As part of the PCW show at the West Centre Hotel in London, it was decided to organize the first microprocessor chess tournament to be held in Europe. Only one other event of its kind had ever taken place; that was in California earlier this year. Now that many individuals are writing chess programs for their own computers we shall doubtless see many such events in the future. Computer tournaments provide an excellent medium for chess programmers to exchange ideas and to learn from each other's efforts. Also, they are great fun!

The tournament in London was an all-play-all event with six contestants. Three of the entries were from England, all written by private individuals who had done the programming in their own time. The other entries were from North America and were all the result of commercial enterprise — Boris and Chess Challenger are marketed as stand alone units while Microchess is sold by a personal software company based in Toronto, and can run on various microprocessors (Tandy, Commodore). Some interesting details about each program can be seen in figure 1 below.

<table>
<thead>
<tr>
<th>Program</th>
<th>Programmer</th>
<th>Machine</th>
<th>Programs</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIKE</td>
<td>Mike Johnson</td>
<td>Homebrew, Multimate 6400</td>
<td>200</td>
<td>6800 assemble</td>
</tr>
<tr>
<td>BORIS U.K.</td>
<td>?</td>
<td>8080</td>
<td>20</td>
<td>8080 count</td>
</tr>
<tr>
<td>CHESS CHALLENGER (U.S.A.)</td>
<td>?</td>
<td>2800A</td>
<td>28</td>
<td>2800 count</td>
</tr>
<tr>
<td>MICROCHES 25 (Canada)</td>
<td>Peter Jennings</td>
<td>Commodore Plus II</td>
<td>1</td>
<td>8025 machine code</td>
</tr>
<tr>
<td>FABER (England)</td>
<td>C. A. Balfour</td>
<td>Apple II</td>
<td>2,000</td>
<td>Assembler Basic</td>
</tr>
<tr>
<td>GODIVA (England)</td>
<td>A. Cooper</td>
<td>Apple II</td>
<td>20</td>
<td>Assembler Basic</td>
</tr>
</tbody>
</table>

I was very pleased when PCW editor Meyer Solomon invited me to act as tournament director and commentator. I had filled this post in many earlier computer chess tournaments though never in an event in which all the entrants were running on micros. Before the tournament began I was not particularly optimistic about the standard of play that could be expected from these programs but I must confess that I was pleasantly surprised when I discovered that the best programs were playing at the level of the average mainframe programs of a decade ago. Presumably, since micros are readily available to almost anyone with a yen for programming, many more chess programs will be written for home computers during the next few years. It would therefore seem reasonable to expect that the standard of play will increase substantially and that within a decade there will be matchbox sized machines that can play.

Boris plays Chess Challenger. Both machines were in at the kill.

A tense moment, MIKE VS FABER (extreme left of photo).
chess as well as the current World Computer Champion, CHESS 4.7.

The first round of the tournament produced two unfortunate incidents. In the game between FAFNER and MIKE, MIKE was forced to abandon the game in a winning position because the voltage was slipping down to 220 volts. Mike Johnson rushed across London during the lunch interval to fetch a transformer which would step up the voltage and by the afternoon he was back in action. After this misfortune MIKE played excellent microchess for the remainder of the event.

The other damage occurred in the game between BORIS and CHESS CHALLENGER, the world's two best known commercially available chess machines. During the game CHESS CHALLENGER played the perfectly reasonable move Pb7-b6 (pawn on b7 moves to b6), which was the most logical move in the position and the move which I had predicted in my commentary to the audience. Later in the game White (BORIS) played its queen to c4, giving check, whereupon CHESS CHALLENGER tried to capture the queen with something on b5. When the position was verified it transpired that C.C. thought that it had a pawn on b5 instead of b6. Since, at that point in the proceedings, C.C. had only one minute remaining before the time control, it was quite impossible for its operator to recover the situation.

David Levy and the P.E.T.chess program developed by Personal Software (now available from Petroff).

