot out the bricks as they advance toward you to keep them from crushing you. If you are able to shoot a hole all the way through the wall, you net a 100 point bonus. The game is in machine language, so to load and run it type SYSTEM<enter>, answer the *? with CRUSH<enter>, and answer the next *? with /<enter>. Notes: Crusher has sound, so connect the AUX plug to an amplifier. The start, end, and entry addresses are 28672, 31947, and 28672 (in hex - 7000, 7CCB, and 7000).

Pushin' it...

Tax time approaches and a minor bug has been found in January's Income Tax. In line 780 change each 200 to 100 and in line 1600 change TAB(35) to TAB(45). Thanks go to George Martin, Jr. of McAllen, Texas.

Just floating around...

Comparing 2 floating point numbers can be dangerous! Why do I say that? Well, sometimes a floating point number LOOKS like a whole number, but deep in its heart lies a very small fraction. Run the following routine and you'll see what I mean:

```
10 D=3.74
20 X=374
30 D=D*100: REM D SHOULD NOW EQUAL 374, RIGHT?
40 PRINT X,D: REM THEY BOTH SAY THAT THEY EQUAL 374
50 IF X=D THEN PRINT "EQUAL"
60 IF X<>D THEN PRINT "UNEQUAL"
```

They both 'are' 374, but the program says that they are unequal. Who's kidding who? It turns out that both numbers are stored in the computer as 24 bit binary numbers (with an extra byte each for the exponent). All of these bits are significant when comparing, but they do not always show up when the number is converted to decimal for us to read. Here's what the computer saw when executing lines 50 and 60:

```
001111011 000000000 000000001      value of D
001111011 000000000 000000000      value of X
```

D has an extra bit turned on! That bit must have snuck in when D was 3.74 (decimal fractions are tricky in binary). So how would one accurately compare floating point numbers? Take a look at the INT statement. Using INT, we can trap out sneaky bits. Get those flying fingers ready. Edit line 30 to D=INT(D*100), run the routine again, and X will equal D.

All's Faire in love and San Francisco...

I spent last weekend up north at the 7th (that many?) annual West Coast Computer Faire, one of the few computer shows aimed at the consumer, not the wholesaler. It was interesting to note the mix of computers this time. Last year it was ALL IBM and Apple. This year IBM and Apple goodies were all over, but the TRS Color, Vic 20, Texas Instruments, etc. computers were also visible. How about Model I/Model III goodies? Not a whole lot. My guess is that Mod I and III vendors still find their advertising money better spent in magazines like 80 US, 80 Micro, Creative, etc. However, Computer Shack was there (their Model III on display had 4 BUILT-IN drives and an amber screen!), Adventure International had a large booth, and I had a nice chat with Vernon Hester, the mind and typing fingers behind MULTIDOS (my favorite operating system). Oh yes, another person of note was at the faire - Ralph McElroy, the founder of CLOAD Magazine (it could be said that he founded ALL cassette and disk magazines).

Now for a flashback...

I first met Ralph in September, 1978. He needed an editor for his then six month old 'magazine'. The interview was in an old, somewhat refurbished, World War II (Civil War?) warehouse sitting on the Santa Barbara Airport. My credentials were incredible: One semester of FORTRAN, one semester of COBOL (how embarrassing), and six weeks of BASIC on an HP 9100A. Even though I was overqualified, Ralph hired me. Note: I really think I was hired on my ability to find the shop, something it took UPS a year to do.

Why the memories? CLOAD is 5 years old this month!!! I'm sitting here grumbling and writing my 33rd editorial (Ralph wrote the other 28) in a carpeted office in the heart of downtown Santa Barbara. Only the location has changed, the chaos remains the same...

A birthday present for all...

As you may know, we have all of the back issues from October 1978 on available. This takes up a lot of space. So we would like to reduce the number of issues (a present to ourselves). We want to do this by doing away with the issues from October 1978 through September 1980. These issues have Level I programs on one side of the tape and Level II programs on the other side. Now for your present. You (our subscribers) can order any of the back issues from October 1978 through September 1980 for their original price of \$3.50 (\$3.71 in Calif., \$4.50 overseas) each until we run out (give second choices to be safe). A list of those issues is included in these sheets. Note: To the left of each program in the list you will see a couple of letters. If a B or a 2 is there, it will run in Level II. If a T is there, it will run in a Model III.

