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THE FREE TCS LETTER IS A CLUB PROJECT OF
THE TIDEWATER TRS-80 USERS GROUP

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Welcome to another TCS letter. The last issue was MARCH and the one before that was DECEMBER so you'll know if you missed any or not. The next one is planned for July.

Before getting into the news, we want to thank all of you who wrote such nice notes and letters in the past two months and sent us news, hints and errors to publish. You give us the feeling of being old friends, a feeling we hope is mutual, and we can't describe how good it makes us feel. By your generous donations we sense that you really DO feel like a part of our little "society" and, realizing that a "free" service has to be paid for somehow, assume a share of the responsibility. That's why, among other things, no one with a military address, a foreign address, or known to be a student has ever missed one of our issues (on purpose) whether they've ever made a donation or not. Thank you.

NEWS

Everyone knows that SUPERMAN lives in Metropolis, but who would have guessed that Metropolis was also known as Fort Worth. For that matter, who would have guessed that Superman depended on the "TRS-80 Computer Whiz Kids" for the information he needs to perform his amazing feats. It's all in a special edition of SUPERMAN published by DC COMICS, INC... We haven't heard any more about the TRS-90 lately except that it may be joined by a higher priced and more capable version known as the MODEL III, just as the Model II is the more sophisticated version of the standard (Model I) TRS-80... In the business section of one of the trade journals it was reported that VERBATIM would raise its prices to dealers by 10 percent soon. Incidentally, a spokesman for a major floppy disk head manufacturer told us that Verbatim has changed their previously excellent formula for the oxide coating on their diskettes to one containing barium titanate. The result, he says, is that head cleaning is required more often because of seemingly poor performance of the head which makes his product look bad. The new diskettes are a dark brown without the polished, greenish tint of the old ones. Asked which diskette brand makes his heads look good, he replied DYSAN. If anyone out there perceives any difference between old and new Verbatims we would like to hear from you... A&A FINANCIAL CORPORATION is leasing Model II TRS-80's to small businesses so they can evaluate the system with an option to cancel the 36-month lease within the first 90 days if it doesn't suit them. An \$8,000 1.5 Mbyte system would be \$279 a month and Radio Shack would provide on-site service if needed. The Radio Shack headquarters can probably put you in touch with A&A... A 5-day course on TRS-80 interfacing, programming and applications will be presented June 23-27 in Blacksburg, Virginia for \$445. A similar 3-day workshop will be conducted July 14-16 in Washington, DC for \$350. For more info or registration, contact ADULT REGISTRAR, DONALDSON BROWN CENTER FOR CONTINUING EDUCATION, VIRGINIA TECH, BLACKSBURG, VA 24061, 703-961-5182... If you act quickly you should still be able to order the "Special of the Month" for MAY from ACTIVE ELECTRONICS (PO Box 1035, Framingham, MA 01701, 617-879-0077 for Vias and MC orders). It's 300 ns RAM chips part number 416-5 in ceramic package for \$5.95 each. That's \$47.60 per set of eight plus \$2 per order for shipping... RICH CRAFT ENGINEERING is sponsoring a PROGRAMMING CONTEST to see who can write the best BASIC program to disassemble Level II ROM's. No POKE statements or machine language subroutines allowed. Output may be in decimal or hex and must at least include memory address, first byte of object code and Z-80 instructions. Entry fee is \$10 and minimum prizes are \$100, \$50 and \$25 for first through third place. For more information or an entry blank write Bob Richardson, Richcraft Engineering Ltd, Drawer 1065, #1 Wahmeda Industrial Park, Chautauqua, NY 14722... The next generation of disk drives will be in the magazine ads before you know it. TANDON MAGNETICS CORP, a maker of heads for many of the other drive manufacturers, are now making their own 5.25" drives, the TM-100 series, with several times as much storage as present popular drives and at competitive prices. Rumor has it that Radio Shack is switching from Shugart to Tandon sometime in the future although that has yet to be confirmed...

Radio Shack has confirmed, however, that a service firm known as INDESERV, INC of Littleton, MA will provide on-site repair service for Model II systems throughout the 50 states, Canada and Puerto Rico through 200 locations in 160 cities. Radio Shack's own repair facilities, which number about a hundred, will probably still handle the larger cities and dispatch Indeserv where necessary...

