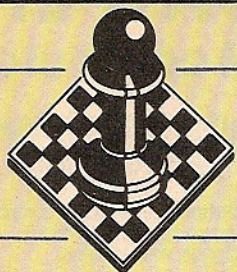# CHECKMATE

The Chess column is a new feature of Output for all you dedicated pawn movers. Once a month we shall tune to the latest moves in the chess world. Our expert Tony Harrington begins with an exclusive review of Psion's 3-D chess microdrive cartridge for the QL.

For some time now we've all grown used to see even the best home computer chess programs trailing helplessly behind dedicated machines in competitions. But now Psion has produced a chess program for the QL that looks as though it could close the gap.

The *Psion Chess* program (running on an 8MHZ Sage computer) shared joint first place with three dedicated chess computers at this year's World Microcomputer Championship, in Glasgow, in September. But how could a program designed for a home computer compete with the best of the dedicated chess machines?

Dedicated machine manufacturers like Fidelity, Hegener and Glazer not only have the advantage of being able to build their hardware specifically to suit their programs, they also have the financial muscle to spend on research and development.

Richard Lang, the author of *Psion Chess*, has several programs for both the Spectrum and the Dragon to his credit, but it was still a puzzle how he managed to produce a program that was so much stronger than Bryant's colossus.

The answer became obvious when I stepped inside Psion's workshop and saw Lang sitting in front of three screens and an open QL with an interface card to a VAX 11780 coming out one end of it. The old amateurish approach to program development where the programmer spends weeks hunched over his home computer patiently hunting down bugs in his algorithms are over.

3-D approach

The 3-D approach to the board takes a while to get used to but the effect is great. The Psion design team reckon that they spent hours at a chess board checking it out.

Replaying a completed game on Psion Chess is a treat. You can replay a game as often as you please without worrying about misreading a move off the scoresheet.

Performance

Because they don't have a purpose-built piece of hardware at their disposal, Lang and Psion have to fit in with the QL's usual way of doing things, and there is a price to be paid for this. Although it has the same clock speed as the Sage, Lang's program is slower by a factor of three on the QL.

So just how good is Psion Chess as marketed? Someone of a cynical turn of mind might point out that while running

on the Sage at Glasgow, the program had extremely lucky escapes from lost positions: one notable instance being when it was hopelessly down against the Fidelity Elegance.
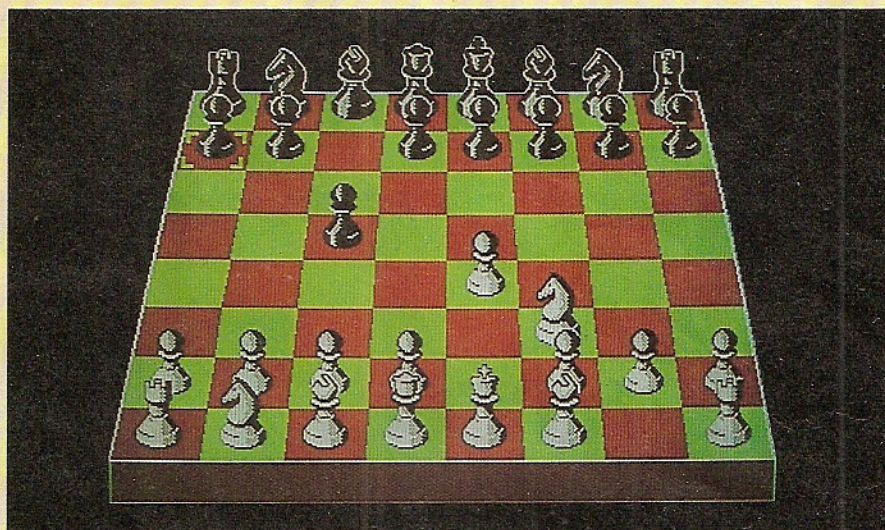
On the other hand, Psion scored a very good victory over the Conchess machine Princhess, which didn't lose to any of its rival dedicated machines in the tournament and ended up with five points, a share of first place and the title of World Champion commercial machine. Beating the 1984 World Champion DCM can't be bad.

Our review copy was a pre-release version and testing is still going on but the results so far are encouraging. I tend to believe that people who buy chess programs don't want to sit around for long periods wating for the program to move. So competition performances at

Psion's chess program in action. It stood up well against its competitors.

two minutes a move are not really the key issue.

Up until the last month or so, during which Conchess, SciSys, Fidelity, Hegener and Glazer all revealed new, more powerful machines, the machine which played the best lightning chess was undoubtedly the Novag Super Constellation. This machine has taken the scalps of several players of International Master standard during blitz competitions, and the other DCMs still have to prove themselves against it. So it seemed logical to pit Psion against the Novag machine. The first point to make is that the Super C has very little difficulty whipping Psion at the blitz level (Psion's level three, which at six seconds a move is actually four seconds a move too fast for blitz chess). The Super

C won five games in a row quite convincingly and looked like it would keep doing so for ever. So I experimented by taking Psion up through some of the other levels while still keeping the Super C on its blitz level.

