

This first issue of 8 pages is being sent to about 100 who have requested it, plus about 200 who have not. Since I'm paying for this out of my own pocket, I hope that all recipients will send me 75¢. Since some of you have already sent me one or two 13¢ stamps, send only 49 or 62¢, of course. This issue is being sent First Class, because of the likelihood that some of the addresses may be out of date.

The next issue will be 16 pages, and will be sent Third Class, after replies from the first issue have updated the addresses. The price of the 2nd issue is also 75¢, paid in advance. Material for the 2nd and 3rd issues is already in hand, and they will be sent as soon as practical. I can't yet set a price for regular subscriptions, since I don't know how many subscribers there will be, and I don't know the rate at which letters and articles for publication will arrive. In the meantime, it's one issue at a time. I expect to print 16 pages per issue (optimum for Third Class postage).

This newsletter is patterned on Hal Singer's pioneer computer hobbyist "Micro-8 Newsletter", and, like it, will consist mainly of contributions from the readers. I placed an ad in ON-LINE, and wrote letters to the editors of the computer hobby magazines, and received about 90 requests for the newsletter so far, including much material for publication.

I urge you to contribute a letter or article for the newsletter. If you have written a chess program, tell us about it--its philosophy, its implementation. Tutorial articles are especially needed, as there are many beginners who need help to get started. Also welcome are news reports, book reviews, information about available programs, and records of interesting games played against a computer, or between computers. If you have played against a computer chess program, tell us what you think of the program--its strength, how it displays the board and moves, its speed, etc.

I am starting this newsletter because I couldn't get anyone else to. I hope that some dedicated organization will take it over--perhaps a computer science department (with lots of cheap student labor). There has been a great rise in interest in computer chess, and I feel that the time is ripe for a publication to serve as a means for exchange of information among writers of computer chess programs, and to provide information for those interested in playing computer chess.

Two chess-playing machines have been announced; one is now on the market for \$200 or less. A chess program in BASIC is available for \$6, one in 1100 bytes of machine language for computers using the MOS Technology 6502 microprocessor for \$10, and one for \$15 for computers using the 8080 microprocessor. Hobby computers are getting better and cheaper at a high rate, and for \$300 or less you can have a KIM-1 and power supply to play chess on the 6502. Also, there is an annual U.S. Computer Chess Tournament, and others in Canada and Europe. And on campuses and elsewhere, an increasing number of people are writing computer chess programs.

Most chess programs are developed independently, and much effort is spent on re-invention. Perhaps by sharing information, comparing programs and program philosophies etc., the state of the art could be advanced more rapidly.

Access to the literature is important, and I expect to publish as complete a bibliography as possible, perhaps 2 pages per issue for 5 issues.

This issue presents the first of several articles by John Ford, author of a program for the Intel 8008 microprocessor, the first to be used in hobby computers. Since his machine had a 4k memory and interfaced with a magnetic tape cassette recorder, and his program occupied 8k, the first segment automatically called in the second from the cassette recorder.

Please send in your comments and criticisms of this issue, plus your suggestions for future issues. Especially, send material for publication.

One thing we hope to do is to establish the ratings of the various program-machine combinations, using the usual USCF system. Perhaps local tournaments can be organized, with machines competing against rated human players.



McGill  
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Burnside Hall (514) 392-8275

22nd March 1977

Mr. Douglas L. Penrod  
1445 La Cima Road  
Santa Barbara  
California 93101  
U.S.A.

Dear Mr. Penrod,

I received your recent letter regarding setting up some sort of computer chess newsletter. I certainly would like to encourage you to do so. I am enclosing a mailing list for your information. I, myself, am involved in too many other activities at this time to give you much help.

I am not sure whether the ACM is appropriate or not. SIGART would probably be willing to some degree. I doubt there is presently enough interest to maintain an independent newsletter.

I wish you good luck in your efforts and I look forward to hearing from you again.

Sincerely,

Monroe Newborn  
Associate Professor and  
Acting Director.

