

# M I C R O C H E S S

## Blitz on New York

Tony Harrington reports on the New York 4th World Microcomputer Chess Championships.

### Micro Chess—a guide for beginners

Micro Chess covers all the news and events in the busy world of computer chess. With new chess programs and new chess computers appearing all the time, we evaluate their strengths and weaknesses as they become available. We shall be presenting profiles of programmers, both amateurs and professionals, which will cover their methods and their interest in chess programming, and we shall be talking to suppliers and looking at their plans. Computer Chess affects computer

enthusiasts in two different ways. For some, the fact that they can now play chess against either their home computer or a dedicated chess computer has opened up the delights of the game. For others, the real interest is not so much in playing chess as in trying to build a chess program. Micro Chess aims to meet the interests of both.

Chess is a game that can be as exciting for the beginner as it is for the grand master. So if you haven't played before, get yourself a good introduction to the game—there are dozens in the bookshops—and get to it. Remember, with computer chess a game can be as fast or as slow as you want.

In October 1983 three British entrants took part in the 4th World Computer Chess Championships. This event is held every three years under the joint auspices of the ACM, the main US professional body for data processing

personnel, and the ICCA.

The ACM puts up the cash for the competition and helps entrants to pay for hotel expenses, and so on. The ICCA sanctions the results of the competition. This, by the way, is not a homely

little affair for micros. It is an open event, where supercomputers like the mighty Cray make their appearance. This doesn't stop the micros from entering, but it doesn't do a great deal for their winning chances.

This time the event was held at New York's luxurious Sheraton Hotel. By no coincidence at all, the ACM held its own three-yearly conference at the same time and place, so the tournament acted as a side-show for the ACM delegates, many of whom drifted into the playing area to watch the games.

Play was from seven in the evening till midnight, with the resident programs (that is, those who were not participating by land-line) going on till two in the morning on occasions. If this leads eventually to some of the watching DP specialists taking up the mysteries of mini-max search theory and producing their own fledgling chess programs, so much the better.

The three British entries among the 22 who took part were: the 1982 and 1983 PCW European Chess Tournament winner, Advance 3.0, by Dave Wilson and Mike Johnson; BCP by Don Beal and intelligent Software's Philidor chess program.

Don Beal has been to all four of these tournaments. Like the other British participants, he was impressed by the improvements made in chess programming in the three years since the last World Championships.

'It was clear from the play that there had been definite steady progress. What I noticed particularly was that the best of the microcomputer based entries did better this time than ever before. Three years ago it would have been fair to say that the micros were struggling to come bottom. Now they were holding their own in the middle of the field,' Beal commented.

He reckons that the improvement in over-the-board play has a lot more to do with improved programming than it has with added speed and processing power. Though when it comes to a program like the Cray Blitz, which ran not just on any ordinary old Cray, but on a special experimental model consisting of three linked Crays, the relative effects of hardware and software became a little difficult to sort out.

The twin surprises of the competition were both associated with Ken Thomp-

### Results table for the 4th World Chess Championships

(The number on the left of each column indicates the opponent and the colour of the pieces; that is, Cray Blitz was black against Fidelity X in round 2.)

