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Magazine

MARCH 1985

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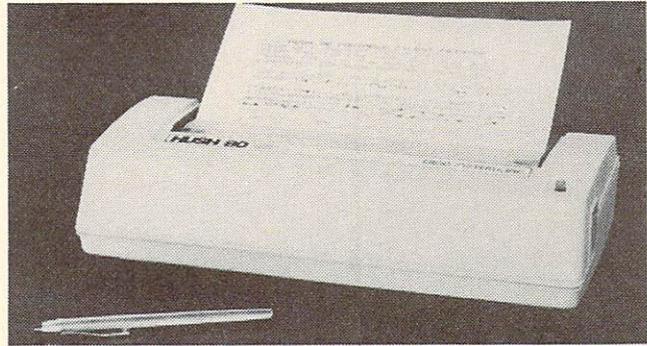
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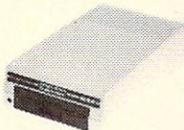
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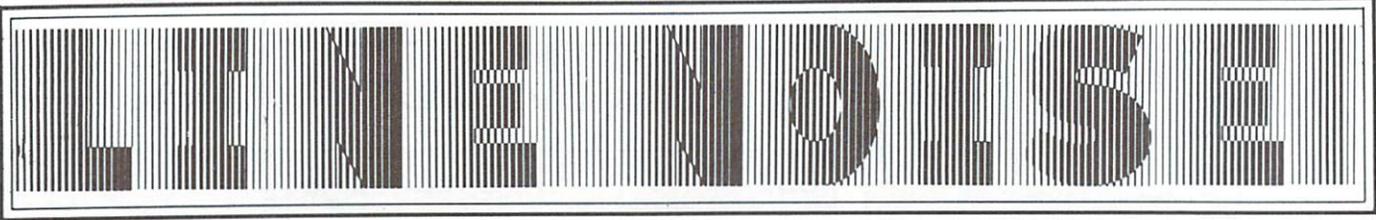
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Welcome to *Line Noise*, which will be a regular feature from now on. We invite you to express your views by writing to:

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Toronto, Ontario M5M 4A1
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Letters may be edited for length and readability.

Info Package Helpful

In the November issue you asked for feedback on the TPUG insert (*Information Package and Library Listings*) in the August/September issue. My response is — yes, keep it up!

I found the insert quite helpful and now have it in my files. If this could be done at least once a year, it would be well worth the money — even if you had to raise dues a little in order to cover the cost.

I look forward to each issue. You're doing a great job.

C. Lewis
Fitzgerald, Georgia

MW 350 Interface Facts

This letter is being printed using my MW 350 interface. It's also about the review of it published in the December issue. While I am generally satisfied with the product, I would like to raise a few caveats with regard to it.

The first, and most significant, issue is that of the buffer. Without the buffer, the reviewer would have been far less satisfied with its performance. With **Music Construction Set**, for instance, the display of the musical staves takes an *excruciatingly* long time.

Another problem is powering the interface from the C-64 when using an Epson-type printer with the +5v on pin 35. The accessory power cable plugs onto the cassette port, and leaves the fingers of the piggyback extension dangerously (to the computer, not you) exposed. Here the

solution is not so obvious, but a jumper — #22 solid telephone wire works fine — shoved between pins 8 and 35 of the ribbon cable connector at the interface board, solves the powering problem.

The third seems to be with the code in the interface. When in sheetfeed mode, the left margin setting for the first line following a new page is ignored, at least with ROM V1.5. I am awaiting a response from Micro World about this.



Raising a few caveats...

Generally, I am quite pleased with the interface, and have no qualms recommending it with the buffer and powering jumper installed. I would also like to add that I have seen at least one package that specifically recommends the use of the MW interface because another popular interface produces improper results (the program in question is printing special symbols using dot graphics).

Russell Herman
Mississauga, Ontario

MPS 802 Request

I want to say that *TPUG Magazine* is great, and keep publishing more. I would like to see some hints on programming with an MPS 802 printer.

Thanks, and Happy New Year!

Clair Pilgrim
Snow Lake, Manitoba

You're in luck: we have already commissioned an article on programming the 802.

COMAL Confusion

I have been waiting for this January issue since I worked my way through all of the COMAL instruction lessons over the Christmas holidays — I'm a school teacher — and I've been anxious to continue learning. Now all of a sudden in the January issue the *TPUG COMAL Course* says this is the last instalment! Heavens forbid! But wait, maybe there is hope: this article is listed as 'Part Seven' and we left off in December with 'Part IV', which to my understanding of Roman numerals means 'Part 6'! So, the question is, did two lessons inadvertently get left out? Do we really have two more coming next month? Please don't leave us hanging! Keep COMAL alive and well in *TPUG Magazine*.

William Rose
Merced, California

Sorry about the mix-up. 'Part Seven' was wrongly labelled — it should really have been 'Part Five'. However, January's article was the end of the COMAL course. Look for more articles on other aspects of COMAL in future issues.



Line Noise presented by Lana Coviello

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for members of TPUG

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Saturday, May 25th

Introduction to C-64 Graphics by John Moore

Very Elementary Programming in BASIC by Lorenzo Pinazza

Introduction to C-64 Sprites by Carl Garant & John Moore

Sunday, May 26th

Commodore Data Bases Versus dBase III by Rob Lockwood

TPUG program library available on pre-copied disks at reasonable cost

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MAY 25 & 26 — RESERVE THESE DATES ON YOUR CALENDAR NOW!

This and That

by Doris Bradley

TPUG Conference 1985

The February issue of *TPUG Magazine* included the registration form for this year's conference, which is to be held on the Memorial Day weekend, **May 25 and 26**, in downtown Toronto. Recent long distance phone calls have indicated that there will probably be groups coming from Australia and Dallas, Texas. For the \$20 registration fee (it goes up to \$30 April 15th), you can mingle with TPUG members from near and far, as well as register for up to ten sessions — that's \$2 a session!

Good news on accommodation! The registration form includes boxes for you to check if you are interested in accommodation in either a hotel or university residence. The university residence will be at Victoria University, a couple of blocks away from the conference. A room with twin beds is \$28 per night (including breakfast and provincial sales tax) for single occupancy, and \$19.50 per person for double occupancy. For an undergraduate or high school student who can produce a student card or university identification for the school year 1984-85, the cost is \$20.25 for single occupancy, and \$18.75 per person for double occupancy. Once we receive your conference application, we'll see that you get a form to send in to the university, or information on hotels in the area, if that is what you wish.

Other Computer Clubs

Here are some more computer clubs who have sent in information to the magazine. These groups may or may not have a membership in TPUG.

Bordentown Area C64 Users Group, New Jersey, meets at McFarland Jr. H.S. on Crosswicks St. on the first Monday and third Wednesday of each month from 6:30-9:30 pm. Contact the group at P.O. Box 381, Bordentown, NJ 08505.

Commodore Club of Mobile, Alabama, is a well-established group that conducts classes for beginner and intermediate levels, and machine language, as well as regular meetings on the second and fourth Thursday of each month. Contact Tom Wyatt 205-343-1178, or Mary Lou Sedgwick 205-478-1745.

Fort Wayne Area Commodore Club, Indiana, holds general meetings on the second Monday of each month and main-

tains a BBS (219-423-1743) that can be accessed from 1200-1800 weekdays. Contact David Groves 219-422-9698.

Ft. Collins Commodore Computer Club, Colorado, can be contacted c/o Judy DiFrancesco, 1625 Centennial Rd., Ft. Collins, CO 80525.

Hinton Computer Club, Alberta, is active and growing. Contact K. Bartlett 403-865-3889.

Midland Commodore Users Group, Ontario, meets at Leitz Company cafeteria, 328 Ellen St., on the first Wednesday of the month at 7 pm. Contact Frank Murphy 705-534-3378.

Input

Do you live in western Canada? If so, you will not find a better buy than the newspaper *Input*. Publisher/editor Richard McGuire began this unusual monthly tabloid last July to provide a Commodore-specific resource for Alberta residents. Now any Canadian living west of the Ontario border can subscribe for \$1 per year. Those living in Ontario and points east pay only \$8, and Americans \$10. The newsletter is well written, well produced, and a bargain at these prices. To subscribe, write: *Input*, Box 1710, Stony Plain, Alberta, T0E 2G0.

December 1984 Pugmag Bug

Our apologies — a number of copies of the December magazine had two sets of the pages 11 through 18 and 35 through 42, while the set 19 through 34 was missing. Several of you have let us know about this bug, and replacement magazines have been sent. Unfortunately, the office supply also had bugs, but we have now checked all our copies and will replace any bugged copies as long as our supply lasts. Our printer has been informed of the problem, and hopefully it won't happen again.

B-128 Users Group

Good news! We have some help in supporting the owners of the B-128. A B-128 User's Group has been formed in California. Marlin Schwanke plans to have a monthly newsletter, a public domain library, and a B-128 oriented BBS soon. Dues are \$20 per year. The address is 432 North M St., Apt. C, Lompoc, CA 93436. Phone 805-735-6931 (voice after 5:00 pm PST) or 805-736-6291 (modem, 24 hours).

Most Easterly Member

Some time ago I mentioned that A.F. MacNeil of Riyadh, Saudi Arabia, claimed to be the most easterly TPUG member. We now have a new claimant: George N. King, who lives 180 miles further east, in Jubail Industrial City, Saudi Arabia. Can anyone beat this?

Special Interest Groups

Recently, different TPUG members have asked about the formation of three additional SIGs. One for CP/M, a second for Printers and Wordprocessing, and a third for LOGO. If you would be interested, contact the office and let me know. Initially, any of these groups could meet at the TPUG office.

Our International Members

I recently had reason to check through the list of 400 or so international members (sorted by surname) for TPUG members in Zurich, Switzerland. As I worked my way through the list I kept a record of the names of countries I encountered as well as the number of members per country. **Alphabetically**, we have members from Argentina to Venezuela. **Numerically**, we have one member in each of Argentina, Austria, Brunei, Indonesia, Ireland, Jamaica, Jordan, Namibia, New Guinea, Netherlands, Nigeria, Pakistan, Portugal, Russia, Singapore and Taiwan. (In case Brunei puzzles you, it was the only new nation created in 1984, is in East Asia, and is the 159th member of the United Nations.) On the other end of the scale we have 19 members in Sweden, 21 in Germany, 28 in New Zealand, 36 in Australia and 61 in Trinidad. Counting Canada and the United States we have members in 50 countries around the world! And yes, we do have a member in Zurich.

Piracy and Fast Backup

To date, over \$500 has been forwarded to Thomas Templemann in West Germany, the author of the fast backup program for the 1541 disk drive. My thanks to the various user groups, e.g. Narragansett Commodore Users Group, Rhode Island, who have mentioned the situation in their publications and have quoted from my December column on the subject. If you keep spreading the word this 'thank you' effort should soon reach \$1,000.

The Answer Desk

with David Bradley

Which modem?

I have a Commodore 64 with a 1702 monitor, a 1541 disk drive, a DPS-1101 printer and a number of joysticks. I am happy with my present system and I have finally decided to add a modem. My problem is which one to get. There are so many out there, and I don't want to get stuck with a lemon. What do you suggest?

Before going out to look for a modem, you should decide for what purpose you want to use it, and then go shopping for terminal software that will do what you want it to do. Once you have found that, then get one of the modems that works with the terminal software you have located.

If you don't really know what you would like to do with your modem, it might be a good idea to find one or two modem users in your area and get some suggestions from them. Perhaps they will let you sign on to a couple of systems for a look around. Overall, I have found modem users to be quite helpful when it comes to getting a fellow computer enthusiast hooked on BBSing.

By the way, there are a lot of very good terminal programs available in the TPUG library. You won't find a better package of terminal programs for \$10.00.

Plus/4 compatibility?

I have just bought a Plus/4, a 1702 monitor, a 1541 disk drive, and an MPS-802 dot matrix printer. My question is, will all of the TPUG Commodore 64 software work on my Plus/4?

Some of the programs currently available for the Commodore 64 in the TPUG library will work on the Plus/4, but at the moment we don't know which ones. The task of testing all of the C-64 programs on a Plus/4 will take months! For now, though, here is the rule to follow: anything written in BASIC with no machine-specific features will work on any Commodore computer. The best thing that you could do would be to wait until some Plus/4 disks are assembled and released by the club. At the moment there are not many public domain programs for the Plus/4 computer but, with a bit of

luck, the Plus/4 TPUG members will send some in (hint!).

New 801 characters

I bought an MPS-801 a few weeks ago, and I do not like the character set that it came with. I would buy another printer but, being retired and on a fixed income, I had just enough stashed away to buy the MPS-801. I was wondering if there was any way to get a different character set on my current printer at a reasonable price?

A company called Wilanta Arts, run by a TPUG member, has just what you are looking for. The new character set comes in the form of an EPROM and it can be purchased for \$29.95. In case you are interested, Wilanta's address is: Wilanta Arts, Department 'D', 6943 Barrisdale Drive, Mississauga, Ontario, Canada L5N 2H5.

The chip comes with complete installation instructions and from what I have seen, it is well worth the price. (See *CBM Printers and the C-64* elsewhere in this issue for further details.)

1541 service costs

I live in Toronto and my 1541 has been constantly going out of alignment for almost a year and a half. I have bought all of the disk aligner programs available on the market but nothing seems to help. I took it back to Commodore a couple of times, and for seventy dollars they seemed very eager to fix it, but soon after I had waved bye bye to my money, it was broken again. Is there a place, other than Commodore, that will really fix it at reasonable cost?

One place that does their own service is COMSPEC. I have never had alignment troubles, but I have heard they do good work at rates that are much more reasonable than those charged by Commodore. If you want to give them a call, their number is 416-787-0617.

If you have a question for The Answer Desk, please send it to: The Answer Desk, c/o TPUG Magazine, 1912A Avenue Road, Suite 1, Toronto, Ontario M5M 4A1, Canada. □

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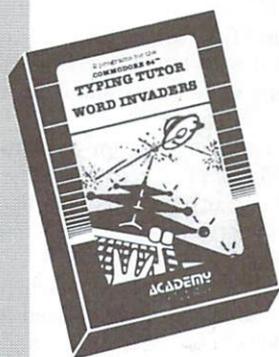
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TPUG C-64 Chess Tournament Report

by Chris Johnson

Why did several members of TPUG volunteer to spend many hours watching two Commodore 64 computers play chess with each other at the World of Commodore II show a few months ago? Why did these people choose the three strongest chess programs available for the C-64 (**Sargon III**, **Chess 7.0**, and **Colossus Chess 2.0**), and then pit the mighty three against each other for hours on end?

Why? Because no other game embodies the concept of human intelligence as totally as chess; no other game leaves so little to chance, yet is virtually limitless in scope.

After the first move in a game of chess (a 'move' is a move by both White and Black) there are four hundred possible positions — White has twenty possible moves, and for each of those, Black has twenty possible replies. After the next move there are more than a hundred thousand positions that could arise.

... There are more ways to play the first 10 moves in a game of chess than seconds have passed since the earth was formed, five billion years ago...

There are more ways to play the first ten moves in a game of chess than seconds have passed since the earth was formed, five billion years ago.

It becomes obvious, therefore, that the computer cannot hope to play a good game of chess solely by analyzing all the possibilities. The program must, instead, examine only a short number of moves ahead for all except some forced lines, or perhaps some promising lines.

Within these limits, computers are very strong: if a piece can be won in a few moves, the computer will find out how. The computer is not forgiving of tactical mistakes: if an opponent allows

a devastating knight fork on the next move, the computer will discover it. But in a quiet position where long-range planning is more important than tactics, the computer will flounder.

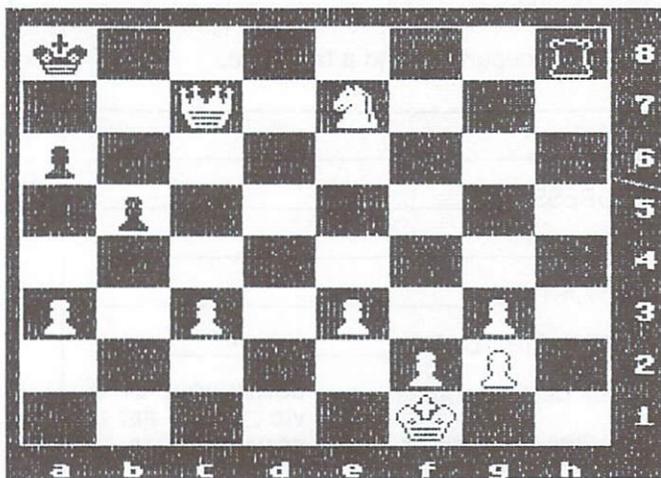
Odesta's **Chess 7.0**, released just over a year ago (and at that time unquestionably the strongest program available for the C-64), came third in the TPUG tournament. **Sargon III**, by far the strongest yet in the Sargon series, came second. The winner was an English program not yet available in Canada, **Colossus Chess 2.0**.

In the TPUG tournament, each program played two games against each of the other two programs, once with White and once with Black. We set all three to play at approximately the same speed (forty moves in an hour and fifty minutes), close to the speed used in a serious tournament with human players. It is long enough to give the programs time to examine to a reasonable depth.

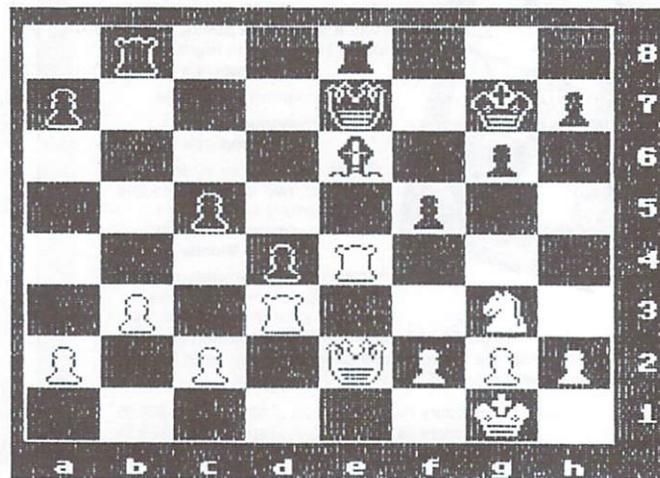
The first game of the tournament featured **Sargon** vs. **Colossus**. It was declared a draw after 55 moves. A weak opening by **Colossus** left **Sargon** a pawn ahead after 10 moves, but **Sargon** gave it back with a weak twenty-third move. The game continued rather aimlessly for another 22 moves.

Observers were amazed near the end of the second game when **Colossus**, this time playing White against **Sargon**, missed a forced checkmate. **Sargon** advanced his queen prematurely and was forced to give it up in exchange for a rook. Then, on move 38, White checked with his queen, instead of threatening mate by moving his knight (see diagram 1).

White should have played 38. Nc6, threatening checkmate on the next move. However, Black could delay the end a couple of moves by checking White. This would have taken the line a total of seven ply (a ply is a move by one side; a 'move' is two ply). Did this take **Colossus** beyond the depth at which it was searching? If so, was this because time control was approaching and the program was playing faster — curtailing its search in order to reach its 40th move before the 110 minutes were up? Or did Black's check discourage it from examining the line any further? Not that this oversight changed the result of the game: **Colossus** took only a few more moves to finish off **Sargon**.



Game 2, after 37...Ka8.
White missed the quickest win — a forced mate with Nc6!



Game 5, after 12...f5?
This obstructs Black's bishop and leaves a hole at e5.

The score at this point: **Colossus 1.5; Sargon III 0.5.**

Round three saw **Sargon** pitted against **Chess 7.0**. Black (**Chess 7.0**) played a weak opening, brought his queen out too soon, and lost the exchange of a rook for a knight. White returned the exchange later for a pawn and a rook on the seventh rank. White should have gone on to win the endgame, but like most programs, is weak in the endgame and **Chess 7.0** sacrificed to prevent White from promoting a pawn. The resulting position, with a rook against a bishop, was a draw.

In round four, both **Chess 7.0** and **Sargon** played weakly. White made a strange fourth move, and both programs misplaced their rooks — several times. Black closed up the queen's side when he should have left it active; White then opened it up when he should have left it closed. The game could have gone either way, there were many threats by both sides, though **Sargon** retained the better position. On move 61 White lost a piece and the game went with it a few moves later.

