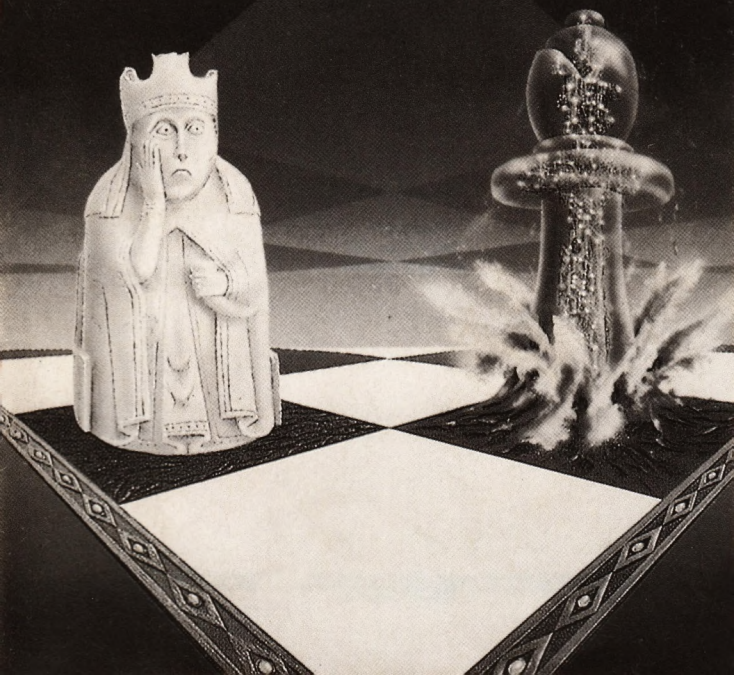


# *Psi* CHESS

by  
Steven L. Watson





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## INTRODUCTION

### *PsiCHESS*

*PsiCHESS* is the most complete chess program available for any home microcomputer. It not only features superb 3-dimensional graphic representation of a chess board and pieces, but also has a standard of play rivalled by very few alternative programs.

*PsiCHESS* has a full understanding of all the rules of chess, including the fifty move rule, underpromotions (and any number of them), draw by repetition, and draw by insufficient mating material.

*PsiCHESS* has been carefully created by a programmer who himself is a very able chess player, and with a keen eye to satisfying beginner, improver and club-players alike.

### LOADING *PsiCHESS*

*PsiCHESS* is designed to load into a 48K Spectrum/Spectrum +, or into a Spectrum 128 in the 48K mode. To load *PsiCHESS* you simply enter:

**LOAD""** and then press <ENTER>

You will see a unique 'counter' displayed during loading, and you will easily be able to see when loading is complete when the counter reaches zero. *PsiCHESS* will then automatically start.

## QUICK START GUIDE

When *PsiCHESS* is first loaded it starts in the 3D display mode, with the Staunton (wooden) chess pieces and it assumes that you wish to play as WHITE against the computer as BLACK. It also starts with the computer playing at virtually its least able 'instant response' level of A1 (see later for more information about the levels of play in *PsiCHESS* ).

Let's first quickly get an overview of *PsiCHESS*. You will note that the word CHANGE is visible in the report section at the bottom of the screen. Whilst in this mode you can switch between displays, alter basic set-up factors, and switch between the various modes of 'Scoresheet', 'Position' and 'Game'.

Looking now at the various display options: press the 'S' key with '1' and you will enter the scoresheet mode in which *PsiCHESS* not only displays the moves of the game in algebraic form, but it also indicates the basic

parameters which you have set up. For instance at the top of the screen you will see who is playing white, who black, and that you are playing at level 'A1'. We'll discuss this more fully soon.

Now hold down 'S' with '2' and you will see the 2-dimensional board representation. This mode also features an 'ICONIC' board set-up mode, but we'll return to that later too.

And now press 'S' with '4' and you will see the board set up with the superb 'Isle of Lewis' Medieval pieces on it. Pressing S and '3' will take you back into the initial 3D board with the Staunton, wooden pieces.

Finally, let's rotate the board: this is done by pressing the 'O' key with one of the keys '1' to '4'. Using this you can rotate the board to see it from all 4 sides - but note, this does not affect who is playing with which pieces!