HINTS

If you install internal 16K memory for friends, take note. Changes to the Z3 dip shunt in new TRS-80's with the ALPS keyboard are not the same as in units with the old style keyboard. Units with the ALPS keyboard require that pin 1 of the Z3 dip shunt be open and remaining circuits closed. The Z71 shunt remains the same with only pins 1, 3 and 5 closed. The ALPS keyboard has capacitive contacts to prevent bounce and the caps should not be removed for contact cleaning... If you ever want to disable the LIST command, you can with POKE 16863,195 and POKE 16864,25 and POKE 16865,26. If you put that at the beginning of a program, however, it has to be RUN before it will take effect... NEWDOS users who have a printer with graphics capability (like the OKIDATA Microline 80) can use the JKL feature to copy the screen even if there are graphics on it. Just POKE 17363,0 and POKE 17364,0 once after getting into BASIC. Incidentally, the display will not only be a true reproduction including the graphics but will be more proportional to the screen if the printer is set to condensed printing of 16.5 char/inch horizontal and standard 6 lines/inch vertical... To type an arrow into a BASIC statement, press three keys simultaneously. They are the Z and 2 keys and either a 3, 4, 5 or 6 to get the arrow you want. Some extra unwanted characters will be generated also so either edit them out or use the backspace (without releasing the Z and 2) to erase them as they are encountered. Sure beats finding and typing the CHR\$() code for an arrow in a PRINT statement. And it's easier to read the listing since it will be exactly as it will be displayed. That trick also works with ELECTRIC PENCIL except that you have to use the SHIFT key also unless you first use SHIFT BREAK (or SHIFT 0 with DOS) for all uppercase characters. Without the SHIFT key you get some entirely new symbols and they will print out too, if you have the right printer... If LLIST or LPRINT is encountered on a system without a printer, it will hang up. To cause those commands to be ignored, first POKE 16422,103 and POKE 16423,00 when power is applied or write them into the beginning of a BASIC program containing LPRINTs. The printer driver address in the DCB will then point to a cell containing a RETURN... The cassette version of ELECTRIC PENCIL will not print through a TRS232 device if an expansion interface (with or without disk) is added. This can be remedied by examining PENCIL with a high memory version of RSM and locating the first occurrence of the sequence: LD A,(37E8) CP FF LD A,21 JR Z,XXXX LD A,12. (The XXXX may vary depending on which of the four known versions you have). In the last group, change the 12 to 21 to restore operation to the TRS232 and save the program. If you are using NEWDOS, you can load PENCIL with LMOFFSET and move to a new base address of 7000 before making the change so it won't occupy the same area as DOS routines... If you run out of memory while writing a large program and absolutely can't pack it any tighter, remember those 50 bytes that were reserved for string space. If you don't need them all you can CLEAR 0 (zero) and pick up a few. And if you are a disk user, remember that space for three files are reserved unless you specify otherwise. For each file that you don't need you can gain 290 bytes of extra memory... If you've had trouble with PACKER from Cottage Software on disk programs, be aware that it will remove mandatory spaces from FIELD statements. You can prevent that by inserting a REM ahead a FIELD statement and remove it after the packing process... If you ever jump to 1A19 in a machine language routine to get back to BASIC you have probably received an OM ERROR. Try jumping to 0072 instead... To speed up your disk I/O in NEWDOS+, use Superzap to change track 0 sector 9 byte 0F from a 1B (10 ms) to 1A (8 ms), 19 (6 ms), or 18 (4 ms) depending on the capability of your particular drive. In TRSDOS 2.2 change track 0 sector 7 byte 52 from 1F to 1E. See the March issue of S-80 COMPUTING for more details... Last issue we told you that POKE 16396,23 would disable the BREAK key in Level II BASIC and POKE 23461,0 would do it in NEWDOS+. Well, now we can tell you that POKE 23886,0 will do it in TRSDOS. Or, a pair of pokes that will work with either NEWDOS+ or TRSDOS is POKE 17170,175 and POKE 17171,201... And if that doesn't amuse you disk spinners, try this. In DOS (either NEWDOS+ or TRSDOS) type BOOT/SYS.WHO and hit the ENTER key while holding down the 2 and 6 simultaneously.

IF YOU HAVE DISCOVERED OR LEARNED OF A USEFUL TIDBIT OF INFORMATION, PLEASE LET US KNOW.

TCS FREE BULLETIN BOARD

Free ad space is donated by TCS. A small percentage of any profits that result will be appreciated to help continue this service but there is no obligation.