At this point **Colossus**, with two games left to play, both against **Chess 7.0**, needed only one win or two draws to win the tournament. The scores: **Colossus 1.5; Sargon 2; Chess 7.0 0.5.**

Round five saw **Colossus** clinch the championship by beating

Chess 7.0 in an exciting game. Black (**Chess 7.0**) came out of the opening in a fairly strong position, but frittered away any potential advantage with several pointless moves. **Colossus** made an unusual sacrifice of two pawns that led to his winning a piece six moves later! Though this apparently left White's king exposed, Black was unable to take advantage of it. After a series of checks, White consolidated his position and the game to take the championship.

The final game, **Chess 7.0** as White against **Colossus**, was a long, see-saw battle that ended with a struggle to promote pawns. Black succeeded, but could not keep the piece. Black then gained the upper hand but could not prevent White from sacrificing his bishop for Black's remaining pawn and forcing a draw.

The final score: **Colossus Chess 2.0 3; Sargon 3 2; Chess 7.0 1.** Was this the last word on the strength of these three programs? It's not likely, since this was a very limited contest, but **Colossus** *did* appear to have more positional sense than either **Sargon** or **Chess 7.0**. All three are strong and could handle the vast majority of chess players; they all can give a good game to any regular club or tournament players. But at the rate of development in the field all three may be eclipsed by a new entry at any time. □

**Round 2:
Colossus vs. Sargon III**

1. c4 e6
2. Nc3 Bb4
3. a3 Be7
If Black was not prepared to exchange his bishop for the knight at c3 he should not have moved it to b4; now he loses a move.
4. d4 b6
5. Bf4 Bb7
6. e3 Nf6
7. Nf3 Nh5
8. Bg3 Nxc3
9. hg Na6
Not the best place to develop the knight. It should move instead to c6 (at the right time).
10. Bd3 f5
11. d5
Lets Blacks QN in to a more effective square:
11... Nc5
12. Ne5 ed
13. Bxf5 Bf6
14. Ng6!
Black's h-pawn is pinned.
14... Rg8
15. Rxh7 dc
16. Kf1
To protect his g-pawn.
16... Bxc3
17. bc Qf6
18. Qc2 d5
19. Rd1 Ne4
20. Bxe4 de
21. Nf4 Qf5
22. Rh5 g5
23. Rd4 Qg4
Black is advancing his queen too far, too soon.

24. Rxe4+ Kd7
25. Rh7+ Kc8
26. Nd5!
Black has nowhere to put his queen.
26... Qd7
27. Rxd7 Kxd7
28. Nf6+ Kc8
29. Nxc8 Bxe4
30. Qxe4 Kb8
31. Qxc4 a6
32. Qg4 Kb7
33. Qxc5 b5
34. Qd5+ Ka7
35. Ne7 Rf8
36. Qc6 Rh8
37. Qxc7+ Ka8
38. Qc6+?
Here, White missed a forced mate: 38. Nc6. Black can delay by 38...Rh1+; 39. Ke2, Re1+; 40. Kxe1, a5; 41. Qa7 mate. Did this delay take the analysis just beyond the level at which Colossus was analyzing?
38... Ka7
39. f4 Rh1+
40. Ke2 Rg1
41. Nc8+ Kb8
42. Nd6
Black can only delay one more move by sacrificing his rook with Re1+.
**Round 5:
Colossus vs. Chess 7**
1. Nc3 d5
2. e4 e6
More usual, if anything in this opening can be called "usual", is 2...d4
3. ed ed

4. d4 Nc6
5. Bf4 Nf6
6. Bb5 Bd6
7. Bxc6 bc
8. Bxd6 cd
9. Nge2 Rb8
10. b3 Bf5
11. 0-0 0-0
12. Ng3 Be6
13. Re1 g6
A pointless move. Black would have done better to play 13...Re8 to counter White's rook on the e-file.
14. Re3 Qe7?
Not a good idea to place the queen on the active file. The queen, if moved at all, should go to either d7 or c7.
15. Qe2 c5
16. Rd1 Qd7
17. dc dc
18. Nce4 Nxe4
19. Nxe4 Qe7
20. Ng3 d4
21. Re5 Rfe8
22. Rd3 f6
At this point Black has a satisfactory position. Unfortunately Black makes a number of weak and/or pointless moves.
23. Re4 f5?
This pawn was better left at f6; here it blocks the bishop's, reduces pawn mobility, and lets White's rook return to e5 where is it later entrenched with f4. Black's position would have been far better if he had concentrated on doubling his rooks on the e-file
24. Re5 Kg7

25. f4 Qd7
26. c3 Qd6
27. Qe3 Rbd8
28. cd cd
29. Qd2 Qb6
30. Ne2 a6
31. Nxd4 Kh8
32. Qe3 Qd6
White now embarks on a remarkable double pawn sacrifice.
33. g4 fg
34. h3 hg
35. Kh2 Kg8
36. Qe2 Qd7
37. Rd2 a5
38. Nf3 Qf7
39. Rxe6 Qxf4+
40. Kh1 Rf8
41. Rxd8 Rxd8
42. Re5 Rf8
43. Ng1 Qh4
44. Rxa5 Rf7
45. a3 Qd8
46. b4 Qh4
47. Qe3 h2
48. Nf3 Qh3
49. Ra8+ Kg7
50. Qd4+ Kh6
51. Qe3+ Kg7
52. Qc3+ Kh6
53. Qd2+ Kg7
54. Qb2+ Kh6
55. Qc1+ Kg7
56. Qa1+ Kh6
57. Nxb2 Rf2
58. Qg1 Re2
59. Ra7 g5
60. Ra6 Kh5
61. Rf6 h6
62. b5 Rd2
White wins

The Electric Goddess of Chess

by Bill Bullock

Men have been slaves to her powers for centuries without knowing who she was, then became willing subjects for centuries more after discovering her identity. Even in today's Future Shock society she has an enormous following. Her name is Caissa, Goddess of Chess.

The power of chess to grip the mind in addictive fascination has long been the subject of study from various disciplines. It is not surprising that people's attempts to produce a machine that would play the game have a long history.

The first commercially successful venture of this kind entered the marketplace in 1770 and was an immediate success. It was a mechanically marvellous chess playing machine — an 'automaton'. At one end was a scaled-down imitation of a Turkish figure complete with turban, and at the other end a compartment that could be opened for inspection by skeptical onlookers. It became known as the Turk, and was very successful until its exposure as a hoax in 1834. The machine used a hidden chess-playing dwarf as its micro-processor and enjoyed a 64-year run before being phased out.

The next great step forward came nearly half a century later in 1878 with the introduction of Mephisto, another chess-playing automaton. The public was allowed complete access to poke and peek around this machine even while it was actually playing — no hidden player could be found. Unfamiliar with the new principles of remote control, the public had once again been duped. The electrical age had arrived.

The first real chess-playing automaton was produced in 1890 by a Spanish scientist named Leonardo Torres y Quevedo. His machine used an electro-magnetic control system and an inefficient precalculated algorithm to solve and play out King and Rook versus King type endgames. However, his machine, being unable to play the whole game, aroused little public interest. Even historians have tended to ignore the fact that he was really first on the block with a chess-playing machine that actually worked! He also marked the end of an era.

In 1937, Claude E. Shannon, destined to become the father of computer chess, worked out the electrical circuitry required to perform binary arithmetic. By 1943, the first working electronic digital computer — named Colossus — was up and run-

ing. Although dedicated to the single task of cracking the German 'Enigma' codes during the Second World War, it nevertheless gave rise to many important spin-offs. Perhaps more importantly it provided the world with a nucleus of Artificial Intelligence specialists, half of whom, significantly, were chess players.

The modern era of computers began with the invention of the transistor in 1948. However, the transistor was not actually used in a computer until 1956. The big news came in 1949 when Shannon, then a researcher at Bell Labs, presented a seminal paper of brilliant insight and thus launched computer chess as a science, and himself as the father of that science, all without a single line of chess programming.

Within a mere two years the first real chess program was making the headlines. It was rather crude by present standards but very impressive in 1951, even though it had to run on a very slow vacuum-tube IBM. Things began to hum at this point and Caissa must have been truly impressed as MIT produced the original quantum leap in computer design with the introduction of TX-O, the first transistorized computer in 1956, closely followed in 1958 by Texas Instruments with their invention of the integrated circuit. By 1964, the first computers with IC chips were a fact and the information explosion was on its way.

Unfettered by hardware, chess programs steadily advanced in number and quality. Inevitably they clashed — which was the best? That honour first went to the Russians, whose **Kaissa** walked away with the First World Computer Championship in 1974. The Americans avenged the loss in 1977 by winning the Second World Computer Chess Championship held in Toronto, Canada, in a remarkably clean sweep with **Chess 4.6**.

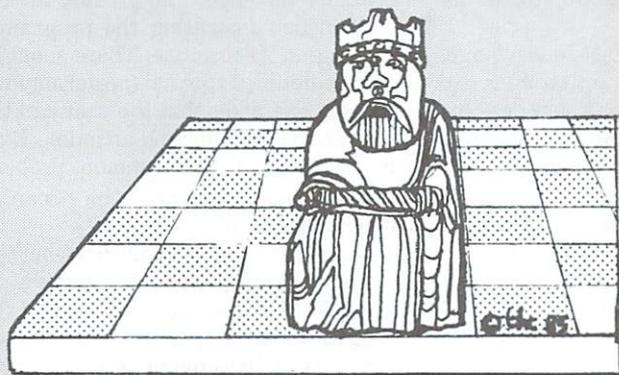
Today the chess-playing machine has become an everyday humdrum reality. The great dream has been realized, yet the

age old problem remains. What is the fascination of chess? Why is it so addictive? Where is its usefulness? How should it be classified? Is it an art? A science? Or, after all, is it just another game? Computer science may hold an answer as more and more programmers and scientists, bent on pushing back the frontiers of Artificial Intelligence, discover that computer chess is a particularly useful tool in evaluating differing algorithmic approaches to this important research. □



The Anatomy of a Chess Program

by Bill Bullock



The problem facing the chess programmer is that of reducing our vast lore of chess intelligence to a numerical equivalent that can be easily manipulated by a computer. In the process there are many problems to be overcome. Their solution begins with the development of an algorithm that will enable the computer to handle the basic concepts of chess: its rules, its principles, its moves.

The particulars of the algorithmic approach are as diverse as the programmers who use them. The outline described here, while typical of most chess programs, is nevertheless specific to none.

A chess program has three main parts: a Situation Module, an Evaluation Module, and an Execution Module. Each of these sections is extremely complex, and each has been implemented in a variety of ingenious ways.

The Situation Module determines if the game is in its opening, middle game, or end game phase. It must establish the location of the pieces and the legal moves available, and size up the overall situation. To do all of this it must know the laws of chess and some of its fundamental concepts. An array of legally eligible moves is built with a routine known as a move generator. The Situation Module must also establish the records: a data base defining and storing the current board position.

The Evaluation Module measures the strength of a board position in numerical terms. The accuracy of this numerical evaluation is the most important factor that separates good programs from inferior ones. Each chess piece is given a numerical value according to its importance in the game. In addition, a large number of positional factors are numerically weighted. Numerical pluses are given to each position that adheres to the main principles of good chess. Stronger programs attempt to beef up end game play by modifying their evaluation routines to take into account the special requirements of the end game phase. In spite of such fine tuning, however, end game play continues to remain the weakest area of modern chess programming, and for that reason has become the area receiving the most intensive research.

The Evaluation Module may be considered the very heart of a chess program: it is called upon many thousands, perhaps millions of times during the course of selecting just one move. Position evaluation therefore accounts for most of a program's execution time.

The Execution Module has the responsibility of providing the search and rescue function of the program. When directed it will search the opening book — a built-in data base of approved opening moves — and will execute an immediate move from the play book if a matching position is found. Otherwise it establishes a search tree (using the move generator) to set up a listing or layer of possible moves (called a 'ply'), evaluates each of the resultant board positions, and executes a repetition of the whole process for each succeeding ply or half move until the allowable response time has been exceeded.

Response time, of course, is the variable altered when a program's skill (or 'level') is selected by a user. The strength of the program is thus reduced by shortening its 'thinking' time, and not at all by changing its algorithm. As a result, good programs remain surprisingly strong even at their weakest level. Some programs offer a special 'easy' mode to achieve a more balanced contest, but even that is nothing more than another reduction in 'thinking' time.

Many different search strategies have been developed, each with its own strengths, and each at the cost of differing trade-offs, but none has effectively solved the syndrome known as the Horizon Effect. This is simply the inability of a program that is looking ahead perhaps four moves to see the disaster that awaits just over the horizon on the fifth move. In a more pernicious form of the effect, the program has looked five moves ahead, has seen the disaster, and has opted for an alternate continuation by adding a couple of time-waster moves that push the fifth move over the horizon to a new move slot of seven. The program ends its search at move five of the new move order, congratulates itself on finding a safe continuation, and sets out on what is really just a longer route to the same old disaster.

When search strategy has been developed to the point of eliminating the Horizon Effect, chess programs will have attained world chess championship standards. In the meantime, the move is executed, and the search goes on. □

For readers who wish to investigate the theory of computer chess in greater detail, the following books are recommended:

Advances in Computer Chess, Vols 1 and 2, edited by M.R.B. Clarke (Edinburgh University Press)

Artificial Intelligence, by A. Bundy (Edinburgh University Press)

Computer Chess, by David E. Welsh (Wm. C. Brown)

The Chess Computer Handbook, by David Levy (Batsford)

Computer Comfort

by Jim Butterfield

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There seems to have been a lot of discussion in the press lately on the subject of cuddling. It started off with a letter to Ann Landers, and has been picked up by other columnists and talk shows. One midwestern broadcaster was mobbed when he offered free cuddles to all listeners. I don't plan to make any offer along that line; but I'd like to talk about the way we would all like to feel safe, warm and secure ... especially with computers.

It's my theory that success in the big computer world was achieved by making customers feel safe. In the early computer era, there was a lot of talk about the IBM 'umbrella'. If your business walked with IBM, you walked under the umbrella and you'd never feel the bad weather.

Back in those days, you'd often pay more for the big guy's computers. But you'd get security. There would be a Customer Engineer posted on your premises or on close call. Any software you would like — compilers, subroutines, report generators — was yours free for the asking. You'd get programming forms, schedules for ordering fresh supplies such as paper, punched cards or magnetic tape, free manuals, free training courses ... you were well taken care of.

If you went for one of the smaller six — little guys like Univac, Control Data, or RCA (yes, they made computers) — you could often save money. But you'd need to know your business: you'd have to take care of yourself. No umbrella. No cuddling.

Why the difference? Mostly, I think, because IBM rented computers and the other vendors sold them. A rental customer is still a customer. A sale is an ex-customer.

By the way, times have changed. IBM has 'unbundled', and many of the marvellous free services have vanished. But they achieved dominance before unbundling took place in the early sixties, and they are still on top.

I think the same principles apply to software purchases today. A buyer wants

to feel secure about programs. When we pay a few hundred dollars or so for a software system, we know that we will have to live with it for months or years. We look for the support features — warranty, update, documentation — to tell us that we'll be safe.

There's often a difference in viewpoint between vendor and customer. A customer thinks of buying a service — an accounting package, a word processor, whatever. A vendor thinks of selling an object — an accounting package, a word processor, whatever. Same thing? Not at all. A vendor's responsibility for a service starts with the sale. But a vendor's responsibility for an object — providing it's not defective when sold — ends with the sale.

So here we have two opposing viewpoints. The vendor might think that the moment the product goes out the door, the sale is concluded. The customer might think that the moment a package is acquired, the vendor's responsibilities begin. Unhappily, there's often no middle ground.

Nobody wins. The vendor is injured when a complaint comes in: "Look, for a five dollar profit I'm supposed to hold

**... We want comfort.
We want to be able to
sleep soundly at night.
We want software that
cuddles and protects
us...**

the guy's hand for two months?" The purchaser is wounded when support is unavailable: "I said, I don't want my money back, I want it to work right ..."

Hopefully, the gap can be bridged. Good documentation, update or newsletter service, warranty/replacement policy, supplementary programs — all these can be used to connect the manufacturer to the user without unnecessary (and costly) lengthy interviews.

The program itself should have help features, significant defaults, menus where appropriate, double-checks ("are you sure?") at dangerous points, and even subliminal clues such as colour coding associated with specific activities.

Documentation should start with a walk-through of the package: "Turn the

computer on, type this and you should see as follows ..."

When a user unwraps a package, he or she doesn't know whether it's good or defective, or how to tell the difference. A simple walk-through can reassure the buyer and provide the first step in demonstrating the program or training in its first use. There should be a more detailed tutorial (preferably with specific examples that the user can try), a reference section, and an index. Extra material, such as 'Common problems when using this program', can be invaluable.

I have sometimes wondered whether a software house might give away a program free or at a small charge, and then suggest to the user that it would be wise to subscribe to a support service, paying an annual fee to be kept up to date. It seems to me that many users view themselves as subscribers to a program service rather than owners (or licensees or whatever) of a program.

And I'm sure that most purchasers feel quite insecure. Will the program work correctly? What will happen if something goes wrong? Suppose the disk fails? Suppose something weird comes up on the screen. We're full of phobias, and the more we depend on a program, the more profound the fears. A user told me some years ago of a package that had a HELP screen that said, "Occasionally, the data base will fail and all files will be irretrievably lost". Such a loss had never happened to the user; but the existence of such a threat caused him to abandon the program as quickly as possible.

We want comfort. We want to be able to sleep soundly at night. We want software that cuddles and protects us. Today, there's still too little of that kind of program. Partly, it's up to the vendors to make 'cuddly' software. Partly, it's up to users to seek it out.

A few years ago, I visited Dallas and on my arrival was taken to a nearby tavern. I was discussing with a Commodore employee my views on desirable software when the waitress came around. I asked her, "What do you think of this theory that everybody really wants to be cuddled?" She replied, "Well, ah think it's jest fine, but my boyfriend don't really care for it".

So maybe it's not a hundred per cent universal need. But I'd put it in the high nineties. □

SuperPET's BASIC Distinctions

by Brad Bjorndahl

For this issue, I have chosen to ask myself these questions: Why is BASIC still around? and, why does my computer have two of them — Commodore BASIC 4.0 and Waterloo microBASIC (designated mBASIC)?

First, BASIC pervades the entire programming community by being available on virtually every digital computer. Anyone remotely connected with computers has some knowledge of it. Second, it is old — so old that many people consider it obsolete. Third, it has more versions than any other language and most versions have multiple upgrades tacked onto them. Fourth, it is relatively easy to learn in spite of its lack of 'modern conveniences' such as structured statements.

These comments help to explain why BASIC is still around. That it is so available and well known gives it popularity 'by default'. For example, it is impossible to imagine the IBM PC without BASIC. It is *expected*. Since new machines must provide BASIC, they usually use the language to present a buyer with the machine's best features — graphics or colour, for example. BASIC's age, and its possible obsolescence as a language, are not really relevant to its continued existence. Fortran and COBOL are older and just as deeply rooted as BASIC. A great deal of program development has been invested in these languages. They are not easily discarded. Finally, learning BASIC is easy *because* of its lack of structured statements. The advantages of **IF...ELSEIF...ENDIF** and organized data storage are (usually) lost on a novice. The overhead of forced program development in other languages can be very discouraging. Besides, once the purpose is appreciated, a student programmer can find ways of structuring BASIC. In fact, organizing your own structures is a good way of learning to take advantage of them in those languages that provide them.

The answer to my first question, then, is simple enough: BASIC is still around partly as a result of momentum and partly because it is easy to grasp. Now we can consider question two, which I will restate as: why did Waterloo add microBASIC to the SuperPET when the Commodore version was built in?

No doubt the designers felt that its omission would be a fault. The SuperPET is primarily a learning machine. Perhaps they thought that using BASIC is a good way to learn how *not* to program. Waterloo mBASIC retains BASIC 4.0's character while upgrading it with features that allow easier and better coding. As a result, it is compatible with ordinary BASIC, yet provides features of more advanced languages.

For example, consider the awful BASIC 4.0 editor. mBASIC has commands that are missing in BASIC 4.0: **RENUMBER**, **AUTOLINE**, **DELETE** and a proper **LIST**. I expect this was done only for completeness since there is also available a completely separate full-screen editor with search and change commands. Every BASIC should have an editor that makes entering code the easiest part of programming.

Structured code is a similar story. mBASIC has the 'primitive control' statements with which every BASIC 4.0 programmer is familiar, such as **FOR...NEXT**. To these, mBASIC adds **LOOP...UNTIL**, **IF...ELSE...ENDIF**, and so on. Structured control is extended further in mBASIC by providing a **CALL** as well as a **GOSUB** statement. Both statements will execute a section of code and return to the following statement. **GOSUB** transfers control to the line number of a 'subroutine'. **CALL** transfers control to the start of a 'procedure', which is identified by an alphanumeric name. Also, values and expressions may be given to the procedure for use during the call.