### Playing ...

Now let's quickly look at playing a game of chess, before going on to look in greater detail at all of *PsiCHESS*'s many and varied features:

To be able to start a game immediately all you have to do is press the 'M' and '1' keys together. You will see that a 'G' has appeared to the right of the central display at the bottom of the screen indicating that *PsiCHESS* is awaiting your first move in a Game.

You will also see that your clock (lower left) has started to tick away in seconds, and you can also see black's clock (the computers) on the lower right.

Entering moves is very simple and can be done in two different ways. *PsiCHESS* allows you to enter the fairly traditional algebraic method of registering a move, or it will allow you to use an on-screen cursor to select the piece you wish to move and indicate which square you wish the piece to move to.

To use the algebraic method you simply type in your move as a four character letter-number-letter-number combination. The first letter and number indicate the square on which the piece you wish to move is sitting, the second pair refer to the square you wish it to move to.

Quite simply, the squares are referred to by a letter A to H where the left-most column of squares is the 'A' column, the next the 'B' column and so on. The squares in a column are then numbered 1 to 8 bottom to top of your TV screen (with white at the bottom - the numbering is reverse when white is playing down the board).

Thus to make a common initial move of 'pawn to King four' you would enter E2-E4. If you are playing the black equivalent of this move then it will be E7-E5 (this would be true even if black were playing up the board - but I'll say more about swapping sides and rotating the board later).

In the alternative 'CURSOR' mode of play you can play *PsiCHESS* in a much more obvious manner - actually choosing pieces and moving them much as you would on a physical chess board. Once you get used to this method of play you may well find that it is the easiest by far. To get into this mode you simply press the 'J' key with either the '1', '2' or '3' keys. J1 assumes that you wish to use the left-hand Sinclair joystick, J2 assumes use of the right-hand Sinclair joystick, and J3 is for use with a Kempston joystick.

However, you do not necessarily have to have a joystick attached to make full use of this mode. Selecting either J1 or J2 will allow you to also use the keys 1-5 or keys 6-0 to move pieces:

J1:

- 1 - left
- 2 - right
- 3 - down
- 4 - up
- 5 - select

J2:

- 6 - left
- 7 - right
- 8 - down
- 9 - up
- 0 - select

Obviously, when you are using a joystick you simply move left, right, up and down as usual, and then select using the fire button.

The operation in this CURSOR mode could hardly be more simple. Once in this mode an arrow cursor will appear which you will need to position over the lower part of the piece you wish to move. Then you press the 'select' key or the fire button. Now move the cursor to the square you wish the piece to move to and press 'select' again. The piece will now move, unless of course your attempted move was illegal, in which case *PsiCHESS* will tell you this with a message at the bottom of the screen.

If you want to get back to normal keyboard control at any time then simply press the 'K' key.

Having finished a game, if you want to simply start again then you first press 'T' to get the word CHANGE at the bottom on the screen, then press P and 'I' together and the board will be set up again. You can then re-start a game by simply pressing 'I' for CHANGE again, and then M and 'I' as you did before.

### *PsiCHESS* IN DETAIL

*PsiCHESS* has an enormous range of features, but the beauty of its design is that you will probably not need to concern yourself with many of them in order to learn chess, improve your play, and to set out on a voyage of discovery which could last a lifetime.

As you have seen from the initial 'Quick Start' section above, *PsiCHESS* is very easy to play and with the possible exception of (hopefully!) your needing to increase the level of play as your play improves you will not generally need to do any more than we have discussed above. That said, *PsiCHESS* does have a wealth of features which are exciting to explore and which contribute towards its reputation as the best chess program for any home microcomputer.

## **CHANGING *Psi*CHES\$ PARAMETERS**

When the word CHANGE is displayed in the report section of the screen you can change virtually any of the set-up parameters in *Psi*CHES\$ which are not actually involved in moving pieces in a game.

### **Quick Reference**

A complete summary of all these features and parameters is listed in a section at the end of this manual for quick reference.

### **Changing the Screen Colours**

This is easily done by pressing the 'X', 'C' and 'B' keys together with one of the keys 0-9 to be able to change the INK, PAPER and BORDER colours to any in the Spectrum's normal palette. As in Sinclair BASIC, changing the INK is associated with the 'X' key, changing PAPER is done by pressing 'C' and pressing 'B' enables the BORDER colour to change. For instance, try pressing the 'X' and '6' keys to change the INK to yellow. You'll see that the

chess pieces and half of the board's squares are now yellow rather than white. Note though, that *Psi*CHES\$ allows literally all possible combinations of colour - even black INK and black PAPER, which means that the board is invisible.