Program	Round 1	Round 2	Round 3	Round 4	Round 5	Total Pos
1 Cray Blitz	W14 <sub>1</sub>	B10 <sub>2</sub>	W6 <sub>3</sub>	B5 <sub>3.5</sub>	B7 <sub>4.5</sub>	1st
2 Awit	W15 <sub>1</sub>	W6 <sub>1</sub>	B12 <sub>2</sub>	W19 <sub>3</sub>	B13 <sub>4</sub>	2-3rd
3 Bebe	B11 <sub>0</sub>	W20 <sub>1</sub>	W9 <sub>2</sub>	B10 <sub>3</sub>	B5 <sub>4</sub>	2-3rd
4 Chaos	B9 <sub>0.5</sub>	W21 <sub>1.5</sub>	B19 <sub>2.5</sub>	W7 <sub>2.5</sub>	W8 <sub>3.5</sub>	4-5th
5 Nuchess	W20 <sub>1</sub>	B11 <sub>2</sub>	W7 <sub>3</sub>	W1 <sub>3.5</sub>	B3 <sub>3.5</sub>	4-5th
6 Advance 3.0	W22 <sub>1</sub>	B2 <sub>2</sub>	B1 <sub>2</sub>	W8 <sub>3</sub>	B4 <sub>3</sub>	6-9th
7 Belle	B13 <sub>1</sub>	W8 <sub>2</sub>	B5 <sub>2</sub>	B4 <sub>3</sub>	W1 <sub>3</sub>	6-9th
8 Mephisto X	W18 <sub>1</sub>	B7 <sub>1</sub>	W16 <sub>2</sub>	B6 <sub>2</sub>	W15 <sub>3</sub>	6-9th
9 Schach 2.7	W4 <sub>0.5</sub>	W12 <sub>1.5</sub>	B3 <sub>1.5</sub>	B11 <sub>2.5</sub>	W10 <sub>3</sub>	6-9th
10 Fidelity X	B16 <sub>1</sub>	W1 <sub>1</sub>	B18 <sub>2</sub>	W3 <sub>2</sub>	B9 <sub>2.5</sub>	10-13th
11 Merlin	W3 <sub>1</sub>	W5 <sub>1</sub>	B13 <sub>1.5</sub>	W9 <sub>1.5</sub>	B19 <sub>2.5</sub>	10-13th
12 Novag X	W17 <sub>0.5</sub>	B12 <sub>0.5</sub>	W2 <sub>0.5</sub>	B21 <sub>1.5</sub>	B14 <sub>2.5</sub>	10-13th
13 Phoenix	W7 <sub>0</sub>	B22 <sub>1</sub>	W11 <sub>1.5</sub>	B17 <sub>2.5</sub>	W2 <sub>3.5</sub>	10-13th
14 BCP	B1 <sub>0</sub>	W18 <sub>0</sub>	B22 <sub>1</sub>	B16 <sub>2</sub>	W12 <sub>2</sub>	14-16th
15 Ostrich	B2 <sub>0</sub>	W16 <sub>0</sub>	B20 <sub>1</sub>	W18 <sub>2</sub>	B8 <sub>2</sub>	14-16th
16 Pion	W10 <sub>0</sub>	B15 <sub>1</sub>	B8 <sub>1</sub>	W14 <sub>1</sub>	W17 <sub>2</sub>	14-16th
17 Bobby X	B12 <sub>0.5</sub>	B19 <sub>0.5</sub>	W21 <sub>1.5</sub>	W13 <sub>1.5</sub>	B16 <sub>1.5</sub>	17-21st
18 Conchess	B8 <sub>0</sub>	B14 <sub>1</sub>	W10 <sub>1</sub>	B15 <sub>1</sub>	W20 <sub>1.5</sub>	17-21st
19 Patsoc 2.0	B21 <sub>0.5</sub>	W17 <sub>1.5</sub>	W4 <sub>1.5</sub>	B2 <sub>1.5</sub>	W11 <sub>1.5</sub>	17-21st
20 Philidor	B5 <sub>0</sub>	B3 <sub>0</sub>	W15 <sub>0</sub>	W22 <sub>1</sub>	B18 <sub>1.5</sub>	17-21st
21 Shy	W19 <sub>0.5</sub>	B4 <sub>0.5</sub>	B17 <sub>0.5</sub>	W12 <sub>0.5</sub>	B22 <sub>1.5</sub>	17-21st
22 Stinks X	B6 <sub>0</sub>	W13 <sub>0</sub>	W14 <sub>0</sub>	B20 <sub>0</sub>	W21 <sub>0</sub>	22nd



son's Belle. The American Chess Federation decided to acknowledge Thompson's contribution to computer chess. Belle has an outstanding record. Before this tournament, Belle had never, in any of its many versions, lost a game to another computer. It had also come joint second with several players at the 1982 US Speed Chess Championships. So the Federation awarded Belle a US international master title at a little ceremony half way through the tournament. Belle promptly responded by losing its first two games ever, one to Nuchess and one to Cray Blitz (this last, annotated by David Levy, is given in full in the February issue).