Gotta run. We're having a shopwarming this evening so we have to clean up and get the refreshments (milk and cookies) set out.

Does milk mix with gin?

Dave

THE ALTERNATE SOURCE

Spellbound

Shoot-em-ups not your style? Consider Spellbound, a sophisticated word game that will both "please" and "astound": "please" because you will always have a capable partner at the flip of a switch and "astound" because you can demonstrate the superior capabilities of your TRS-80. Spellbound conducts a word search using its 12,000 word on-line dictionary in less than a minute. Words are extracted from a matrix of random letters by both you and your TRS-80. One to six humans can play; the word matrix is designed using a unique graphic configuration. The ideal demonstration program for your pedantic friends. Spellbound is written in a combination of Z80 and Fortran; original purchasers can also purchase the source code for an additional \$10. Sorry, this program only comes on disk. Both Model I and III versions are included for \$19.95. Because of critical real-time task processing, this program will not work with Newdos/80.

TASORT The Alternate SORT

TASORT is a high speed sorting program, designed for easy use in BASIC programs that need powerful sort capabilities. TASORT is fast sorts up to 65 arrays simultaneously, sorts any combinations of

variable types, is completely relocatable, respects high-memory, and will sort ascending, descending and tag-along. TASORT works with all Model I and III configurations, tape and disk, and is the perfect bridge for making your programs 100% compatible with all environments. TASORT is \$19.95, tape or disk. Write for information on licensing TASORT for your commercial applications.

Modem 80

Need a top quality terminal program that works under a variety of environments? Modem 80 and its support packages have the TRS-80 talking with dozens of systems, both micros and mainframes. A special protocol permits easy and reliable communication with CP/M systems, too! Modem 80 allows you access to DOS commands while online, route screen displays to your printer, change all local communication parameters at any time, upload and download, send files larger than memory (if the other system recognizes XON and XOFF protocol), and even includes a HOST program so that you may access your unattended TRS-80 from a remote site. Four separate translation tables are included for communication output, video, printer and disk files. These are user modifiable. The Modem 80 package of seven programs and user's manual is \$39.95. This program is one of our best buys!

Information Storage And Retrieval

ISAR I, Version 2.0, is the ideal beginning data base manager. ISAR allows you to create data files to your specifications and add, change and scan records as desired. Version 2.0 features include: Sorting of all ten fields at once; reports are generated by a

small BASIC program generated by your response to prompts (this allows your printer to work at the fastest possible speed and reports only need be defined ONCE); reports support titles, page numbers, column headings, footers, literals, end of file totals, special control characters LPRINTed before the report and more; documentation has been expanded to cover items such as error trapping, utilization of disk space, sample user sessions and information about how ISAR stores the information necessary to access a file (making conversions between ISAR and other data base managers easier). ISAR I, Version 2.0, complete with all enhancements and documentation, \$39.95. (Unregistered ISAR Expanded Users: Upgrades available!)

The Alternate Source Programmer's Journal

A software toolbox for your TRS-80 Model I and III. Each issue of TAS features utilities and applications that enhance your investment in the revolution. And more. We tackle comparison reviews, Model I/III compatibility, useful patches for popular programs, modifying BASIC, using Z80 assembler and many other languages. The Alternate Source is \$24 for 12 issues. If you haven't seen our journal, request a sample copy with any product on this page.

Thanks for reading our ad! TAS is located at 704 North Pennsylvania, Lansing, MI 48906. Phones: (517) 482-8270 and (800) 248-0284 (order-line). Check, Money Order, Visa, MC, COD (\$1.75 extra), and written P.O.s welcome. We also stock several hundred programs from other vendors. Ask for a copy of the latest TAS flyer. Dealer inquiries welcome.

Instant Assembler

New Version!

The Instant Assembler is a powerful assembly language development system for the TRS-80, and our new version is better than ever. If you are already an assembly language programmer, its unique design will greatly increase your productivity. If you're just getting started, there is no better assembler to help you learn machine language programming. Our new version includes the following features:

- Immediate assembly which detects syntax errors as source is entered.
- Compact source format that allows you to write programs nearly three times as large as other assemblers in the same amount of memory.
- Produces relocatable code modules that can be saved on disk or tape and linked together in memory for large or modular assemblies.
- Assembles to disk, tape, or directly to memory for immediate debugging with the built-in debugger.
- The built-in debugger will step through your programs one instruction at a time, showing each disassembled instruction and its effect on the registers and memory.
- The debugger can use the symbols in your source code when stepping or disassembling.
- Input and output of conventional source or condensed INTASM source.
- Assembly and disassembly of undocumented Z-80 instructions.
- Comprehensive 65 page instruction manual with many examples.

