

# **Carlsen v Caruana**

**FIDE World Chess Championship**

**London 2018**

**Raymond Keene & Byron Jacobs**

**Foreword by Nigel Short**

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# Game Six

## Open Sesse

The late Professor Nathan Divinsky of the University of British Columbia once made the following astonishing calculation. He worked out that if one wanted to store all the moves of all possible miniature games of chess (25 moves by each side) in books and print the same format and size as the London telephone directory (for those mature enough to recall such publications) then one would need a substantial warehouse to store them. A warehouse not the magnitude of the Albert Hall, as some have speculated, nor the size of Belgium, but a book depository equal in all dimensions to the distance between Earth and the furthest known galaxy, not once, but  $10^{20}$  times! And that is just the miniature games.

Some of that quasi-infinite fascination with the dauntingly awesome mathematics of chess rose to the fore in game six. This epic tussle eventually burnt out to a draw after which the scores remained level at 3-3.

The champion opted for an obscure choice to unsettle Caruana's habitual Petroff Defence. Carlsen's  $4 \text{ ♖d3}$  resembled more a move that would typically be the precursor to a 19th century tactical slugfest, rather than a game between two sophisticated 21st century grandmasters. After the early complications settled down a queenless middlegame duly arose, where Carlsen evidently believed that he enjoyed fair prospects to exact one of his famous squeezes.

The pawn structures and piece dispositions were approximately symmetrical but White's kingside pawns were more flexible and ready to advance. Furthermore, in the centre White harboured ambitions of trading dark-squared bishops, leaving Black with an inferior light-squared unit.

In particular, if Black ever sought to trade this piece with ...  $\text{♗f5}$ , he had to watch out for a potentially deadly zwischenzug with  $\text{♞xe7}$ . Caruana solved his problems in imaginative fashion. Instead of leaving his king in the centre, which is

normally recommended in queenless middlegames, he acted resolutely by castling and striking back in the centre with ... c5. This manoeuvre had the effect of nullifying Carlsen's long-term plan of suffocating Black on the e-file and the kingside, the kind of strategy with which he had claimed numerous scalps in the past.

In the ensuing simplification phase Carlsen began to drift, much as he had in game 1, and permitted his remaining minor pieces to get into a tangle.

With his minor pieces now lacking co-ordination, Carlsen eventually embarked on a bold course of action, sacrificing his knight for several pawns but creating an opposite bishop situation, with White's majority and all remaining enemy pawns on the same side of the board. The consensus amongst the assembled grandmasters such as Nigel Short, Johann Hjartarson (the Icelandic representative on the Appeals Committee here) and Alexander Khalifman, was that Caruana stood clearly better, but that a draw was certainly the most likely result.

Then Carlsen perhaps began to display signs of impatience. He gave up his one queenside passed pawn in order to clarify the situation on the board and establish a fortress that he hoped Black could not penetrate. In fact the practicality of this decision was vindicated, when Caruana finally admitted that he could make no progress and offered a draw.

Only then did rumours circulate that former world champion Garry Kasparov had discovered a computer variation on move 68 of this 6½-hour test of endurance, which demonstrated a forced checkmate by Black in 36 moves. To exacerbate matters, the computer solution involved making moves which to the human eye were utterly counter-intuitive such as ... ♕h4, lifting the guard on the White h-pawn, and ... ♖g1, permitting the black knight to be immobilised by the move ♙g4.

### *Game 6*

**White: Magnus Carlsen**

**Black: Fabiano Caruana**

World Chess Championship (Game 6) London 2018

*Petroff Defence*

**1 e4**

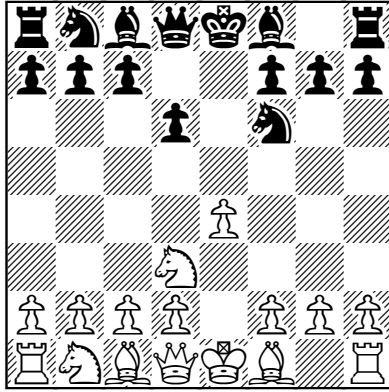
In his quest for an opening advantage, Carlsen completes a hat-trick of opening moves, having previously got nowhere with 1 d4 and 1 c4.