If that sounds unfair, remember that very few casual chess players can beat the Novag machine at this level, no matter how long they ponder. You have to be at least a strong club player to have a chance. On level seven, which is theoretically a move a minute, but in practise seems to be a bit faster than that, Psion began to achieve drawn positions against the Super C, a fact which speaks very well for its playing strength.

As to its features, it has almost all the standard facilities that one expects from a chess program. There are fourteen 'levels' going from novice to infinite time, and eight problems solving levels, with mate in eight being the absolute upper limit.

The QL printer can be used to dump board positions or to print out a running (or complete) game score, and there are the usual analysis, hint, takeback and replay facilities. The expected market price will be £19.95, and the program comes with a good well written manual.

The North American Computer Chess Championship has produced an astonishing result. Fidelity achieved second place with a souped up version of its Elegance program, behind the Cray Blitz. This is the best result ever by a microcomputer based program. David Levy's game this month comes from this event.

Annotated by John Nunn

'The ability to play the endgame well distinguishes the master from the amateur' is an old chess aphorism. Until recently chess programs have suffered from poor endgame play, even while their middlegame play has been improving rapidly.

Judging from the Glasgow World Microcomputer Championships, this problem is now well on the way to being solved. There were several interesting endgames which were constructively played by both sides. Here is one of the best.
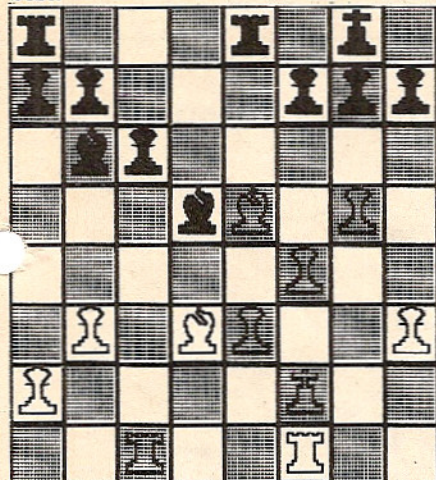
Move 22, black to move.

Psion Chess is White and Princhess X is Black. We take up the story with Black about to make his 22nd move.

| 22 | ... | Bb6xe3+? |

Black's well placed bishop at d5 gives him an edge, which could have been maintained by 22 . . . Ra8–d8, but he is lured into a tempting combination which misfires.

23	Kf2xe3	f7–f6
24	g5xf6	g7xf6
25	Rf1–g1+	Kg8–h8!

The best move. 25 . . . Kg8–f7 26 Bd3xh7 f6xe5 27 Bh7–g6+ would have lost at once, while 25 . . . Kg8–f8 26 Rc1–f1! f6xe5 27 f4xe5+ Kf8–e7 28 Bd3xh7 gives White a useful extra pawn.

| 26 | Rg1–g5! |

There is a bewildering array of pins on the lines e8–e3 and e5–h8, but White finds the best move.

| 26 | ... | Re8xe5+ |

26 . . . f6xe5 27 f4xe5 is worse since White's rook remains in command of the g-file.

| 27 | Rg5xe5 | f6xe5 |
| 28 | f4xe5 | |

The dust has cleared and we can see that White's problems are behind him; indeed Black must take care lest the passed e-pawn becomes a real menace to him.

28	...	Ra8–g8!
29	Bd3–f5	a7–a5
30	h3–h4	Rg8–g3+
31	Ke3–f4	Rg3–f3+
32	Kf4–g5	a5–a4?

A very poor move. After 32...Kh8–g7! bringing the king into the game Black can draw with ease.

| 33 | b3xa4 | Bd5xa2 |
| 34 | h4–h5 | |

Over the next few moves neither program appreciates the importance of allowing the White king to reach f6, supporting the advance of the e-pawn. Here 34 Kg5–f6 Ba2–d5 35 Rc1–d1 would have won immediately.

| 34 | ... | Rf3–g3+ |

Black misses his last chance to bring the king to g7.

| 35 | Kg5–f6 | Rg3–g8 |
| 36 | h5–h6? | |

36 e5–e6 Rg8–f8+ 37 Kf6–e5 would have won. Now Black gets a new lease of life.

36	...	Rg8–f8+
37	Kf6–g5	Rf8–g8+
38	Kg5–f4	Rg8–a8?

38...Rg8–f8! pinning the bishop and threatening 39...Ba2–e6 might have drawn. Now all is well again for White and Psion Chess winds up efficiently.