You can also set the BRIGHTness of the colours. To do this you use the 'B' key again, but this time when used in conjunction with key '8' you will switch BRIGHT off, whereas B with 9 will switch BRIGHT on again. This is particularly useful when you want to have a generally bright coloured background such as cyan, and wish to make the PAPER non-BRIGHT to match the BORDER (which cannot be BRIGHT).

### **Sound**

You can also get a variety of sounds which will be heard when a key is pressed, or a move is made by either the Program or yourself. The 'Z' key is used for this in conjunction with keys 1 to 8. Z+1 will cause a fairly quick sound to be emitted, whereas at the other extreme Z+8 causes a louder 'click/beep' sound.

You will find having sound on will be invaluable when playing against the computer at a higher level when moves can take several minutes each. The sound will then indicate when it is your turn to move.

### **Display Modes**

There are no less than 4 display modes, all of which are accessed by pressing the 'S' key with one of the keys 1 to 4. As you have seen above, S1 (S pressed with the '1' key) puts you in a SCORESHEET display where you can also see the basic set-up information. S2 is the 2-dimensional board display mode, S3 is the 3D Staunton set display, whereas S4 is the Isle of Lewis 3D display.



## GAME SETUP

### Scoresheet display and 'S' mode

Setting up the various possible features of *PsiCHESS* is probably best done from within the SCORESHEET display mode. Enter this display mode by pressing S+1 when CHANGE is displayed (remember, if CHANGE is not visible pressing 'T' will usually get you into this mode). In the scoresheet mode you will see the names of the players, the last 15 moves made in a game (blank if a game has not yet commenced), the level of play currently selected (or the type of play, see later), and finally the two clocks for the two players.

### Choosing the Players - WHITE and BLACK

You can opt for any of the 4 logical options of player: USER as white against PROGRAM as black; USER as black against PROGRAM as white; PROGRAM playing both black and white; and finally two USERS (humans) playing both sides.

This selection is done by entering the 'S' (set-up) mode by pressing the 'M' and '3' keys together. When in this mode you will see and an inverted S near the centre of the bottom of the screen. The word CHANGE needs to be NOT showing when you wish to action something in this mode, so if it is there press 'T' to get into the 'S' mode proper.

Once in the S mode you can 'toggle' who is white and who is black by holding down the 'T' key with either '1' or '2'. T+1 switches who plays white, and T+2 switches the black player.

T+3 will toggle who is to move next. On the screen this literally changes whether the words 'to move' are beneath WHITE or BLACK.

Note though, whilst we've looked at altering who is playing which pieces in this SCORESHEET mode you can in fact make these changes in any of the other display modes too - although there is only displayed confirmation of your choice in this mode. This is true for setting up most other parameters too.

### Setting/Re-setting the Clocks

Either setting or re-setting the clocks is also done in the 'S' mode, but you do not need to be in the SCORESHEET display.

The clocks start running from the moment you start to play your first game, and will continue to run without re-setting themselves for game after game after game. In this way you can see a total time that you have played, and perhaps work out an average. However, if you wish to re-set the clocks to zero before playing each game, or wish to set the clocks to a specific time, then you must do the following:

(i) To re-set to zero: This is done by pressing 'T' with '4'.

(ii) Setting other values: For white's clock this is done in the 'S' mode by using the 'W' key in conjunction with the keys 1 to 5 to decrease the clock setting digit-by-digit, and using W with 6 to 0 to increase the setting. For black's clock you follow a similar procedure but using the R key with the keys 1 to 5, and keys 6 to 0.

Note that key 5 thus relates to *decreasing* the units of seconds; key 4 relates to decreasing the tens-of-seconds; key 3 allows decreasing of units of minutes; and key 2 allows the decrease of tens-of-minutes. The hours are reduced in units only by using the 1 key. Keys 6 to 0

operate similarly for the *increasing* of the clocks. Note that decreasing the hours below zero resets the clocks to 99. Note too that changing the seconds and minutes readings will naturally affect the minutes and hours readings respectively.

#### Uses for setting the clocks:

- (i) Note that you can effectively handicap your opponent (or yourself) by setting one of the clocks to a higher or lower value before starting the game.
- (ii) When playing in the BLITZ mode (more about this later), you can set each of the clocks to the most usual setting of 5 minutes per player, but you can also handicap one of the players by setting one of the clocks differently to the other.