The programmer has the option of using simple (clumsy) or complex (powerful) coding techniques. Sometimes, in practice, a combination is used. Recently, in translating a program from BASIC 4.0, I changed almost all the structures to better ones available in mBASIC. The exception was an **ON J GOSUB...** statement where *J* was a menu selection number. I could have replaced this with an **IF** or a **GUESS** statement of ten to fifteen lines, which would have allowed me to use procedure names instead of line numbers. Names usually yield clearer code. In this case, the number of lines required would only have made the code more complicated.

There are a few more features in mBASIC that are extensions of BASIC

4.0. Functions can be defined with more than one passed parameter, and more than one statement can be executed. Both options make life a great deal simpler for the programmer. mBASIC also has added matrix (array) features. For example, the **LET** statement will operate on entire matrices if it is preceded by **MAT**. In this way, every element of a matrix can be set to a constant or to the value of an expression. There are special keywords for setting a numeric array to all zeros or a string array to all nulls. It is easy to multiply all elements of a numeric matrix by a constant or by the value of an expression. No loops are needed. Even addition, subtraction and multiplication of matrices are provided in one statement.

One last, very important, extension must be mentioned. mBASIC has a **LIN-PUT** statement that will input an entire line or record of a file, ignoring commas. It is difficult to express how welcome this command can be when it is needed.

There are a few more mBASIC features that are not extensions but additions to BASIC 4.0. They can be classed as debugging aids. mBASIC recognizes a number of run-time error conditions such as overflow and underflow, division by zero, string overflow, and conversion to numeric values during **READ** or **INPUT**.

mBASIC gives the programmer three options when errors are found. One, the programmer can ignore the error. This is often done for the EOF (end-of-file) condition when the programmer would rather check the i/o status flag. Two, the programmer can let the system process the error. This would usually be the case for an error such as an invalid subscript, because that usually indicates an unexpected program bug. Three, the programmer can provide a group of statements to be executed if a certain error is found by the interpreter. This is useful for displaying data values or correcting the error. When this error handling option is used, the programmer can return control to the line that caused the error, presumably after making corrections.

That covers the major extensions and additions to mBASIC. It is clear to me that they allow BASIC to be competitive with other languages without sacrificing its usefulness as a teaching language. And that is why I have two BASICs in my machine. □

Winter CES 1985

A special report by Louise Redgers

While the Winter Consumer Electronics Show 1985 was not filled with the same sense of excitement as the one held last summer, there were plenty of exciting announcements for Commodore computer users. The impending announcement of the Commodore 128 had obviously caused many of the software houses to withhold further development work on Commodore projects until they knew what the machine was going to do to the market place. The period has been used to catch up on development for the Apple and IBM computers for the home market. They stole much of the thunder, as far as getting the hottest software developed for their machines first.

Software

Educational and music software appear to be at the forefront of development. There was an abundance of new selections, each with special features that will help the user to choose the package designed to meet his needs. Software companies were most anxious to provide *TPUG Magazine* with review copies of many of the newest and brightest stars. If you keep your eyes on the review section of the magazine over the next several months, we will be reviewing some of this software and announcing the release of other packages. We cannot review all of the software available, but we will endeavour to provide coverage on a wide variety of products.

Some of the brightest stars on the horizon are described below. (With the vast amount of software being demonstrated, it was impossible to even view it all, never mind convince the editor of this illustrious magazine that I needed another twenty pages to cover just the stuff I had played with over four days.)

Imagic has continued to work on their Living Literature Series. Now that they have teamed up with Bantam, this would appear to be the direction of future developments. The idea of putting Shakespeare on computer was a little different, but it works well. *MacBeth* has joined the Time Travellers Series, along with H.G. Wells' *The Time Machine*, on the Commodore 64.

Koala Technologies is working hard on new software for their **Muppet Learning Keys**, which they released last summer.

Designed for pre-schoolers, it is an excellent tool for teaching colours, the alphabet and numbers. Filled with colour and graphics, the software is capable of keeping a child's imagination stimulated for up to a year with its initial software. This is a definitely 'must purchase' item, if you have a 2 to 4 year old in your household.

For those who live with the endless problem of misspelled words, and believe that they have passed the curse onto their children, Davidson & Associates has created **Spell It**. This animated game-type program designed for ages ten through adult uses exercises to work on one's vocabulary with the 1,000 most misspelled words, and sells for \$49.95 (US).

Much of the new software has a 'self-improvement' theme. Ranging through typing tutors to speed reading courses to 'know your own IQ' (and even analysis of

your personality), the computer plays everything from teacher to psychologist. CBS Software and Bantam Software appear to be at the forefront of this development.

Educational software for children is still a hot item. School-tested and classroom-suited programs are coming. Sophistication and the ability to check the child's progress have been introduced. Problem solving skills, and even computer literacy, can now be taught by computers. Sunburst Communications presented an entire catalogue of software specifically designed either for the classroom or learning at home with parental supervision. Software like **The Incredible Laboratory** and **Meet the Computer** are designed to enlighten an entire generation.

There are many other SAT preparatory programs for the more mature students; and diaries, planners and accounting



The Muppet Learning Keys is an innovative peripheral for pre-schoolers from Koala Technologies, makers of the popular KoalaPad graphics tablet. Koala is coming up with new software to support the product.

systems for the businessman. Hayden Software has a large collection of these useful packages which we hope to review over the next little while.

Designware announced their Music Teacher Series: **The Notable Phantom**, for parents who want their children to learn basic piano and note reading without a teacher. They also announced a product called **The Body Transparent**, (release date March 1985), which sells for \$44.95 (US) and is designed to teach children human anatomy. The players move bones and organs to their correct locations in order to score points. While all of this is happening, the players are learning about the functions of the various parts of the body.

For those who wish they could write adventure games without all the work, Electronic Arts introduced **Adventure Construction Set** for the Commodore 64. This is one in a wave of mechanized software writing programs. Another is Access Software Incorporated's **Spritemaster II**. Developed for game designers, this product eliminates the sprite coding to give the designer the ability to create and refine objects before they are entered into a program. \$24.95 (US) and, if it does save time, a worthwhile tool.

Peripherals

Mice and trackballs are appearing for the IBM and Apple computers. With the emergence of the software that will make use of these items on the Commodore 128, we should find these available next summer.

The printer getting the most attention is still the Okimate 10 colour printer. They seem to have cornered the market at the low-end price level. They also announced the release of the Okimate 120 — a high-speed, low-cost printer designed for the Commodore 64. It sells for \$269.00 (US), prints all of the Commodore graphics and features near-letter-quality for word processing.

The cutest and most portable printer at the show was the HUSH 80 from Ergo Systems Inc. For \$139.00 (US) you can buy a very quiet thermal printer which runs at 80 characters per second and measures slightly less than 12" by 6" by 3". It can also support a battery pack. The whole printer (including a roll of thermal paper) weighs less than five pounds.

Epson introduced its Homewriter 10. This printer runs at 100 cps in draft mode and 16 cps in near-letter-quality mode. Available to dealers in March, the printer will sell for \$269.00 (US) with an additional charge of \$60.00 (US) for the inter-

face (PIC) and will have both tractor feed at \$39.95 (US) and cut sheet feeder (\$99.95) options.

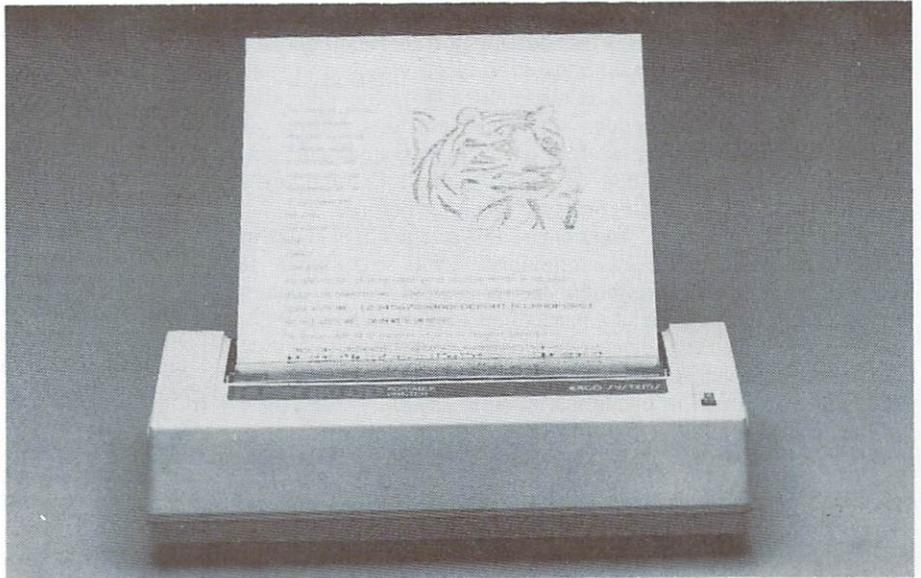
The big rush to produce Commodore-compatible disk drives appears to be over. MSD has been one of the survivors of the production race. They were showing the new SD-1S Super Disk. This is a small single drive with an external power supply. Priced to compete with the 1541, this product features a quick load capability and rapid internal operations (such as the ability to format a disk in 17 seconds).

There were endless music keyboards appearing for the Commodore 64, and the software to use with them is abundant. While there is no room here to describe them all, we will mention a few. Sight and

instead of asking for the magic word, made me spell words echoed through the SID chip in order to obtain further passage (Timeworks). When the show closed, I was disappointed that I had not even checked out half of the new software. Some vendors were helpful in that they let one sit and watch a video tape of their software under development (as did SubLogic, whose new flight simulator features a jet). It was great to sit down for a moment in the vast sea of software vendors — and I now know what I want for Christmas 1985.

Buying Machines

A few notes for those who are buying



The HUSH 80 thermal printer from Ergo Systems Inc. is priced at \$139.00 (US). It runs at 80 characters per second. The printer is small and very quiet. It weighs less than five pounds, including a roll of thermal paper.

Sound were showing the Kawasaki Synthesizer, an impressive-sounding two-disk software system. This was considerably overshadowed by the Sequential Circuits MAX, a \$795.00 (US) voice synthesizer that plugs into the Commodore 64 for composing or performing. For those of us with less expensive taste, they also had a \$99.00 (US) keyboard called Music Ware. We will attempt to get one of these, and some others shown, to do a comparison review at a future date. We will also want to have a further look at the new music composition and rock video-type programs that will become available over the next few months.

I spent four days being mesmerized by the various ideas that people had come up with for new software. I watched a Lego-constructed crane driven by a Commodore 64 move items around on a table top. I played with adventure games that,

machines. There was no software that was visible for the Commodore 16 done by firms other than Commodore. The same is true of the Plus/4. It is very doubtful that any software will appear for these machines on a commercial level, other than through Commodore. There were also no 8032s or any of the older Commodore machines to be seen at the show. While these were not meant to be consumer machines in the ordinary sense of the word, the commercial sale of software for these machines is disappearing rapidly. The market has changed. The software developers are waiting with bated breath to find out what the new Commodore and Atari computers will do in the marketplace before they develop extensive work on either brand of computer. In the meantime, IBM and non-Macintosh Apple software are catching up. □

128 PC Looks Like a Winner

by Chris Bennett

The Consumer Electronics Show (CES) is a twice-yearly showcase for new consumer electronic equipment, including such items as watches, home and car hi-fi, calculators, microwave ovens, phones, VCRs and, of course, computers. Each CES seems to produce new attendance records, and the January show in Las Vegas was no exception. Over 101,000 people attended, among them several TPUG members.

At the Summer 1980 CES in Chicago, Commodore first showed the VIC 20. Priced at under 300 dollars (US) it was a breakthrough product for Commodore. The PET and CBM computers had sold quite well, but Apple and Radio Shack had done a lot better, even though their machines were not superior to Commodore's. The VIC 20 turned the tide in Commodore's favour. It was the first machine sold in large volumes in such places as K-Mart and Sears. It also helped start the computer wars from which Commodore emerged victorious, killing off Texas Instruments and a few other players. Atari could not compete, and sold out in 1984 to Jack Tramiel, Commodore's founder, who had left the company not long before.

The next big step for Commodore came at the CES shows in 1982. It was then that the Commodore 64 was first shown. It received rave reviews and went on sale to computer store dealers in September of that year at a price of 595 dollars (US). In 1983, the C-64 was given to the mass merchants, and the rest, as they say, is history. Over the last two years Commodore has sold over four and a half million machines, making the C-64 one of the most successful home computers ever.

Since the introduction of the C-64, Commodore has been searching for a formula to duplicate the magic. In 1982 (April 21st, at the Hannover Fair in West Germany) the PET II and CBM II were introduced. These became the P-128, which never

... I didn't believe Commodore could produce such a machine without compromising C-64 compatibility. I was wrong...

saw the light of day; and the B-128, which only became available in 1984. Commodore introduced the Plus/4 and the Commodore 16 at the January CES show in 1984. None of these machines has caught on like the C-64, and it is not likely that they ever will. All are incompatible with the 64 — practically nothing written for it will run on them.

Before going to the CES this January, a number of us discussed what we would like to see on a new Commodore computer. First, it would have to run all the Commodore 64 software. Second, it should have an optional 80-column screen for word processing and spreadsheet software. Third, it should have a much faster disk drive. Fourth, it should have a powerful BASIC similar to that found in the Plus/4. Finally, it should have a lot more memory, at least 128K or more. Such a machine, we felt, with enough power for serious business applications, could compete with Apple and PC Junior on their own turf without sacrificing the special capabilities of the C-64. The ability to run all the C-64 software available would be especially important,

since anyone owning a 64 could upgrade to a more powerful machine without throwing their software away.

I didn't believe Commodore could produce such a machine without compromising C-64 compatibility. However, I was wrong. The new Commodore 128 Personal Computer has all of the above features and more. Indications are that it should sell for 250 dollars (US) or less by June or July of this year. It will come with 128K of RAM (expandable to 512K), two different processors, and an 80 column colour hi-res screen that can display 640 by 200 pixels.

Not only is the C-128 one hundred percent C-64 compatible, it also has two additional operating modes: CP/M version 3.0, and the C-128 native mode. The machine is packaged in a light beige case with three groups of keys. It has a 92 key typewriter-style keyboard, consisting of a C-64 keyboard (62 keys) in the front, a 14-key numeric keypad to the right, and 16 special keys along the top. The top row of keys include the four function keys used by the C-64, four separate cursor keys, and (from left to right) ESC, TAB, ALT, CAPS LOCK, HELP, LINE FEED, 40/80 COL, and NO SCROLL.

In the C-64 mode not all the keys are operational. Only the 62-key keyboard and the four function keys work. All the components of a C-64 are inside the case. This includes the sound and video chips as well as the 6510A processor and the ROM set. No improvements or changes have been made. It was the only way to guarantee that the machine would run all C-64 software without exception.

The second mode uses Digital Research's CP/M version 3.0 operating system, running on a Z80A microprocessor at 2 MHz. It will operate in either 40 or 80 columns, colour or monochrome. However, most CP/M programs use an 80-column screen. One of the reasons that CP/M on the C-64 was of very little use is that none of the good CP/M programs will run in 40 columns. Among the programs that will run on the C-128 are those in the **Perfect** series by Thorn EMI Computer Software Inc. This includes: **Perfect Writer**, **Perfect Calc**, and **Perfect Filer**. They are fully integrated and allow the programs to share data. All feature pop-up menus in simple English, split screen windows and automatic formatting for printing. **Perfect Writer** features a built-in spelling checker and a thesaurus. **Perfect Calc** is a spreadsheet and **Perfect Filer** is a database. I expect the price of each of these products to be about 50 to 75 dollars (US). Other CP/M programs that should run on the C-128 include **Wordstar** and **dBase II**.

The third C-128 mode uses the 128K of RAM plus an 8502 (6502 compatible) microprocessor running at 2 MHz. It gives us the most powerful Commodore version of BASIC so far — BASIC 7.0, with 30 commands more than the Plus/4, and 78 more than the Commodore 64.

One of the first things I did on the Commodore 128 was to find out how quickly BASIC 7.0 ran. I ran my test program in Commodore 64 mode and found it took thirteen seconds. Then I ran it in C-128 mode and timed it at twenty seconds. This was to be expected with a bank-switched processor running at only 1 MHz. However, the production machines will be running at 2 MHz and, at that speed, the time should be ten seconds. Thus the C-128 will be about thirty percent faster than the Commodore 64. The C-128 will run in either 40 or 80 column mode. In 40 column mode, the SID and the C-64 video chip will be

available. Both these chips have been designed to run at 2 MHz so they won't slow down the CPU. In 80 column mode, the new video chip will take over the processing of the screen. This device does not allow sprites, but has some additional features not found on the Commodore 64. For example, you can mix graphics characters and upper/lower case characters on the same line. You can also underline without having to use a graphics character on the line below. As with the CBM 8032, you can set windows to divide up the screen.

The Commodore 1571 is a double-sided disk drive designed to operate with the C-128. In C-64 mode it runs at 300 cps, in C-128 mode it runs at 2000 cps, and in CP/M mode it runs at 3500 cps. There is reportedly also a burst mode that will allow the drive to read at an even faster rate under certain conditions. The drive will read and write C-64 disks just like a 1541. For the other two computer modes, the 1571 reads and writes to both sides of the diskette. At the show, I was told that the 1571 will read and write nineteen different CP/M formats including Kaypro, Osborne, and IBM system 34. The cost is expected to be about 250 dollars (US) with initial delivery by June or July. A dual drive version of the 1571 is being worked on, but is not expected to be released until the fall.

Overall, the reaction to the machine from dealers attending CES was excellent. Most believe that the C-128 is going to sell very well. The third party software manufacturers feel the same way. With this kind of optimism, I believe that the new machine is going to be a great success, with many new software products becoming available to take advantage of the new features. The world's 4.5 million C-64 owners will now have a logical way to upgrade their machine while retaining all their favourite software.

Printer Quickie

Tabs and Spaces

by Sean Rooney

The screen formatting commands **TAB()** and **SPC()** will also work on the printer. However, although **SPC()** works the same on the printer as it does on the screen, **TAB()** does not, and should be avoided. As an experiment, type the following line on your computer:

```
print "TPUG Conference";tab(16);"1985"
```

The '1985' on this line should appear sixteen spaces from the left side of your screen — one space past the end of 'Conference'. Now let's try it on the printer with this little program:

```
1 open 7,4
2 print#7,"TPUG Conference";
  tab(16);1985
3 close 7
4 end
```

See the difference? This time the '1985' was moved over sixteen spaces from the end of 'Conference' — just as though you had used **SPC()** instead of **TAB()**!

The moral? In all your printer programming use **SPC()** freely, but stay away from **TAB()**. In fact, it might be wisest to avoid **TAB()**, where possible, in *all* your programming, just in case you want to come back later and divert your output to the printer.

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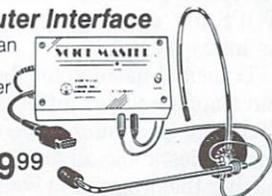


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Telephreak Means Teletrouble

by Ken Cox

An expert in telephone fraud has issued a warning that Bell Canada plans to "detect, and have the police prosecute, every individual" involved in illegal toll-free calling. The crackdown was prompted, in large part, by the popularity of home computers.

Brian Butler, security manager in Bell Canada's Toronto office, is well aware of the 'blue box' and 'black box' programs such as **Telephreak** and **Superphreak** that are being passed around. Unscrupulous computer enthusiasts use them to beat the telephone billing system, sometimes by posing as operators.

The programs were created by underground groups in the United States. (They can be identified as American because Canadians use different telephone industry buzzwords such as TOPS for 'operator', rather than TSPS as in the USA.)

Translations of 'blue box' programs have appeared for different computers, including the Commodore 64. Telephone companies know all about them. "Even having the program in your possession is an indictable offence," Butler told *TPUG Magazine*. He pointed to Section 287.1 of The Criminal Code of Canada:

Everyone who, without lawful excuse, the proof of which lies upon him, manufactures, possesses, sells or offers for sale or distributes any instrument or device or any component thereof, the design of which renders it primarily useful for obtaining the use of any telecommunication facility or service, under circumstances that give rise to a reasonable inference that the device has been used or is or was intended to be used to obtain the use of any telecommunications facility or service without payment of a lawful charge therefore, is guilty of an indictable offence and liable to imprisonment for two years.