Postal address: 805 Sherbrooke Street West, Montreal, PQ, Canada H3A 2K6

Thomas E. Doyle  
5222 Big Bow Road  
Madison, WI 53771

4/7/77

Doug; Very interested in the computer chess newsletter--I have a  
homebrew 8080 system w/20k of RAM and have been running  
Randy Millers chess program.

News-- delete Line 3001 from Millers chess program & it runs better  
(much better.)

-- Millers program has an error in line 8607

8607 PS = SGN (A-B): FOR PS = .....

↑ This should be a 2 not an S

Any idea on chess programs for 8080 or in BASIC could be appreciated--

Thanks

Tom

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May 17 1977

Dear MR. Pentod, I think your computer-chess newsletter is a very good idea. I recently played some games on a terminal with the Greenblatt program. Enclosed are three of them. I made the mistake of buying the "chess challenger". It's ridiculously weak - they really shouldn't have come out with it. They also made a botch of the keyboard so it's hard to follow the moves. Somehow they reversed the algebraic notation so that the files are numbered and the ranks are lettered, if you can believe that! I know I can give it a queen and a rook, because I gave them away in the opening and won. But I can probably give it much more. In the endgame it's almost impossible to lose to it. Provided you agree and acknowledge, that I have all the publication rights to this letter and the enclosed game scores you can publish them in your newsletter. Regards Bobby Fischer



John Ford  
5561 Esplanada  
Santa Maria, Calif.  
93454

Dear Doug,

In response to your request for material I will attempt to describe several rather basic aspects of my chess playing program. Actually, I believe that the following method of processing moves is fairly common but my own experience is not sufficient to warrant the assertion as fact. My program constructs a "move-tree" during the search for checkmate. This move tree is an ordered, identifiable (white or black) list of moves. The process of selecting a "best-move" in the absence of checkmate is a byproduct of the checkmate search. It involves some very complex scoring techniques which are, in my program, still primitive. Perhaps some of your other readers would care to comment on the scoring technique.

The generation of the move tree involves the calculation of all possible moves for each man and the storing of these moves into suitable memory locations. In my program, initial processing consists of making the list of all possible white moves. Then, the list is evaluated in a complex loop. The first move in the list is made, a second list of all possible black moves in response is created and concatenated on the list of white moves. The first move in black's list is made and a third list of all possible white moves in response is created and concatenated on the list of black moves. The first move in white's list is made and a fourth list of all possible black responses is made. This type of processing continues until a specified search depth is reached. Early in the game, when all the pieces are on the board, the search depth is kept at 2 (2 moves for white and 2 for black), but as pieces disappear, the search depth is dynamically extended. This is necessary for two reasons: memory is not infinite and CPU speed is very finite on an 8008!