#### Levels of play

Changing the level of play is also done from within the 'S' mode (entered with M+3). Like the display of who is playing and who is next to move, the setting of the level of play is also only visible in the SCORESHEET display mode. However, you can change the level in any of the other display modes if you wish.

*PsiCHESS* has no less than 7 'average move' levels, 6 'correspondence' levels, and a further 3 special levels, two of which have probably not been available before on a home computer chess game.

In the 'S' (Set-up) mode you once again wish to have the 'S' showing, but not with the word CHANGE present.

When *PsiCHESS* first starts it sets itself to play at the lowest 'average move' level of 'A1'. This is selected by simply pressing the keys A and 1 simultaneously. To get A2, you press A and then 2 and so on for the other levels A3 to A7.

Similarly, you can select the 'correspondence' levels of C1 to C6. Using the C key together with the relevant number key.

The difference in the levels of play primarily lies in the length of time *PsiCHESS* takes for a move. This length of time of course reflecting its standard of play, the degree to which it is 'looking ahead' in the game, and the degree of sophistication of the *PsiCHESS* 'artificial intelligence routines' that particular level has access to.

At its very lowest level (Beginners), for instance, response is almost instant, *PsiCHESS* is not using its knowledge of openings and cannot force a checkmate in an endgame situation. At the other extreme of the highest correspondence level moves can take a very long time, but *PsiCHESS* is using its maximum look-ahead and all of its artificial intelligence routines to effect a game best suited for correspondence (non-tournament) situations.

Here is a rough guideline to the response times of each level:

Level	Response time	
A1	Instant	For occasional players
A2	3 secs	Intermediate player
A3	10 secs	Experienced player
A4	20 secs	Advanced player
A5	40 secs	Club standard
A6	1min 30 secs	Congress play
A7	3 mins	Tournament play
C1	10 mins	Correspondence
C2/C6	(increasing times)	Also correspondence only

**Note:** The above response times are only estimated averages for each level. *PsiCHESS*'s response times can vary considerably according to the actual position of pieces and state of play (as with human players). For this reason there may be times when response is somewhat slower than indicated above.

### 3 Further levels/modes:

These are called 'Beginners mode', 'Balance' and 'Blitz'. Each of them is selected in a similar manner to the A and C levels by pressing the 'B' key with a number key 1,2, or 3.

#### B1 - Blitz

In this you set up a game in which all the moves must be played within a given time limit. The typical time limit which is set is 5 minutes. Thus it would be usual when selecting this mode to set both of the clocks to 5 minutes before commencing the game. This is probably best done by totally resetting the clocks using T4 and then just increasing the minutes digit of each clock using W8 and R8.

In Blitz chess the main aim is for an entire game to be played within the time allotted, and the first player to gain mate, or whose opponent runs

out of time is declared the winner. However, note that *PsiCHESS* does not give a 'time up' report when the time reaches zero. Once one of the clocks has reached zero it will re-set again to 99 Hours. You can thus keep playing even after the game is technically 'over', rather than being forced to stop.

If you play against the program in Blitz mode, then *PsiCHESS* will be varying its response time in accord with the time it has left in which to move. *PsiCHESS* thus effectively shows INFINITE move times in this mode, getting increasingly quick as the time allotted ebbs away. When the time allowed is up and the clock trips over to 99 hours *PsiCHESS* will continue to play in 'instant response' mode as if it were just about to run out of time.

Thus, please note, if you select a time for play in Blitz involving tens of hours then *PsiCHESS* will be handicapped and play as if it had virtually no time at all. Speaking of handicapping, it is of course very easy to set up the Blitz mode so that one player has less time to play in than the other.

### **B2 - Balance of levels mode**

In this mode, sometimes called 'equality mode', *PsiCHESS* will vary its response time to try to match your own. Thus if you take a long time over moves so will it, and if you move quickly then so will *PsiCHESS*.

In practice, however, you may find that the program's clock will be out of synchrony with you by anything up to a few minutes.

### **B3 - Beginners level mode**

This is a unique special mode of play in which *PsiCHESS* deliberately plays a slightly poor game. In this mode *PsiCHESS* is not referring to its book of openings, is not able to force a mate in an endgame situation, and generally the Beginners mode does not have access to the entirety of the complex artificial intelligence routines which *PsiCHESS* uses in the other levels of play. This mode is thus ideal for the absolute beginner who may otherwise find the strength of play of microcomputer chess programs rather off-puttingly strong even on their so-called lowest level.