After the first round BORIS, MIKE and CHESS CHALLENGER clearly demonstrated their superiority over the other programs. When the fifth and final round began any one of these three contestants was in a position to win the tournament. CHESS CHALLENGER held a half point lead over MIKE and BORIS, but C.C. had to play MIKE in the last round and so a tie for first place was quite possible. While BORIS won its last round game fairly easily, the battle between MIKE and C.C. was very hard fought.

White: CHESS CHALLENGER
Black: MIKE

```
Queen's Gambit Accepted
1  d2-d4  d7-d5
2  c2-c4  d6-d4
3  e2-e3  Nb8-c6
4  d4-d5  Ne8-d6
5  Qd1-d4  Nf6-d5

The best solution. White maintains its pawn centre but Black gets the advantage of two bishops against bishop and knight.

6  Bf1xe3  c4xe3
7  Qd4xe3  e7-c6!

Attacking White's pawn centre.

8  Ng1-e2  Ng8-f6
9  Nb1-c3  Bc8-e6
```

The right idea but the wrong move. Black could play h7-h6 and then e7-e5, increasing the pressure on d5.

```
10  Na2-f4  Be6-d7
11  d5xd6  Bf7xe6
12  Qc3xd4  e7-e5
13  Nf4-d5  Bxd5xd5
14  e4xd5  Bf8-d6
15  Qc4-b5ch  Qd8-d7
16  Qb5xd7ch  Nf6xd7
```

Better is 16 ... Ke8xh7. The king is needed in the centre for the end game but most chess programs like to castle so much that they do not employ this heuristic.

```
17  Nc3-b5  Bb6-b4ch
18  Be1-d2  Bb4xd2ch
19  Ke1xd2  0-0
20  d5-d6
```

White does not realise that the further this pawn advances the more difficult it will be to support it.

```
20  d6-d7  f7-f5
21  Rb1-c1  Nd7-f6
```

Threatening 22 ... Nh6-e4ch in some positions, forking the king and the pawns on f2 and d6.

```
22  f2-f3  Re8-d8
23  Rf1-e1  a7-a6
24  Nb5-c3  Rd8xd8ch
25  Kd2-e3
```

Although this was the move displayed by CHESS CHALLENGER the move made on its internal board was different. After

```
25  ...  f5-f4ch
```

CHESS CHALLENGER tried to play 26 Re7xb7, which is, of course, illegal (since White is in check).

The C.C. operator verified the position and discovered that although d2-e3 had been displayed at move 25 the machine thought that the white king was on e2. After some difficulty the correct position was reset in C.C. and the game continued. It is still not clear whether the error in this game and in the CHESS CHALLENGER's first round encounter are due to a bug in the machine (the latest, 10 level version) or whether the cause was the fluctuating voltage that had disturbed MIKE in round one.

```
26  Kc3-d2  Rd8-d2ch
27  Kh2-e1  Re8x2x2
28  Rf1-e1  Rf8-e8
29  Rf7-e7  Rb2-e2
30  Rc5-c7  a5-a4
31  f2x3x4  Re8xd4
32  Rc7-e7ch  Re4-e4
```

Why? After 32 ... Kg8-f7 33 Rc8-c7ch Kf7-g6, White would probably have nothing better than 34 Nc3xe4 Rc2xc7 35 Ne4xc6, when Black would have two extra pawns in the ending. Now, however, White can simply take the piece.

```
33  Re1xc8ch  Nf7xe6
34  Rb8xe8ch  Kg8-f7
35  Re8-e8
```

Presumably this is what MIKE missed when playing its 32nd move. The reason is probably that MIKE realised that both the knight and the white rook are under attack, but did not look for a way to defend both of them simultaneously. This, in turn, is probably because its search could not go more than 5-ply when calculating its 32nd move.

```
35  ...  h7-h5
36  Rb8-c8ch  Kf7-g6
37  e2-e4  g7-g5
38  h2-h3  b7-b6
39  Rb7-e7ch
```

CHESS CHALLENGER can win quite easily by unpinning the knight, e.g. 39 Nc3-d5! Rc2-b2 40 Re7-c6ch and 41 Re6xb6. But without being able to undermine this concept it is almost certain to fall prey to the
eventual advance of the black-b-pawn, which will decide the game.