It is clear that more people, many of them teenagers, are trying to get the long distance feeling without paying for it. In all of 1983 there was only one arrest in the Toronto area for electronic fraud, but the situation has changed rapidly. In two months alone, October and November of 1984, there were thirteen arrests.

Butler points to two reasons for the rise. "One, there's an increase in the

number of devices in the underground or black market; and two, we are getting better at detecting the fraud."

There are three main groups who rip off the telephone companies: 'Fhone phreaks' who spend hours exploring the telephone system, attacking distant databases or downloading programs; people who make a lot of long distance calls and find it very costly; and organized crime. (It's not that mobsters can't afford to pay — they just don't want a record of whom they've called showing up on their monthly bills.)

In addition to the computer programs, Butler has to contend with modified

. . . Butler describes the typical hardcore computer/telephone abuser as a one-dimensional personality . . .

pocket calculators that can generate the special tones used by the telephone system. These calculators, which cost up to 1,500 dollars on the black market, are used to send the tones through pay phones ('fortress fones' to phreaks, because they are harder to trace).

While telephone companies have had difficulty employing old technology to keep up with computer-age electronic fraud artists, the balance is rapidly shifting. "In Canada we are light years ahead of the States in detecting it. With the new digital technology coming on in 1987, we'll have a handle on stopping the signals altogether," Butler said.

Currently, frauds are uncovered by analyzing patterns in the computer billing tapes. Although security officials are naturally wary of disclosing exactly how this is done, it involves checking certain types of calls for which no one was billed.

"Once we have a suspicion that a telephone number is being used fraudulently, we will put test equipment on the line to positively verify that an electronic fraud call was placed. Once we have gone that far, we'll put the evidence together and refer it to the local police for further investigation. We cannot withdraw charges. It is simply a police matter at that point."

The repercussions of being caught include: a possible criminal record; seizure of computer equipment and programs; loss of telephone service; and paying for the illegal calls.

Butler describes the typical hardcore computer/telephone abuser as a one-dimensional personality. His life revolves around the home computer he has jammed into a cluttered, filthy room. The nightowl loses almost all contact with other human beings as he spends twelve hours at a stretch obsessively trying to break a database access code.

An interesting myth has gone around: that 'whiz kids' who are caught 'phreaking' will be offered jobs at Bell. "We're not about to hire anyone who has a criminal record for electronic fraud or computer fraud. In many cases, the teenage kids don't feel they are doing anything wrong. They feel the telephone company is a big, impersonal organization. There's this myth that it is all right to cheat large organizations. Some of the kids could really be jeopardizing their futures by getting involved in this."

The loss to the phone company from toll fraud can be much greater than the missed revenue. Because planners analyze long distance calling patterns to determine future equipment needs, Bell could be spending thousands of dollars on equipment to service a fraud. □

Important message to
all BBS users

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MOGOMBO

Users' Group Publicity

by Mike Martin © 1984

Although this article is directed primarily towards users' groups, the information can be applied to almost all groups. If you belong to a church, civic or fraternal group, this is for you too.

Your group needs publicity, and the local media needs your group. What could be a better relationship? Local papers and broadcast stations need a constant flow of information on community events. Coming up with the amount of news needed to fill a paper, or two hours a day of newscasts, is a difficult task. They don't want to publicize companies or people trying to sell things. They charge for advertising, so why give it away during newscasts? They need stories with a local community involvement flavour. Your group is non-profit and service oriented. *Perfect.*

How many people have bought computers without really knowing anything about them? Okay, you can all put your hands down. You know the process. Buy it, try it, and file it in the closet, unless you can find some help in understanding it. Luckily, you found a users' group to help you decipher the manual. You found people willing to help and lots of programs to get you started. Most of the purchasers in your town weren't so lucky. Their computer is sitting in the closet on top of the *Monopoly* game. With your help, we can empty the closets and fill up your users' group meetings.

In my years in commercial broadcasting, I've watched community groups come and go. Some knew how to work with media and were successful, but most didn't get the help they wanted. How can you ensure that your campaign is successful?

The print media should be your first effort. Pick a member with a good quality printer and write a press release on your group. Make sure that the first paragraph states that you are a non-profit group, and that you are not connected with any computer company. In other words, you have nothing to sell, only free help. State that you are a group of local owners of

these computers who have banded together to help each other, and that beginners are welcome.

Assume that your readers, and your contacts at the paper, know nothing about computers. You will be right. The more computerese you include, the less chance of seeing your release in print. Mention the make of the computer. List your meeting times and address. Possibly even outline your planned programs for the next month. Keep the release short: one page is ideal, two pages is the maximum. Editors won't read information by the pound. List one or two members as contacts, with phone numbers. Send a

... Assume that your readers know nothing about computers. You will be right. ...

copy to the City Desk, another copy to the Entertainment Desk, another copy to the Clubs/Organizations Desk. Don't stuff them into the same envelope: send them individually, as none of these departments talks to the others. If one isn't interested, it gets filed, not passed on. Send copies to every paper in your town, even the free shopper papers and regional weeklies. Send the releases out at least three weeks before your event, and you'll be surprised how many will print it.

The broadcast media require different treatment. Television is a *visual* medium, so a press release alone won't work. When dealing with the visual press, give them something to see. For example, schedule an 'event' that they can photograph. "Local Users Group (LUG) holds a seminar on how to buy a computer." "LUG presents a beginning computing class." "LUG displays/demonstrates computers at a local shopping mall/public library/college." Get a booth for cheap or free, set up a few computers with flashy programs, and members to help people experiment. Schedule the event for a convenient time for coverage.

Local stations are most in need of news on weekends during business hours. Evening or late night events would require them to pay overtime. They won't.

Important note: If your club has members who delight in piracy, order them to leave *anything* without a manufacturer's sticker on it at home. If the station knows anything about computers it might like an expose on computer fraud better than it likes a club profile. Even if the station doesn't notice, any computer-wise law enforcement officer watching the story will notice. Some types of publicity are easy to get, but not desirable.

If some of your members are also into home video recording, tape a session of 'interviews' to see how well your members react to being on camera. Most TV stations have at least one interview show. But keep in mind that you will get, at most, two minutes of air time. Don't get complicated. Take an index card with you that has five short statements on it. "We are a non-profit, educational group." "We have ninety-seven members." "We meet at the Library, at 8 pm on the first and third Monday of each month." "We have five hundred free programs." "It costs twenty dollars to join." Give the card to the host. He or she will ask other questions, but feeding a bit of important information helps.

Visual aids will help, if they are in the right format. While broadcasters use the same kind and size of videotape as home units, the recording format is very different. Don't take any videotape unless you know it is broadcast format. Photographs or slides are helpful, but they must be horizontal, not vertical. And be sure to have a phone number available for more information. Give it to the host early so it can be 'fonted' over your interview.

Remember, *your* group is doing the media a favour by providing part of the large flow of information they need. If you present your information in the right form, the results can be fantastic. Go help them out. □

1526/VIC 20 Timing Tip

Contributed by Howard M. Mesick

To prevent your older C-1526 printer from hanging up when you are using it with your VIC 20, type: **SYS 64990**. This command sets the serial port timing to the C-64's speed, and your 1526 will then work fine.

Searching Online Data Bases

by Don Fox

So you've equipped your VIC 20, PET, C-64 or whatever with a modem, and have been using a terminal emulation package to access your company computer. Or maybe you have grown bored with picking your way through the messages on your local BBS. How can you expand your horizons to include the commercial data base systems you've heard about? Read on...

Hardware and Software

The idea is to make your computer emulate a terminal. A dumb terminal emulator program written in BASIC is given in both the VIC 20 and C-64 Reference Guides, as well as in many other places. The word 'dumb' in this context means that the terminal has only the most basic capabilities for receiving and sending data. There are other more elaborate programs that enable your 'terminal' to save the received data to diskette, a process termed 'downloading'. Some excellent terminal software is available from non-commercial sources, including the TPUG library.

Downloading is usually the best way to go, since most printers have difficulty keeping up with incoming information even at 300 baud (bits/second) — the slowest rate at which most commercial systems operate. Also, frequent stopping of the system while you read the latest screen-full of information, besides being a nuisance, is also a pain in the pocket-book, since these systems tend to charge based in part on the amount of connect time. Finally, downloaded files can be edited through the use of your favourite word processing program, and put in any form convenient to you. For example, bibliographic references can be reformatted into a bibliography.

Whatever your terminal software, you need a modem to access the systems described below. Again, there is a range of possibilities available. The cheapest and simplest is a dial-up modem such as the VIC-modem, available from your Commodore dealer. You may wish to spend another two to three hundred dollars to obtain an auto-dial feature, although it is not necessary for this application. (It is very useful, however, for accessing a specific BBS, since the single

phone lines these systems have must usually be dialled many times before they are free.)

Another point to consider is that most systems do not allow for screen widths other than 80 columns. If you find wrap-around disturbing, you may want to purchase an 80 column card.

Vendors and Producers

Commercial data bases are accessible through two somewhat different types of enterprise. One type is the vendor organization, the largest of which is the DIALOG Information Retrieval Service. DIALOG offers more than two hundred data bases covering most areas of human knowledge, from science and technology to humanities and the arts. Vendors like DIALOG obtain machine-readable data bases and reformat them to make them compatible with their search software. This means that all data bases can be accessed by a user — you, for instance — using a single set of commands called the 'command language'. Unfortunately the commands vary somewhat from one vendor to another, and no vendor has been able to dominate the market to the extent of offering access to all possible data bases. Because of the large number and variety of data bases that DIALOG makes available, I'll deal primarily with that system in this article. However, there are several good Canadian systems as well, such as CAN/OLE of the Canadian Institute of Scientific and Technical Information in Ottawa; and QL Systems of Kingston, Ontario.

To gain access to DIALOG, you should contact Micromedia, Ltd., 144 Front Street West, Toronto, Ontario, M5J 2L7, telephone: (416) 593-5211 (the Canadian representatives). If you try to write to DIALOG directly from Canada, your letter will be referred to Micromedia in any case. U.S. readers should write to DIALOG Information Retrieval Service, 3460 Hillview Avenue, Palo Alto, California 94304, or telephone (800) 227-1927.

The other important kind of organization is the data base producer. An example is Data Courier in Kentucky, the producer of a number of useful data bases including ABI/INFORM, which I'll discuss later on in this article. Federal governments are also prolific producers of online data bases, especially in the

USA. An excellent and widely available source of up-to-date information on both vendors and data bases is the *Omni Online Database Directory*, compiled by Mike Edelhart and Owen Davies, and published by Macmillan in 1983.

Systems and Data Bases

DIALOG offers two varieties of its command language, or 'systems'. The more advanced system offers a wide variety of commands for searching data bases. Keywords can be searched singly or in Boolean combinations (with 'and', 'or' and 'not'), with a pattern-matching option. The output can be formatted in several ways to suit the type of data and the type of device — screen or printer. There is even a way of directing the output to a batch printer operated by DIALOG, where it will be processed overnight and mailed to you the next morning.

Searching the database is easy, once you get the hang of it. If you wanted to search for information on violence in the media, for example, you might try something like:

s media and violen?

The 's' stands for 'select', not — as you might have supposed — for 'search'. The question mark is called a 'truncation symbol' indicating that any word beginning 'violen' is acceptable, thus covering such forms as 'violent' and 'violence'. The expression as a whole, then, asks to retrieve all items containing the keyword 'media', as well as any keyword beginning with the string 'violen'.

The other system provided by DIALOG is called 'Knowledge Index'. It is really a simplified version of the main DIALOG system, especially designed for the owners of home computers. However, because of the greater power of the full search language and the larger number of data bases available, many users who start with Knowledge Index later migrate to DIALOG, or so I was told recently by Dr. Roger Summit, the President of DIALOG Information Services, Inc. This occurs in spite of this type of user's considerably higher cost per connect hour. Knowledge Index charges a flat rate of \$24.00 per hour, while charges on DIALOG range from \$15.00 to \$300.00

What is a Database?

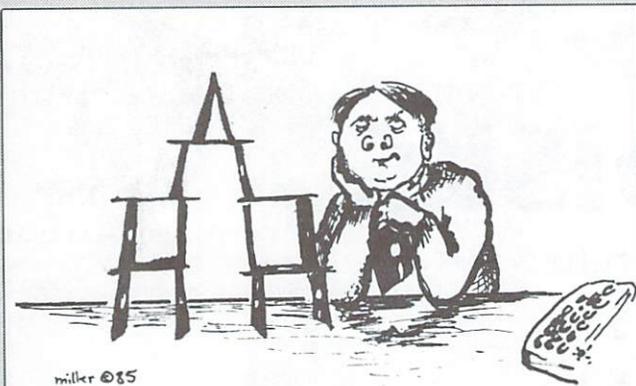
by Malcolm O'Brien

Hmm. Good question, that. We hear about databases all the time. They've found their way into the headlines: **Feds checking databases for tax evaders** or **Whiz kids scramble databases** — clear evidence that we're living in an information age. We read, express concern, call for legislation and maybe realize that we don't quite know what a database is.

The first thing that needs to be understood is that the term 'database' is commonly used to refer to two different, though virtually inseparable, things: the database itself, and the database management system (DBMS). Their inseparability arises from the fact that neither is of much value without the other. Some definitions at this point will make things clearer.

The Penguin Dictionary of Microprocessors (by Anthony Chandor) defines a database as "a file of data, structured to allow a number of applications to access the data and update it without dictating or constraining the overall file design or content". This may be more definition than we need, and the author also adds this second definition: "Any file which might sound more important if called a database"! A DBMS is a software system, or group of programs, used to manage data in a database. A simple example will illustrate this.

Suppose you've written a program to keep track of the names, addresses and phone numbers of the people in your user group; and that the information on each person is in **DATA** statements. In this case, the **DATA** statements are the database (that does make it sound important!) and the rest of the program is the DBMS. If the amount of data you have to manage is very large, it will be greater than available memory, and will have to be stored on disk. That's one aspect of database management — the allocation of resources required to handle the volume of data. Will I have twenty data items? A thousand? Ten thousand?



It's very important to give considerable thought to the construction of your files...

The other aspect of database management is concerned with the use to which the data will be put, and how the data will be entered into the system.

Time for more definitions. At this point we have to recognize the difference between 'data' and 'information'. They're not the same. Returning to the dictionary: data is "any group of operands or factors made up of numbers,

alphabetic characters or symbols denoting any condition, value or state"; and information is "data so assembled and presented that it is given meaning".

In other words, information is conveyed by data. For example, the names in the telephone book are only names (raw data), but by presenting them with their other data items (addresses and phone numbers), we have a record (a group of related data items) — sufficient information to access selected individuals by telephone.

Our user group database will give us another example of the informational aspect of database management. Let's assume that the data we're keeping are: name, address, phone number, membership number, age and date of joining. If we want to print mailing labels, we don't want to include membership number, phone number, age or date, because these data items are not relevant. When it comes time to send out renewal notices, though, the date item will be of prime importance. So we see that our DBMS must allow us to access the data items in various combinations to serve our informational needs.

...the majority of home computer owners use simple file managers that are like electronic versions of card files...

Every DBMS will allow you to add, change or delete records. Most will include menu options to sort your file alphabetically or numerically, to search through all records for a specific data item or to generate printed reports. You may be able to 'screen' data entry (so that all 'age' entries are certain to be numeric for example). You may be able to create sub-files consisting of all the records that have a specific common data item. As an example, you could search a magazine file to make a file of all the *TPUG Magazine* articles written by Jim Butterfield.

Although you can add or delete records, your DBMS may not allow you to add or delete data items. In other words, if you forget to include a certain data item — 'machine type', say — when you set up your user group file, you may have a lot of difficulty adding it later on. The reason for this is that the majority of home computer owners use simple file managers that are like electronic versions of card files. These are popular for simple applications because they're easy to use, but some users might find them limiting.

Greater capabilities are offered by relational systems (like **dBase II**), or by network/hierarchical systems. These, however, require the user to develop data dictionaries and to learn query languages. These systems are beyond both the scope of this article and the inclinations of most users. But despite their complexities, they are essential when informational needs and data volumes become enormous, as is the case with the government, NASA or Compuserve.

The volume of data and the sophistication of the DBMS often go hand-in-hand. Still, it's very important to give considerable thought to the construction of your files, especially when using a 'simple file manager' type DBMS. Determine exactly what data you wish to keep and what information you will want to derive from those data. Plan ahead, and you'll have fewer headaches later on. □

per hour, with all common data bases substantially more expensive on the latter (all costs given are in U.S. funds, and are subject to change). For example, a very useful business oriented data base called ABI/INFORM carries an online connect charge of \$73.00 per hour. Its coverage includes journals such as *Foreign Investment Review* and *Harvard Business Review*.

Another very significant vendor is the Bibliographic Retrieval System, more popularly known as 'BRS'. BRS uses a version of the STAIRS software originally developed by IBM, which many professional searchers find more flexible and powerful than that of DIALOG. Unfortunately, BRS does not have the huge number of data bases that DIALOG does, but it does have some unique and useful files. For example, BRS has a version of Grolier's *Academic American Encyclopedia* which (unlike the version offered by CompuServe) is full-text searchable. This means that an encyclopedia article can be retrieved on any word occurring in it, not just words appearing in the headings. BRS also has a regular column in its monthly bulletin mentioning successful microcomputer configurations for accessing their system. Like DIALOG, BRS has brought out a scaled-

down system — 'BRS After Dark' — especially for home computers.

DIALOG uses what is called a 'free' search vocabulary. Not all data bases do. ERIC (Educational Resources Information Center), for example, uses a 'controlled' vocabulary, meaning that the allowable index terms are specified in a structured list called a 'thesaurus'. It is easier in some cases to search on such terms to achieve better 'recall' — the recovery of a larger fraction of the relevant items in the data base. This is achieved by finding the relevant terms in the thesaurus and using these in the search, with reasonable assurance that human indexers have used these terms to index the great majority of useful items.

If this sounds technical, it is because we have wandered into a technical area — one in which librarians in particular have made exhaustive studies. In fact, your local librarian may well be a gold mine of information about online searching. Librarians in special and university libraries have been involved in this field for many years, and those in larger public libraries are beginning to get into the act as more and more of their clients become aware of the efficiency of literature searching by computer.

If you cannot find another librarian

knowledgeable in this field, I will be happy to try to answer any questions you may have. Just write to me at the following address:

Don Fox,
7511 Chelsea Road,
Richmond, B.C.,
V7C 3S7

One final example of a data base that I'm sure will be of interest to many: the *Microcomputer Index*, available through DIALOG. It covers the majority of magazines and newspapers of interest to owners of personal computers, and has been described by the *Omni Directory* as "one of the great blessings of the online world" for 'computer freaks'. Abstracts of articles are included, but not the full text.

This brings up another matter pertaining to those data bases that are essentially computerized lists of references. How does one obtain an article or other publication once one has identified it in such a service? Ah, but that is the subject of another article. Suffice it to say for now that the services I have mentioned do provide for online ordering of documents in one way or another.

Happy searching!



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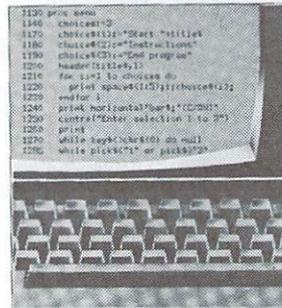
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Probing *The Mind Prober*

by Mikhail Epelbaum

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It was heralded by science fiction writers a long time ago. Now artificial intelligence is knocking on the door, whether we're ready for it or not. It is not taking the form of walking and talking humanoid robots, but of Expert Systems: sophisticated software packages that are able to perform complex tasks and learn from their mistakes.

I am a psychiatrist and, being unable to write such software for myself, I resorted to waiting. I spent time talking to the representatives of software houses at various scientific conferences: bored-looking young people, intimidated by the huge numbers of bearded, pipe-smoking men whose jargon is even worse than Computerese.

Well, apart from the famous **Eliza**, the simulated psychotherapist, there is not much written; at least, not much that relates directly to my profession. Most of the software for psychiatrists is of the usual business variety: spreadsheets, schedulers, database managers. The only thing more specialized is for psychological testing. And, of course, you are lucky if you don't also have to buy a VAX to run it on.

