

Chess

John Dawson checks out chess.

There's a false mythology about chess; you don't have to be a genius to play well and enjoy hours of concentrated excitement. Indeed, genius in one field is no indicator of brilliance in another. Alan Turing, probably the most brilliant mathematician involved in breaking the German ENIGMA cipher during the Second World War, is said to have been "an absolute duffer" at playing chess.

However, with the development of microcomputer chess programs and portable sensory chess sets, you don't even need a human opponent. This has the great advantage that when you are losing you can simply switch off the thing that's wiping the floor with you.

The programs and chess computers in table 1 actually play chess, generally according to the rules, and generally they are capable of beating you, unless you are a regular player with some experience. Some of the programs will offer you a good game at quite a high level of competence.

The Chess King Pocket Micro set is the only one of the four dedicated machines that does not have a "sensory" board. Instead, moves are keyed into the computer using the six keys at the bottom of the computer panel.

These keys shift automatically between the letter and the number depending upon whether you are entering the first or second co-ordinate of a piece's position. The other four keys control the level at which the machine plays LV, make the machine play the next move MO, and clear an incorrect entry CE before it is entered into the program EN.

Clearly the Chess King's input/output is greatly sim-

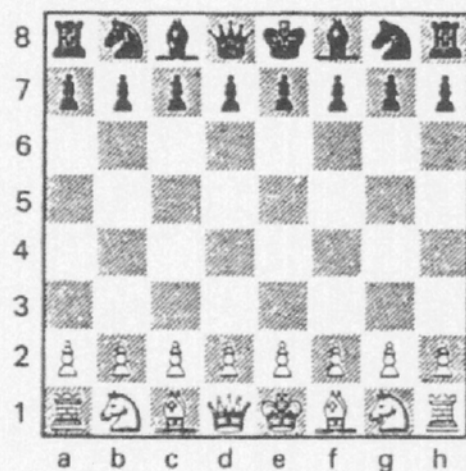


Figure 1: The opening position of all the pieces.



Figure 2: Part of the Chess King instruction manual.

plified compared to the multiplexed eight column by eight row input and 16 light emitting diodes — LEDs — output in the other three machines. This simplicity is reflected in the Chess King's single chip and simple printed circuit board.

The board folds in two and makes a neat package in a soft plastic case about 19.5 by 6.5 by 2.5 cms. Battery life is said to be about 400 hours and there is a recessed on/off switch on the side of the case. The pieces on the board are punched from a strip of magnetised plastic. There are no spare pawns or Queens which makes life unnecessarily difficult if you, or the machine, succeed in promoting or exchanging a pawn for a Queen or another piece in the course of the game.

The CGL GrandMaster program was written by White and Allcock Ltd but the manual for the Chess King does not state the origin of the machine code held in the chip. It is a

limited program both by the standards of the other machines and the software for the BBC, QL and Amstrad computers.

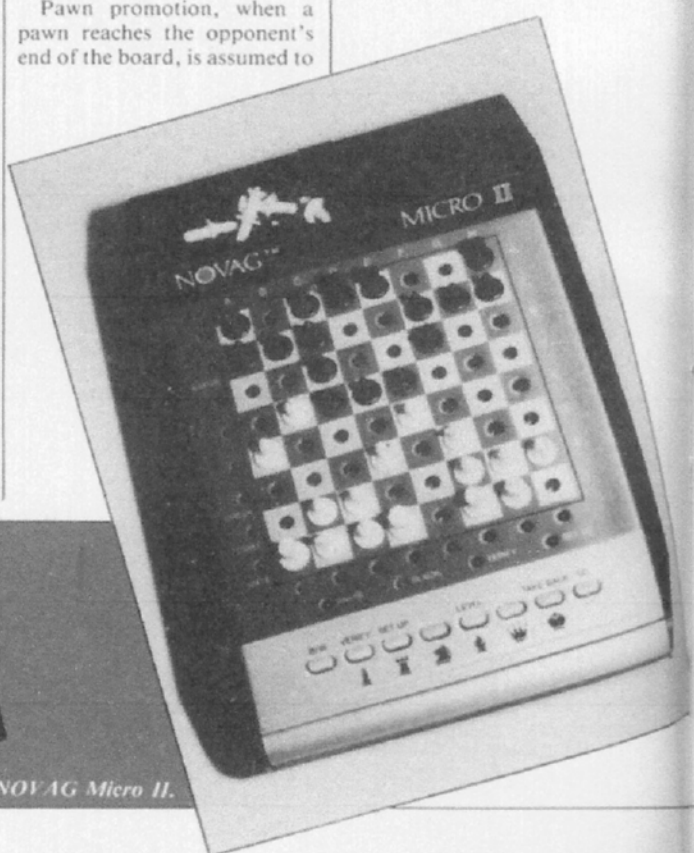
The Chess King has only four levels of play and, while the number itself is comparatively unimportant, the highest — strongest — level allows the machine only eight to 24 seconds on average to formulate its next move.