### **The Move List**

You can see the move list in the SCORESHEET mode (S1). *PsiCHESS* will hold the most current 60 moves in a game and will display the most recent 15 moves at any given moment in the SCORESHEET display. In order to look at the other 3 quarters of the stored move list you can use the Q key in conjunction with the keys 1 to 4:

Q1	This first 15 moves
Q2	The moves 16-30
Q3	Moves 31-45
Q4	Moves 46-60

There is also:

Q5	Displays the quarter with the last move played visible.
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### **Stepping Forward & Back Through a Game's Moves:**

*PsiCHESS* also allows you to scroll forward and backwards through the move list, or to do a kind of 'action replay' in either the 2D or 3D modes.

This is done by pressing the Z and X keys whilst in the 'S' (setup) mode.

Operationally, this will usually mean that you will have to get CHANGE showing by pressing 'I' (or breaking into a game with BREAK), then select the 'S' mode with M+3 and then use the Z,X keys to move forward and backward through the move list. Obviously, in the SCORESHEET mode this means that you will be scrolling through the algebraic listing, whereas in the 2D or either of the 3D displays you will actually see the game play with moving pieces.

This feature can be very useful if you wish to go back a move or two to replay the game from that point - perhaps having made a foolish error, or because you have changed your mind about a development of pieces.

You might even wish to see whether having lost to the program you could have won by taking a different approach during the endgame play.

Note that if you do anything in the set-up mode, or enter the 2D mode to set up a new game using the ICONS (we'll discuss this later), then the scoresheet will be re-set and you will no longer be able to step forward and back through the listing of the prior game.

### **Removing the Report Line/Clocks from View**

Whilst concentrating on a move you are about to make, or whilst the program is making its decision, you may wish not to be disturbed by the presence of the report line with the clocks at the bottom of the screen. This line can be made invisible by simply pressing keys L and 2. Pressing L and 1 will make the line visible again.

### **Rotating the board in the 3D modes**

In either of the 3D modes of display (S3 & S4) you can rotate the board and thus see the game from a different angle of view by simply pressing the key O (Orientation) with one of the keys 1 to 4. O1 is the normal view with the white pieces at 'your' lower end of the screen, going through a view from the right side, to a view from the black end of the board, to the view from the left hand side of the board. Obviously, if you chose to play the black then you will almost certainly wish to use O3 to put the black pieces at your end of the board.

### **Saving and Loading a Game**

PsiCHESS allows you to save your current position onto tape, or to load in a previously saved position from tape. All pertinent factors relevant to the game are also saved such as whether the King or Rooks have moved (important so that upon re-loading PsiCHESS knows whether castling is legal or not), and so on.

To SAVE your game position simply ensure that you are in the S (Setup) mode and also ensure that your tape recorder is recording. When the tape is already playing press the keys S & 8 and saving will commence immediately. Your game position is saved in a special manner, and only files saved by PsiCHESS can subsequently be re-loaded by it.

To LOAD a previously saved game position you simply follow the above procedure, but in this case you press S9 and the program will be waiting your tape player to play the recorded file into the machine. Once loaded you will see that the board has been set up with all the pieces as they were when you saved the game.

These features are obviously indispensable when you are having a good game which you have to interrupt, or especially when you are having an extended correspondence game with someone (or even with another computer ....).

## POSITION SETUP/CHANGE

### The 'P' (Position) Mode

The following section deals with the use of the P (Position) mode which you enter by pressing the M and 2 keys whilst CHANGE is displayed in the reporting area. You will note that a P will appear by the report section at the bottom of the screen when this mode is selected.

### Basic Set-up/Re-set-up

Probably the most frequently used re-setting-up of the board will be to return all the pieces to their usual positions on the board in order to re-start a game. This is done simply by pressing the P and 1 keys whilst in this P mode. P1 also causes the 'to move' indicator to reset to white.

However there are other set-up options which come into play when you wish to set pieces up on the board in anything other than their usual original places. You have two basic options on setting up pieces: in one case you can simply enter in algebraic form the piece you wish to place on the

board and where you wish to put it; in the alternative method you can select ICONs of the pieces and effectively move them to the place on a 2D board that you wish them to be in.