FOR SALE: RO 35 TELETYPE - ASCII encoded heavy duty with changeable print box, stand and quiet cover. Fully checked out. \$300 plus crating & shipping. *Easily hooked up to TRS-80 and other micros. Call BRYAN McPHEE (609) 893-5120

PERSONAL ESTATE PLANNING for TRS-80 16K L2. New version and reduced to \$9.95 for cassette and documentation. Printer version available at same cost. Every TRS-80 owner should have a copy. See article in Creative Computing, Feb 80. LARRY BUSS, 101 SOUTH U ST, APT 1, LOMPOC, CA 93436

WANTED FOR A SMALL CHURCH: Used Selectric typewriter or line printer in working condition to use with TRS-80. Should be priced low (or donations appreciated). VICTORY TEMPLE ASSEMBLY OF GOD, 1003 COURT ST, SAULT STE. MARIE, MI 49783

USED SOFTWARE BOUGHT & SOLD on consignment. Recycle those no-longer-needed programs you paid good money for. All programs must be complete on original cassette or disk with all documentation. Sellers may send programs (specify how much you want), others send SASE for more info and current list of available programs. NOTE: Not responsible for programs lost or damaged in transit (send insured if valuable). JACK DECKER, 1804 WEST 18TH ST, LOT #155, SAULT STE. MARIE, MI 49783

PROGRAM WANTED: To appraise single family dwelling. Please contact H. C. (JUICY) STEVENS, DEER CREEK INSURANCE AGENCY, BOX 126, 105 E. AVE, HOLLANDALE, MS 38748

HELP WANTED: Need information on interfacing a Digital Group model PT96 to a TRS-80. Can anyone help? V. JUPE, RFD BOX 60, #4 CHURCH LANE, CARLOTTA, CA 95528

BACKUP is a no-nonsense, auto-starting, self-documenting copy utility to make backup copies of any normal machine language program including Adventure, Microchess 1.5 and Sargon II on a 16K Level II system. Simple to use, available as a SYSTEM load tape for \$7.50 or in source form as a listing or EDTASM compatible tape for \$20 from: W. R. ANDRUS, 7034 THOMAS DR, N. HIGHLANDS, CA 95660

INFORMATION WANTED: I am legally blind, with gradually failing vision, and I'm exploring the possibilities of a braille output system for the TRS-80. Does anyone know where I might get information on braille printers? I know they exist. Please contact DICK RAMM, 64 DIVISION AVE, LEVITTOWN, NY 11756

FOR SALE: MICROCHES 1.5 (one copy, original cassette with instruction leaflet) \$10, **RENUM** line renumbering Program (4K and 32K only, original, with leaflet) \$5. First check takes either. D. MACADAM, 68 HAMMOND ST, ROCHESTER, NY 14615

HELP WANTED: Need information on interfacing a Frieden JUSTOWRITER model LCC-C. Please contact RICHARD CROSS, PO BOX 974, FT. WALTON BEACH, FL 32549

SNDFEC, ten machine language sound effect subroutines, \$3.95; **SIMON**, with sound, \$5.95; **LEVEL II.IV**, 14 utilities including left/right scroll, save/restore screen contents, \$9.95; **AUTO GRAPHICS**, keyboard driver for developing program, \$6.95; **HEX DEC**, a converter that can be called without killing BASIC program in memory, \$6.95. J. LINDSEY, 8106 QUAILWOOD CT, WEST CHESTER, OH 45069

SPELLER 100 - a BASIC program to review the 100 most threatening spelling words. May be easily modified to use any list of your choosing. For Level II 4K or 16K cassette tape, \$10. LEROY PRICE, ROUTE ONE, TAMA, IA 52339

SURPLUS VIDEO MONITORS - 9" (SPL-331) \$40, 12" (SPL-332) \$50. JOHN MESHNA, PO BOX 62, 19 ALLERTON ST, E. LYNN, MA 01904

CUSTOM BUSINESS PROGRAMMING in BASIC, FORTRAN or PASCAL. Disk and cassette software made to customers specifications. Call (717) 888-6833 after 4 pm EST or write for more information. GREG M. NICHOLS, 909 W. LOCKHART ST, SAYRE, PA 18840

TRS-80(tm) SYSTEMS - Used/New - Buy/Sell - Reasonable prices - Money-back Guarantee. Discounts on all new units. Immediate CASH available for used units. OMNI SYSTEMS ASSOCIATES, BOX 632, W. CALDWELL, NJ

THE EAGLE HAS LANDED. Where? About a year or so ago Avon put out an aftershave bottle whose plastic cap cover was in the form of an eagle alighting on a gold sphere. I'd like to get a few of those cap covers (no bottles, please) and will pay \$2 each plus postage for ones in good condition. You can mail them COD to TOM SWALENBERG, 54 BARNETT RD, COLUMBUS, OH 42313