Pawn promotion, when a pawn reaches the opponent's end of the board, is assumed to

be to a Queen while the rules permit the player to choose to promote the pawn to a Queen, Rook, Bishop or Knight. Switching the machine off erases the current game and the Chess King sets up a new game automatically when switched on.

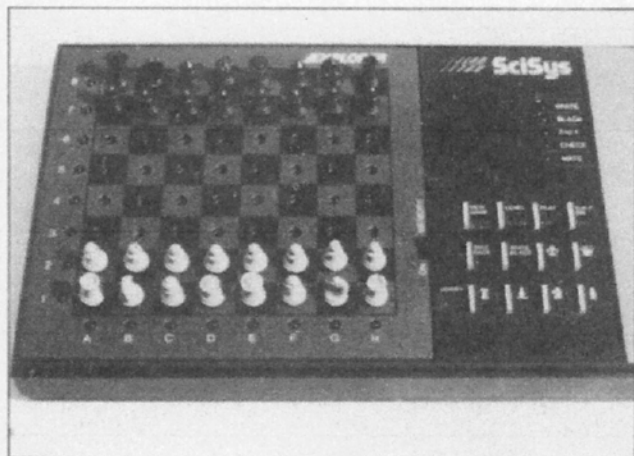
Probably the most important failing in the Chess King is the inability to verify where all the

Table 1.	NOVAG	Hong Kong
Micro II	SciSys	Hong Kong
Explorer	Computer Games Ltd	England
Chess King	Computer Games Ltd	England
Grandmaster	BBC	UK (BBC)
White Knight Mk 11/12		
Cyrus II	Amsoft	UK (Amstrad)
3D Voice Chess	CP Software	UK (QL)
QL-Chess	Pslon	UK (Commodore 64)
Colossus Chess 4.0	CDS Software Ltd	



NOVAG Micro II.

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pieces on the board are placed in the computer's memory. Nothing is more frustrating than setting up a devious trap only to find that the machine couldn't care less because it thinks one piece is somewhere else entirely.

There is no way to take back a move nor to review the moves that have been made other than by writing them down as you go along. However, at £22.95 in North Oxfordshire it is the cheapest dedicated machine to be found and it is very portable.

The **NOVAG Micro II** also uses a single chip to hold the program and play the game. The chip is a traditional 40 pin integrated circuit and figures 4 and 5 show the printed circuit board with the output LEDs and the two plastic membranes that form the sensory board.

A move is made on a sensory board by pressing the piece into its socket until two LEDs light up to indicate the current row and column — rank and file in chess terminology — of the piece.

The piece is removed from its socket and pressed down into the new location until the computer beeps to indicate that the move has been accepted. The computer's move is indicated by lights in the same way, the position of the piece to be moved is indicated and when it has been depressed the destination co-ordinates light up.

The **NOVAG Micro II** is 7 by 5 by 1.5 ins. in size and shares several of its functions with the **SciSys Explorer** chess computer. The Explorer machine is 7.5 by

4.5 by 1.5 ins. and is the most sophisticated of the three dedicated computers. Figure 3 sets out the hardware configuration and software specification for the various machines and programs.

The **Micro II** failed to spot a potential 3 move draw when playing against the Explorer and then did not indicate that the draw had occurred while the Explorer lit up the appropriate LED to indicate a stalemate or

draw. I have taken none of the machines through the series of repetitions necessary to provoke a draw according to the 50 move rule but as all the machines are unable to take back more than four half moves at best — the Explorer can backstep through two White/Black moves at some stages of the game — it seems unlikely that any of the machines has the capacity to detect a sequence of 50 identical moves.