**1 ... e5 2 ♖f3 ♘f6**

The Petroff Defence is a great favourite of the challenger and was a key open-

ing in his success in the Berlin Candidates tournament earlier this year. His victory in that event gave him the right to challenge Carlsen for the world title.

3 ♖xe5 d6 4 ♘d3



An optically very strange move that seems to contradict all opening principles by gumming up White's development. Nevertheless, it has been tried many times before.

4 ... ♘xe5 5 ♙e2 ♙e7 6 ♘f4

Remarkably, Caruana had actually faced this line recently. The game So-Caruana, St Louis 2018 continued 6 ♘c3 ♘f6 7 b3 ♘c6 8 ♙b2 ♙f5 and was eventually drawn.

6 ... ♘c6

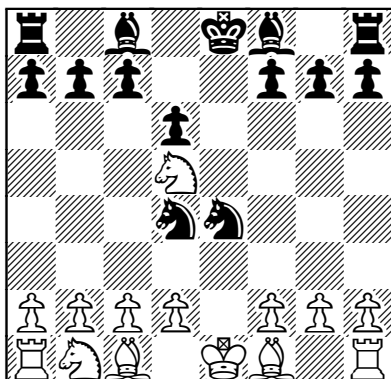
A bold move that move invites complications. 6 ... ♘f6 is a safe alternative.

7 ♘d5 ♘d4

This counterattack is forced.

8 ♘xe7 ♘xe2 9 ♘d5 ♘d4

Not 9 ... ♘xc1, as after 10 ♘xc7+ ♙d8 11 ♘xa8, the black knight on c1 is trapped and White will eventually emerge the exchange up.



**10 ♖a3**

10 ♖xc7+ is a road to nowhere for White after 10 ... ♔d8 11 ♕d3 ♖c5 12 ♖xa8 ♗xd3+ 13 cxd3 ♖c2+ 14 ♔d1 ♖xa1 15 b3 ♕e6 16 ♖b2 ♖xb3 17 axb3 ♔d7.

**10 ... ♗e6 11 f3**

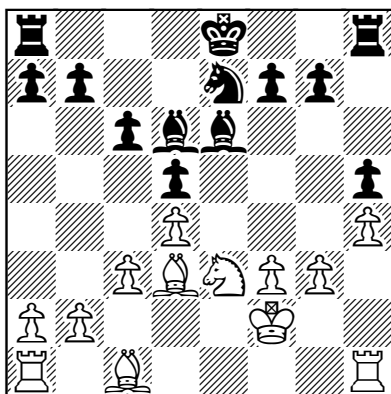
11 ♖b5 would oblige Black to renounce castling rights with 11 ... ♔d8 but this is not much of a handicap in a queenless middlegame.

**11 ... ♗c5 12 d4 ♗d7 13 c3 c6 14 ♖f4 ♗b6**

A good move from Caruana, after which he is completely equal. He prevents the knight on the rim from becoming activated. After 14 ... ♖f6 15 ♗c4 d5 16 ♗e5, this knight has become invigorated and White might be slightly better.

**15 ♕d3 d5 16 ♗c2 ♕d6 17 ♖xe6 ♕xe6 18 ♔f2 h5 19 h4 ♖c8 20 ♗e3 ♗e7 21 g3**

Carlsen is trying to engineer one of his slow grinds with ♖g2, ♕f4 and ♜ae1. Caruana has no intention of being a willing victim and cuts right across this plan.





**21 ... c5**

An excellent and ambitious move from Caruana. He is not afraid of potentially being left with an isolated d-pawn as he judges that his slight lead in development will certainly be sufficient compensation. The fact that the white bishop on c1 remains undeveloped means that his rooks are unconnected. So, if files open up, this will favour the more mobile black rooks.