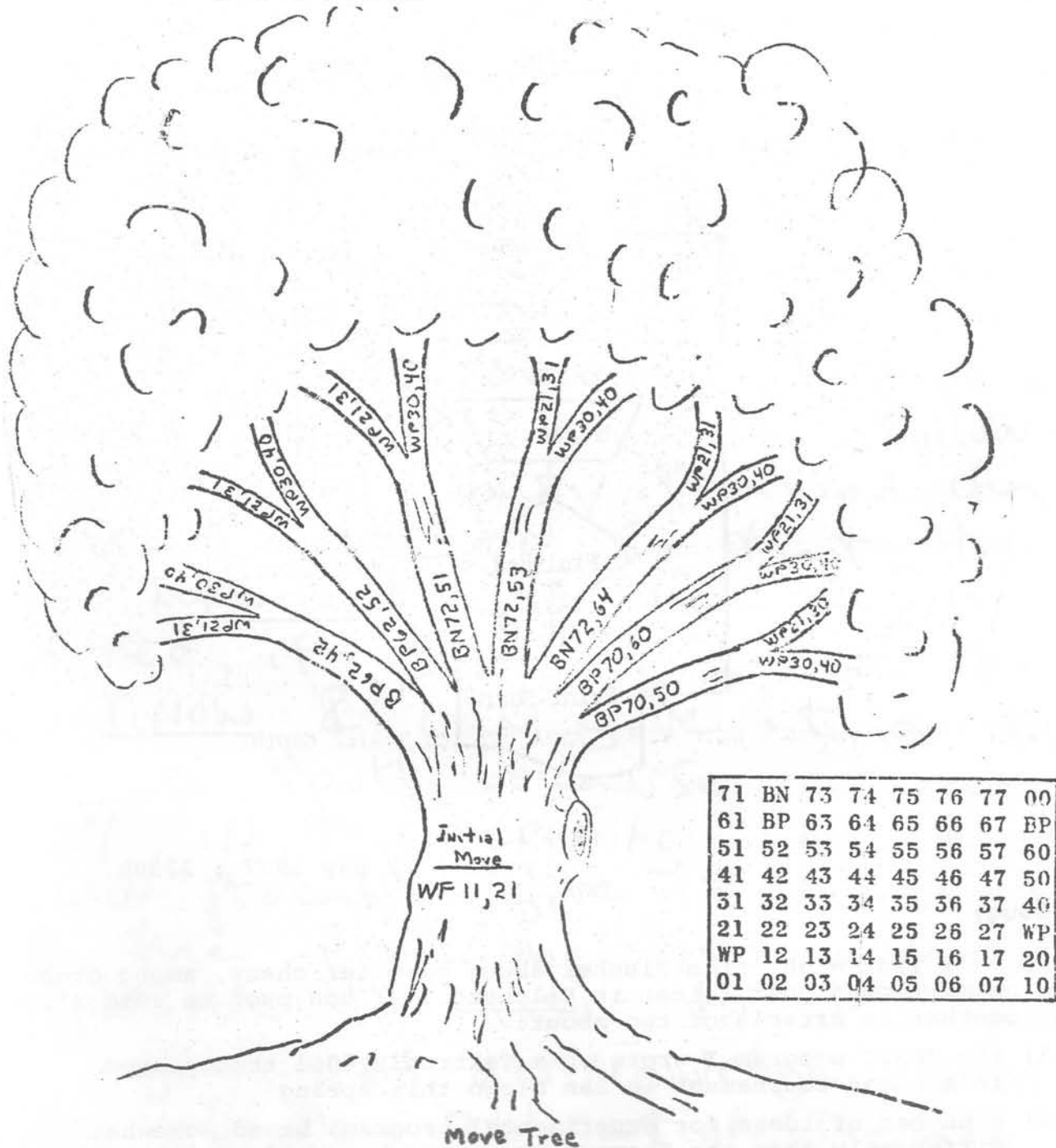
Having reached the end of the search depth, the position is evaluated for checkmate. In the absence of checkmate, the board position is reset and the next possible move in black's last list is made. Again, checkmate is evaluated. This processing is continued until black's list is exhausted. Then, the board position is reset to the white list second move and again, all black's responses are checked. When we have exhausted all of white's moves at the current search depth, the board is reset again and we start with black's second move at the next earlier search depth.

Finally, all possible moves for white and black to the required search depth will have been made and evaluated for checkmate. When checkmate is possible, processing halts and the board position is displayed. Normally however, checkmate is not available and the board position is reset to the starting position at the end of the processing. An array of best move choices, which was created during the checkmate search, is then checked for the highest score and that move is displayed.