The Instant Assembler package includes six separate programs. The assembler itself includes the editor and built-in debugger. The Linking Loader is included in several versions for different memory sizes. A stand-alone version of the debugger (MicroMind) is also included. MicroMind can be relocated in memory and has commands to single step, set breakpoints, display or alter registers or memory, find bytes or words, disassemble to screen or printer, convert between hex and decimal numbers, and write SYSTEM tapes.

TAPE INTASM 2.1 \$39.95
DISK INTASM 2.1 \$49.95

DISK INDEX

DISK INDEX will assemble a master index of your entire program library by automatically reading the program names and free space from each disk. The index may then be alphabetized or searched for any disk, program, or extension. It will alphabetize 2400 programs in less than 50 seconds and will find any program out of 2400 in less than 3 seconds. Disks or programs may be added or deleted manually, and the whole index or any selected part may be printed on paper in several different formats. The index itself may also be stored on disk for future access and update. A 48K machine will hold up to 255 disks and over 2400 programs in each index, and you may build as many indexes as you need. There is no limit to the number of filenames it can read on any one disk. It will run on either a Model I or Model III and catalog disks for either machine regardless of which one is running it, though Model I owners must have double density to catalog Model III disks. It will automatically recognize any DOS and disk density.

DISK INDEX \$29.95 on disk

CLONE

This program will allow you to make duplicate copies of almost any tape including Basic, SYSTEM, data lists, assembler source, or "custom loaders". The file name, load address, entry point, and every byte (in ASCII format) are displayed on the video screen. Model III version allows changing tape speed so you can make 1500 baud copies of 500 baud programs like SCRIPSIIT.

CLONE \$16.95 tape, \$21.95 disk

RAM SPOOLER

This program formats printer output with user definable line and page length (with line feeds inserted between words or after punctuation), indentation, screen dump, and printer pause. In addition, printing is done from a 4K expandable buffer area so that the LPRINT or LLIST command returns control to the user while printing is being done. Works with cassette or disk systems. Allows printing and processing to run concurrently. Output may be directed to either the parallel port, serial port, or the video screen.

SPOOLER \$16.95 tape, \$21.95 disk

INSIDE LEVEL II

This book is a guide to the Model I and Model III ROMs which allows the machine language or Basic programmer to easily utilize the sophisticated routines they contain. Concisely explains set-ups, calling sequences, and variable passage for number conversion, arithmetic operations, and mathematical functions, as well as keyboard, tape, and video routines. c2INSIDE LEVEL II was reviewed in the April 1982 issue of 80 Micro which said "The book has no flaws; it is a perfect gem." Byte Magazine said "I recommend this book to serious machine language programmers."

INSIDE LEVEL II \$15.95

MODEL I SPEED-UP

This little circuit board allows you to switch the speed of your Model I between normal, an increase of 50%, or a 50% reduction; selectable at any time without interrupting execution or crashing the program. Instructions are also given for a 100% increase to 3.54 MHz. You can change speed with a toggle switch or on software command. It will automatically return to normal speed any time a disk is active, requires no change to the operating system, and has provisions for adding an LED to indicate when the computer is not at normal speed. It mounts inside the keyboard unit with only 4 solder connections, and is easily removed if the computer ever needs service.

SK-2 \$24.95

ORDERING: Include \$2.50 postage, and California residents add 6% sales tax. VISA, MASTERCARD, and COD orders are accepted. Specify Model I or Model III. Satisfaction is guaranteed or a full refund will be made.