**22 ♖c2**

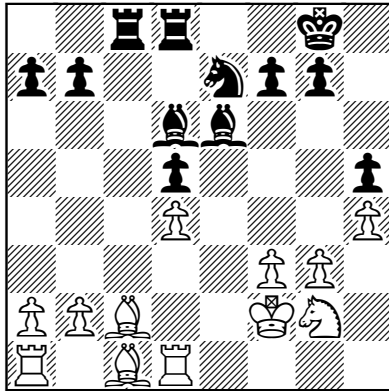
A very slight inaccuracy from Carlsen, after which Black assumes a small edge. The problem with the move is that (after the c-file opens up) the bishop turns out to be slightly exposed on this square and this enables Black to create a useful queenside initiative. 22 ♖b5+ should be completely equal.

**22 ... 0-0 23 ♖d1 ♗fd8**

Black is now very comfortable.

**24 ♘g2 cxd4 25 cxd4 ♖ac8**

White is experiencing the anticipated difficulties along the c-file. This is a direct consequence of his slight lack of development and the awkward position of the bishop on c2.



**26 ♖b3**

26 ♖d3 ♖f5 is good for Black.

**26 ... ♘c6 27 ♖f4 ♘a5 28 ♖dc1**

Carlsen may well have planned 28 ♖xd6 ♘xb3 29 axb3, when 29 ... ♖xd6 30 ♖dc1 is fine for him. However, Black has the *zwischenzug* 29 ... ♖c2+ following up with 30 ... ♖xd6 and giving him a clear advantage.

**28 ... ♖b4**

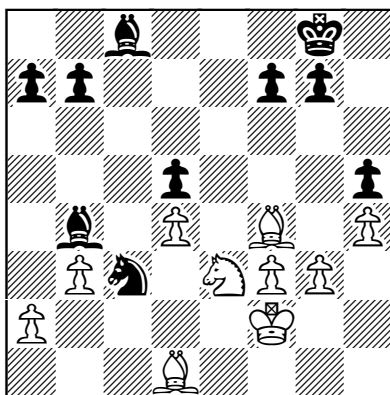
A good move and an improvement over 28 ... ♖xc1 29 ♖xc1 ♘xb3 30 axb3 ♖b4.

Here White continues 31 ♖e3, planning ♜f4 and easily maintains equality as it is impossible for Black to retain the bishop pair, prevent the white rook from coming in to c7 and keep his pawn structure intact. For example 31 ... f6 32 ♜f4 ♖f7 and now 33 ♜c7 gives White good counterplay.

**29 ♖d1 ♜c4 30 b3**

White must play this but the slight weakening of the c3-square soon gives Black chances.

**30 ... ♞a3 31 ♜xc8 ♜xc8 32 ♜c1 ♞b5 33 ♜xc8+ ♖xc8 34 ♞e3 ♜c3**



Exploiting the weakness created on move 30. Black will now inevitably win the white a-pawn and White must focus on gaining counterplay elsewhere while this happens.

**35 ♖c2 ♖a3 36 ♖b8 a6 37 f4**

Another way to defend was 37 ♖c7 ♖e6 38 f4 g6 39 f5 gxf5 40 ♞g2 (this is better than 40 ♞xf5), planning to come to f4 to threaten the h-pawn.

**37 ... ♖d7**

Cleverly manoeuvring the bishop to c6 to shore up the defences of the d5-pawn before cashing in on the queenside.

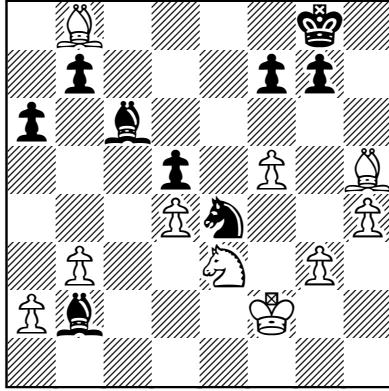
**38 f5 ♖c6 39 ♖d1 ♖b2 40 ♖xh5**

White has a tough choice between continuations all of which are difficult for him in one way or another. For example, if 40 ♖a7 ♞xa2 41 ♖xh5 ♞c3 42 ♖b6 ♞b5 43 ♞c2 then 43 ... ♖d7, followed by ... ♞d6 leaves White with an unpleasant, but by no means lost, endgame.