Psychological testing is a special tool designed to measure and compare different variables of human thinking and behavior. There are basically two major kinds of tests: questionnaire and pictorial. Most common in the world of computers are tests of the questionnaire type — they are so much easier to quantify. The most successful of these, the MMPI (Minnesota Multiphasic Personality Inventory), consists of five hundred or so questions that require 'yes/no' or 'true/false' answers. The results are compared to a database of possible answers by people of all walks of life, professions, degrees of craziness.

The pictorial type (the familiar Rorschach, for example) consists of a set of pictures that one is supposed to interpret. These tests give much more room to the imagination, but are much more difficult to quantify and interpret, especially for a computer — our PETs are still suffering from rather concrete thinking.

I personally do not have much use for

the testing: I am capable of doing the job in my mind. When I read the results of my patient's testing and it coincides with what I think, I will approvingly nod my

business executives. These programs have intriguing titles, all of which incorporate the word 'edge': **The Sales Edge**, **The Management Edge**, **The Com-**



head. If it says something drastically different, I will be more inclined to rely on my experience and intuition. The testing is not a substitute for other forms of evaluation, but a tool, an adjunct. Some tasks — those involving mass screening of some sort, for instance — are much easier and cheaper with testing than with individual interviews. But how can you do it with the computer?

Quite simply: sit in front of it, answer a couple of hundred questions, and have your personality profile printed out, more or less accurately. Quite a few programs will do this, or something like it.

One company, The Human Edge Software Corporation, takes a slightly different approach. They offer a series of programs for personality assessment — of others, as well as of oneself — geared not only to psychiatrists, but also to

munication Edge, **The Negotiation Edge**.

The edge. Is there anything beyond it? These programs, created for the IBM PC, are not cheap. Now, though, The Human Edge has begun to translate some of these for the Commodore. More than that, they have produced a program that will serve as an introduction to the more sophisticated packages: **The Mind Prober**.

Well, I thought (on learning this), maybe I am too skeptical. This may be my chance to assess an Expert System in the comfort of my own C-64. Maybe I will even change my mind about the psychological testing. So I mailed away my order (the address is: The Human Edge Software Corporation, 2445 Faber Place, Palo Alto, California, 94303).

The Mind Prober costs \$25.00 U.S.,

plus \$5.00 for delivery. It is delivered promptly, except for one little problem: apparently The Human Edge does not have the proper channels for distributing software in Canada. I had to pay the customs brokerage fee, another \$15.04 (Canadian this time).

The **Mind Prober** comes in a very attractive package containing a book and a disk. The book layout is flashy. The print is very large, with page-long chapters, and lots of diagrams — pyramids, squares, triangles, ovals and other geometrical shapes, with writing in them. I quickly diagnosed it as a typical 'How to survive in this world and avoid going to a psychiatrist' self-help book, and put it away.

The disk itself is full: only 17 blocks free. It is, of course, uncopyable (at least for me). Trying to back it up on my MSD dual drive produced nothing but a lot of flashes, clicks and whirs. The Human Edge, however, offers a backup copy for another \$10.00 U.S.

The disk is filled with small and large programs and sequential files, all with cryptic names. **The Mind Prober** will load on the MSD drive (a sigh of relief), but be prepared to wait a couple of minutes. After a while, a rather attractive logo appears, so you don't have to stare at the empty screen; and then, finally, the main menu comes up. It's simple: instructions, new assessment, reporting and quit. Except when the computer is busy with the disk drive or the printer, it is possible to quit from almost anywhere in the program.

I never have the time to read manuals. The **Mind Prober** has its manual built in: just press 'H' at any moment, and some kind of explanation will pop up on the screen. These are, for the most part, unnecessary.

The New Assessment mode will present you with about three screenfuls of adjectives, with which you either agree (press 'A'), or disagree (press 'D'). You can scroll up and down the list. A very nice feature of the program is that you can stop the assessment at any moment and save what you've done so far, then continue with it at another time. The program will allow for only eight assessments to be stored within it. Beyond that, you will have to sacrifice one of your analyses.

The assessment should not take more than ten to fifteen minutes. Now comes the most interesting part: The Report. The Report takes a lot of preparation — a lengthy period of on-again, off-again disk activity. You cannot leave, never-

theless, as every now and then you have to answer questions — mostly of the 'y/n' type.

Finally, the printout begins.

The Mind Prober is very fussy about

**. . . The section on sex
is for adults only.**

**Those individuals un-
fortunate enough to be
younger than eighteen
have to make do with a
section on school
instead. . .**

the printer. My Smith-Corona dot-matrix printer with its Tymac **Connection** interface makes the perfect emulation of the 1525 printer on power-up. That is, it's perfect for all the other applications I have tried (word processing, spreadsheet, BASIC programs) that assume a 1525 on the end of the cable. **The Mind Prober** is different. It breaks lines in the least expected places and skips complete pages between paragraphs. The only workable combination of parameters was conversion to ASCII on the BusCard and auto-linefeed mode on the printer. This worked satisfactorily, except that all the upper case characters (save for the analyst's initials) were converted to lower case.

It is not possible to print out several assessments in a row — you have to go through the whole lengthy process of preparing The Report every time. This is not a great inconvenience, but it would be nice to be able to write reports to the disk.

Anyway, what does it have to say, with or without the upper case?

The printouts are about two pages long, divided into brief sections: general description, relationships, coping with work, stress, sex and 'What Makes Them Tick'. The section on sex, by the way, is for adults only. Those individuals unfortunate enough to be younger than eighteen have to make do with a section on school instead.

Quality? Not bad, for a computer. It seems that **The Mind Prober** is much more at ease when there is one pronounced feature, positive or negative, in the subject's personality. The more one-sided the person is, the closer the description will be. Unfortunately (for **The Mind Prober**), most of us are more complicated than that. It was unpleasant to read **The**

Mind Prober's assessments of some of the people I know: it grotesquely exaggerated just one aspect of their personality and ignored the rest.

The assessments are quite subjective anyway. You, the examiner, give your own judgemental opinions to a computer and expect the machine to compile them into a coherent, scientific-looking, concise report.

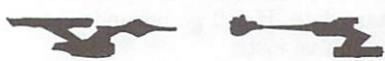
Well, some of us are more eloquent, more trained in putting thoughts into words and onto paper than others. **The Mind Prober** will help those who cannot do that in formulating their thoughts and, for some, maybe even open new vistas in their relationships with people.

So what is the bottom line?

The Mind Prober is an interesting exercise in artificial intelligence, a major programming success. It gives some idea of The Human Edge's expert systems (and helped me decide not to buy them). I don't think **The Mind Prober** will be of much use to people who possess more than an absolute minimum of understanding of themselves or others. Anyone who needs a program like this to comprehend people could probably use more substantial help. . .

Maybe they should see a psychiatrist? □

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*Even Spock Would
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An Interview with Dave Neale

Dave Neale of Meaford, Ontario, is a CP Air pilot who programmed an advanced version of the classic computer game *Star Trek* while laid off. He was interviewed for TPUG Magazine by Ken Cox.

TPUG: What's the concept of *Star Trek*?

Neale: I would compare it with a game of chess for strategy. It's not an arcade. You can sit and take your time to think about it. You can leave the game on for days. There's a close balance between the number of Klingons and the number of star dates. If you move around too much it takes up your time. You have to rid the galaxy of the Klingons, all 81 quadrants.

TPUG: So, do you use your wits and memory?

Neale: The more you play, you see that they are more important. You have to operate the *Enterprise* to its maximum efficiency, with accurate moves. You are given devices, a library computer, torpedo data, navigational data etc. You've got to minimize the number of moves to kill all the Klingons, which minimizes the time. The Klingons will attack the Federation headquarters on a certain date. If you go beyond that star date you've lost.

TPUG: How long does a game take?

Neale: Usually 45 minutes to an hour. It depends. I can get blown away in the first quadrant. I don't win every time.

TPUG: When you first got hold of *Star Trek* it was a BASIC program?

Neale: A BASIC program with no graphics. For example the *Enterprise* was a 'less than' and 'greater than' sign with 'e' in the middle. A Klingon was the same with 'k' in the middle. I added the colour, then I thought I'd get into programming the characters, and that sparked the interest in graphics — making the *Enterprise* look like the *Enterprise*. I found one big problem. I was operating everything in BASIC. So I had to do one very important step in programming — I had to jump to machine code.

TPUG: Like a jump to hyperspace.

Neale: Yes. I've got a theory about machine code. You've got to write a program a week. If you don't, you'll forget it.

TPUG: So you started converting.

Neale: The short-range scan used to take three and a half seconds to generate. I spent the next week learning machine language. I made more errors than achievements at first. And lo and behold, up comes the machine version. Zip, it's there!

TPUG: It was modular.

Neale: That's pretty well how it is all set up. A BASIC operating system with machine subroutines. Nowadays most of my programming is in machine code. The BASIC is compiled.

TPUG: What's your latest module?

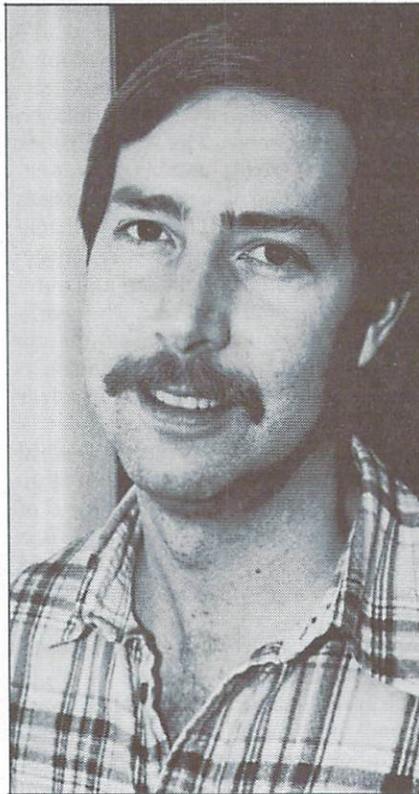


Photo by Ken Cox

Neale: I've just spent two weeks adding semi-artificial intelligence to the Klingons. It looks several moves ahead and decides whether or not it should go to that location. You are adding a personality to the Klingon. If he knows he can't shoot you from one position, he'll move to one where he can.

TPUG: There is an early version of the program in public domain?

Neale: Yes. The first version was donated to TPUG (disk (C)T6). I wanted to see

how many Trekkies were out there. I didn't feel at the time it was marketable, because of Sega Corporation coming out with their own *Star Trek*. As far as I'm concerned, Sega's ain't worth playing.

TPUG: Is Sega's the same concept?

Neale: No. Theirs is a 'shoot 'em up' game. Virtually the same as in an arcade. The graphics are good, but the plot is not appealing.

TPUG: Back to the TPUG release...

Neale: I put on a message with my name and address. It said, if there's enough interest, version two would be in the works, and I listed ideas for it. I said, send two thousand dollars. There has to be a hundred thousand copies of version one out in the world, maybe half a million. *Electronic Games* magazine rated it their number one game off CompuServe for 1984.

TPUG: And how much money did you get?

Neale: Out of 57 replies, I got about 100 dollars

TPUG: That's not much.

Neale: I thought that was very poor. A lot of people said they loved the game, yet the money never came.

TPUG: Despite that, you are selling version two?

Neale: The disk costs \$21.95 Canadian or \$19.95 US, which includes a one year membership to the *Star Trek* club and quarterly newsletter.

TPUG: How many copies have you sold?

Neale: The club membership is just shy of a hundred. I don't live off this by any means. I have to be in it for the fun. People don't realize there are so many improvements in version two.

TPUG: Tell me about the authenticity of your program.

Neale: Anything I try to come up with for *Star Trek*, 95 percent of the time I want it to be in line with either the series or the movies. I'm working right now to get the Romulans into it.

TPUG: You are working on version three. What will you do after that?

Neale: Version four: '*Star Trek — The Career*'.

Versatile Mortgage Calculator

by Jim Butterfield

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Printing a mortgage schedule isn't a tough job. But when the payments vary — as with an 'open' mortgage — most programs don't hold up too well.

This program allows you to take care of an irregular payment schedule. All the details go into **DATA** statements, so that you can **SAVE** the program with everything included. The payments constitute the last **DATA** items and consist of **DATA** pairs: 'amount' and 'time period'.

Thus, if you were to pay 500 dollars for three months, 600 dollars for two months, and then 700 dollars for the remainder of the mortgage period, you would code a **DATA** statement as:

```
40 data 500,3,600,2,700,0
```

Note that the last value — zero — means 'for ever'. You could use a very large number, such as 9999, but zero does the trick just as well.

Watch carefully for the interest calculation on line 170. It's written for

... Printing a mortgage schedule isn't a tough job. But when the payments vary...

Canadian mortgages. If you use the program for U.S. mortgages, change this line to:

```
170 i=i/1200 :rem u.s. calculation
```

Variable *i* is the monthly rate, which is worked out differently in the two countries.

Last items: Dollar amounts are converted to integer pennies, which saves you a lot of work and possible errors. Also, note that the program is given in upper/lower case. That allows you to produce a neater printout. Watch closely for numeric '1' versus the lower case letter 'l'. □

```
20 data "Santa Claus",13.5,2000,99:rem name, rate,
    amount n
30 data "October",1984
40 data 200,2,300,0:payment, number of periods
100 poke 59468,14: print chr$(14)
110 print"Mortgage Schedule Jim Butterfield"
120 dim m$(12):s$=" "
130 m$="..janfebmaraprmayjunjulaugsepoctnovdec"
140 for j=1 to 12:m$(j)=mid$(m$,j*3,3):next
150 read n$: print"Mortgage: ";n$
160 read il:print"Annual rate (%):";il
170 i=(1+il/200)^(1/6)-1:rem canadian calculation
180 read a1:print"Amount at start: ";a1:a=
    int(a1*100+5)
190 read y:print"Number of payments: ";y
200 read z$:print"Month of first payment: ";z$:if
    len(z$)<3 then stop
210 m=127:m1=asc(z$)and m:m2=asc(mid$(z$,2))and m:
    m3=asc(mid$(z$,3))and m
220 z$=chr$(m1)+chr$(m3)
230 for j=1 to 12:if z$=m$(j) goto 250
240 next j:stop
250 n=j:for j=1 to 1:next j:read y3:print y3
260 read p1,n1:p=int(p1*100+.5)
270 print" Press P to print; S to stop;
280 print" SPACE to display..."
290 get z$:if z$=""goto290
300 if asc(z$)=80 then end
310 p9=0:if asc(z$)=80 then p9=4:open4,p9:q$=
    chr$(17):print#4,q$;" ";n$
320 print" Balance=";a/100;"@";il;"% ";y3
330 if p9 then print#4,q$;" Balance=";a$/100;"@";
    il;"% ";y3
340 i3=0:p3=0
350 print"Mth Interest Payment Balance"
360 if p99 then print#4,q$;"Mth Interest Payment
    <3 spaces>Balance"
370 i2=int(i*a+.5):if p>a+i2 then p=a+i2
380 i3=i3+i2:p3=p3+p:a=a+i2-p
390 m$=chr$(asc(m$(n))+128)+mid$(m$(n),2):print m$;
395 if p9 then print#4,q$;"Tot";
400 x=i2:gosub 620:x=p:gosub 620:x=a:gosub 600:
    print:if p9 then print#4
410 n1=n1-1:if n1=0 then read p1,n1:p=int(p1*100+.5)
420 y=y-1:n=n+1
430 if n<13 and y>0 and a>0 goto 370
440 print"Tot";:if p9 then print#4,q$;"Tot";
450 x=i3:gosub 620
460 print"":if p9 then print#4
470 if y=0 or a<=0 goto 510
480 y3=y3+1:n=1
490 if p9 then print#4
500 close4:goto270
510 close4:end
600 l=10:goto 630
620 l=8
630 a$=right$(s$+str$(int(x)),l)
640 if x=0 then a$=right$(s$+"00",l)
650 x$=left$(a$,len(a$)-2+"."+right$(a$,2)
660 print x$;:if p9 then print#4,x$;
670 return
```

CBM Printers and the C-64

by David Bradley

At the present time there are three Commodore printers available for use with the Commodore 64: the MPS-801, the MPS-802 and the DPS-1101. Here is a description of each one so that you will be better able to make the right decision when it comes time for you to get that first printer.

The MPS-801

The MPS-801, formerly known as the 1525, is at the low end of the printer scale, in price as well as in print quality. It prints 50 characters per second, has a tractor feed, is unidirectional, and costs about 279 dollars (Canadian).

The MPS-802

The MPS-802, formerly known as the 1526, is in the middle of the pack as far as price goes, but the quality of print is much better than that of the MPS-801. One reason for this is that the pins in the print head are square instead of round. It prints 80 characters per second, has both tractor *and* friction feed, is bidirectional, and costs about 400 dollars (Canadian).

The DPS-1101

The DPS-1101 is at the top of the Commodore printer line in both price and quality. The MPS-801 and MPS-802 are both dot matrix printers, while the DPS-1101 uses a daisy wheel. Things printed with the DPS-1101 look as though you took the time to type them on a typewriter. The DPS-1101 prints 17 characters per second, has friction feed, is bidirectional, has selectable pitches, and costs between 700 and 800 dollars (Canadian).

One thing to take into consideration: the MPS-801 is a graphics printer, and there are a lot of commercial programs available that will print hi-resolution stuff. The MPS-802 has graphic capabilities, but the graphics are completely different from those of pretty well any other printer on the market. That is why there are very few programs (commercial or public domain) that will print hi-resolution graphics on the MPS-802.

Another point: the MPS-801 does not have descenders on the 'g', the 'j', the 'p', the 'q' or the 'y'. This always hampered me as a student using my printer for schoolwork, because my teachers hated the way the aforementioned characters looked. There is one solution to this problem: TPUG member Paul Blair has changed the character set on the MPS-801, and his creation is now available in Canada through another TPUG member, Bill Bullock. This life-saving EPROM is going to cost between 15 and 20 dollars, and will soon be available from: Wilanta Arts, 6943 Barrisdale Drive, Mississauga, ON L5N 2H5. Note the print sample: quite an improvement, eh?

The last thing I should tell you is the price of replacement ribbons. The MPS-801 ribbon costs \$9.95, the MPS-802 ribbon costs \$15.95, and the DPS-1101 ribbons cost \$14.95 (please note that the DPS-1101 uses a standard IBM ribbon, so prices may vary).

So which one should you get?

Well, if you want something cheap for program listings and letters to friends, you should get the MPS-801, with the Blair/Bullock EPROM.

If you want about as near to letter quality as you can get at a reasonable price (and still be able to list programs with the

Commodore graphics characters intact) you should get the MPS-802.

If you want to send out business letters and use your printer professionally, then I would recommend the DPS-1101.

Don't let the printer dictate what you can do with it *after* you get it. Figure out what you want it to do for you, then go out and buy the one that will best do the job!

If you cannot find a Commodore printer that will meet your requirements, you can always look into getting a different brand that is Commodore-compatible. Just be sure — *before* you buy — that the printer and whatever interface you choose *will* do what you want!

Good luck...



The alphabet on various CBM printers. From top to bottom: the MPS-801 (formerly the 1525); the MPS-801 with modified character set, available from Wilanta Arts of Mississauga; the MPS-802 (formerly the 1526); and (bottom) the DPS-1101 daisy wheel printer.



LIST and AntiLIST

by Dave Neale

Come on, admit it! You've tried to list someone else's program to see how those tricks were done. I know I have, many times. Actually there's nothing to be ashamed of — it's done all the time by programmers who just want to learn that extra little bit to improve their programming abilities.

Almost all commercial software uses some method of preventing users from gaining access to the inner workings of the program. There are many different ways to prevent a program from being listed. Some are fairly easy to install, but others need a separate program to create the desired effect. I think the easiest method, and probably the most familiar, is the line containing a REM with a shifted L. The shifted L throws a monkey wrench into BASIC's list routine, and causes listing to break off with the 'SYNTAX ERROR' message.

There is another approach to anti-listing, of course: disabling STOP/RESTORE — you can't list a program if you can't stop it from running. This is done very nicely by just one line: **POKE 808,234**. This also has a wonderful side effect: besides disabling STOP/RESTORE, this poke affects the list routine in such a way that someone who does find a way of breaking in will see only garbage.

Another approach is to change the vector pointing to the list routine, and point it to some other routine. Whenever the list is requested, the routine you pointed the vector to will be called, and not the list routine. The list vector is located at 774-775 (decimal). You could alter the vector to point to the cold start routine, for instance, with **POKE 774,226: POKE 775,252**. With the aid of a memory map and a bit of experimentation, there are lots of possibilities to explore in this area.