### Algebraic set-up

First the algebraic method: In this case you will enter letters and numbers whilst in the P mode. This is not totally dissimilar to making moves algebraically whilst playing a game. You can either chose to put a SPACE on the board at a point where there was previously a piece, or you can place any piece anywhere on the board too. The following letters indicate which piece you are referring to:

S	Put a space
W	White piece
B	Black piece
P	Pawn
N	Knight
B	Bishop
R	Rook
Q	Queen
K	King

The format is simple. For instance, if you wish to place the white King at the position E7 on the board then you simply type in WK E7 - in fact what appears on the screen is 'WK-E7', but the program puts the hyphen in for you).

Similarly, having put a piece on square D3 by mistake, you can remove it easily by entering: S D3. In this case you will see it displayed in the report as \_S-D3. That is, having typed 'S' it assumes you want to then only specify a square, and once again it inserts the hyphen.

You can do this setting up in the 2D or either of the 3D modes. However, should you place one piece on top of the other in the 3D mode without putting a space on that square between the placing of the 2 pieces then what appears on screen will be somewhat a mixture of the last piece you placed there and some stray 'junk pixels'. In fact, though, if you simply use the Orientation feature to rotate the board, or switch to 2D and back again then the 'mess' will disappear. Obviously, the final piece placed on any square is the one *PsiCHESS* assumes you wish placed there.

### **Cursor piece set-up**

To set up the pieces using a cursor and ICON method you must also be in the 'P' mode but also in the 2D mode entered with S+2 (Screen mode 2).

In this mode you only have to select any of the joysticks (J with a number key) and the ICONs will appear up either side of the 2D board display. Putting any given piece on the board is then very easy. You simply move the arrow cursor to the piece in question, press select (fire), move to the required square and then press select (fire) again. As when playing using the cursor mode, you can also play using the keyboard by selecting either J1 or J2 for the Sinclair joysticks which operate off of the numeric keys. To put a space where there is currently a piece you simply select one of the two empty squares at the top of the columns of icons and having selected it as if it were a piece simply place it on the square in question to erase any piece already there.

If you wish to set up a game then you may wish to start with an empty board or a board with the pieces in their normal starting positions. If you want to start from a full, normally set-up board then you would press the P and 1 keys we saw earlier. However, if you want to set-up an endgame situation with very few pieces on the board, then you would be best advised to start with the set-up offered by either pressing P+2 or P+3. In the former case *PsiCHESS* just puts the Kings and Rooks on the board, in the later it just puts the Kings on.

Note that when you use P1 or P2 the Rooks and Kings are assumed not to have moved. Similarly, when you use P3 the Kings are assumed not to have moved. If one of then is to be considered to have moved when the game starts, then it should be removed from the board and replaced again on its own square (if that is to be its position). Obviously, this is a unique situation in which the program will need to know when plays starts whether a King which is on its own square may legally castle or not.

### **Some features of set-up ...**

There are a number of features that these set-up modes offer. For instance, you can interrupt a game, and change the nature of it by adding or taking pieces away before re-starting the game again.

The set-up procedures also do not dictate how many of any given piece you can put on a board. Thus (although the program would display an 'illegal move' report very quickly) there is no reason why you should not set up a board with more than 2 Kings on it. It can also set up legal positions such as a board with many Queens on it, which whilst feasible and legal in 'normal' chess play on a real board, is not usually possible due to the physical lack of extra pieces in typical chess sets.

## PLAYING A GAME OF CHESS

Although virtually all that you need to know to play chess using *PsiCHESS* has been covered in the above sections, we'll quickly summarise some of the major features again here, and highlight some other features of play which we have not covered above.

Essentially, there are two methods of play: algebraic move entry and cursor, or joystick move entry. The former is the more traditional method used by most computer chess games to date, and by many dedicated chess machines. In this the board is seen as a matrix of squares where the columns are labelled A to H horizontally from the left-hand side, and the actual squares within each column are labelled from the white pieces' end of the board toward the black end 1 through to 8. Thus with the board orientated with the white pieces at 'your' end, the bottom left hand corner is labelled as A1 and the top right hand corner is H8.

When making moves in this mode *PsiCHESS* expects you to put in two pairs of characters, a letter and a number, and then another letter/number pair. Hence the traditional opening of pawn-to-King-4 would be E2 E4 (white moving).

### Playing in the SCORESHEET mode

Note that you can even play when neither the 2D nor 3D boards are showing by entering your moves in this algebraic fashion from within the SCORESHEET mode (entered by pressing S+1).