WANTED - SOFTWARE FOR HELPING HANDICAPPED PEOPLE. We are searching for teaching aids for handicapped kids like our son who is retarded due to Cerebral Palsy. Does anyone know of a way to allow the computer to respond to unintelligent sounds and convert them into intelligent speech via Computalker CT-1? All info must be free to all handicapped people. Thank you. BRUCE KOPCSO, 3970 GLORIA LANE, CARLSBAD, CA 92008

COMPLETE PROFIT-SHARING & MONEY-PURCHASE PROGRAM - Accepts all employee data, determines eligibility and vesting, allocates contributions, provides all info for final reports. 100% guaranteed or money back without question. JAMES H. POLLARD AND ASSOC., INC., SUITE 306, ONE INVESTMENT PLACE, BALTIMORE, MD 21204. (301) 825-8181.

CUSTOM PROGRAMMING - professional, very reasonable rates, mailing lists a specialty. HARRY HOPKINS, PO BOX 873, LANGLEY AFB, VA 23665, 804-826-6645

WANTED - Ideas and opinions. There is a growing awareness that relatively low cost computers like the TRS-80 can be of use to handicapped people. Coupled with modems for the deaf, braille printers for the blind, the right software for the retarded, the right control devices for the paralyzed, the opportunity for programming jobs or extra income for the immobile, there are many exciting possibilities.

But the ultimate benefit may not be immediately recognized by a handicapped person or his family. And the cost may easily exceed their capacity in view of medical bills. Could a volunteer project overcome these obstacles?

Suppose volunteers could be found to design devices, write software, spend hours transcribing magazine articles into their computer for printout on a braille typewriter, beat the bushes for donated equipment, raise money. Suppose local user groups placed these items with handicapped people in their communities and took the time to instruct in their use. Collectively, we have the talent. Do we have the inclination? Suppose an attempt was made to organize and coordinate a national effort. How much support from individuals, businesses, and local user groups across the country could reasonably be expected? Who among you might be in a position to head this effort? Please send your thoughts to TCS.

MAIL YOUR FLYERS WITH OUR TCS NEWSLETTER - The July issue will be mailed FIRST CLASS in SEALED ENVELOPES to over 5,000 bonafide TRS-80 owners like yourselves. If direct mail advertising works for your type of product, you can avoid the trouble of printing flyers, folding them, stuffing envelopes, stamping them, addressing them, and maintaining a current mailing list. You also avoid the cost of envelopes and printing and it still costs significantly less than a bulk mail stamp for each flyer.

*** You can have a FULL PAGE flyer printed from your camera ready artwork on the back side of one of our newsletter pages for only \$300 total cost. That's only SIX CENTS each including printing, less than the cost of a bulk mail stamp by itself.

*** If you would prefer a separate flyer printed on BOTH sides, 187 square inches of area devoted to your product, the total cost will be \$375. That's still less than the cost of a bulk mail stamp.

*** If your business isn't that big yet, why not try an 8-1/2" by 3-2/3" MINI-FLYER for only \$125 printed on one side or \$150 printed on both sides. Even an individual can afford that price for 5,000 flyers mailed directly to potential customers because it comes to a TOTAL cost of less than THREE CENTS each.

The July issue will be mailed the third week in July and the deadline for artwork is July 8 so you can make your flyer as current as possible. But reserve your space by sending a reasonable deposit as soon as possible. In the event all space is already taken, indicate whether or not the next issue in September is acceptable or if you would rather have your deposit returned.

Clubs newsletters are the main source of information for TCS and other clubs. Here are some interesting things which attracted our attention in recent newsletters from other clubs.

READY (Montgomery, AL) favorably reviewed Radio Shack's **VERSA-FILE** program which sells for \$29.95 and recommends it for its flexibility. The reviewer is using it as an index for magazine articles. We also enjoyed the neat little music program they listed...

TEXAHOMA and WICHITA VALLEY NEWSLETTER (Wichita Falls, TX) reports that one member solved rebooting problems while using **FORUM-80** by installing a .001 mfd capacitor from the MUX pin to the ground pin of the edge connector on the back of the CPU...

MCTUG (Marin County, CA) printed a diagram for a simple little circuit called **KEY-KLIX**. It is a single IC (74LS30) whose inputs are tied to the pullup resistors on the TRS-80 keyboard. Whenever a key is pressed, the output activates a one-transistor audio amp feeding a sub-mini 8 ohm speaker for audible feedback like some of the high priced units feature...