Indeed, the Explorer instructions say honestly: "In

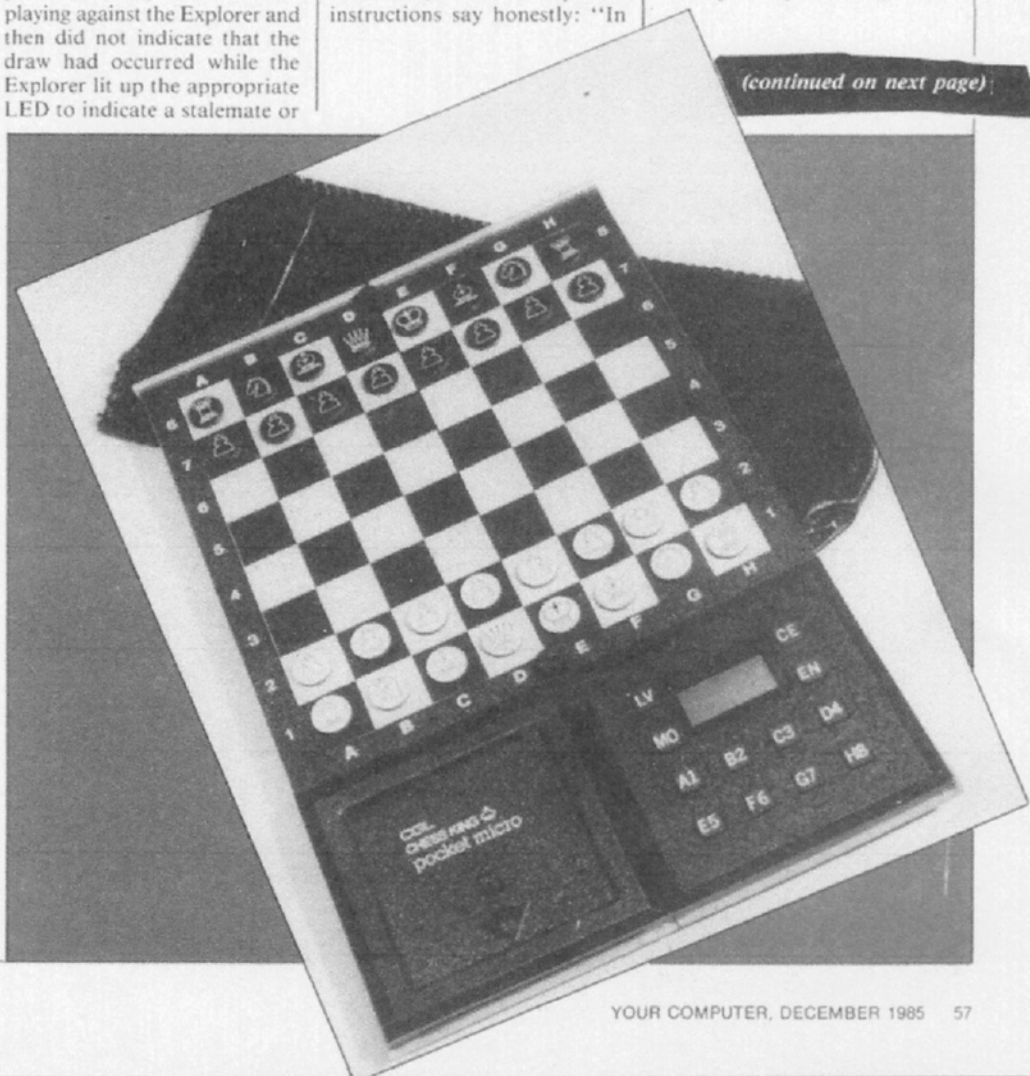
Above — detail of Chess King.

Below — Chess King Pocket Micro. Left — SciSys Explorer.

the case of a stalemate or draw by immediate threefold repetition, only the Mate light will be turned on"; by implication excluding the possibility of a 50 move draw.

The **SciSys Explorer** has both the best program and the best design of the machines I have looked at. The Explorer predicts what your next move is likely to be and then thinks while it is waiting for you to move of

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what's the best reply it can make. Neither the Micro II nor the Chess King do this and clearly it increases the power of the program considerably.

Colossus 4.0 and **QL-Chess** both think in their opponent's time and you can turn off this feature which makes the program weaker; that's to make you feel even smaller when you lose the 10th successive game. The compartment on the right hand side of the Explorer board holds the spare pieces safely, a good range of functions are given by the "function" keys, three AA cells provide more than 100 hours use and the machine will store the state of a game for up to one year when the power switch is turned to "memory".

The SciSys machine has a good set of standard opening moves — the "book" — which it plays quickly and decisively so long as your responses match its expectations. Unlike some early chess programs, the Explorer seems to have no trouble moving from its openings book to the middle game. Most chess computers are comparatively weak — by good players' standards — when the majority of pieces have been captured

and the war on the board enters the "endgame".