**40 ... ♞e4+**

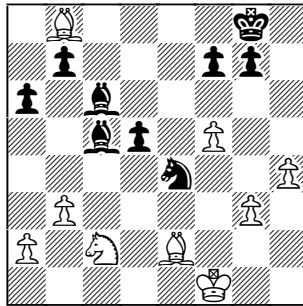
Caruana also has difficult decisions, trying to calculate which variations will create the best chance of enabling him to strive for victory. 40 ... ♞xa2 would likely

lead to positions similar to the previous note but the challenger has decided that he has better chances by capturing the d-pawn and concentrating his forces in the centre.



**41 ♔g2**

Although this move appears to be a fairly straightforward response to the knight check, it actually represents a crucial decision as it anticipates White's forthcoming defensive concept. White could instead defend "normally" with 41 ♔f1 ♕xd4 42 ♖c2 ♕c5 43 ♕e2.

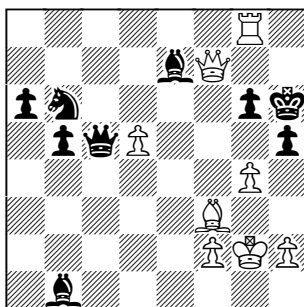


*Analysis diagram*

Black undoubtedly has a small but clear advantage as his pieces are much more active and better co-ordinated than White's and he also has a potentially useful passed d-pawn.

Note that 43 ... ♖xg3+ does not win a pawn as the white bishop, currently lurking on b8, can recapture with 44 ♕xg3. Trying to play ... ♖xg3+ in this and similar

positions was a blunder that was committed by many spectators and even some commentators while speculating on possible continuations during the game. As an aside, this is not entirely surprising as “backwards bishop moves” are notoriously difficult to see and have been overlooked on many occasions. Here is a famous example from the game Reshevsky-Savon, Petropolis 1973. At his best, Reshevsky was one of the top five players in the world.

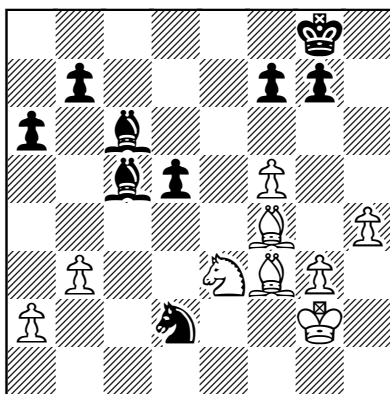


Reshevsky's attack had broken through and now 40 g5+ forces mate after 40 ... ♖xg5 41 h4+ ♖xh4 42 ♗f4. Instead Reshevsky played 40 ♗xg6 “mate” and was doubtless horrified when Black replied 40 ... ♙xg6, forcing White's immediate resignation.

**41 ... ♙xd4 42 ♙f4 ♙c5**

Black is preparing for the powerful advance of the d-pawn so White must act quickly.

**43 ♙f3 ♞d2**



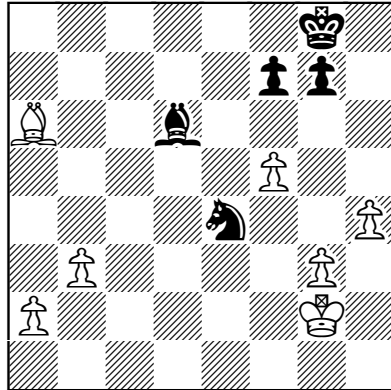
Creating the threat of 44 ... ♞xf3 followed by ... d4+ winning. It appears that

White has to retreat into grovel mode with 44 ♖d1 ♜xf3 45 ♔xf3 d4+ 46 ♚e2 but after 46 ... ♙e4, this endgame is extremely unpleasant. The black bishops are running the show, the passed d-pawn is a constant threat and White's kingside pawns are vulnerable. It may not yet be lost but it will be very difficult to defend accurately. Instead Carlsen has prepared a remarkable and imaginative defence.