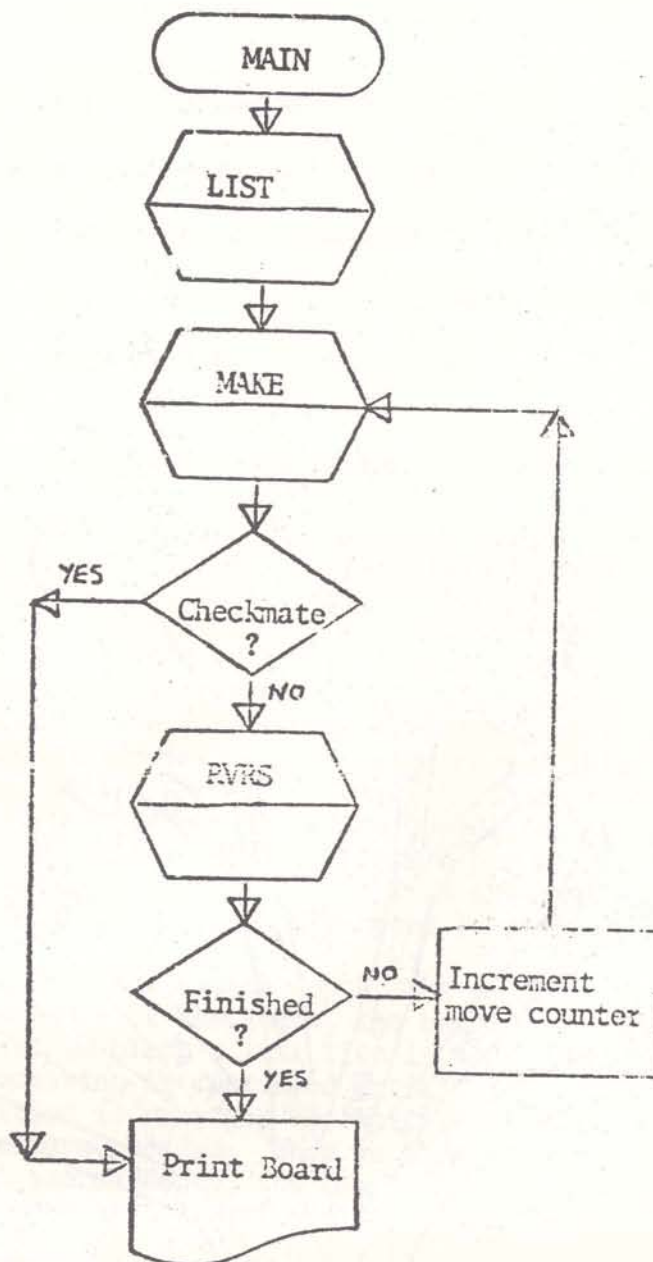
Assuming anyone is interested, I will attempt to describe a method for identifying the board squares and making the individual piece moves in a later correspondence. And then, if interest continues, perhaps your readers might want a description of my primitive scoring technique and method for introducing book openings into the game. I've done a considerable amount of research in the display of the board for simple TV devices such as the hobbyist has at his disposal commonly, and would be happy to discuss several applications.

John Ford

We need to describe the list which we referred to as the "move tree". The move tree currently occupies one page of memory (page 57 in my system). There are built-in safeguards to prevent storing more moves than existing memory space permits.







22 May 1977 ; 2230h.

Dear Doug;

I got a call last night from Fischer about computer chess, among other things he mentioned your letter in Kilobaud. If you prod me some I'll throw together an article or two about:

- 1) the BASIC program I wrote on a Tektronix 4051 that played in a human tournament in San Diego this spring
- 2) a number of ideas for experimental programs based somewhat differently than the Shannon tree-search procedure that all the other codes use.
- 3) a selling price for my functional programs (pretty cheap).

I'm looking around for somebody or company to pay me to write chess codes - actually just about anything with micros would be good. Any ideas?

Am currently working on an 8080 assembler code eventually based around my North Star minifloppy. This will make it compatible with most people - the 65xx and 68xx types may have to suffer for awhile.

Enclosed a copy of the computers best game, against a USCF rated "B" player. The machine (PATZER 451) was white.