The West German chess journalist, Friedric Friedel, reckons that both losses were 'statistical'. Belle simply found itself in what happened to be two losing positions. He and other Belle watchers still believe Belle to be the strongest program. In the game against Nuchess, for example, it found the winning line for Nuchess, but just happened to be playing with the losing pieces. Chess is a strong game in which World Champions have found themselves with lost positions on occasion inside 20 moves.

For those of you who might be scanning the results table for clues to the strength of the commercial chess machines that will appear later this year, remember that a five-round Swiss tournament with 22 entries produces some funny results in the middle orders. A better guide to strength than overall positions would be to look at a particular machine's opponents. A full point taken off Sfinks X, for example, which came last with zero points, is not quite the same thing as a full point taken off Belle!

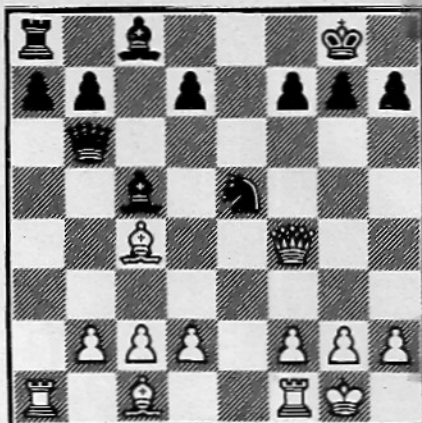
## Games Section

Inevitably attention has to focus on the performance of Cray Blitz. It had an awesome amount of processing power behind it, probably more than any computer chess program has ever enjoyed in any competition anywhere. Tactically, this gave it an overwhelming superiority. But as a careful scrutiny of its games demonstrates, despite its ability to play the most hair-raising tactical positions, Cray Blitz, with all its hardware, is capable of playing the odd planless move. This might sound like a churlish comment, but look at the way it plays the late middle game against Beal's BCP.

The table shown, reproduced from the official tournament bulletin, gives the full list of participants in order of their final placings — my thanks to the organisers.

Last month's game, annotated by David Levy, was the exciting final round clash between Cray Blitz and Belle, in which Belle lost for only the second time in its eventful history. This month's game shows Cray Blitz's first round game against Don Beal's BCP.

Beal was unfortunate to find his



program drawn against the mighty Cray right from the start. With so large a field, there was a reasonable chance that he might have avoided playing it altogether. His troubles were multiplied by the fact that what looks like a carefully prepared book opening, the Nimzowitsch variation 2... Nf6 in the Sicilian Defence, found the Cray's huge openings repertoire fully prepared.

The point of pre-programming the Nimzowitsch variation as black is to avoid the main lines of the Sicilian, where Beal would have expected one of the larger programs to have a comprehensive openings library with many prepared tricks in store. Against an opponent with less memory than the Cray, Beal might well have been successful. Here, however, he found an opponent who could play what was supposed to be an unusual line effortlessly from its library.

1 e4 c5 2 Nf3 Nf6 3 e5 Nd5 4 Nc3 e6 5 Nxd5 exd5 6 d4 Nc6 7 dxc5 Bxc5 8 Qxd5 Qb6

So far everything is according to book. This is the natural attacking move. Black has given up a pawn for active piece play and now threatens to win it back immediately by taking the pawn on f2 with check. In one of the book lines, white counters this threat by duplicating it: he plays 9 Bc4 which puts the Black King's Bishop pawn under fire. Black takes the pawn on f2 and castles once white plays Ke2, removing the threat on his own pawn on f7. White then has active piece play and a very complex and unclear position results. Cray Blitz rejected this line.