OCTUG (Orange County, CA) had great articles on using the CRC bytes for error checking and a tutorial on internal hardware in the TRS-80...

MAGAZINE HIGHLIGHTS

Looks like we (TCS) are still number one, in FREE information that is. We had expected **THE EIGHTY** (now called the **S-EIGHTY**) to assume that distinction since they announced it would be free as we reported in our last issue. We wrote and encouraged them since they should have been able to do a better job than us. Now, however, as of the May issue, it's only free if you subscribe to **SOFTSIDE** or **PROG 80**. Otherwise a subscription is now \$3.

There is no way to mention all the TRS-80 articles in all the magazines but here are some that caught our eye... **DR. DOBB'S JOURNAL** is looking for TRS-80 articles and software reviewers. In April's issue, an article on Z80 assembly language subroutines with source and narrative explanation and availability of a subroutine library on tape. Also, a letter from a reader claims there are 410 undocumented instructions that the Z80 will execute in addition to the 694 in the Zilog manual. Most involve twin index registers and he gives some examples. Our source says that may be a fluke of the masking process and may not work with all Z80 CPU's. The letter writer, who gives his address, says they will and he is going to write an assembler which will accept the new codes... **80 MICROCOMPUTING** has a program for **PRE-SCHOOL MATH** in April's issue, how to set up multiple **USR** calls, how to have **REVERSE VIDEO**, build a **LIGHT PEN** and add **SOUND EFFECTS** to **BASIC** programs. The May issue has a program to display a tape being **CLOADED**, a review of **PEOPLE'S PASCAL**, a review of **ELECTRIC PENCIL** vs **SCRIPSIT**, an article on **COMPUTER BULLETIN BOARDS** and one on a **SCREENPRINT** feature like **NEWDOS** has by hitting three keys simultaneously... The March **S-80 COMPUTING** covers a **COBOL COMPILER**, the **LNW EXPANION INTERFACE**, the **LOBO EXPANION INTERFACE**, a patch to use **ELECTRIC PENCIL** with **NEWDOS** and patches to speed up stepping rate of disk drives... The April **PROG-80** discusses **VOICE SYNTHESIZER** software, **REDEFINING** the keyboard, **DISK FILE** conversions and timesharing using **THE SOURCE** or **FORUM 80**... April's **PERSONAL COMPUTING** has an article for bond holders on **SECURITY MANIPULATION** and reviews of **FORTRAN**, **VOXBOX** speech recognition and **REMOTE CONTROL**. The May issue dealt with **REAL TIME CONVERSIONS**, simulating **SPECIAL FUNCTION KEYS**, and continued a **WORD PROCESSOR** article from the previous issue... The **H&E COMPUTRONICS** monthly newsletter continues its tutorial on assembly language which has been going on for over a year now... The May/June issue of **80-US** contains an article on music, a good comparison of **SCRIPSIT** vs. **PENCIL**, and the first in a tutorial series on computer control of external devices... **T-PAL** has discontinued publication and all subscriptions have been transferred to **80-US**... Computer music buffs won't want to miss the May/June issue of **RECREATIONAL COMPUTING** which has one of the most interesting articles on the subject we've ever read... An April article in **CREATIVE COMPUTING** has an application and program for the **VOICE SYNTHESIZER**. Another article on a word game isn't bad, either... Level I users may be interested in a game program in the May **KILOBAUD** and builders of the **MICKEY MODEM** can read about a new upgrade for it... The April **POPULAR ELECTRONICS** has a pretty good article on adding a variety of external hex or numeric keyboards to the TRS-80. A **COMPUTER CLUB DIRECTORY** which is split between the April and May issues lists about 300 clubs including many TRS-80 user groups. To have your club listed in future issues, write: **COMPUTER CLUB DIRECTORY, POPULAR ELECTRONICS, ONE PARK AVE, NEW YORK, NY 10016**...

In the last issue we mentioned that some people were dissatisfied with Radio Shack repair service and were looking for an alternative. We got a nice letter from one of our more well known readers, **VR DATA CORP** (777 Henderson Blvd N-6, Polcroft, PA 19032, 215-461-5301) informing us that they have established a **service department** for all TRS-80 equipment including those containing unauthorized modifications. They also service compatible peripherals such as Centronics printers and disk drives regardless of the brand or where purchased. Rates are \$25 plus parts, guaranteed work and turn around is generally within 24 hours. They encourage customers to call first and speak to a technician. Sounds like a good deal to us and we would like to hear from anyone who takes advantage of this service.