**44 ♙xd5**

This is Carlsen's plan. He sacrifices a piece in order to completely change the dynamics of the position.

**44 ... ♙xe3 45 ♙xc6 ♙xf4 46 ♙xb7 ♙d6 47 ♙xa6 ♞e4**

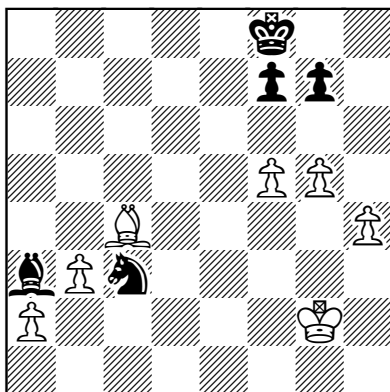


Carlsen has freed himself and acquired three pawns for the piece. If this were the whole story than his decision to sacrifice would not necessarily merit much praise as one would not expect him to have much difficulty drawing the position. However, after 47 ... ♞e4, which Carlsen would certainly have foreseen, it is clear that White will lose one of his pawns. This makes Carlsen's entire plan a much braver decision.

**48 g4**

Another defensive set-up can be achieved with 48 ♙d3 ♞xg3 49 ♔f3 ♞h5 50 a4, trying to get the queenside pawns going. However, after 50 ... ♙c5 Black will follow up with ... ♞f6 when the bishop and knight create a barrier across the centre of the board that makes it impossible for White to activate his king in any useful manner.

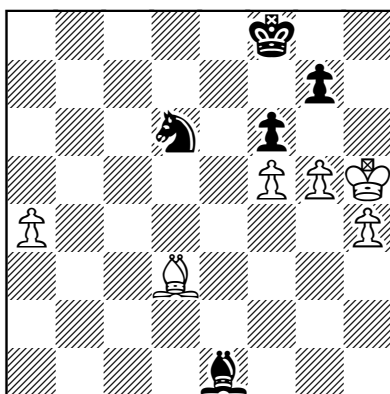
**48 ... ♙a3 49 ♙c4 ♔f8 50 g5 ♞c3**



### 51 b4

This move demonstrates a useful endgame principle. It is better to retain the a-pawn rather than the b-pawn because the more remote pawn has greater chances to over-stretch the opponent's resources.

51 ... ♖xb4 52 ♔f3 ♞a4 53 ♜b5 ♞c5 54 a4 f6 55 ♔g4 ♞e4 56 ♔h5 ♜e1 57 ♜d3 ♞d6

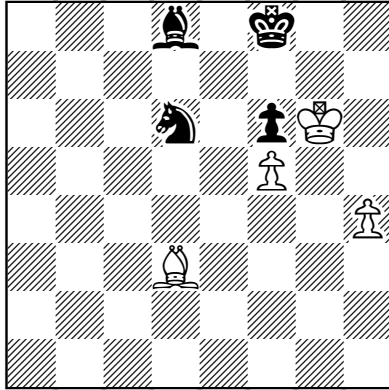


### 58 a5

This is a fascinating decision from Carlsen. He could simply pass by moving his bishop and place the onus on Caruana to find a way to play for the win. Instead he jettisons the a-pawn in order to further activate his king on the kingside in the expectation that he will be able to create some sort of blockade. This plan succeeds but whether it was the correct plan is an almost impossible question to answer, even with the assistance of powerful chess engines.

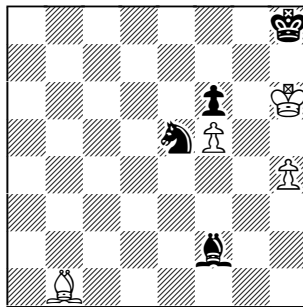
58 ... ♖xa5 59 gxf6 gxf6 60 ♔g6 ♗d8

60 ... ♗c3 comes into consideration. Caruana doubtless chose d8 for his bishop as this means that when his knight eventually arrives on e5, which is important for driving the white king back, it will not interfere with the protection of the f-pawn.