MUMFORD MICRO SYSTEMS

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CLOAD MAGAZINE'S HAPPY BIRTHDAY ORDER FORM

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MODEL
I

TRS-80

MODEL
III

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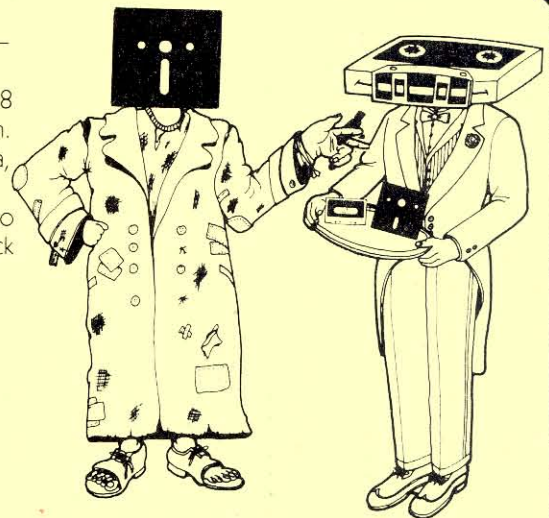
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The Fine Print:

All issues from Oct 78 available on tape. Issues from Oct 82 available on disk, also.

Ask for list (24 Level I issues also available).

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LEGEND

Column 1: 1 - Model I
2 - Model II
3 - Model III
4 - Model III BASIC 16K (T for Three)

(Model III programs may contain mistyped lower case letters and/or ASCII characters in place of arrows)

***** BACK ISSUES *****

Not mentioned, but present in every issue is our "Cover" program. This is where we publish various submissions of graphic artwork.

October 78

2T Star Wars Fly your tie fighter down the trench
B1 Graphic Draw & save screen graphics
B1 Chase Inst Instructions for:
B1 Chase Escape the killer robots
B1 Passbook Keep track of savings, interest, etc.
B1 Machin Demonstration of screen character set

November 78

B1 Artill. Ins. Snide comments from our Editor for...
B1 Artillery Aim and fire a cannon on a square battlefield.
B1 Ohm Learn Ohm's Law - includes examples made up at random by the computer
B1 C & M Cat & mouse - two players, computer acts as referee
2T Grushman The old "hangman" word game with new graphics

December 78

B1 4 Color Creates maps for you to color - only four colors allowed
1 States Quiz Test your knowledge of the (US) states
B1 Reactions Graphic version of the above
2T Reaction Great for parties
2 Sketch Draw & animate up to ten frames of screen graphics
2 Jukebox TRS-80 tunes - plays through radio

January 79

B1 Road Rally Two speed race - the race cars have poor brakes, so beware!
B1 Nym Beat the computer
B1 Esp Inst. Instructions for...
B1 Esp Test Are you psychic, or merely insane?

February 79

B1 Corp Notes Instructions for:
B1 Corporation Run an industry - be a capitalist and put old John D. to shame
B1 Powers Of concentration
1 32 Char Large letters (lvl. I)
2T Disassemble Converts machine code into mnemonic code
March 79
B1 Jungle Ins. Escape the natives...of New York
B1 Jungle or wash windows in the concrete jungle
B1 Worm Rid'em wormboy! Steer an ever-growing worm around the screen
1 Billboard Graphic Signs - useful for window advertising
2T Messages Similar to above but level II

April 79

B1 April Fool! April Fool!
B1 UFG Zap the invaders
B1 Dice Ins. Introducing...
2T Dice The cheating TRS-80
2T Scramble Rearrange the letters of a word
2T Hustle Cut block your opponent

May 79

B1 Hunt & Peck Like "Concentration"
1 Photo Inst. Instructions for
B1 Photo Camera class - a tutorial on the use of "f" stops and shutter speeds
B1 Voice Creates voiceprints - also handy to look at cassette saves
2T Babyrith Walk through a maze - computer maps the journey from the traveler's viewpoint

June 79

Instructions for:
1 Foot. Inst You're the quarterback
1 Football Similar to above
1 Cartesian graph equations in the Cartesian Coordinate system
2T Grapher Polar and Cartesian graphing routine
B1 Recorder Figure tape counter - CIR-41 to CIR-80
2T Cartoon A space age twist on an age old problem, animated
2 Savedata Save & sort data set up in memory as a string array

July 79

Conservation computation
B1 Fuel Jump over the barrels
B1 Motorcycle Computes how far, and in which direction any two points on earth lie
2T Bounce Guide a bouncing ball into a goal
2T Psycho Pattern generator
1 Polar Draws polar graphs

August 79

Steer winding road
B1 Grand Prix Find the coefficients of 2nd, 3rd or 4th order equations
B1 Coefficient
B1 Aero A quickie aerodynamics course
2T Hobbit Fantasy adventure

September 79

A Gaussian distribution generator
B1 Binary tree For any year
B1 Calendar Mummy's Tomb adventure
2T Starbase for you Trekkers
2T Poke Memory changer