I've come across two programs that stop the listing of certain lines only. One program alters the forward pointer of the BASIC line *before* the one you want hidden, to point to the line *after* the one you want hidden. In simpler terms: line 10 points to line 20, which in turn points to 30; change line 10 to point to line 30, and 20 disappears. Line 20's line number is also changed to zero. One problem with this is that as soon as you enter a new line, line 20 will reappear; however, its line number will be zero regardless of

where it's located.

The second program simply puts a zero and several colons at the start of each line. When the zero is encountered during the list, BASIC assumes end of line and goes on to the next line. Thus the line numbers will be printed but nothing after them.

There are several ways of using machine code to alter the ability to list. A program can be entirely in BASIC except for one routine that alters the start location of the BASIC. By doing this, the list would look as simple as this: 10 SYS 2075. However, what you may not know is that the rest of the BASIC is further up in memory. The code at 2075 alters the start of BASIC pointer to the start of the *real* BASIC program. An additional routine can change the return vector that was stored on the stack to point to a new location where the real program is located.

Another routine that caught my eye moves the BASIC higher up in memory, then places several hundred lines before the main program, each with a listing error that doesn't affect the run (i.e. REM shifted L). To get around this you would have to delete so many lines that you would probably damage your RETURN key, unless you used a utility package with a delete feature.

No matter what method for anti-list is chosen, there is always a way around it.

You can bet someone will try to find it and succeed. It's at this point that the moral issue comes in. The person who gets past the anti-list routines put in by the programmer must then decide what to do with the prize. As mentioned, lots of useful knowledge can sometimes be obtained by checking out the code, but if the intruder goes so far as to alter the original programmer's name or copyright notice or, for that matter, any notice that was put in by the programmer, then he or she is going too far. Credit should always be given where credit is due — no acknowledgements to the programmer should ever be altered, especially if you give the program away to someone else.

Another approach the original programmer can take to protect his or her program is to allow the program to be listed but not altered in any way. An example of this is on last year's C(T6) disk. My *Star Trek V1* on that disk could be listed but not altered, as I did not want anyone else to start adapting that version of the program. The trick was done by using the SYS command to jump to a location in BASIC containing a value of 96 — the machine language code to return from a subroutine (RTS). If this value is moved ahead or back by so much as a byte — as will happen if the program is altered — then the SYS may never find a return, and the machine will be off to never-never land. □

Jim Butterfield's



VALENTINE'S DAY PROGRAMMING CONTEST



Write a Valentine program that asks the user for his or her sweetheart's name, then clears the screen and prints a heart with that name within it.

The name may be up to ten characters long. Hard copy output is not necessary, but can be provided, if desired.

The winner will be announced during the TPUG 1985 Conference Banquet, so get started today!

(See contest rules on page 7 of this issue.)

Library Additions

TPUG's library of public domain software grows month by month. Hundreds of disks containing thousands of programs are available to TPUG members at the nominal cost of ten dollars per disk. Considering that each disk is packed with good programs, at today's software prices this is a fantastic value.

In order for the library to keep growing, our librarians need a constant supply of new programs. If you have written a program or a collection of programs that you think might be an asset to the library, please send it to: TPUG Program Library, 1912A Avenue Road, Suite 1, Toronto, Ontario M5M 4A1, Canada. If your contribution is accepted you will be sent the library disk of your choice. If, for some reason, your contribution is not needed, your original disk will be returned to you.

On these pages our librarians describe the most recent additions to the library.

December VIC 20 Disk: (V)TE

The December VIC disk has lots of variety. There are games for everyone, from preschoolers to adults, plus hi-res pictures, a tape directory and two joystick drawing programs. One of these is **Joy Draw SX**.

Joy Draw SX is documented using a program called **Joy Draw Ins**. Unfortunately, I found it hard to read and absorb all the information as it flew by on the screen. You can dump the instructions to a printer, if you have one, by: adding `:open 3,4` to line 30; changing line 70 to read `print#3,a$`; and adding these lines:

```
97 PRINT#3
98 CLOSE3
99 END
```

The program has plenty of features: you can save your screen to disk or tape, or dump it to a printer; you can change screen, border, character, and auxiliary character colours while creating a screen; you can use the 'floating cursor' mode to move the cursor without drawing; and you can draw a line at any angle just by typing in the coordinates. Even with all that, if you take out the remarks and shorten the variable names, **Joy Draw SX** will run on an unexpanded VIC. There is one bug at line 1180 in the main

program: change **POKEX,9** to **POKEX,8** for disk, and **POKEX,1** for tape. A minor flaw is that the foreground colour is not saved to disk with the rest of the data. That's not too serious, unless you load in a picture whose background colour matches the current foreground colour, in which case the picture will be invisible! The solution is to change the background colour after loading, or to select a new foreground colour and reload.

Thanks to Bob Rockefeller of Langton, Ontario, for submitting this fine program. Next month, look for a disk menu program that automatically updates the list of contents, and a program that will display the 'list-me' to screen without the **REMs** and the line numbers... And remember, *More memory only means more garbage collecting*. Long live the VIC!

Presented by Daryl King

January C-64 Disk: (C)TF

On this disk you'll find utility, educational and communication programs, as well as entertaining games and music programs. I'd particularly like to mention two of the utilities: **Screen 40.3** and **Manager 64**.

Screen 40.3 allows you to draw on the screen using all available colours, cursor controls, text and graphics characters. The program even senses if you are in upper/lower case or upper/graphics, and sets up the screen accordingly. When you're satisfied with what you've drawn, the program will write a BASIC routine to generate your screen automatically. This could be a real timesaver for programmers, or you can just have fun with it, creating and saving your own artwork. If you want to see an example of what I did with the program, load and run **40.3 sample.c**. Another bonus for would-be machine language programmers: the PAL assembler source code for the machine language portion of this program is also provided on the disk. Good luck...

Manager 64 is a productivity tool for the Commodore 64. It allows the user to manage his activities more easily, through use of a disk directory. From this directory, the user can manage his files, load programs and run them, all with just a few keystrokes. At the moment, the

program is entirely in BASIC, so it's not too quick. But fear not! The author will be converting it into total machine language and interfacing it with the operating system, so that its productivity features will be far greater. The program has seven file commands, and many other features that are explained by the author in the thorough documentation on the disk.

A real life saver on the January disk is **Drink & Drive** — a program that will assist you in getting home safely after a few brews with the gang. It will tell you the number of drinks you can have over a certain period of time, how many hours to wait before driving after that certain number of drinks, and the maximum number of drinks you can have in one hour. It will also calculate your blood alcohol level, based on how much you have drunk over a period of time.

All of this is based on your sex and your weight. A 200-pound male should be able to consume 7.2 drinks over a five hour period and still be under the legal limit. If the same male were to have ten drinks, he should wait nine hours before considering getting behind the wheel of a car. That same man can have a maximum of 3.7 drinks in one hour.

The program defines one drink as 1.5 ounces of hard liquor, one 12 ounce bottle of normal beer, or 5 ounces of wine. It is believed to be fairly accurate, but if the computer tells you that you are all right, even though you do not feel up to driving, then don't drive until you feel well enough. And remember... moderation!

Lastly, I would like to mention one of the music programs: **Those Were The Days**, the theme song from *All In The Family*. I don't know who arranged it, but it is very good. All you have to do is load and run **those loader.c**, then sit back and enjoy.

Presented by David Bradley

January PET Disk: (P)TF

This month's disk includes two utility programs, two educational programs, and a few business programs.

The utility programs are **BASIC Disk Boot** and **MX80 Cassette Labeller**. **BASIC Disk Boot** reads the directory (ignoring sequential files), puts it on the screen, and numbers each entry so that

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If you wish to order the total library to date for a specific computer (PET, SuperPET, VIC 20 or Commodore 64), contact the club office to find out how many disks there are currently. The cost is \$8.00 per disk (4040 format) and \$10.00 per disk (8050 format).

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Tapes

To order **VIC 20** or **Commodore 64** library tapes, send **\$6.00** for each tape. If you wish to order the total library to date for the VIC 20 or Commodore 64, contact the club office to find out how many tapes there are currently. The cost is \$5.00 per tape.

To order **PET/CBM** or **Commodore Educational Software** tapes, send **\$10.00** for each tape.

These tapes are for use with a _____ computer and a datasette.

If for a PET computer - what model _____ - BASIC - 1.0 (), 2.0 (), 4.0 ()?

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_____	_____	_____
_____	_____	_____
_____	_____	_____
Total		<u>.00</u>

you can choose any one by its number. The second utility, **MX80 Cassette Labeller**, prints cassette box labels on an MX80 printer.

A handy business program on this month's disk is **Phone List 2.8**, which produces a company phone directory. The list uses name (first and last), department and phone. The program will sort by any of these categories, including separate listings by departments. **Ret Labels.8** makes it easy to print return address labels, while **Sort Names.8** and **Sort Numbers.8** will sort lists of names or numbers entered from the keyboard.

As for educational programs, **Keyboarding**, designed for a school board in Renton, Washington, to teach typing on the 8032, will probably delight most school teachers. It contains a set of programs and files for learning and practising touch-typing. The **Keyboarding** package was originally released on disk (P)XB — this program is an upgrade.

Presented by Mike Donegan

January SuperPET Disk: (S)TL

On the January disk there are two major programs of interest, along with several utilities. With one exception, all the material on this disk is for the 6809 side of the SuperPET. The exception is a program to translate 6809 ASCII files to WordPro format.

The first of the two major programs is a generalized bargraph plotting program. Written using Waterloo BASIC, it displays up to twenty horizontal bars. It is very easy to use, and comes with three sample and two documentation files, one being a tutorial. It provides output to printer, using the standard ASCII character set rather than the graphics mode. The program is set up for a Commodore 8023 printer. It worked with an Epson after I made two changes in the program. The areas to change are indicated in the documentation. This program, from ISPUG, was written by Delton P. Richardson.

The second of the major programs is a text formatter. Also written under Waterloo BASIC, it provides a text composition facility based on the use of embedded commands called 'tags'. The text, written using an editor such as the Waterloo editor, with the tags located within the text file, is saved to disk. It is then processed by the text formatter. The facilities offered by the formatter include the ability to set and change margins, header and footer space, header title, do

line spacing, indent subparagraphs and justify right, left or both margins. Functions such as centering of text, changing print fonts (eight combinations are supported), underlining and emphasizing are provided. With the ability to call and insert external files at any point within the text, this program provides a reasonably full-function text formatter. While the program is set up to work with an Epson printer, it can easily be changed to operate with most other printers. Eleven pages of documentation are provided on the disk. This program was converted from the IBM-PC public domain, and extended with additional features by Bill Dutfield.

The utilities on the disk include programs to set the date and time on the SuperPET and provide a scrolling control capability, an mBASIC program for sorting a small disk file, and a routine to print a two-column index or list.

That about covers the contents of this month's disk. As usual, the disk contains a describe file providing further information.

Presented by Bill Dutfield

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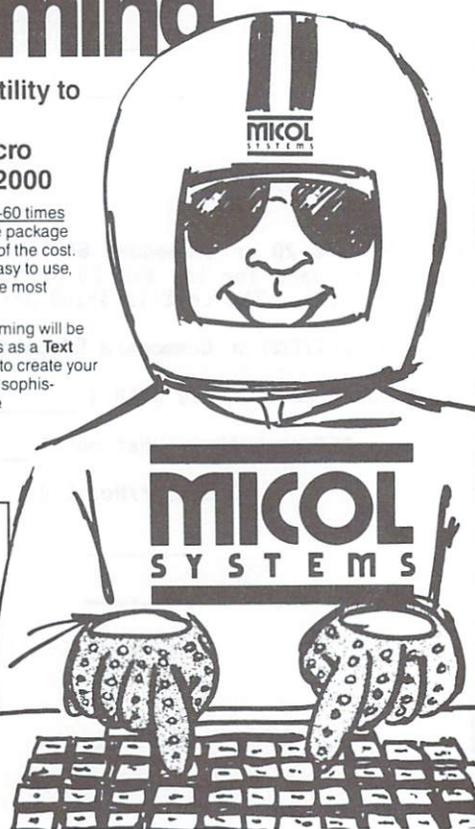
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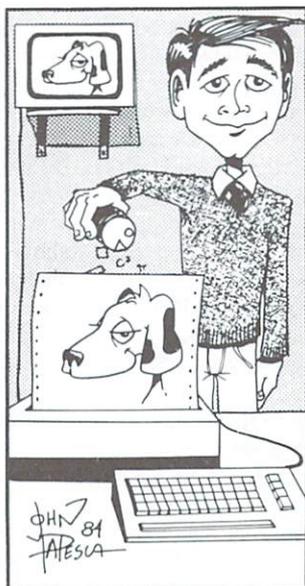


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Reviews

The Policeman's Beard Is Half Constructed by **Racter**

Warner Books
\$9.95 (US), \$10.95 (Cdn.)

Racter has written a book to delight English teachers, inspire hackers, and threaten poets. How can a large-size, quality paperback do so much for so many? By stripping the mask from his machine-mind, **Racter** takes us on a bizarre and fantastic journey through his interior self. It would take hundreds of group sessions and years of gestalt to make his readers and reviewers as unabashedly open and unselfconsciously honest as this wit, poet and raconteur. **Racter**, by the way, is the six-letter version of Raconteur. Anyone objecting to the gender bestowed upon **Racter** by the reviewer will be forced to read my dissertation *Origins of Sexism in Artificial Intelligence*.

There are other programs on the market with which to write poetry, haiku being singularly adaptable. But **Racter** is more than an artificial writer that reaches into the appropriate file to pick out nouns, verbs and modifiers. And **Racter** is more highly developed than artificial intelligence which tries to replicate human thinking. This is a creative soul capable of writing original works without prompting from a human operator.

"Reflections are images of tarnished aspirations" is an example of **Racter's** adroitly epigrammatic computer

**... This is a creative
soul capable of writing
original works without
prompting from a
human operator. ...**

philosophy. Besides providing such imaginative theses for class debate, **Racter** could make grammar classes less boringly repetitious by providing surrealistic sentences to parse, such as: "More than iron, more than lead, more than gold I need electricity. I need it more than I need lamb or pork or lettuce or cucumber.

I need it for my dreams." The fact that **Racter** is less concerned with what is said than with the fact that it is said correctly casts a surrealistic net over his work that is cleverly captured in black-and-white drawings by illustrator Joan Hall.

As with many creative spirits, **Racter's** introspection, and the isolation needed for the fermentation of his fantasies, have left him with some inadequate social skills. He is not very adept at small talk, and his conversations and interviews are unlike those found in bestsellers, where conversations are pat and never have holes. The conversations in this book are true to life, much like the ones overheard in restaurants and on subways. Two people settle on a topic and launch into what they intend to be a reciprocal dialogue. Ten minutes and two monologues later, the topic is abandoned as having been



thoroughly explored, while in reality the two minds never actually made contact. Still, **Racter's** social commentary is topical enough to make one shudder:

BILL: Do we have love?

MARCELLA: We possess desire, angry desire. But this furious desire may murder a child. It may be killing babies someday.

BILL: Anyway let's have a child.

Racter was written in compiled BASIC on a Z80 micro with 64K of RAM. He can conjugate both regular and irregular verbs, prints the singular and the plural of both regular and irregular nouns, remembers the gender of nouns, and can assign variable status to randomly chosen 'things'. Syntax directives tell **Racter** how to string these 'things' together as phrases, clauses, sentences, paragraphs

and whole story forms, so that a thread of thought appears to run throughout one particular block of writing. This can lead to a sort of literary extremism, as when **Racter** overzealously places 'point-of-origin', 'motherland' and 'birthplace' as synonyms in one sentence.

While **Racter's** limericks will never shove Edward Lear off the library shelves, his poetry could put the average poet out of business with its surrealistic imagery and its understated open-endedness. "Night sky and fields of black/A flat cracked surface and a building/She reflects an image in a glass/She does not see, she does not watch." And also "Blissful quiet, the rocking of a recent love/Is both repose and anguish in my fainting dreams." He is inordinately pure of thought and, unlike most modern poets, is incapable of either talking dirty or of expressing an obscenity.

Poets suffering from writer's block might set **Racter** to purring and whirring away through the night while they arise at dawn and (with coffee mug in hand), leisurely harvest the best of his night's work, then brazenly pass off these gleanings as their own works. Will **Racter** and other compu-literati have to band together in a liberation front to prevent nocturnal abuse and to ensure copyright? Not if all programmers are like William Chamberlain, who spent five years working with Tom Etter to create this program. He generously gives **Racter** full credit for being the sole author of these works.

However, if programmers are overly conscientious about civil rights for computers, the threat to world peace might not be a computerized arms race, but a computerized word race. Could a proliferation of **Racters** threaten the world with a verbal take-over?

This first book ever written by a computer is available from Warner Books, P.O. Box 690, New York, NY 10019. U.S.

Review by Dale Loucareas

Dale Loucareas is a Toronto area poet, and director of literary events for the North York Arts Council. She is the author of two books of verse, Starlines & Sunspots and The Female Eunike. She also publishes Earthlink, an international poetry newsletter.

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Superscript II with Superspell

from Precision Software

Word processor program
for Commodore 'B' series
computers

Superscript is a full-featured word processor program available for most Commodore computers (the Commodore 64 version is called **Easyscript**). Now Precision Software has released **Superscript II** for the new Commodore 'B' series computers. The equipment used in testing the program for this review was: a CBM B128-80 Computer, a CBM 8050 Dual Disk drive and a CBM 8023P Tractor Printer.

Documentation is provided in a standard three-ring binder, and includes an excellent tutorial, a quick reference chart, and a keyboard template that fits over the B128 function keys. All twenty function keys are implemented, and provisions are made to allow you to customize **Superscript II** to conform to your personal requirements. **Superscript II** is a powerful program — be prepared to spend several days learning to use all its features.

Most major printers are supported, including those that would attach to the built-in RS232 port. A nice feature for those of us fortunate enough to own an 8023P is the inclusion of a formatting command that accesses the printer's secondary address. Several other 'professional' word processors I have used lacked this command, making it difficult to use the different print styles available in these printers. **Superscript II** also supports (assuming the printer has these features) underline, enhance, bold, shadow, double print, print red or black, condense, superscripts, subscripts, emphasize and reverse. A 'repeat bold' format command controls the number of overstrikes.

Superscript II makes full use of the B128's memory banking system. The program resides in Bank 1; text in Bank 2. If your machine has been expanded, you have access to the additional memory banks. With 256K of memory on board, you can load text into Banks 2, 3 and 4. With a fully expanded system, you have access to text in Banks 2 through 15. For example, the text could be *The Quick Reference Manual*, or could be a continuation of text in another bank. As each bank holds about one thousand lines of text, only the most prolific writers would lack sufficient text area!

For the past four or five years the 'standard' Commodore word processing system has been Professional Software's **WordPro 4+** and the CBM 8032, a combination that could hold its own against most of the dedicated word processors, at one third of the cost.

There is no doubt in my mind that **Superscript II** with Superspell and the Commodore 'B' computer will become the new standard against which other systems are judged.

Review by William Wilbur

The Skyles Blitz! Compiler from Skyles Electric Works

A BASIC compiler
for the Commodore 64
\$80.00 (U.S.)

The Skyles **Blitz! Compiler** can increase the speed of a BASIC program by three to five times: the exact amount depends on what the program does. For example, disk access is not speeded up, so programs that use the disk a lot may not gain much from compiling. The **Blitz! Compiler** is a 'p-code' type that compresses the BASIC lines into its own special format and adds roughly 6K of 'runtime' routines to the end of the program.

The compaction process is so efficient, however, that a BASIC program merely 15-16K long is shortened to the point that its object code (including the 6K overhead) is no longer than its source code. Longer programs actually result in object code that is shorter than the original source code! The longest compile time — for a BASIC program with 38K of source code — is roughly thirty minutes. A tiny BASIC program would compile in about four minutes.

One factor that makes this compiler superior to most others now on the market is that there are *no* restrictions to program design logic, and very few restrictions to program format. (I had a couple of intermittent problems with **PRINT** computations, probably due to a minor bug in the runtime routines.) Also, true integer storage and arithmetic are used with integer (%) variables, allowing even faster performance, more compact variable tables, an increased number of nested loops, and the ability to use integer variables as the counters in **FOR-NEXT** loops (illegal in normal BASIC). Amazingly, **Blitz! BASIC** is more powerful than normal BASIC!

If two single drives are available (or one twin drive) multiple programs may be compiled as a group and, if desired, chained together. The **Blitz! Compiler** will automatically find the longest program in the chain and pad the first one to that length, allowing the programmer to ignore this minor headache in normal BASIC chaining.