61 ♔h7!

A brilliant defence from Carlsen and actually the only way to stay in the game. Black's threat, completely counter-intuitively, is not to activate his king into the centre of the board but to bring it to h8! Here is a sample variation: 61 ♗b1 ♔g8 62 ♗a2+ ♔h8 63 ♗b1 ♖c4 64 ♗a2 ♖e5+ 65 ♔h6 ♗b6 66 ♗b1 ♗f2

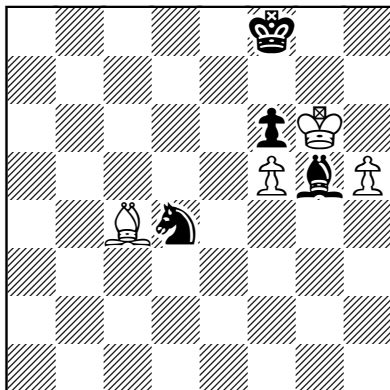


Analysis Diagram

67 ♔h5 (67 h5 ♗e3 mate would be a way to choose an end with horror rather than horror without end) 67 ... ♔g7 68 ♗a2 ♗c5 69 ♗d5 ♗d6 70 ♗b3 ♖f3 71 ♗d5 ♖d4 and the black knight will soon come to f4 or g3 when the white king will be forced further back, allowing the black king to penetrate decisively on the kingside.

61 ... ♖f7 62 ♙c4 ♜e5 63 ♙d5 ♙a5 64 h5 ♙d2 65 ♙a2 ♜f3 66 ♙d5 ♜d4 67 ♔g6 ♙g5  
68 ♙c4

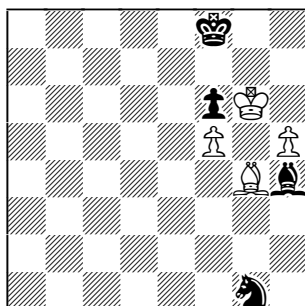
Note that Carlsen consistently keeps his bishop on the a2-g8 diagonal to prevent Black's potential winning plan of bringing the king to h8.



68 ... ♞f3

This is the moment where computer analysis demonstrates an incredible win for Black, starting with the move 68 ... ♙h4. This analysis stems from the well-known chess engine Stockfish. However this was a souped-up version that was powered by a state-of-the-art mainframe known as Sesse. The versions of Stockfish running on standard PCs and laptops (which are normally vicious beasts) were comparatively clueless, thus demonstrating the incredible complexity of this analysis.

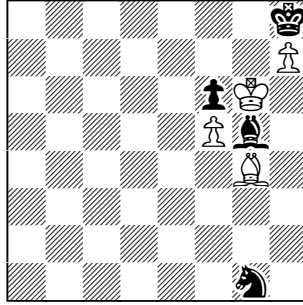
Play continues 69 ♙d5 ♜e2 70 ♙f3 and now Black plays the astonishing 70 ... ♞g1, allowing his knight to be trapped after 71 ♙g4.



*Analysis Diagram*



The basic point of this idea is that, by using zugzwang, Black is eventually able to force the white king back and activate his own king. A typical variation is 71 ... ♔g8 72 ♖h6 ♜e1 73 ♔g6 ♜c3 74 ♖h6 ♜d2+ 75 ♔g6 ♜g5 76 h6 (any move from the white bishop would enable the black knight to regroup to the f4-square which would prove fatal for White) 76 ... ♖h8 77 h7