Martin Bryant wrote **White Knight Mk II** and **Mk 12**, and is responsible also for the Commodore 64 program **Colossus Chess 4.0**. The instructions for the programs are very similar and clearly the architecture of the software is a progression from one program to the next.

There is an interesting series of comparisons in the back of the instructions for **Colossus Chess 4.0** between micro-computer chess programs for the Apple II, Spectrum, Atari, Dragon, Electron, Oric and ZX-81 computers. **Colossus 4.0**, running on an Apple II, beat everything in sight including both versions of **Colossus** is supplied with a number of demonstration games for tutorial purposes.

The **QL-Chess 3D** display is a lot of fun and, like Martin Bryant's programs, plays a good strong game of chess. However, the plan view provided in **Colossus 4.0** and the **White Knight** series is clear and gives unequivocal information about the state of the game.

CONCLUSIONS

The dedicated chess machines have some real advantages over either another human player or a program running on a microcomputer.

- You can learn by playing just some of the moves of a game over and over again. I have found it very instructive to see how the Explorer deals with the first 10 or a dozen moves. Very few human opponents will put up with so selfish an approach.

- The real pieces in the NOVAG and SciSys machines give a true perspective and allow you to 'walk round' the board in a way that even the best 3D programs cannot simulate yet.

- You can play chess on a train or bus, at the seaside, anywhere you like with one of the dedicated machines.

Conversely, the chess programs may suffer from being too strong for many beginners even at the lower levels of play. One form of handicapping that used to be popular was for the stronger player to give the other one or more pieces at the start of the game.

The machines and programs with a Set-up mode allow you to take away a Rook or some other piece from the computer before the game starts. **Colossus 4.0** also allows you to handicap the computer by cutting down the time available for it to compute its moves.

Either a dedicated chess computer or one of the programs could make a really long lasting Christmas present. But the machine and its instructions alone are not sufficient unless there is a good chess player in the same household.

The SciSys Explorer is the best of the sensory chess computers that I have seen. It's available from Dixons or, in a different colour scheme, from Tandy.

Figure 3.

	NOVAG Micro II M	SCISYS Explorer M	CGL Chess King M	CGL GrandMaster M	BBC White Knight S	AMSFT Cyrus II S	CP SOFT 3D Voice S	CDS SOFT Colossus S	PSION QL-Chess S
MACHINES									
Sensory	YES	YES	NO	YES					
Battery life	20 hours	100 hours	400 hours	not known					
Main power	YES	NO	NO	not known					
Price	£39.95	£39.95	£22.95	£54.95	£12.95		£12.95		
SOFTWARE									
Levels/Modes	8	9	4	not known	many			many	22 (36)
Minimum time	'Instantly'	2 seconds	5-11 secs		'0 seconds'			'0 secs'	'2 secs or less'
Maximum time	5-20 mins	2 hours	8-24 secs		very large			very large	'infinite'
Time equality									
Tournament mode									
max. depth of search	not stated	not stated	not stated	not stated	unnecessary	unnecessary	unnecessary	unnecessary	unnecessary
verify pieces	YES	YES	NO	YES	YES	YES	YES	YES	YES
Set up pieces	YES	YES	NO	not known	YES			YES	YES
Force program move	NO	YES	NO	YES	YES (120 max)		YES	YES (120 max)	YES (to start)
Take back move	YES (2)	YES (2-4)	NO	NO	NO		NO	NO	YES
Analysis	NO	NO	NO	NO	YES		YES	YES	YES
Clock times	NO	NO	NO	NO	(YES Mk 12)		NO	NO	NO
Save state of game	NO	YES	NO	NO	NO		NO	YES	YES
Print moves	NO	NO	NO	NO	YES			YES	YES
Replay game	NO	NO	NO	NO	YES			YES	YES
Backstep game	NO	NO	NO	NO	YES			YES	YES
Player v Player	NO	YES	NO	NO	YES			YES	YES
3D display	real pieces	real pieces	counter pieces	real pieces	2D plan view	3D display	3D display	2D display	2D/3D display
RULES									
Stalemate	YES	YES	partial	YES	YES			YES	YES
Draw	NO	3 move	NO	YES	YES		YES	YES	YES
En passant	YES	YES	YES	YES	YES		YES	YES	YES
Castling	YES	YES	NO	YES	YES		YES	YES	YES
Underpromotion	YES	YES	NO	NO	NO		NO	NO	NO
Lose 'on time'	NO	NO							