39 ... Ke6-e5
40 Re6-e4 b6-b5
41 a4xb5 Rc2-e1ch
42 Kg1-h2 e6x.b5
43 Rd4-c7 b5-b4
44 Ne3-d5

Forced, but not it is too late.

44 ... Rc1xe7
45 Ndxe7 b4xb3

The white knight could run back to guard b1 but then Black could win on the king side.

46 a2-g6 b3xb2
47 K3-g2 b2-b1=Q
48 Nc7-e8 Qb1-a2ch
49 Kg2-f3 f4-f3!

The quickest way to end the game.

50 Ne8-g7 Qa2-g2ch
and mates next move (51 Kf1-e1 Qg2-e2).

In my opinion this was the most interesting game of the tournament.

Boris (Rex Kent) playing Mike (Mike Johnson)

MIKE's win produced a tie for first place, as can be seen from the following cross table of the tournament.

<table>
<thead>
<tr>
<th>Program</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Total Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MIKE</td>
<td>x</td>
<td>1</td>
<td>1</td>
<td>½</td>
<td>2</td>
<td>1</td>
<td>Total 1-2</td>
</tr>
<tr>
<td>2 BORIS</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>½</td>
<td>2</td>
<td>1</td>
<td>Total 1-2</td>
</tr>
<tr>
<td>3 CHESS CHALLENGER</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>Total 3=3</td>
</tr>
<tr>
<td>4 MICROCHESS 2.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>Total 2=2</td>
</tr>
<tr>
<td>5 FAFNER</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>½</td>
<td>Total 2=2</td>
</tr>
<tr>
<td>6 CCMCA</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>½</td>
<td>1</td>
<td>½</td>
<td>Total 3=3</td>
</tr>
</tbody>
</table>

A play-off game took place on the final afternoon of the PCW show in which MIKE and BORIS played with the opposite colours to those that they had during the tournament. Unfortunately this game was marred by yet another strange happening.

White: BORIS
Black: MIKE

Irregular Opening

1 e2-e4 e7-e5
2 d2-d3 d7-d5
3 Nh1-f3 d8xe4
4 dxe5 Nc6xd4
5 Ke1xd1 f7-f6
6 Be1-e3 f6xe5
7 Ke1-e2

I could not understand why BORIS did not capture on e4.

7 ... Ng8-f6
8 Bf1-e2 Bb8-d6
9 Re1-b1

Another peculiar move.

9 ... Nb8-e5
10 Ke1-d1 Bd7-f5
11 Ng1-e2 0-0-0
12 Kd1xe1

What is all this king shunting about?

12 ... Nf6-g4
13 Ne4-e3 Ng4xe3
14 f2xe3 Nf6-a1!

A positional mistake. The knight is badly placed on the edge of the board.

15 Ng3-f5!!

White should retreat the c4 bishop to e2.

15 ... Ng5xe4
16 Rh1-f1 g7-g6
17 Ke1-d1

An inexplicable blunder; at least it was inexplicable at the time. After he returned home BORIS's operator, Rex Kent, tried his position several times and not once did BORIS see much as think about moving it's king. Possibly a voltage fluctuation was causing the strange king moves. It seems likely that in future events some sort of stabilising system must be used in order to protect the programs.

17 ... Kg6-f5
18 Ke1-e2 Rh8-g8
19 b2-b3 Rg8xg2ch
20 Rf1-f2 Nf6xe4!!

Winning another pawn. If now 21 Ke2xe3 Bd6-c5ch followed by 22 Rg2xh2 wins even more material.

21 Rf2xg2 Na3xe4
22 Nc3-e5 Ng4xg4ch
23 Nc3xg4 e5x6f4

and Black won without any difficulty. First prize was £200, second was 2 bottles of Scotch and a bottle of champagne!