*regards*  
*Tm*

White - PATZER 451

Black - R. Schwartz (USCF 1670)

1. P-K4	P-QB3
2. N-KB3	P-Q4
3. PxP	PxP
4. P-Q4	B-N5
5. B-K2	P-K3
6. O-O	N-KB3
7. P-B4	N-B3
8. N-B3	R-B1
9. B-N5	B-K2
10. P-KR3	BxN
11. BxB	PxP
12. N-N5	Q-N3
13. Q-R4	P-QR3
14. N-R3	Q-B2
15. QxBP (A)	P-N4
16. Q-B2	NxP
17. QxQ	NxB ch
18. PxN (B)	RxQ
19. R(B1)-B1	RxR
20. RxR	K-Q2
21. R-Q1 ch (C)	N-Q4
22. BxB (D)	KxB
23. R-Q4 (E)	R-QB1
24. R-K4	P-B4
25. R-K5 (F)	P-N5
26. RxN	PxR
27. N-N1	R-B8 ch
28. K-N2	RxN
29. P-N3	P-Q5
30. P-B4	P-Q6

31. P-B3	P-Q7
32. K-B2	P-Q8(Q)
33. P-KR4	R-N7 ch
34. K-N3	Q-N8 ch
35. K-R3	Q-R7 mate

(A) So far the computer has played very well. The subroutine which penalizes moves that undefend attacked pawns is inadequate, as this move shows. But I am core limited (400 bytes left) at the moment.

(B) The wrong rook—but this is a subtle point that will require much work.

(C) The computer doesn't realize that it shouldn't take pieces when behind.

(D) The computer loves to centralize its pieces.

(F) Finally a blunder. Pins are only partially understood.

*N.B. this program has no lookahead in the usual sense. and no opening book.*

The following Computer Chess books are available in English:

- 1) "Computers, Chess and Long-Range Planning", by M. M. Botvinnik, 1970, published by Springer-Verlag, New York.
- 2) "Computer Chess", by Monroe Newborn, 1975, published by Academic Press.
- 3) "Chess Skill In Man and Machine", edited by Peter W. Frey, 1977, published by Springer-Verlag. The following 3 books are published by Computer Science Press, 4566 Poe Avenue, Woodland Hills, California:
- 4) "Chess and Computers", by David Levy, 1975.
- 5) "1975 U.S. Computer Chess Championship", by David Levy, 1976.
- 6) "1976 U.S. Computer Chess Championship", by David Levy, 1977.

#2 has bibliographic references after each chapter, and #3 and #4 have an extensive bibliography in the back of the book.

The following chess programs are currently available for hobby computers:

- 1) A BASIC-language program by Randy Miller. A listing in MITS Altair 8k Basic, Version 3.2, with documentation explaining the program, plus a Tarbell cassette, all for \$6, from Tarbell Electronics, 144 Miraleste Drive #106, Miraleste, California 90732.
- 2) MICROCHESS 8080 for computers using the 8080 microprocessor, at \$15 for paper tape or Tarbell cassette, with documentation, and
- 3) MICROCHESS for the KIM-1 microcomputer, a listing with documentation, \$10 from MICRO-WARE Ltd., 27 Firstbrooke Road, Toronto, Ontario, M4E 2L2, Canada.
- 4) A machine-language program for the PDP-8, \$5 for paper tape and instructions, from John Youngquist, Verus Inst., Box 122, Fort Erie, Ontario, Canada.

A chess-playing machine--a dedicated 8080 microcomputer--is now available: The CHESS CHALLENGER, by Fidelity Electronics, sells for \$200 or less. Russ McNeil got his at a discount from Markline Inc., 767 Main Street, Waltham, Massachusetts 02154, and is available in department stores in major cities. Russ, rated about 1450, enjoys the machine very much, although he can beat it unless he is careless or plays speed chess. He rates the machine at about 900; others I've talked to rate it at from 700 to 1100. High-ranking players tend to rate it lower than do ordinary players. I've heard only one player complain about the machine, and that was on the grounds of being too weak. Fidelity says you can trade your Challenger in on a stronger version in July, for \$75 additional. -- Doug Penrod, editor

Here's a letter from James L. Purdie, 42 W Kenworth Rd, Columbus OH 43214:

"I read your letter in Kilobaud & am interested in hearing some more from others who are "into" computer chess. I have a Kim-1 with MICROCHESS that I have been experimenting with, mostly in the areas of tuning the value weights and eliminating evaluation of previously evaluated moves."

Doug Penrod, editor

# **COMPUTER CHESS NEWSLETTER**

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