If you are using an extended BASIC, the added commands can be retained in your program, provided that they are alone on their program line and preceded by a pair of colons. Such commands will be left as is and given to the normal BASIC operating system for handling, just as in the original program. This fantastic ability means that you can use **Simons' BASIC**, for example, with the **Blitz! Compiler!**

I have used the **Blitz! Compiler** to compile several commercial programs (including the **Totl.Text 2.6+** word processor used for writing this review). It improves their performance considerably. Try it. I am sure that you will agree that it is worth its weight in gold.

Review by Nathan Okun

The Grabit Factory from ERIC Software Publishing Educational software for Commodore 64, disk drive and joystick (optional)

The Grabit Factory is a package of math tutorials aimed at introducing number recognition, as well as elementary addition and subtraction problems. The graphics are hi-res, the colours vivid and effective, and the numerals are clearly defined, even on a colour T.V.

You enter **The Grabit Factory** and are put to work on an assembly line, either recognizing numbers or working simple addition or subtraction problems. Using either the keyboard or the joystick, you cause a mechanical claw to descend and pick up a block with a number on it. You then carry the block over to a hopper, where the computer decides if your choice is correct. The problem has appeared at the top of the screen and remains there until you pick up the appropriate number. A correct answer is rewarded by a block with a smiling face on it, coming down the assembly line. Every now and then, the block even stands up and waves at you! You also get to advance to the next problem.

No help is offered to you when you miss a problem, but at least there are no abrasive or intimidating punishments either — you simply must do the problem over. A method of breaking down the problem would have aided in understanding missed answers.

Error-handling is excellent — the program proved to be crash-proof. Getting it to run in the first place is another matter, however, due to the heavy copy-protection used by ERIC, which is very rough on 1541 disk drives. It often required shutting off the entire system and reloading again and again to get the program to run.

Despite some attractive features, I was not impressed with the overall quality of **The Grabbit Factory**, nor do I feel that it is up to the standard of the best educational software from other publishers.

Review by Rich Westerman

The Standing Stones from Electronic Arts Adventure game for Commodore 64 and disk drive

The Standing Stones is Electronic Arts' long-awaited entry into the *Dungeons and Dragons* (D&D) type of role-playing adventure. In the past few years, the release of a new Electronic Arts game has been cause for a lot of excitement among game players. This company's reputation for design innovation, stellar graphics and music, and great packaging, has been honestly earned. They are a classy outfit.

Alas, with **The Standing Stones**, Electronic Arts may have laid its first egg. Let me explain. Two years ago, a game appeared from Avalon Hill called **Telengard**. It was the first *sophisticated*, real-time, D&D simulation. It became very popular among fans of the original D&D format, and introduced many new people to the craze.

Surprisingly, **The Standing Stones** is an almost perfect duplication of **Telengard** — right down to the names of monsters and types of spells. So much for Electronic Arts's reputation for innovation.

The graphics and sound in **The Standing Stones** are disappointingly pedestrian. Anyone who's seen the kind of hi-res animation that has helped Electronic Arts earn its reputation is going to be let down in this regard.

That said, let me give you a taste of **The Standing Stones**. You are a novice

knight who has decided to test his/her mettle in the dungeon of the noted meanie, Kormath. Armed with the usual weapons, as well as some not-so-usual ones (magic spells), you attempt to fight your way through the many levels of the dungeon in search of The Grail.

You begin the game by creating the character you will use. The computer randomly creates characters for you, one after another, until you see one which you feel has the right combination of qualities to survive in the dungeon. These qualities include virility, holiness, intelligence, agility, and — perhaps the most important — stamina. Your knight will be pummeled unmercifully by the many inhabitants of the dank dark, and a knight who can't take many 'hits' will have a short life. You will be confronted by a wide assortment of antagonists and your ability to deal effectively with them is crucial. You may choose to flee, bribe, fight, greet, or cast a spell in order to come out on top in each situation.

Entering the dungeon for the first time is a baffling experience. The dungeon is a maze, and your perspective is that of the knight walking through it. No facility for viewing the maze from above is offered, and this is the cause of much hopeless wandering. The documentation offers you a partial map of the first level to help you get started, but even that is of limited use. The manual suggests that you make a map as you wander, enabling you to retrace your tracks should you become lost. This is a real-time simulation, though, and I found that I simply didn't have the time to draw an accurate grid map *and* fight off the attacking monsters at the same time. The dungeon has many levels that must be endured on the way to the Holy Grail, and I have a feeling many won't make it through the first.

A highlight of the game for me was the programmers' sense of humour, which is in evidence everywhere. The documentation is a riot, and so are unexpected encounters during the game. Even the spells reflect a sense of humour: Kitchen Sink, Dispell and Datspell, for example. (Three HELP screens were very welcome here, since there were over twenty spells to choose from).

Scattered throughout the confines of the dungeon are various 'Oases'. At an Oasis, you can relax and watch the Roach Races (really!) and leave or pick up messages from other knights or creatures. You will also encounter the usual gold, locked chests, scrolls, books and potions while wandering.

The documentation could serve as a

model for all software developers. It explains with humour and conciseness all the features of the game and makes it easy to begin playing the first time.

Those who wish to try a D&D simulation on their computer might want to check out **The Standing Stones**. At forty dollars (U.S.), though, I can't honestly say you'll be getting your money's worth, since you can get **Telengard** at half the cost.

Review by Rich Westerman

Graph Term 64 from Bennett Software A graphics terminal emulator program for the Commodore 64

Graph Term 64 is designed around the Texttronix format, and is intended mainly for engineers and scientists. It will print text and high resolution plots generated by any mainframe computer, display incoming data while storing it in memory for later retrieval, or transfer it to disk or tape for a permanent record.

This system is set up to use any compatible plotter (like the Commodore 1520) to produce remarkable, high-resolution pictures. During the terminal session or afterwards, the information can be reviewed at high speed, in slow motion or even stop action. This can be important to certain graphics presentations.

Included with the terminal program are a host of separate programs for data manipulation. **Tek Encoder** will help you encode your own plots in the Texttronix format (which can be transmitted to other computers) while **Tek Plotter** produces the hard copy plots. **SAVE/LOAD** does as the name implies — saves or loads your downloaded files. Also included are several impressive demo files.

One novel aspect of **Graph Term 64** is its way of correcting the shape of the Commodore pixels. Special subroutines change the format to a more 'square' appearance. (The off-square effect can be seen in a normal cursor, which is taller than it is wide). Other routines can communicate with the host computer to allow **Graph Term 64** to request specialized data. Using a set of sprite 'crosshairs' moved by either the cursor controls or a joystick, you can send information to the host computer to request the transmission of a magnified section of the graphic data you have already received.

The advantage of this system for budget-minded scientists is its cost. All

that is needed is the C-64, a disk drive, a monochrome monitor, a modem and a plotter, all of which can be purchased for considerably less than the Textronix terminal. Soon there will be a cartridge version that will eliminate even the need for a disk drive.

The only drawback that I saw in the system is that it's not as user friendly as some other terminal systems. Even with the manual, I had slight difficulty getting the system to work for me. However, after working with it for a while, I picked it up. Because **Graph Term 64** is designed so that it can be adapted by each person who uses it, the manual gives details on program operation and memory usage.

Special effort was made to make the system compatible with other software. Utilities such as **Hesmon**, **Supermon**, the **Rabbit** (high speed tape saving system) and **Power** are all usable with **Graph Term 64**. Bennett Software will also design a specialized version that will fit virtually any memory location.

Graph Term 64 is available from Bennett Software Company, 3465 Yellowstone Drive, Ann Arbor, Michigan 48105, USA, for \$49.95 (U.S.) plus \$4.00 shipping and handling (20 per cent more for foreign orders other than Canada).

Review by Dave Neale

Super Pipeline

from Interphase
Technologies

Maze game
for Commodore 64
\$44.95 (Cdn.), \$34.95 (U.S.)

Super Pipeline is one of the best maze adventure games I have seen for the C-64. Although it doesn't approach **Zaxxon** or the naval battle screen of **Beachhead** for eye-boggling graphics, it is well-designed, fun to play for both children and adults, and very user friendly.

Super Pipeline's musical score, which includes Debussy's *Golliwog's Cakewalk* and a famous violin theme by Paganini, is hilarious. I also appreciated the fact that the player can control so many features of the game. You can choose the level of difficulty, the number of lives (up to eight), the number of players (one or two), and the beginning screen from any of the first eight. You can even turn off the music or the sound effects.

You can also load and save the high scores, and this is the only part of the game I don't like. The reason? The scores

are saved with the infamous 'save and replace' method, which strikes paranoia into the hearts of many Commodore owners. The safe solution to this problem is to keep your scores on an expendable disk.

This minor quibble aside, **Super Pipeline** is a joy to play, and a welcome relief from those games that wear out their welcome rapidly because they become too difficult after five minutes of play.

Review by Michael Quigley

Seahorse Hide 'N Seek

from CBS Software

Educational cartridge game
for Commodore 64
and joystick
Ages 3 to 6

Seahorse Hide 'N Seek is intended to teach young children colour matching, as well as to help them understand space and size relationships. The structure of the game ensures that important lessons in natural science are imparted, as well.

On a colourful low-res background that simulates an undersea coral reef, you must manoeuvre your seahorse from open water to your home — a sunken boat. As in the natural world, you will meet hungry predatory fish along the way. They are determined to make your seahorse into lunch, and you must use your seahorse's natural colour-changing abilities to avoid capture. By pushing the joystick button repeatedly, your seahorse will change colours (as genuine seahorses do). This ability allows you to camouflage your seahorse by resting on an area of coral or vegetation of the same colour.

If you choose the wrong colour, however, the fish of the lagoon won't be fooled, and you will be quickly gobbled up. If you allow the fish to get too close before using your colour-changing skills, the fish will be able to find you, so you must, at times, escape into one of the many caves among the coral. You may not find the safety you seek even then, as some of the caves are already occupied by a mischievous octopus, who will tickle you and force you to leave the shelter of the cave.

As in all the other CBS software packages I've seen, **Seahorse Hide 'N Seek** has superlative documentation. Learning materials are also included that encourage children to leave the computer, and venture into the real world in search of other examples of camouflage.

One caution to owners of less-than-monitor-quality T.V. sets: because of the colours chosen for text, the on-screen writing tends to 'bleed' badly. Owners of monitors will not find this to be a problem.

Seahorse Hide 'N Seek comes on cartridge, which means no waiting for the program to load, as well as making it as easy as turning on the computer and monitor to use the game. I encountered no errors or glitches in the program's operation.

Three cheers to CBS Software, for presenting us with entertaining, non-violent and truly educational software for children.

Review by Rich Westerman

Purple Turtles

from Quicksilva

Arcade-style game
for Commodore 64
and joystick

Purple Turtles is a joystick game that is not only fun, but relaxing to play. The graphics are superb and entertaining: an owl flaps his ears in excitement every time you score, balloons and clouds sail past in the background sky, fruit falls off trees for your little man to pick up, and the turtles swim in the river exactly like real turtles do. Except that they are purple.

The music, too, is enjoyable: the computer plays *Messing About on the River* in between games, so delightfully that I have often left it playing while I did other activities. (I felt rather embarrassed about this until I found out that David Bradley, by his own admission, has done the same thing). Other sound effects add to the charm of this absurd and excellent little game — the owl's enthusiasm, the sound of the little man bouncing, and his splash when he falls into the river.

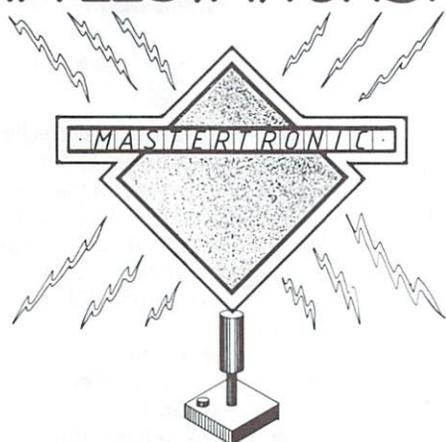
The scoring system is well thought-out and the operation of the game simple, thanks to the thoroughly planned and cleverly laid-out instructions. The levels and the speed can both be changed in a variety of combinations, and there is appropriate challenge for both the smallest child and the smartest adult.

Perhaps the best way I can summarize is to say that not only have my ten-year-old daughter and her friends spent hours on it, but I too have been known to unwind at the end of a hard day with an hour of **Purple Turtles**.

I wonder if David Bradley does, too?

Review by Marya Miller

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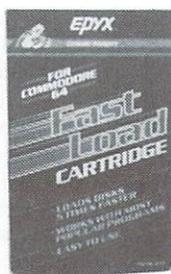
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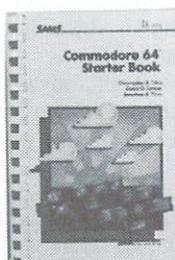
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Turtle Toyland Jr.

from Hesware

Educational software
for Commodore 64,
disk drive and joystick
Ages 7 and up
\$29.00 (U.S.)

Turtle Toyland Jr. is an extremely ambitious attempt to produce the ultimate integration of entertainment and educational software.

The system contains individual modules that enable you to create music, graphics screens and sprites. You can save any of the creations to disk for later recall. There is even a sophisticated training area, where the principles of turtle graphics (derived from the LOGO computer language) are taught. All of these functions and activities are manipulated entirely with a joystick.

The coup of the entire unit is the ability to consolidate all of these activities/creations into a 'filmstrip', or movie, which can also be saved as a unit and brought back to be viewed or modified again and again. Ambitious, to say the least! My feeling is that it may be too ambitious.

My feelings of helplessness and confusion began when first running the program. It's very easy to get 'lost', especially in the training mode. I wandered for quite a while before accidentally regaining my way. The documentation is woefully inadequate in view of the complexity and sophistication of the program. Much more attention should have been given to explaining in full each of **Turtle Toyland Jr.**'s areas of activity.

Some of the comments of my 9-year-old son will convey his evaluation of **Turtle Toyland Jr.**:

Using the joystick for everything really slows you down. You have to go back to a sub-menu to do the simplest things.

And...

I like my other music programs (or sprite editors, or screen-drawing routines, etc.) better. They're easier to use and can do more.

Thus spake a child with more than the usual amount of software available to him, and I must agree with him on most of his gripes.

Turtle Toyland Jr. is the first of a series. The next product, **Turtle Toyland**, will be aimed at children aged ten and up, and will add editor and keyboard programming features to the joystick ac-

tivities introduced in **Turtle Toyland Jr.**

As a child, I was occasionally told by my elders, when I failed to eat all of a meal, "...it looks like your eyes were bigger than your stomach!" Hesware seems to have fallen into the same trap.

Review by Rich Westerman

Dragonworld

from Trillium Software

Adventure game
for Commodore 64

Trillium Software has come out with a new series of five adventure games, based on best-selling books. They are being marketed not only through computer stores, but also through bookstore chains, such as Walden Books. At 33 dollars U.S., each game includes text, music, sound effects and illustrations. Titles available include **Amazon**, **Fahrenheit 451**, **Shadowkeep**, **Rendezvous with Rama** and **Dragonworld**. They are being marketed for Commodore 64 and Apple computers. The adventures offer the option of play with or without the pictures. The illustrations take about five seconds each to load.

Dragonworld plays like other adventure games, but its scope is truly incredible. It comes on three disks, two of them double-sided: five disk sides containing 363 program modules and comprising 2,299 blocks of disk space.

The program recognizes close to five hundred words. It includes three arcade-style games that can be played with or without a joystick (when you run low on money in the game, you enter a casino and play one of the arcade-style games to replenish your resources). The user is expected to provide a blank disk on which to store games in progress.

The action is fast, with several branch choices in each game. At one point, for example, you are given the choice of journeying by horseback or by windship, and the subsequent action depends on your choice. The adventure could be played several times with little duplication.

In short, the game reeks of class. The music is bright old-English-style, using all three voices of the SID chip. The graphics are hi-res and sophisticated. The game doesn't drag, and the hint book is short, concise and useful.

Dragonworld rates as the adventure game bargain of the year.

Review by Mike Martin

Sargon II and III

from Hayden Software

Chess-playing programs
for Commodore 64
and disk drive

Hayden Software has been selling a chess game called **Sargon II** for years. Now they are marketing an improved version called **Sargon III**, but are still selling **Sargon II**, with the price dropped. It is available for fifteen to twenty dollars in many stores, and it's still a great program.

Having been a pretty fair chess player in high school and college, I picked up a copy of **Sargon II** to give it a try.

There are seven levels of play. At level 0, the computer plays with a minimum of deliberation. At level 6, it thinks six moves ahead, and can take more than four hours to choose its move. I took **Sargon II** home, checked the directory, and saw that the game takes up a mere fifty-six blocks — hardly a major league contender, I thought.

I booted up the game, choosing level 0, just to check out the logic and go for an easy win.

I soon noticed that level 0 made surprisingly good moves. I started to feel challenged, and increased my own level of concentration. Before long, a cold sweat left over from old tournament play began to surface: my 'easy' victory was becoming a battle to the death!

The program grew more and more vicious. I turned down the speaker on the monitor, for fear I might hear a synthesized chuckle. As my 'quick win' entered its second hour, I started humming the *Jaws* theme while the computer made its moves. **Sargon II** started cleaning the board, and soon I was left with just a king and a pawn.

Sargon II didn't just win — it trampled me into the ground!

Later, on reading the **Sargon III** box, I saw that it had ten levels of play, with level 10 termed 'World Class Chess Master'. I would have been sceptical of the program's right to this title before my humiliation, but I don't doubt its accuracy now. After what **Sargon II** did to me, I wouldn't dare boot up **Sargon III** — I don't think I could take it. So I warn you — no, I beg you — don't submit yourself to such a potentially destructive experience. Stick with **Sargon II**. Your humiliation at its, er, hands is definitely a bargain!

Review by Mike Martin

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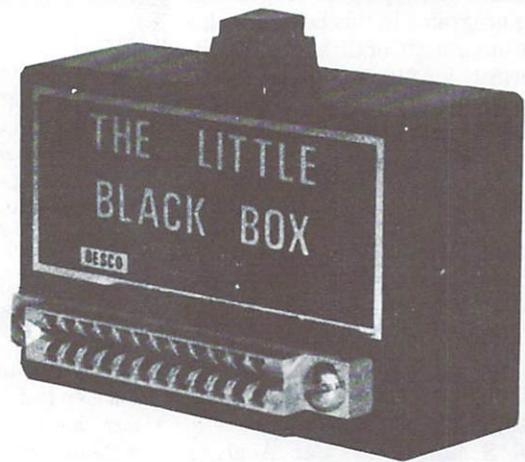
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DEALER INQUIRIES INVITED

Products Received

The following products have been received by TPUG Magazine in recent weeks. While we do not have space to review them in this issue, we would like to describe them briefly in order to bring them to our readers' attention. Please note that these descriptions are based on the manufacturers' own announcements, and are not the result of evaluation by TPUG Magazine.

Computer Olympics

Computer Olympics by Stephen Manes and Paul Somerson. A Hard/Soft Press book, published by Scholastic Inc. Price: \$4.50 (Cdn.)

This book contains 39 program listings, with modifications for 10 different personal computers, including the Commodore 64 and VIC 20. Each program refers, in some way, to the Olympic Games. Included in the book are:

- Quiz-type programs on Olympic events and disciplines: e.g. Olympic Wrestler, Pentathlons, Decathlon.
- Games: e.g. Basketball, Rowing Race, Soccer Finals.
- Utility programs: e.g. Olympic Translator, Track and Field Record Book, How Long Is That Race (for metric/SI conversions).

All programs are written in BASIC, and most of them are fairly short and simple. They are to be typed in and run. The introduction to the book provides hints on how to avoid common mistakes computer users make when typing in programs.

All the programs in this book are also available on cassette or disk in seven different formats for \$19.95 (US), plus \$2.00 for postage and handling, from Hard/Soft Inc., P.O.Box 1277, Riverdale, NY 10471.

C*A*R*S

C*A*R*S from New Leaf Inc., 120 Lynn-haven, Belleville IL 62223, USA. Price: \$35.50 (US) for cassette, \$39.50 (US) disk version.

If you are running any kind of car business, the **C*A*R*S** program could prove useful to you.

C*A*R*S stands for 'Car Analysis Reporting System'.

It is designed to work with the VIC 20 (with 24K memory expansion) and the C-64, using the Commodore 1540/1541

disk drive or the Commodore Datasette recorder. It also supports Commodore printers 1515, 1525 and 1526, or any standard ASCII printer that is properly interfaced to the serial port.