### The Cursor/Joystick Method of Play

As we previously saw, to get into this mode of play you simply press the key J with either 1 2 or 3 to select the Sinclair1, Sinclair2, or Kempston Joystick controls as required respectively. We also noted that selecting either of the Sinclair controls allows you to have the option of playing using keys instead of a joystick - indeed you don't need one attached to play this way. In this case you would use the keys 1- 5 or 6-0 depending on which Sinclair joystick was selected.

Once selected the word CURSOR appears at the bottom of the screen to remind you that you are in this mode. To get keyboard control back again you simply press K. You would then need to press I if you wanted to go on to change the orientation, change to S mode to back-step, change players, change who is to move, and so forth.

When the program is 'thinking' you will note that the arrow cursor disappears from the screen to ensure that its presence does not disturb

your concentration. Equally, when it is your turn to play you can 'hide' the cursor in the bottom left hand corner of the screen in order to have a clear 'uncluttered' screen to look at whilst trying to decide your move.

Finally, note that there is an arrow in the lower area of the screen, just to the left of where the algebraics or the word CHANGE appear. This arrow shows the direction of movement of the white pieces at any time. This arrow can be invaluable if in a mature game you change the orientation and it is not immediately evident which direction white is now moving in.



## **Rules of Chess**

I shall not attempt to summarise the entire rules of chess here - there are many good books on the subject that can do that job much better - but I shall summarise some of the features *PsiCHESS* has to offer in regard to the rules of chess.

First, *PsiCHESS* understands all of the rules of chess, including the 50 move rule, underpromotions, and draws due to 3-fold repetition or due to insufficient mating material.

## **Promotion/Underpromotion**

*PsiCHESS* has a full understanding of underpromotion and promotion. It will not automatically promote a pawn to a Queen.

When it is playing it has no limit to what it will underpromote its pawns to. It could theoretically (if it felt it strategically necessary) underpromote all 8 of its pawns to knights (were it physically possible to get them all to the end of the board).

When you play and get a pawn to a promotion position you will be faced with the following display at the bottom of the screen:

**Q R B N ?**

You are being invited to press one of the four keys to promote your pawn to either a Queen, Rook, Bishop, or Knight respectively. As when it is playing, it too does not assume that you wish to promote to a Queen.

Obviously, whilst this is all legal within the rules of chess, it is far from usual to be able to play a game on a usual physical board in which you can promote two pawns both to be Queens, for instance. This is one clear advantage for the computer chess program.

## **Solving Mate**

*PsiCHESS* does not have a 'solve mate' mode as such. However, levels A4 and C1 have been designed so that the former will solve any mate in 2, whereas the latter will solve any mate in 3. Obviously, you would set the program to play itself using the T1 and T2 options in the 'S' mode (T for Toggle).

## **Loading other 3D Chess pieces**

This is a future development planned at the time of writing this manual. Write to The Edge for details. Further 3D characters are planned which will be sold separately from *PsiCHESS* itself. These alternative 3D sets will replace the Lewis ones in memory and you will be able to load them by pressing the S key and the 0 key.

**Warning!** If you press these keys in error, or indeed if you press the S9 keys in error and *PsiCHESS* starts trying to load a saved game, then you will NOT be able to break out. In the case of pressing S0 by mistake you will probably have to power-off and re-load the game. In the case of mistakenly pressing S9 you would be able to avoid re-loading the game only if you have a previously saved game position you can load in.

## A Summary of Commands and Features

'CHANGE' functions (that is, when CHANGE is showing):

<b>B0 .. B7</b>	Border Colours
<b>C0 .. C7</b>	PAPER Colours
<b>X0 .. X7</b>	INK Colours
<b>L1 .. L2</b>	Make report line visible/invisible
<b>O1 .. O4</b>	Change board orientation
<b>Q1 .. Q4</b>	Select quarter of scoresheet being viewed
<b>Q5</b>	Quarter showing last move
<b>S1 .. S4</b>	Screen display selection:
	<b>S1</b> SCORESHEET
	<b>S2</b> 2D
	<b>S3</b> 3D Staunton Pieces
	<b>S4</b> 3D Isle of Lewis Pieces
<b>Z1 .. Z8</b>	Sound (volume/length of note)
<b>I</b>	This toggles whether CHANGE is showing.
<b>M1 .. M3</b>	The three major modes:
	<b>M1</b> Game mode ( <b>G</b> )
	<b>M2</b> Position mode ( <b>P</b> )
	<b>M3</b> Setup mode ( <b>S</b> )