A recent IBM study of 29 locations over 36 months revealed 6,244 power incidents including 65 blackouts, 1,569 brownouts and 103 instances of excessively high voltage. The rest were major transients. And you ain't seen nothing yet according to many of the trade journals in the electronics field who are warning of an impending electricity shortage in the eighties. Personal computer owners may soon discover that an uninterruptable power supply (UPS) like the big boys use will be handier than a double headed disk drive. Remember the sixties when predictions of gas shortages were largely ignored? Do yourself a favor and plan ahead.

VOICE SYNTHESIZERS should see an increase in popularity soon, probably starting around Christmas, as the necessary integrated circuits proliferate and come down in price. Motorola, National Semiconductor and a Japanese company are all working on such IC's to give Texas Instruments some competition. In anticipation, TI has announced for the first time that they intend to sell their chip (used in the **Speak 'N Spell**) to OEM's for use in other products.

Acceptance of the **STRINGY FLOPPY** from Exatron seems to be slow because they are a relatively unknown company with a pretty unique device with, except for their ads, has unknown error rates, reliability, etc. But those who have taken the plunge are delighted with their ability to spot a good buy and have written to tell us so. One reader in North Carolina wrote to say he was in California on a business trip and dropped in on Exatron unannounced. He confirmed that they were a small business but he was treated very cordially and given a 45 minute demonstration and literature. He was impressed with their documentation because that is his field. After he bought one he wrote again to tell us how well it performed. A local owner demonstrated one at our last club meeting and he feels the same way.

Hidden costs of owning drives are just becoming known as older drives begin to fail. Obviously, the more sophisticated the drive the more it will cost to repair. But have you ever wondered just how much? **RADIO SHACK** charges a flat fee of \$24 plus parts to repair their drives. Typical of quotes for the repair of a dual headed **FD250** were hourly rates of \$25, \$30 and \$45 plus parts from various distributors. The lowest figure we got was from a distributor (**APPARAT**) at \$10/hour plus parts while the highest seemed to be \$150 flat fee from the manufacturer (**PERTEC**). But that doesn't really tell you much because it depends upon what is wrong. A new dual head assembly is \$150 by itself from **PERTEC** even if you want to buy it and install it yourself. In that case you would also need an alignment diskette for another \$45, a service manual for about \$30 and the right scope and other equipment. Something to inquire about when you select a new drive.

Common diskette contaminants range in size from human hair (averaging .004" or four thousandths of an inch in diameter) all the way down to smoke particles (.00025" or 250 millionths of an inch across). In between are fingerprint smudges, lint, and dust which are irregularly shaped and typically about .001" thick, 5 times as much as the oxide coating on a diskette. True, any dust on your diskette will only contact the head at 3.5 mph (300 RPM at track 16). But if that doesn't impress you, just imagine that it's a rock on the road and you're dragging your feet out the back of a station wagon going 780 mph. **KEEP YOUR DISKETTES STORED IN THEIR PROTECTIVE JACKETS WHEN NOT IN USE.**

ARTIFICIAL STUPIDITY

ELIZA is a program of artificial intelligence but one reader sent us a clipping which argues that what is needed more is someone to come up with a program for simulating stupidity. Then, for the first time, we could derive quantified, and not just qualified, predictions of Murphy's Law.

NEW SOFTWARE

THE PERIPHERAL PEOPLE (PO Box 524, Mercer Island, WA 98040, 206-232-4505) recently announced several new programs. **LABELMAKER** (\$99.50) runs on a 32K disk system for users who want to start a small business maintaining mailing lists. **CODEFILE** (\$19.95), **CODECOPY** (\$29.95) and **MORSECOPY** (\$29.95) are for hams to send and receive Morse Code with little additional hardware... **EDUCATIONAL MICRO SYSTEMS INC** (PO Box 471, Chester, NJ 07930, 201-879-5982) is a new company with a series of reasonably priced MATH PROGRAMS (\$8 to \$14 range) for 7 to 15 year olds. Used for practice or testing, can be tailored to specific needs, has a help mode. An analysis mode at the conclusion of a test will even alert the teacher to problem areas by identifying answers which were initially wrong even if corrected by the student... For those with technical, engineering and scientific applications, **WEST COAST CONSULTANTS** (1775 Lincoln Blvd, Tracy, CA 95376, 209-835-1780) have a couple of high resolution graphics software packages for output on a low cost X-Y plotter such as the Houston Instruments HIPLLOT. Called CURVE, they are priced in the \$50 to \$80 range for subroutine packages or complete programs that handle parametric, cartesian or polar equations... A series of three educational/game tapes from **STEKETEE EDUCATIONAL SOFTWARE** (4639 Spruce St, Phila, PA 19139, 215-747-1284) are math oriented. They are \$9.95 each + \$1 shipping per order. Write for catalog... From **J. D. VICTOR** (1230 York Ave, New York, NY 10021, 212-288-3169) there is MYBUG (\$10 and specify memory size) like TBUG but more features in 27% less space, **CHLOE** (\$10) which is a machine language text editor, and **RELOCA** (\$5) to relocate loader for machine language programs... Some ready to run games for **STRINGY FLOPPIES** include TREK78, TAIPAN, ROUND THE HORN, (\$10.50 ea), **GALACTIC EMPIRE** and **GALACTIC TRADER** (\$15.80 ea) from **DHU-GLAS LTD** (Box 1664, Sausalito, CA 94965). Prices are 50-cents higher for California residents...