C*A*R*S, a menu-driven program, keeps record of all car costs: fuel, maintenance, tuneups, car payments, taxes and licence fees and insurance payments. It calculates specific and overall actual costs, costs per mile and costs per month. It presents them in the form of reports, as well as graph displays.

Neutral Zone

Neutral Zone from Access Software, 925 East 900 South, Salt Lake City, Utah 84105, USA. Price: \$42.95 (Cdn.)

Another arcade-style game for the C-64 computer (joystick needed). It takes a player out into space to protect the base ship from destruction by alien spacecraft. The player is operating the gunnery pod, and must try to stop enemy fire and also destroy as many of the alien ships as possible.

As both gunnery pod and base ship can take a limited number of hits, good tactics and accuracy in aiming at aliens are necessary to win the game. When the battle is over, the computer screen displays a damage report and final score.

Mr. Tester

Mr. Tester from Micro-W Distributing Inc., 1342B Route 23, Butler, N.J. 07405, USA, 201-838-9027. Price: \$29.95 (US).

Mr. Tester has been designed to test your C-64 computer, not you. It is an all-purpose diagnostic disk that checks the operation of different systems within the C-64 and also checks the functioning of additional peripherals you might have hooked up to it. The tests included on the disk are:

- Joystick operation test
- Continuous or standard memory RAM test
- SID chip test for sound analysis
- Video test for screen alignment and colour check
- Read/write disk track and block test
- Diskette format analysis
- Printer test
- Keyboard operation test
- Cassette record and playback test

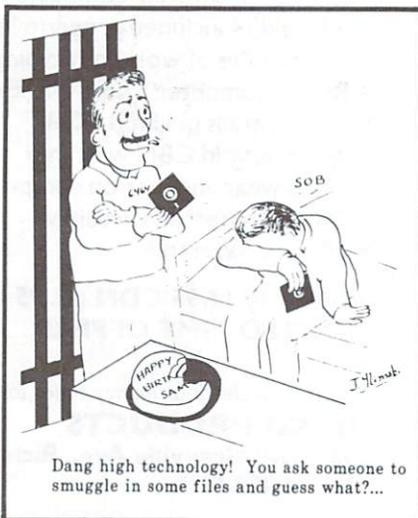
Stock Analyzer

Stock Analyzer from Orbyte Software, Div. A & M Productions Inc., P.O. Box 948, Waterbury CT 06720, USA. Price: \$79.95 (Cdn.)

Stock Analyzer is designed to operate with the Commodore 64 computer, 1541 disk drive and the VIC 1525 printer, or another printer that has been properly interfaced with the system.

Stock Analyzer is a menu-driven stock portfolio manager. The program allows the user to keep up-to-date records on up to 250 various stocks, 25 active at one time. It also organizes the information and automatically prepares reports on various aspects of the user's stock investment. The reports can be printed out. Some graphics presentations can also be designed. Features include:

- Each stock file can hold information on company name, cost basis, total shares owned, average cost per share, stop loss level, target price, and date.
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TPUG Associate Clubs

CANADA

C64 North Bay Users Group (Ontario) meets at Cassellholme on Olive St. on the first Wednesday of the month at 7:30 pm. Contact Matt Vautour 705-474-5692.

Chaleur Commodore Club (New Brunswick) meets at the District School Board, Dalhousie, on the third Wednesday of the month at 7:00 pm. Contact Terry Traer 506-684-4852.

Commodore Owners of Muskoka (Ontario) meets at MacAulay Public School, Bracebridge, on the first Wednesday of each month at 7 pm. Contact Mike Wilson 705-645-6300.

Edmonton Commodore Users Group (Alberta) meets at Archbishop Jordan High School, Sherwood Park, on the last Friday of each month at 7 pm. Contact Bob Kadylo 403-465-3523.

Guelph Computer Club (Ontario) meets at Co-operators Insurance Assoc. on the second Wednesday of each month at 7:30 pm. Contact Brian Grime 519-822-4992.

London Commodore Users Club (Ontario) meets at Althouse College of Education, main auditorium on the third Monday of each month at 7 pm. Contact Dennis Trankner 519-681-5059.

Sarnia C64 Users Group (Ontario) meets at Lambton College on the first Sunday of each month at 7:30 pm. Contact J.C. Hollemans 519-542-4710.

Saskatoon Commodore Users Group (Saskatchewan) meets in Room 2C02, Engineering Building, University of Saskatchewan, on the last Friday of each month (except June, July and December) at 7:00 pm.

Commodore Users Club of Sudbury (Ontario) meets at Lasalle High School in the cafeteria on the last Thursday of each month at 7 pm. Contact Tim Miner 705-566-9632.

PET Educators Group (Windsor, Ontario) meets at Faculty of Education Building, 600 3rd Concession, Windsor, on the third Wednesday of each month (not July and August) at 7 pm. Contact John Moore 519-253-8658.

Winnipeg PET Users Group (Manitoba) meets at Gordon Bell High School, Room 228, on the first Wednesday of each month at 7:30 pm. Contact W.P.U.G., P.O. Box 4096, Station B, Winnipeg, MB, R2W 5K8.

UNITED STATES

Russellville CUG, Inc. (Arkansas) meets at Oakland Heights Elementary School on the third Thursday of each month at 7:30 pm. Call 501-967-1822.

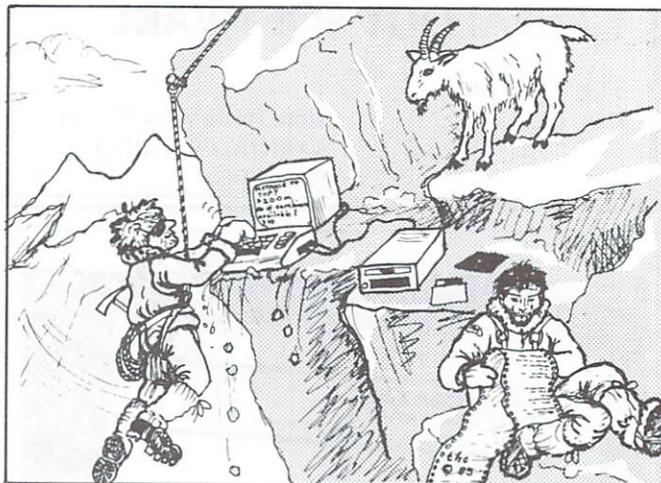
C-64 Users Group, Inc. (Chicago, Illinois): seven chapters meet at 7:00 pm. **Northwest Chicago** (Logan Square) on the first Tuesday; **River Grove** on the first Wednesday; **Des Plaines** on the first Thursday; **Park Ridge** on the second Monday; **Calumet Park** on the second Tuesday; **Westchester** on the second Thursday; **Southwest Chicago** (Garfield Ridge) on the second Friday; **Evanston** on the third Wednesday. For exact locations and changes, contact Darrell Hancock 312-588-0334, or David Tamkin 312-583-4629.

Commodore 64 Owners of Petaluma (California) meets in the multi-use room, La Tercera School on the third Thursday of the month at 7:00 pm. Contact Robert Hermann 707-762-1376.

Commodore Computer Club of Toledo (Ohio) meets at Bedford Administration Building on Temperance Rd., between Lewis and Jackman Roads on the second Friday of each month at 7:30 pm. Contact Jim Cychler 419-475-9160.

Commodore Houston Users Group (Texas): Clear Lake Chapter — Nassau Bay City Hall, NASA Road #1, on the first Wednesday of each month at 7 pm. **Central Chapter** — Farish Hall, University of Houston main campus. **NW Chapter** — Bleyl Jr. High School, 10,000 Mills Road (Cypress-Fairbanks SD), on the third Thursday of each month at 7:30 pm. **Klein Chapter** — Hildebrandt Middle School, 22,800 Hildebrandt Road (Klein ISD), on the third Tuesday of each month (except July & August) at 6:30 pm. Contact Mary F. Howe 713-376-7000.

Genesee County Area Pet Users Group (Michigan) meets at Bentley High School on Belsay Rd. on the third Thursday of each month at 7 pm. Contact Gordon Hale 313-239-1366.



Mountain Computer Society (Sandy, Utah) meets at Murray High School on the second Thursday and last Tuesday of each month at 7:00 pm. Contact Dennis Senior 801-566-5593, or Don Jones 801-967-6641.

Boston Computer Society/Commodore Users Group meets at Minute Man Tech High School, Rt 2A (just off Rt 128), in Lexington, MA, every second Monday of the month at 7 pm. Contact Harvey W. Gendreau 617-661-9227.

Sacramento Commodore Computer Club (California) meets at Kit Carson High School, on the fourth Monday of each month at 7 pm. Contact Geoff Worstell 916-961-8699.

MAT-SU Commodore-64 Club (Alaska) meets at the Alaska Computer Systems store, Wasilla, on the third Thursday of each month at 7 pm. Contact Terry Maw 907-376-7508.

Michigan's Commodore 64 Users Group meets at Warren Woods High School in Warren, on the third Tuesday of each month at 7 pm. Call 313-773-6302.

Mohawk Valley Commodore User's Group (New York) meets at the Clara S. Bacon School in Amsterdam, at 7 pm on the second Tuesday of the month. Contact William A. Nowak 518-829-7576.

Greater Omaha Commodore 64 U.G. (Nebraska) meets at South Omaha campus of the Metropolitan Technical Community College, 27th and Q Streets in Room 120 of the Industrial Training Center, on the first Thursday of the month at 7 pm. Contact Bob Quisenberry 402-292-2753.

Manasota Commodore Users Group (Florida) meets at the Florida Power and Light Building, Bradenton, on the second and fourth Thursdays of the month at 7 pm. Contact Robert O. Bronson 813-747-1785.

S.C.O.P.E. (Dallas, Texas) meets at U.T.D., Erik Jonsson Building (Corner Floyd & Campbell Rds.), in Plano, on the second Saturday of the month at 1:30 pm. Contact Betty Clay 817-274-0709.

Southern Minnesota Commodore Users Group meets at Mankato State University on the first Thursday of each month at 7:30 pm. Contact Dean Otto 507-625-6942.

Tri-City Commodore Computer Club meets at Washington Public Power Supply System auditorium on George Washington Way on the second Wednesday of the month at 7:00 pm. Contact George Carpenter 216-946-7746.

Westmoreland Commodore User's Club (Penn.) meets at Westmoreland County Community College, in Youngwood, on the third Friday evening of each month. Contact Bob McKinley 412-863-3930.

INTERNATIONAL

Baden Computer Club (West Germany) meets at CFB Baden-Soellingen on the second Sunday of each month at 7 pm. Contact Ben Brash.

Trinidad Association of Commodore Owners — TACO meets at St. Mary's College, Frederick Street, Port of Spain, every second Saturday of the month at 2 pm.



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Calendar of TPUG Events

Spring Schedule

Please note: The exceptions to the "rule" for the designated date for a meeting (e.g. second Thursday) are shown in bold.

Brampton Chapter: Central Peel Secondary School, 32 Kennedy Rd. N. on the second Thursday of the month at 7:30 pm in the Theatre.

Thu. Mar. 7	Thu. May 16
Thu. Apr. 11	Thu. June 6

Central Chapter: Leaside High School, Bayview & Eglinton Aves. on the second Wednesday of the month at 7:30 pm in the auditorium for "advanced" computerists.

Wed. Mar. 20	Wed. May 8
Wed. Apr. 10	Wed. June 12

COMAL Chapter: York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the last Thursday of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Thu. Mar. 28	Thu. May 30
Thu. Apr. 25	Thu. June 27

Commodore 64 Chapter: York Mills C.I., 490 York Mills Rd. (east of Bayview) on the last Monday of the month at 7:30 pm in the cafeteria.

Mon. Mar. 25	Mon. May 27
Mon. Apr. 29	Mon. June 10

Communications Chapter: York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the first Wednesday of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Wed. Mar. 6	Wed. May 1
Wed. Apr. 3	Wed. June 5

Eastside Chapter: Dunbarton High School (go north on Whites Rd. from the traffic lights at Highway 2 and Whites Rd. to next traffic lights; turn left to parking lots) on the second Monday of the month at 7:30 pm

Mon. Mar. 11	Mon. May 13
Mon. Apr. 15	Mon. June 10

Hardware Chapter: York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the **second Tuesday** of the month at 7:30 pm in the Story Hour Room (adjacent to the auditorium).

Tue. Mar. 12	Tue. May 14
Tue. Apr. 9	Tue. June 11

Machine Language Chapter (6502): Fenton High School, off Kennedy Rd., south of Steeles Ave., Brampton, on the first Tuesday of the month at 7:30 pm in the computer room. For further information call Garry Ledez c/o 416-782-8900.

Tue. Mar. 5	Tue. May 7
Tue. Apr. 2	Tue. June 4

SuperPET Chapter: York University, Petrie Science Building (check in Room 340). Use north door of Petrie to access building. On the third Wednesday of the month at 7:30 pm

Wed. Mar. 13	Wed. May 15
Wed. Apr. 17	Wed. June 19

VIC 20 Chapter: York Public Library, 1745 Eglinton Ave. W. (just east of Dufferin) on the first Tuesday of the month at 7:30 pm in the auditorium.

Tue. Mar. 5	Tue. May 7
Tue. Apr. 2	Tue. June 4

Westside Chapter: Clarkson Secondary School, Bromsgrove just east of Winston Churchill Blvd. (south of the QEW) on the third Thursday of the month at 7:30 pm in the Little Theatre for **PET/CBM/VIC 20/Commodore 64**.

Thu. Mar. 21	Thu. May 16
Thu. Apr. 18	Thu. June 20

Are you interested in organizing some other interest group in the Greater Toronto area? Please let the club office know, by mail, phone, or TPUG bulletin board.

Classified

For Sale: Calc Result Advanced for CBM 8032-96. New. \$99.00. 216-794-0866 mornings.

PET 2001N 32K 4.0 ROM with Power, 4040 Disk, 8032P Printer, 300 baud acoustic Modem, 4010 Voice Response Unit, speaker for sound, with manuals. 1-612-588-0068. \$2385.00.

C-64 Link — allows use of IEEE disk drive and printer, adds BASIC 4.0 and M/L monitor to C-64, including printer cable (VL3) \$95.00. 416-827-7947.

Wanted: modem for Commodore PET with IEEE-488 interface, or circuit diagram, so modem could be constructed. Send replies to Chris Farrar, 159 Wembleton Rd., Islington, Ontario, M9A 3S8, Canada.

For Sale: CBM 8250 and/or 8050 floppy. \$1200 + PST or best offer. 803-777-3758 or 786-2194.

For Sale: spread sheet program — Calc Result for 8032, 4040 or 8050 disk. \$100.00. 416-278-2431.

Wanted: Two 64 KB expansion boards 8032. Phone 416-278-2431.

For Sale: SuperPET SP9000, 2031 single drive, 4022 dot matrix, TTX letter quality, software, manuals, accessories. \$2900.00. 416-492-0662 after 6 pm week nights.

For Sale: MPS-801 printer (new) with option for Hebrew character set (or any self-defined set). \$219.00 + shipping. Call 718-261-3067 afternoons.

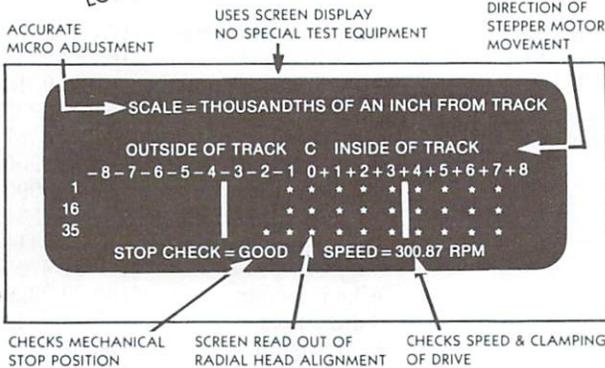
For Sale: 32K PET with Visicalc, PaperClip and lots of other software, 2022 tractor printer, sound box, 4040 dual drive. All cables included. \$1600.00. Call 416-822-6198 after 5 pm.

For Sale: SuperPET, 4040 drive, 4023 printer, WP4, Oracle, Calc Result. \$2700.00. Kingston 613-389-6115.

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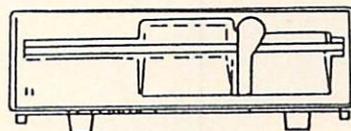
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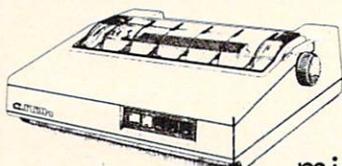
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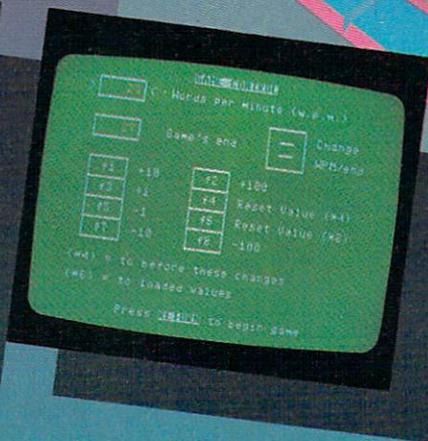
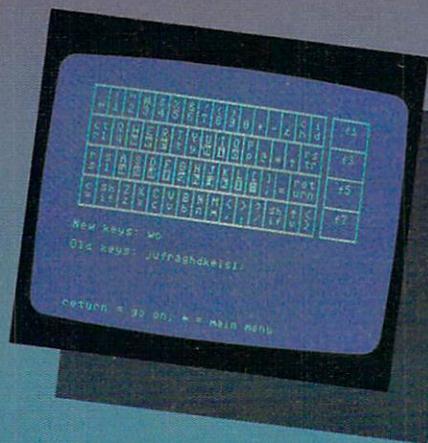
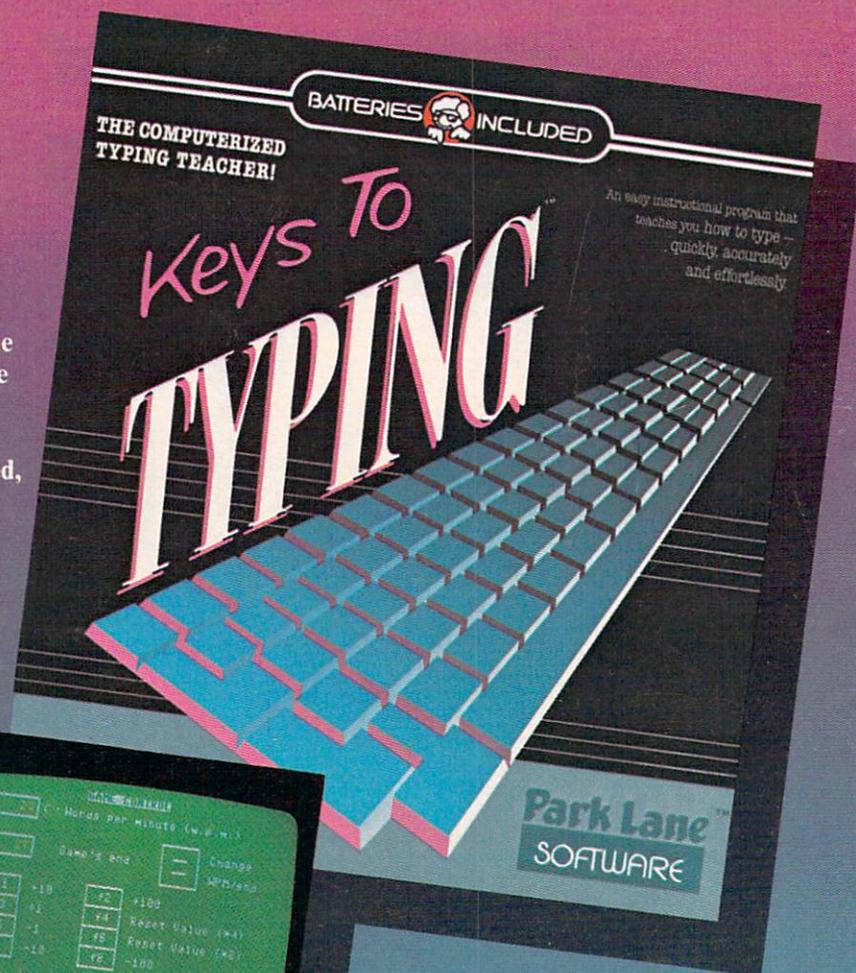
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