39	Bf5–c2	c6–c5
40	Bc2–e4	Ra8–a5
41	Kf4–f5	b7–b6
42	Rc1–d1	Ba2–g8
43	Rd1–d8	c5–c4
44	Bd5–c6	c4–c3
45	Bc6–b5	Ra5xb5

Forced, as 45...c3–c2 46 Bb5–c4 c2–c1=Q 47 Rc8xg8 is mate. The game concluded 46 a4xb5 c3–c2 47 Rd8–c8 c2–c1=Q 48 Rc8xc1 Bg8–f7 49 Rc1–c7 Bf7–e8 50 Rc7–c8 Kh8–g8 51 Kf5–f6 Kg8–f8 52 e5–e6 Kf8–g8 53 Rc8xe8 mate.

Annotated by David Levy

The following game was played at the 1984 North American Computer Championship in San Francisco. White, 'Intelligent Software Experimental' was running on an Apple II, Black, 'Ostrich' on a system of eight Data General Nova computers. The game illustrates two of the significant problems facing chess programmers.

White	Black
1 Ng1–f3	e7–e6
2 d2–d4	d7–d5
3 Bc1–f4	Bf8–d6
4 Bf4xd6	Qd8xd6
5 Nb1–c3	Nb8–c6
6 e2–e3	a7–a6
7 Bf1–e2	Ng8–f6
8 a2–a3	0–0
9 Qd1–d3	Ra8–b8
10 0–0	Bc8–d7
11 Rf1–d1	b7–b5
12 Kg1–f1	

A strange move, but one which is typical of a syndrome seen in many computer games. White thinks that it cannot improve on the positions of its Knights, Bishops, Rooks or Queen and it does not have any useful play. So it moves the King!

| 12 ... | Rb8–e8?! |

(Better was 12... Rf8–e8)

| 13 h2–h3 | e6–e5 |

This move loses a pawn, but it requires a 14-ply search to discover this fact. After Black's move White's next two moves are virtually forced, as Black replies, and in the position arising after 15 . . . Re8xe5, it is possible also for White to see the win of the pawn, which is then only 9-ply deep.

I would argue, however, that an intelligent chess program could avoid such 'bad luck' by analysing moves deeply in variations that are forced. This technique would encourage a detailed study of the position arising after 15 . . . Re8xe5.

| 14 d4xe5 | Nc6xe5 |
| 15 Nf3xe5 | Re8xe5 |

(If 15 . . . Qe6xe5 then 16 Nc3xd5 Nf6xd5, 17 Qd3xd5 Qe5xd5, 18 Rd1xd5)

| 16 f2–f4! | Re5–e6 |

Black can try to hold onto the pawn only at the cost of losing even more material.

16 . . . Re5–f5, 17 g2–g4

17 Nc3xd5	Nf6xd5
18 Qd3xd5	Re6xe3
19 Qd5xd6	c7xd6
20 Rd1xd6	Rf8–e8
21 Be2–d3	Bd7–c8
22 a2–a4!	

A fine move, emphasising the vulnerability of Black's a–pawn.

22	...	b5xa4
23	Ra1xa4	Re3–e6
24	Rd6xe6	Bc8xe6
25	Ra4xa6	g7–g6
26	c2–c3	Re8–b8
27	b2–b4	Rb8–c8
28	Ra6–a3	Be6–c4
29	Bd3xc4	Rc8xc4
30	g2–g3	Kg8–g7
31	Kf1–e2	Rc4–e4+
32	Ke2–d3	Re4–e1
33	c3–c4	Re1–g1
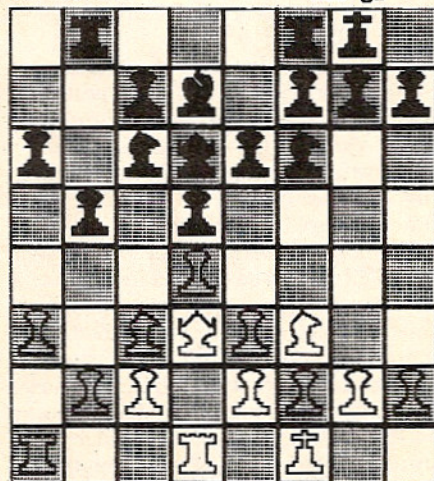
Move 12, black to move.

34	Kd3–d4	Rg1–g2
35	b4–b5	Rg2–b2
36	Kd4–e5	Rb2–c2
37	Ke5–d5	Rc2–b2
38	g3–g4	Kg7–f6
39	Ra3–a6+	Kf6–g7
40	b5–b6	Rb2–b3
41	h3–h4	h7–h5
42	g4–g5	Rb3–d3+
43	Kd5–c5	resigns

Black cannot stop the white queen side pawns from promoting.