NEW HARDWARE

MICRO PERIPHERALS INC (9754 Deering Ave, Chatsworth, CA 91311, 213-790-4202) is coming out with a new plug compatible 5.25" FLOPPY DISK DRIVE that utilizes a 96 track per inch format to put almost a megabyte of data on a single standard diskette. Diskettes recorded on present 48-tpi units can be played back on the new device by reading every other track. When someone writes a patch for our DOS we will be able to use the new drive for our TRS-80's. The MPI 91 (\$450, single sided) can put about 480 Kbytes of data on one side of a standard 5.25" diskette using double data density while the MPI 92 (\$550, dual head) extends that to 960 Kbytes using both sides... **THE MICRO-PERIPHERAL CORP** (PO Box 529, Mercer Island, WA 98040) has announced **THE CONNECTION** (\$249) for hooking TRS-80's with or without an expansion interface to the phone lines. Software is included in the price... **TDK ELECTRONICS** of Garden City, NY has introduced a fail-safe tape HEAD DEMAGNETIZER that comes in a cassette shell. It will be priced under \$25... **ELECTRONICS SPECIALISTS INC** (171 South Main St, Natick, MA 01760, 617-655-1532) make a wide variety of power line filters which are ideal for TRS-80's in harsh environments especially if they have disks or printers... Microsette has not only moved but has changed it's name to **PERSONAL MICRO COMPUTERS INC** (475 Ellis St, Mountain View, CA 94043, 415-968-1604) to reflect new endeavors. New products include FASTLOAD to permit loading of tapes 16 times faster, JOY-80 which is an A/D converter plus joysticks, a prototyping circuit board called PRO-80, and ROM EXTENDER which plugs into the expansion port and decodes 2K of unused memory addresses for use with your own additional ROM. Write or call for prices... A gadget called the RESET EXTENDER is a spring loaded button that installs on the hatch cover of the expansion interface connector. It's \$3.99 from **EMMANUEL B. GARCIA & ASSOC.** (203 N. Wabash, Chicago, IL 60601)... An improved replacement for the cassette control relay in the CPU has been recommended by a knowledgeable source. It is \$9.50 postpaid including very complete instructions from **LAB SERVICE INC** (253 N. Ridge St, Box 383, Hustisford, WI 53034, 414-349-3395)...

NEW BOOKS

Volume 2 of THE DISASSEMBLED HANDBOOK FOR TRS-80 by Bob Richardson (175 pages, \$15) is a continuation of Volume 1 of the same title. This one covers the use of VARPTR, Strings & String Arrays, Single & Double Precision Floating Point Numbers, and more, even a partially disassembled listing of the Level II ROMs. It has been reviewed locally by John Blair and he highly recommends it. Watch for Volume 3 to be announced around September. Available from **RICHCRAFT ENGINEERING LTD**, Drawer 1065, Chautauqua, NY 14722...

A book written by Dr. Jon Titus called **TRS-80 INTERFACING** (190 pages, \$8.95 + \$1 shipping) guides readers in the construction of a variety of circuits used to control peripheral devices. A breadboard is also available in kit form or as a parts list and instructions. **GROUP TECHNOLOGY LTD**, PO Box 87, Check, VA 24072, 703-651-3153... **QUEUE** has published their second catalog of educational software for the Apple, Pet and TRS-80s. About a dozen of it's 57 pages are for the TRS-80. The price is a little steep at \$7.95 but it lists educational software we've not seen elsewhere and may be a good reference for teachers. Their address is: **QUEUE**, 5 Chapel Hill Dr, Fairfield, CT 06432, 203-372-6761.