October 79

Star plot & quiz
B1 Constel Telephone number mnemonics - helps make up words from telephone numbers
B1 Phonewrd Target practice
1 Space Sket Largest practice
2T Germ War Conwy's life, with death thrown in, too
2T Save Save BASIC programs as SYSTEM programs

November 79

Compute your past expenditures
B1 Budget Arithmetic Switch letters with numbers
1 Chimera "Spaces Invader" type game
2T Defend Saves above - except real time
2T PsychoLogic DIFFICULT math game
2 Mail list Mail list program with internal sort, search, print, etc. - cassette based

December 79

Yet Another Zapp-em-on-the-rise
1 Space War Pattern generator program
1 Kallido Larger, moving letters - good for advertising
2T Signboard Teaches Morse Code
2T Blockade Try to blockade your opponent
2 Tape Test Certify your own cassettes

January 80

Dodge the stars in your spaceship
B1 Stars Calendar calculator - works with number of days, number of weeks or specific dates.
B1 Two Dates Deductive logic - which ballplayer is on first.
1 Who's On Four function calculator - 1500 places
2T HiCalc Carnival type game
2T Midway 16K, 32K or 48K RAM test program
2T RAM Test

February 80

The old African board game
B1 Kalah Program generates Dissertation suitable for submission for Ph.D.
B1 Dissertat'n Computes coefficients of polynomial equations by Cramer's rule
1 Coeffiecn Educational simulation of U.S. presidential election - set up as game where you enter race against 1980 candidates and slug it out from primaries to November.
2T Election Similar to Radio Shack 1-bug, but written in level II BASIC

March 80

Newspaper stock page tutorial with quiz.
B1 Stockpage The old dice game, now on a computer.
B1 Yahtz-80 You race a rat through a maze full of holes and blocks.
2 Level III Makes level II BASIC more kinder to you - it gives more specific error messages and lets you store whole words under shifted letter keys.

April 80

Old dice game from a programmers viewpoint.
BT Craps Draws a flowchart on the screen and shows the progress of decisions for each roll.
BT Distance Graphic representation of the distance from the Earth to various celestial bodies.
1 HiQue The old peg jumping game.
2T Typing Learn and practice typing. Can also be used as a tachistoscope.
2T Syzygy Two player wormball. Surround your opponent with your worm. Obstacles can be defined, and up to five missiles can be used by each player.

System program - converts level II system format into level I system format (works from 4200H to 4FFFH).

May 80

Graphically demonstrates the 50-50 probability of a head or tail coin toss.
B1 Coin Toss Instructions for...
1 Draw Inst. Draw and animate up to 3 frames of screen graphics. Written in machine language.
1 Draw Level I version of December 78's "Sketch".
2T Sketcher Draw circles, lines, and squares just by defining endpoints or radii.
2T Dungeons "Adventure" type program written in Basic with real-time combat (Model III - 32K needed).
BT Sinewave Graphically adds two sinewaves together.

June 80

TRS-80 "guesses" which one of 15 designs you picked.
B1 Magician Tutorial on optical illusions.
BT Illusions Level I version of March 80's game.
1 Nerves Teach your TRS-80 to play and eventually win at tic-tac-toe. For the artificial intelligence crowd.
2T Amzing Chas Evade two pursuers in a maze.

July 80

TRS-80 number trick using a calendar.
1 Mystic Cal. Stock inst. Instructions for...
1 Stock Inst. Play a stock market using the TRS-80 Strdjet Journal.
2T Scramble List every possible permutation of a four to seven letter word.
2T Hurricane Draws a map of the Caribbean with the position of a storm plotted.
2 Lprint Changes prints to lprints and vice-versa.

August 80

Instructions for...
1 Moons Intro Info & test on moons of the Solar system.
BT Moons Info & test on moons of the Solar system.
1 Startrek 'Othello' - play against a friend or against 1 of many opponents (one that even cheats!).
2T Base Conv. Change a number from one base to another.
D Level2 Load, save & run Level II BASIC programs on Disk.

September 80

Blast your way to the fuel.
1 Destruction B Hex Display Hex dump of memory.
B1 Organ Inst. Instructions for...
B1 Organ Play the TRS-80, Wagner.
2T Lgame Move your 'L' to block the TRS-80's 'L'.
2T Shop Spree Keep in budget - but do it fast!