**Mode 3 (Setup) functions:**

<b>A1 .. A7</b>	Average move levels
<b>B1</b>	Blitz
<b>B2</b>	Balance
<b>B3</b>	Beginners
<b>C1 .. C6</b>	Correspondence levels (use with caution!)
<b>S0</b>	Load new graphics for 3D pieces (future enhancement)
<b>S8</b>	Save game position
<b>S9</b>	Load previously saved game position
<b>R0 .. R9</b>	Black clock amendment (1..5 dec, 6..0 inc)
<b>W0 .. W9</b>	White clock amendment (1..5 dec, 6..0 inc)
<b>T1</b>	Toggle player of white pieces
<b>T2</b>	Toggle player of black pieces
<b>T3</b>	Toggle which player to move next
<b>T4</b>	Resets both of the clocks to zero
<b>Z</b>	Step forward through move list
<b>X</b>	Step backward through move list

## **A Brief History of Chess and Chess Pieces**

### **The game**

Chess is undoubtedly one of the oldest games known to modern man. Since Caxton printed his book *'The Game and Playe of Chesse'* in 1474, the history of the game of chess has fascinated both players and historians alike. In its very earliest form chess was a game played by 4 people each of whom had 8 pieces under their control - a King, a Rook, a Knight, a Bishop and 4 pawns. The opponents began each in one corner of the board - which was made up of 64 squares much as today. This game was being played as long ago as 2500 BC, in the form of the Hindu game called *chaturanga*.

The next step in the evolution of the game came in Mediaeval times around the 6th century AD. By this time chess was played by two people, each controlling the more usual count of 16 pieces. During this period the game developed to be very much as it is in its current form - with virtually the same pieces laid out on the board in the same initial places as today.

It wasn't until the 16th century that any further change came to the game of chess. Prior to this point the main piece (a Counsellor) was not able to move as freely, and was now given the combined permitted moves of a Bishop and a Rook - as is the case with the modern 'Queen'. And the power of the Bishop was extended to command an entire diagonal instead of moving just one or two squares. The pawns were also now allowed to move one or two squares for their initial move, which had not previously been permitted.

### **Chess pieces**

Chess has inspired craftsmen throughout the ages to carve magnificent pieces for the game in its various forms. But without doubt some of the most beautiful chess pieces were made in Europe at a very early date.

The Lewis chess pieces are probably the most famous of these older pieces and are to be found in the British Museum and in the Museum of Antiquities in Edinburgh. These are the earliest authentic European pieces and were discovered on the Scottish Isle of Lewis in 1831. Their exact origin is unknown, but they were almost certainly made in either Scotland itself or in Scandinavia (the artforms of both regions were very similar at that time). The pieces are made of carved ivory, and date from around the 11th or 12th century.

However, throughout the history of chess there was a single fact that plagued the game in its early form: players often mistook one piece for another. It was then a revolutionary step when, in 1835, Nathaniel Cook designed the Staunton set of pieces with a particular view to radically reducing confusion between the pieces during play.

He designed this now standard set of chess pieces at a time when players were actually refusing to play each other because they would each claim not to be able to recognise the pieces in the other's set!

Cook, the designer, was a friend of the master chess player Howard Staunton (hence the name of the set). Manufacture began in London in Leather Lane EC1, by Mr Jaques who obtained a copyright license for the design. Many thousands of Staunton pieces have been made in many materials such as fine woods and ivory, and it is a tribute to Cook that the design still reigns supreme for clarity of play.

### ***PsiCHESS's Chessmen Graphics***

As you will see, in *PsiCHESS* there are two quite separate 3-dimensional chess sets: one closely modelled on the Isle of Lewis pieces dating back to Medieval times, and the other is a very faithful representation of a shinny wooden Staunton chess set. Note that the Lewis set is graphically very impressive, and that you can see both front and back views of the pieces. Both note also that the Staunton set is decidedly easier to play with, even if the pieces are perhaps a little less fun to play with than the Lewis!

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### **Disclaimer**

Whilst every effort has been made to ensure that *PsiCHESS* is completely free of any errors, The Edge points out that it cannot guarantee that a program of the very great complexity of *PsiCHESS* is actually free of any errors. Should you discover any problem with the program, though, The Edge would be very keen to hear from you at the following address:

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