ERRORS

LEARNING LEVEL II by Lien (1st printing) has more typo errors than we have room to list but the publisher has mailed out corrections to many owners. If you need a copy you can should request the latest changes from Compusoft, 8643 Navajo Rd, San Diego, CA 92119...

LNW RESEARCH EXPANSION INTERFACE manual (Nov 79 printing) on page 10 lists C8 as both .1 and 6.8 ufd. Only 6.8 ufd is correct. The next to last line on page 21 lists six configuration jumpers for the UART. There are only five, delete point L. Incidentally, if you have trouble locating the MPU 131 called for you can use an RCA universal replacement series type SK3628. Also, their SK3779 will replace the 1N5234B 6.2V zener and SK3789 will replace the 1N5244B 14V zener.

IF YOU HAVE DISCOVERED ANY ERRORS IN HARDWARE, SOFTWARE OR DOCUMENTATION THAT WE CAN SHARE WITH OTHERS, PLEASE SEND THEM TO TCS.

USER GROUPS

A user group is starting in **GREENVILLE, NC**. Contact Barry Adams, 109 Valley Pl, Greenville, NC 27834, 919-758-4028... Users in the **MANCHESTER, NH** area are invited to join the new group in that area who had their first meeting in March. Contact Scott Mitchell, 346 S. Taylor St, Manchester, NH 03103, 603-627-4100... The **80-USERS OF HOUSTON (Texas)** meet the first Wednesday of each month at 7:30 pm in the Bellaire Chamber of Commerce Building, 6900 South Rice, in Bellaire... **TBUG-80** is the **TAMPA BAY USERS GROUP** who meet the 1st Wednesday and 3rd Thursday of every month at 7:30 pm for classes, 8:30 pm for meeting, at Fortune Federal Tri-City Plaza, 2500 Bay Dr, Largo, FL. For more info or directions call Dennis McCague in St. Pete at 541-2580 or Mike McGinn in Tampa at 224-9150... The **PORTLAND AREA TRS-80 USERS GROUP** meet the 1st and 3rd Thursdays at 7 pm at Alaska Bag / Tek-Country Store Building 68. Dues are \$12/year and classes are offered in BASIC, assembler and DOS. Contact John Warner, 13485 SW Driftwood Pl, Beaverton, OR 97005, 503-646-2378... The **TRS-80 USERS 'BETWEEN BYTES' GROUP** is an informal group with no dues and welcome visitors to discuss all aspects of the TRS-80. They meet every Friday at lunchtime at Westinghouse Industry Systems Division, RIDC Industrial Park, 200 Beta Dr, Pittsburgh and get together for a mini-computerfest every couple of months. Contact Orville Boston at 412-325-3194...

USER GROUPS ARE INVITED TO SEND INFORMATION ABOUT THEIR GROUP TO TCS. MEETING SCHEDULES WILL BE ANNOUNCED FOR NEW GROUPS OR THOSE NOT PREVIOUSLY MENTIONED UNLESS THERE IS A CHANGE IN THE SCHEDULE. FLYERS SENT IN WILL BE DUPLICATED AT NO CHARGE AND PROVIDED TO THOSE WE HEAR FROM IN YOUR AREA. IT WOULD HELP IF YOU GIVE US THE ZIP CODES CLOSE TO YOUR GROUP.

NOT OTHERWISE COVERED

How can CP/M sold by Applied Dana Corp. be made to drive a printer through the TRS232 interface? G. VON HILSHEIMER, 124 N. CLARA AVE, DELAND, FL 32720... Has anyone found a way of printing the DIR to the screen in Disk Basic 2.3? M. LIGHTERMAN, 9230 SW 59 ST, MIAMI, FL 33173... Can anyone provide the modifications required to use the 20-pin character generator out of the new Heathkit computer in the TRS-80 for true decoders? C. BUTLER, 1806 ADA, LANSING, MI 48910... We read somewhere that an undocumented command in TRSDOS allowed the creation of variable length random files by using the suffix "v" but now we can't locate the article. Can anyone shed any light on that? Please contact Les Logan at TCS... Our **PEN-PAL** list now includes those with such varied interests as wargaming, artificial intelligence, education, business applications, insurance, health care, gambling, stock market, agriculture, stamp collecting, music, interfacing, high resolution graphics, machine language, Fortran, Model II and helping handicapped people. To get your name on the list and get a copy, send your name, address, special interest application for the TRS-80, and an SASE to TCS and write "PEN-PAL" on the front of your envelope.