Computers do not like giving up pawns when no clear measurable advantage results. Making predictions about the complex evaluation functions of programs like Cray Blitz, Belle and Nuchess is a thankless task. But at least as far as the more 'down market' computer programs are concerned, their scoring functions rate a pawn win as a solid plus and they want to see some tangible gain if they are going to give up this plus. BCP has got this far because it is 'in book'. The Cray shows a touch of class here by varying from book in a line that gives the pawn back without immediate material advantage.

Cray Blitz retreats the queen to cover

f2:

9 Qd2 0-0 10 Bc4 Re8

The fun begins. Black has the white e pawn in its sights, but material equality is not everything. To be fair to Beal's BCP, it is not immediately clear what black's plan should be other than to win the e pawn. His pieces are boxed over on the queen side and white has good chances for a king side attack.

110-0... a move which invites Nxe5. I was curious to see if one of the better commercial dedicated chess computers, like the Novag Constellation, would find and play such a move. On level 6 it immediately looked at and rejected 0-0 and opted, after around two minutes of analysis, for the vastly inferior 11 Qe2 to protect the pawn. Nxe5 12 Nxe5 Rxe5 13 Qf4!

A natural and obvious move. After black's thirteenth move, Constellation found 13 Qf4 immediately in my test run. But seeing one move ahead is never a great difficulty. The critical test was to spot this position as advantageous back on move 11. White puts both the f7 pawn and the rook on e5 under threat. Black could now play 13... Re7, but his blocked white bishop will slow him down badly. In reply to this white could simply play 14 Bd2 (ignoring the threat 14... Qxb2) and 15 Rael with a winning attack. In the event, Black settled for wrecking his position with 13... Qf6. (Constellation, in the same position, opted for 13... Re7, and, playing both sides of the position, quickly discovered the win for white.)

13... Qf6 14 Qxf6 gxf6

At this point I would rather be white, but there may be ways for black to make a game of it. Cray Blitz finds a very strong continuation.

15 Kh1 d5 16 f4 Rh5

This is the sort of move that most human chess players would quite sensibly reject out of hand. The rook has no safe retreat squares once it gets trapped on this flank and the two white bishops should be able to force a favourable exchange. BCP cannot see all the way to the inevitable capture, so the evaluation function gives priority to keeping the rook 'active'. It's one of those positions that really tests the programmer.

18 Bb3 d4 19 g3 Rh3 20 f5 Kg7 21 Kg2 Rh6 22 Bxh6+ Kxh6

And so the exchange is forced. From here Cray Blitz goes through a fairly mediocre patch before finding the win, which, from this position, was simply a technical exercise.

23 Bd5 Kg7 24 Rad1 a5 25 Kh1 Ra6 26 Be4 b5 27 Rfe1 Bd7 28 Rd2 Bc6 29 Bxc6 Rxc6 30 Re8 Bb6 31 Rb8 b4 32 Rb7 Kf8 33 Re2 Bc7 34 g4 Rc5 35 Ra7 Bb6 36 Ra6 Rc6 37 Rd2 Rd6 38 Rd3 Kg7 39 c3 Kg8 40 a4 Kg7 41 cxb4 axb4 42 a5 Bc5 43 Rxd6 Bxd6 44 Rxd4 Bc5 45 Rd5 Be3 46 Rd3 Bc5 47 Rd7 Be3 48 a6 h5 49 gxf5 Kf8 50 Rd3 Bc5 51 Rg3 Ke8 52 h6 Bd6 53 a7 Ke7 54 Rd3 Bc7 55 a8=Q Bd6 56 h7 b3 57 Qb7+ ke8 58 h8=Q+ Bf8 59 Qe4 checkmate. 1-0

END