Analysis Diagram

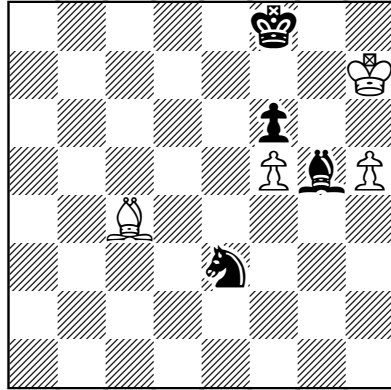
77 ... ♜h4 (this starts a sort of “triangulating” manoeuvre which is more familiar from king and pawn endgames) 78 ♖h6 ♜f2 79 ♔g6 ♜d4 80 ♖h6 ♜e3+ 81 ♔g6 ♜g5. With this final zugzwang Black is able to free the knight and, after 82 ♜d1 ♖h3, the knight will come to f4 and the h-pawn will be lost.

Caruana should certainly not be criticised for missing this as it is almost impossible for a human to find the early moves in this sequence. They only work because they do and there is no particular “chess logic” behind them.

This was confirmed by Carlsen’s comment, when shown the mating move, “I’m not going to disagree with the computer, I just don’t understand it.”

Garry Kasparov also acknowledged this, tweeting, “Had Caruana played the incredible 69 ♜d5 ♖e2 70 ♜f3 ♖g1!! they would request metal detectors immediately! No human can willingly trap his own knight like that.”

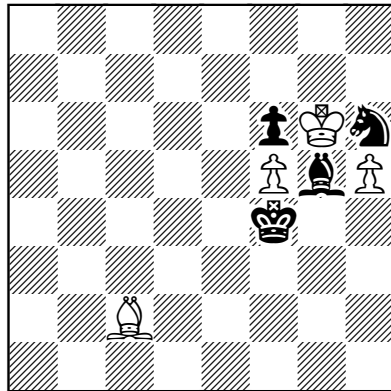
**69 ♖h7 ♖e5 70 ♜b3 ♖g4 71 ♜c4 ♖e3**



**72 ♖d3**

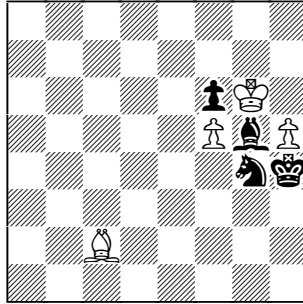
Another excellent defensive move from Carlsen. It is tempting to post the bishop on e6 (remember that White generally wants to prevent the black king from coming to h8) but this would be an error. White needs the bishop on d3 as this creates better opportunities to restrict the manoeuvres of the black knight.

**72 ... ♞g4 73 ♜c4 ♞h6 74 ♔g6 ♚e7 75 ♝b3 ♚d6 76 ♜c2 ♚e5 77 ♝d3 ♚f4 78 ♜c2**



**78 ... ♞g4**

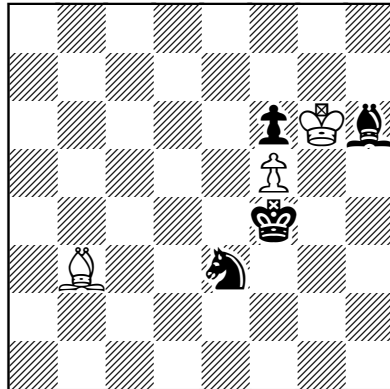
The logical culmination of Caruana's king march is 78 ... ♔g4 79 ♝d3 ♚h4 80 ♜c2 ♞g4, when 81 ... ♞e5+ appears to be a winning threat.



*Analysis Diagram*

However, the white defences hold as he can set up an x-ray protection of the h-pawn with 81  $\text{♙d1}$  and now 81 ...  $\text{♘e5+}$  82  $\text{♚g7}$  achieves nothing for Black. Note that if the white bishop were on e6 it would not be able to relocate onto the d1-h5 diagonal and this manoeuvre would win for Black.

**79  $\text{♙b3}$   $\text{♘e3}$  80  $\text{h6}$   $\text{♙xh6}$  draw agreed**



A monumental struggle, reflecting great credit on both players.

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	
<b>Carlsen</b>	½	½	½	½	½	½	<b>3</b>
<b>Caruana</b>	½	½	½	½	½	½	<b>3</b>